



Chapter Six

Eight Areas for Government Action

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INTRODUCTION

In Part I, we discussed how the unprecedented number and scope of catastrophic events have stressed governments, businesses, communities, and individuals. These shocks range from the global COVID-19 pandemic, supply chain disruptions, and debilitating cyberattacks, to weather extremes such as deadly heat waves, “100-year floods,” and raging wildfires.

These cascading, disruptive events have raised fundamental questions about what capacities governments need to anticipate, prepare for, and respond to crises.

Clearly, these shocks have no respect for geographic, jurisdictional, political, or organizational boundaries. Adaptation, preparation, and response cannot be the sole responsibility of one sector, one program, one agency, or one level of government. Rather, the key to success—and the root cause of many failures—is the capabilities of the individual network participants and the strength of the network before, during, and after a shock through partnerships established between sectors, levels of government, and agencies. Simply put, complex problems cannot be solved in silos.

What specific and practical steps can governments take in the near term to better prepare and respond to catastrophic events? The research and roundtable discussions of the Future Shocks initiative, which framed recommendations for action in each of the five domains, also reflected a number of crosscutting themes regarding capacities that can help strengthen the public sector preparation for and responses to major events yet to come.

Part II summarizes and elaborates on these common themes, identifying action steps in eight areas as described in Figure 1, that governments at all levels can take to anticipate, prepare for, and respond to shocks of any type. The steps and related practices that follow do not constitute an exhaustive list of actions, but rather reflect discussions from the roundtables and related research.

As a central conclusion, the underlying capacities of governments need to be significantly augmented across these eight actions in two interrelated ways:

- Improve working relationships and alignment among network partners in governments, the private sector, civil society, and the public.
- Strengthen the capabilities to operate successfully in a networked environment.

The overarching goal of building these capabilities is to position governments to become more resilient in the face of inevitable future shocks.

Figure 1. Eight Areas for Government Action

Improve Relationships and Alignment Among Network Partners
<ul style="list-style-type: none"> • Build a future shocks governance mechanism • Develop plans to mitigate crosscutting shocks • Manage risks and extend opportunities • Increase public participation and improve communication
Strengthen Capabilities to Operate Successfully in a Networked Environment
<ul style="list-style-type: none"> • Fast-track government innovation and transformation • Support data-driven decision-making strategies • Dedicate the right resources, and get the incentives right • Invest in a future shock-ready workforce

Shocks: Disruptive Events Defined

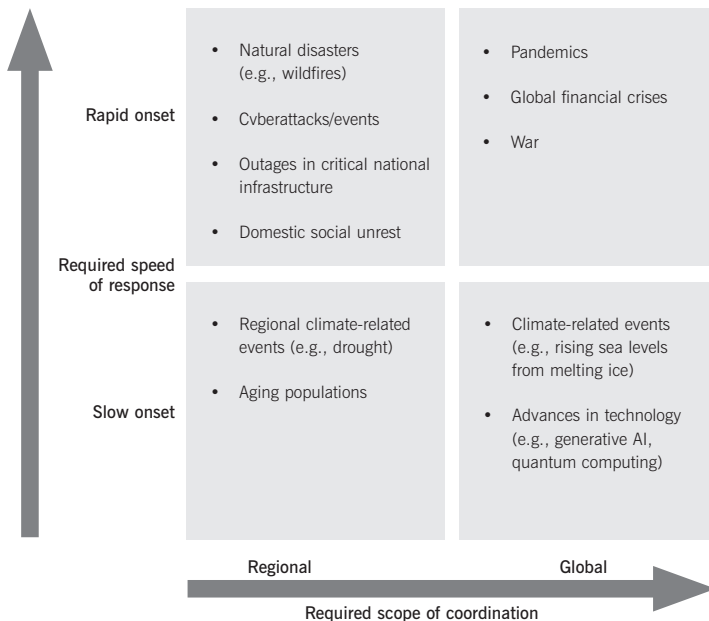


Shocks are events with severely disruptive consequences. They could be rapid- or slow-onset, or regional or global. While the scope and nature of a particular shock can vary, each requires governments to be prepared to coordinate a response (see Figure 2).

Shock events typically begin locally, and their impacts spread rapidly through contamination or contagion to societies and economies. Regional shocks are limited to a specific geographic area or sovereign state(s), and include events such as climate-related or other natural disasters, armed conflict, and cyber events/attacks on economies or critical infrastructure.

Rapid-onset shocks, such as wildfires, have immediate impacts requiring urgent action. Slow-onset shocks, including environmental risks resulting from climate change, provide more time for impacted governments and societies to adjust, react, and mitigate impact.

Figure 2. Speed of Government Response and Scope of Coordination for Future Shock Events



Source: IBM Institute for Business Value

Improve Relationships and Alignment Among Network Partners

Action 1. Build a Future Shocks Governance Mechanism

A 2021 IBM Center report, *Managing the Next Crisis: Twelve Principles for Dealing with Viral Uncertainty*, acknowledges that the key is networks—but they do not spontaneously organize themselves. That is, a successful network is not merely defined or mapped out on a chart, but also must include a governance approach that is consciously selected and used to actively manage.

Experience shows that there is no one right governance mechanism for organizing a network and responding to future shocks that require the active involvement of many partners across sectors. And in practice, mechanisms are often used in combination.

Significant and consequential breakdowns in cross-organizational collaboration have been well documented. These range from the response to Hurricane Katrina in 2005 to overwhelming public health systems during the COVID-19 pandemic. But a set of practices associated with successful network governance has emerged that can be adopted irrespective of the specific governance mechanism that is employed.

As discussed in Chapter 3 of Part I, a Center of Excellence is an ideal form of engagement to build supply chain resiliency, which could operate as a shared service. To garner multiagency support and cross-sector collaboration for quick response, a shared service emerged as an ideal form of engagement to build supply chain resiliency.

The Federal Emergency Management Administration (FEMA) strives to adopt a whole community approach that “attempts to engage the full capacity of the private and nonprofit sectors—including businesses, faith-based and disability organizations, and the American public—in conjunction with the participation of state, local, tribal, territorial, and federal governmental partners.”¹

Using Memoranda of Agreement (MOAs), continuous training, tabletop exercises and simulations, and “wargaming,” network participants can define and reinforce roles, responsibilities, and working relationships across the network. Jointly coordinated capacity development among localities, mutual aid agreements, regional compacts, and financial incentives for localities to build their capacity can also facilitate the ability to respond to future shocks.

Ultimately, successful networks result from preexisting organizational—and at least as important, personal—relationships based on familiarity and trust.

The Southeast Florida Regional Climate Change Compact is an example of collaboration across local governments.² The Compact is a partnership between Broward, Miami-Dade, Monroe, and Palm Beach Counties in Florida. According to the Compact, it seeks to “work collaboratively to reduce regional greenhouse gas emissions, implement adaptation strategies, and build climate resilience across the Southeast Florida region.”

Future shocks are often global crises. It is therefore not surprising that coordination and information sharing extends across national boundaries. For example, C40 Cities is a global network of mayors from about 100 major cities committed to cutting their own emissions, limiting global warming, and “building healthy, equitable, and resilient communities.” C40 Cities include close to 600 million people and have about one-fifth of the global economy.

Designating a lead official to coordinate efforts across organizations is an often-used model to lead networks. At the federal level, these officials are often referred to as “Czars” for their program or policy area. Local governments are recognizing that their resilience efforts need to be whole-of-government initiatives capable of cutting across local bureaucracies and representing a collective effort in their jurisdictions. Designating chief resilience officers (CROs) is one model increasingly being used to bridge organizational boundaries.

In building the network, government planners should recognize that private and nonprofit involvement is much more than merely helpful or additive—it can determine the success of the response to a future shock. These organizations collectively bring resources, community relationships, capacities, and agility that governments may lack.

The roundtables observed that networked approaches to addressing future shocks requires a cultural change for many organizations. Working across sectors with differing values, legal frameworks, operating models, and accountability mechanisms is not easy.

The cyber roundtable provided a vivid illustration of the challenge and the need to break organizational cultural silos. Threat actors are developing new technologies quickly to penetrate networks and thwart efforts to contain threats, which can be difficult to counter when those efforts depend on coordination across entities with differing standards, missions, and priorities.

Action Steps

- Create networks of key partners and stakeholders to address future shocks that cut across government agencies and the private sector.
- Select a network governance mechanism that fits the purpose of the network and the nature and scope of the shock to be addressed.
- Establish the network's implementation approach that defines leadership, roles, responsibilities, and accountability before a shock occurs.
- Build ongoing relationships and trust to minimize misunderstandings and confusion during a crisis.
- Strengthen the capacities of the network and its individual participants through, for example, joint exercises and knowledge sharing.
- Recognize and seek to address structural and organizational cultural barriers that limit collaboration.

Action 2. Develop Plans to Mitigate Crosscutting Shocks

The IBM Center's October 2022 report, *Eight Strategies for Transforming Government*, observed that "(P)erformance management initiatives over the past two decades helped shift the conversation within and across U.S. government agencies—from a focus on measuring program activities and outputs to a focus on achieving mission outcomes. This refocus represents a fundamental shift in thinking, acting, and managing within the public sector, away from a focus on process and on what one needs to do, to a focus on benefits and ensuring the desired impact of government programs."³

This fundamental shift is particularly important—and difficult—in addressing shocks that cut across agencies, levels of government, and sectors. It is more important because crosscutting shocks require crosscutting responses that align efforts not only of federal agencies, but of a vast patchwork of other actors as well. In this sense, outcome-oriented future shock strategic planning must be national in orientation and not merely federal. As a positive step forward, as of March 2023, The National Cybersecurity Strategy's five pillars and related strategic objectives constitute a plan for national cyber resilience and not merely federal.

Strategy mapping and strategy management-at-scale is a tool that can be used for planning to address crosscutting issues. As the 2023 report for the IBM Center, *Addressing Complex and Cross-Boundary Challenges in Government: The Value of Strategy Mapping*, explains that new techniques and processes are needed to make sense of the challenging situations involving complex, interconnected issues in which multiple organizations must make contributions to make the changes needed to effectively confront the challenge.

Mapping strategies to manage change



“Strategy mapping is a technique to help leaders across multiple levels, organizations and/or sectors understand the system in need of change and articulate the interventions needed to bring about the desired changes. Strategy mapping helps users visualize the cause-and-effect chains in a system and the actions that can be taken to change the system. Mapping process itself functions as a shared intellectual framework and backbone to help guide the effort. It facilitates negotiation and commitment to agreements about what to do, how to do it, and why; and then communicates strategies in a way that is easily understood and acted upon. It provides a framework, for guiding, monitoring, reviewing, and evaluating strategy implementation.”⁴

Developing a national strategy to strengthen the cyber workforce is a strategic objective under the national cybersecurity strategy. The objective demonstrates that workforce plans to acquire and develop talent needed to meet current and future needs should be fully integrated with mission-related strategic planning.

Action Steps

- Create whole-of-government, or even whole-of-society, strategic plans to address future shocks.
- Rely on documented successful practices in developing these network-wide plans.
- Align individual agency plans, goals, performance measures, and strategies with network-wide strategic plans.
- Leverage technology, including AI, to facilitate decision making.
- Integrate management capacity considerations, such as workforce talent needs, into strategic plans.

Action 3. Manage Risks and Extend Opportunities

Risk management provides decision makers and the public with insights on the risks and expected consequences from future shocks as well as the opportunities from improved resilience. The tools, techniques, and methods for risk management are well established and internationally accepted standards exist. However, the nature of risk management takes on new dimensions—and importance—in responding to future shocks.

The IBM Center's report on *Eight Strategies for Transforming Government* identified the nature of the challenge, noting that today's risk landscape requires a unified, coordinated, disciplined, and consistent approach, no longer focused on risk management as a compliance exercise or perceiving risks solely as problems to avoid. Research is needed in reconceiving risk management as a value-creating activity integral to strategic planning, decision making, and organizational resiliency.

Data driven modelling using generative AI and other tools, such as dashboards, is essential to understand the evolving and interconnected future shocks and their multifaceted consequences.

In addition, the U.S. federal government has a central role fostering consistency in risk management across all members of a future shock network. For example, the cyber roundtable observed that a seemingly isolated cyber event can escalate quickly into a full blown national or even global crisis, which underscores the need to prioritize standard cyber risk assessment frameworks to facilitate more efficient collaboration.

The federal government can also assist other organizations, particularly localities, in strengthening their own risk management programs. Local communities have vastly different capacities, needs, and risks that require differing types of responses to future shocks. As Katherine Barrett, Richard Greene, and Don Kettl noted in their IBM Center report, *Managing the Next Crisis: Twelve Principles for Dealing with Viral Uncertainty*: "All crises are local—but there is wide variation in how localities respond."⁵

Finally, risk must be continuously monitored and reassessed as risk evolves and risk appetites and response strategies change. The feasibility and effectiveness of options increase with integrated, multi-sectoral solutions that differentiate responses based on climate risk, cut across systems, and address social inequities. As adaptation options often have long implementation times, long-term planning increases their efficiency.

Action Steps

- Establish a dedicated approach to risk management that recognizes the ever-evolving future shock risks and responses.
- Ensure risk management is deeply embedded in all strategic and operational decisions and does not become a stand-alone, compliance driven exercise.
- Focus on how addressing future shocks can create opportunities for a better future and not only the negative consequences of a shock.
- Use data-driven modeling, generative AI, and other tools to assist in all aspects of risk management.
- Standardize risk assessment frameworks across the network.
- Establish federal leadership for overall risk assessments and share results and methods and provide technical assistance across the network.

Action 4. Increase Public Participation and Improve Communication

The Edelman Trust Barometer has documented a crisis in trust in government over the last decade. Lack of trust stems from multiple causes. The most worrisome might be the inability of most governments and politicians around the world to cast a credible vision for the future—one that would be rooted in ethics and enabled by competence, accounting for the challenges and fears experienced by constituents.⁶

Clarity of message based on evidence and data, and rapid response to disinformation are essential elements of effective decision making. Unfortunately, the wicked nature of most shocks virtually guarantees that multiple “sources of truth” will emerge that can lead to confusion, a lack of trust, and disjointed decision making.

Broad public participation can help to guard against what scholar E. Lisa F. Schipper has referred to as “maladaptation”—adaptation efforts that are not genuine improvements and may even increase vulnerabilities. According to Professor Schipper, “More deliberate, inclusive planning could introduce ideas for adaptation strategies that outsiders have not even thought of. Local participation, development, and implementation will give individuals more of a stake and help bring about successful outcomes.”⁷

Governments at all levels need to improve the way they communicate about future shocks. This begins with recognizing that different parts of a community have vastly dissimilar needs and capabilities during an emergency. For example, physical or financial barriers, pressing medical needs, disabilities, and fears of relocating are among the reasons people may not evacuate from harm’s way during a climate disaster.

Reinforcing resilience with generative AI



Along with corporate executives, the leaders of governmental organizations are closely following the development of generative AI and how this technology is transforming the workplace. During the next 12 months, 38 percent of government leaders report in the IBV survey that generative AI will moderately or significantly impact workplace capabilities. During the five years, 93 percent of them expect that generative AI will moderately or significantly impact workplace capabilities.

Although adaptation is in the early stages, at least four use case scenarios are emerging where generative AI could significantly contribute to how governments prepare for and respond to shock-level disruptions. These applications include:

- Automated budgeting by analyzing spending patterns, forecasting needs according to trends, and improving how decision makers allocate resources
- Expedited citizen services by using natural language processing to respond to inquiries faster through pre-programmed answers and directing inquiries to the most appropriate agencies and departments
- Enhanced decision making by using predictive analytics to deliver insights based on historical data points and current conditions, enabling government leaders to make informed decisions beyond experience or intuition
- Optimized emergency response through the analysis of large data sets to predict and respond to emergencies more effectively, helping agencies allocate resources more efficiently during crisis situations

Communication strategies must also be adapted to reach the different populations, considering what information is communicated, how it is communicated, and by whom. This entails identifying and working closely with trusted voices in the community to send messages that will be understood and accepted.

Communication strategies also need to speak to the public in a language that leads to action. The key is communication that prompts action on future shocks. It must strike the right and difficult balance between making the shock real and personal while not contributing to inaction, either due to despair because the problem is seen as overwhelming or apathy that the shock is just a new normal that we all must learn to live with.

Governments need to promote building awareness in education systems from an early age. The participants suggested establishing multi-sector partnerships, including with academia, to develop more robust curricula on sustainability from K-12, community colleges, and higher education.

Efforts to address future shocks should not reinforce existing inequalities. For example, it is widely recognized that those communities contributing the least to the climate crisis tend to suffer the most from climate disasters. Overcoming trust deficits, based on historical mistreatment and neglect, requires active listening, sensitivity, and a genuine commitment to address relevant concerns.

Action Steps

- Understand the great challenges posed by public distrust in government and disinformation on efforts to address future shocks.
- Create robust opportunities for public participation at all stages—planning, response, recovery—of efforts to address future shocks.
- Ensure those opportunities are inclusive of all parts of the community and create genuine avenues for voice, access, and representation for all.
- Carefully design communication strategies using trusted voices, storytelling, and other approaches that lead to public understanding and effective actions.
- Building age-appropriate awareness of future shocks into the education curricula.

Strengthen Capabilities to Operate Successfully in a Networked Environment

Action 5. Fast-Track Government Innovation and Transformation

Emergent and unanticipated events and future shocks no longer fit within organizational structures, work processes, and cultures. Future shocks will not wait for governments to react according to official priorities and prerogatives. Rather, leaders in government need to create cultures and processes that continuously improve competence and innovation throughout their organizations.

As the world has emerged from the depths of the COVID-19 pandemic, most countries are seeking to build the resilience needed to better respond to crisis. Cristina Caballe Fuguet, Tim Paydos, and Mike Stone noted in the IBM Center's 2022 report *Emerge Stronger and More Resilient: Responding to COVID-19 and Preparing for Future Shocks* many governments, even those caught off-guard by the pandemic, quickly shifted to rapid innovation and modernization. They suggested that fostering rapid innovation and agility will be a core theme as governments prepare for inevitable future shocks.

No single approach works in all circumstances, but a central part of the solution is applying insights from agile software development to the full range of policy and program domains. Agile is defined as a “new management paradigm, (where) the top priority is ‘customer’ or end-user satisfaction. Small teams do the work in multiple short periods of time. Individuals operate within a focused set of networks. Innovative tools and working approaches that facilitate innovation and support problem solving are used. Risk is identified and addressed early. And the focus is on doing, not documenting.”⁸

Agile methodology prioritizes end-user satisfaction. Laudable efforts are underway to organize federal service delivery along the lines of “life experiences,” such as recovering from a natural disaster and facing a financial shock, rather than federal program stovepipes and administrative processes. Human-centered design approaches are major aspects of efforts to reduce the administrative burden of program participation on recipients.

Fully embracing AI and other technological advances must be a cornerstone to build resilience to future shocks. For example, the government of India “introduced an electronic vaccine intelligence platform (CoWIN) that has improved the efficiency of vaccine registration, immunizations, and appointments throughout the country. Since CoWIN’s deployment in January 2021, more than 1.1 billion people have been vaccinated against COVID-19 across more than 5,000 sites—most of which were in rural and hard-to-reach areas.”⁹

Supporting leaders and innovators with agile methods¹⁰



- **Agile leaders need an agile mindset.** A willingness to try new ideas and processes to achieve better results.
- **Integration is critical to execution.** The elements described in the framework are designed to work together.
- **Leaders at all levels need to analyze and understand trust in and across their organization.** Trust is key for employees, the public, and partners.
- **Agile government must begin with understanding customers.** The customer experience and journey starts with the customers are, how their journey with the organization flows, what constitutes “defining moments” in their experience.
- **Public values must be respected, and the public must be engaged.** Focus on openness, integrity, and fairness, which can improve overall trust.
- **Networks should form the default development and implementation pathway wherever possible.** Collaborative networks can be internal, external, international, and should serve as a force multiplier for mission execution.
- **Cross-functional teams should drive integrated solutions to problems.** Cross-functional teams bring more perspectives and encourage diversity of thought, greatly enhancing the chances for success.
- **Appropriate speed and persistent iteration will enable the organization to shape and reshape successful approaches.** Setting aggressive deadlines to accomplish work and demonstrate continual achievement builds internal and external support.

Action Steps

- Drive innovation throughout the organization because traditional program approaches are inadequate in an era of cascading future shocks.
- Expand the use of agile management methodology.
- Put citizens, customers, and program recipients at the center through human-centered design and make concerted efforts to reduce administrative burdens.
- Manage the disruptive potential of AI and other technologies while harnessing their tremendous potential.

Action 6. Support Data-Driven Decision-Making Strategies

Decision makers at all levels and the public require high quality and credible data to guide decisions. The IBM Center report, *Emerge Stronger and More Resilient: Responding to COVID-19 and Preparing for Future Shocks*, points out that public sector leaders must build a robust analytic foundation for increasing situational awareness, predicting potential policy impacts, and providing citizen transparency. In this way, data serves as the new raw material that institutions need to mine and refine to rebuild trust.

Successful networks seek agreement on key elements of a data strategy well before an emergency occurs. For example, they seek consistency in definitions for data elements from across the network, agreement on what data will be needed in real time—including data disaggregated to offer insights on how future shocks are affecting different populations—and how it will be collected, how privacy will be protected, and how data will be made available to those who need it in formats they can readily use. The network's data strategy also includes a technology assessment to determine where gaps in technology need to be filled.

Designing and implementing a data strategy across a network is extremely challenging. For example, the Pandemic Response Accountability Committee (PRAC), made up of 10 federal Offices of Inspectors General, attempted to track federal COVID relief funding. Looking at a small subset of all funding, the PRAC reported in July 2023 that “Tracking pandemic funds to the community level required the use of multiple federal, state, and local data systems, and ultimately, we had to contact state and local entities directly to gain a better understanding and fill data gaps. In the end, complete data was either unavailable or insufficient and did not allow (PRAC) to definitively identify the total funding provided to the six communities (studied).”¹¹

Given the often wide range of data and its diverse sources needed to address a future shock, strong privacy and confidentiality protections need to be built in from the outset. This is important to guard against the inappropriate disclosure of sensitive and confidential business, personal, government operational, and classified data.

Overall, even the best data are valuable only to the extent that it is used to help guide decisions. The roundtables suggested that public-facing dashboards and metrics should be used to show progress, pinpoint improvement opportunities, and provide transparency to the public.

The federal government also has a central role in conducting and support-

ing research on future shocks. For example, the climate resilience roundtable participants said that the federal government is best positioned to organize a national research agenda that identifies good practices across the public and private sector and how they can be scaled. The U.S. Climate Resilience Toolkit and the case studies it has gathered are a good example of information sharing that is intended to spur innovation.¹²

Action Steps

- Create a data strategy—what data will be collected, by whom, when, where it is to be stored and reported, level of quality, how it is to be used—well before a crisis occurs.
- Disaggregate data to provide a comprehensive understanding of how a future shock will affect all parts of a community.
- Build in privacy and confidentiality safeguards.
- Encourage network participants to be forthcoming in reporting, especially in cases where they may perceive it is not in their interests to do so.
- Provide transparency through public reporting and public-facing dashboards.
- Use data to inform decisions, for example through learning agendas.

Action 7. Dedicate the Right Resources, and Get the Incentives Right

Future shocks can be mass casualty events and impose significant economic losses to individuals, organizations, and communities. Since 1980, the cumulative costs of major disasters (at least \$1 billion in cost) in the U.S. are over \$2 trillion.¹³ Further, IBM reported in its annual *Cost of Data Breaches* report for 2022 that the cost of data breaches to organizations have reached an all-time high, to over \$4.5 million per breach.¹⁴

Given these significant costs, the National Cybersecurity Strategy calls for a fundamental shift in how the United States allocates roles, responsibilities, and resources in cyberspace. This includes increasing incentives to favor long-term investments into cybersecurity. One of the Strategy's five pillars is to shape market forces to drive security and resilience.

The federal government has a broad range of policy tools that it can use to incentivize and support future shock resilience. For example, each year the federal government spends over \$600 billion on contracts. Billions more are spent by state and local governments. This enormous buying power presents

a powerful opportunity to embed future shock resilience in procurement decisions and contracts.

The need to improve the resilience among the nation's 130 million commercial and residential buildings illustrates how the federal government can spur needed action. Building codes are generally a local responsibility. However, the U.S. Government Accountability Office's (GAO) reported in 2019 on potentially "requiring building codes and (design) standards based on the best available information for infrastructure built or repaired with federal funds."¹⁵

The federal government should likewise aggressively use its grants and regulatory waiver authority to encourage experimentation and flexibility among the states and local governments. The federal government also must limit disincentives to resilience. Efforts to reduce the administrative burdens imposed on grantees need to be strongly encouraged. Local governments, especially smaller ones, often lack the staff and the knowledge needed to apply for federal grants. Resource constrained local governments must consider the time and effort needed to apply for a grant, the likelihood of approval, and the wasted costs if it is not.

The National Academy of Public Administration, in its *Grand Challenge on Steward Natural Resources and Address Climate Change*, observed, "Public agencies at all levels of government have a role in funding clean energy R&D and spinning new technologies off to the private sector. These technologies can help reduce carbon dioxide emissions and mitigate climate change risks."¹⁶ The private sector can—and wants to—be a constructive partner in the transition to clean energy and strengthening resilience.

The governments need to improve budgeting to reflect risk. However, building resilience to cyberattacks, supply chain disruptions, climate disasters, and other shocks will be costly and difficult. The challenge, as one expert noted, is that we do a much better job in addressing acute problems than we do with chronic problems. When immediate priorities dominate the agenda, it is easier to put off chronic concerns until another time.

The problem is that many local governments, especially smaller ones, may lack the staff and the knowledge needed to apply for federal grants. Resource constrained local governments must carefully weigh the trade-offs of the time and effort needed apply for a grant, the likelihood that their application will be approved, and the wasted costs if it is not. The federal government should likewise aggressively use its grants and regulatory waiver authority to encourage experimentation and flexibility among the states and local governments.

There is the need for governments to better budget for risk. While the benefits are large, building resilience to cyberattacks, supply chain disruptions, climate disasters, and other further shocks be costly and difficult. The challenge, as one expert noted, is we do a much better job in addressing acute problems than we do with chronic problems. The chronic is always easy to postpone until another day, given competing immediate priorities.

Action Steps

- Use the full range of the tools of government including direct spending, procurement, grants, R&D funding, tax incentives, regulations, and others to support and incentive initiatives to address future shocks.
- Recognize the uneven capacities among local governments and other grantees by streamlining grants procedures and reducing administrative burdens.
- Promote the use of grant and regulatory waivers—with appropriate safeguards and outcome reporting—to enhance flexibility to address the differing local manifestations of future shocks.
- Budget for future shocks by continuing to increase the explicit recognition of future shocks risks in government budget processes.

Action 8. Invest in a Future Shock-Ready Workforce

Persistent mission-critical skills shortages are undermining the abilities of governments to meet their missions. The public sector's traditional standardized approaches to recruiting, hiring, developing, and retaining the needed talent no longer meet current and emerging needs. For example:

- The federal government's mission critical skills shortages have been on the GAO's High Risk List since 2001 with only limited progress reported.
- U.S., state, and local governments have lost more than 600,000 workers between the start of the pandemic and June 2022, affecting their ability to maintain basic services as well as respond to critical situations.¹⁷ The overwhelming stress faced by frontline workers and first responders—who in many cases are themselves survivors of the disaster—underscores the importance of attention to burnout as well as the physical and mental health and well-being of staff.
- The cyber resilience roundtable concluded that “(T)o address the rapidly growing gap between supply and demand for cybersecurity professionals, roundtable participants stressed the importance of increasing the cyber talent resource base and putting it at the top of the list of actionable priorities.”

The point made about private sector organizations in the IBM research insight, *The Enterprise Guide to Closing the Skills Gap: Strategies for Building and Maintaining a Skilled Workforce*, applies equally well to government: “As business platforms mature and companies continue to introduce new intelligent workflows to succeed on those platforms, the need for continuous reskilling in the workforce will be paramount to remain competitive. Hiring alone is not a sustainable solution to the talent crisis.”¹⁸

Fortunately, the Academy’s “No Time to Wait” reports¹⁹ provide a path forward on tackling government’s talent deficits. The Academy panel recommended the establishment of a competency-based talent management model that:

- Identifies the core competencies of occupational and professional groups
- Trains employees in the competencies they will need, and certifies the skills they bring
- Creates flexible teams matching competencies to missions
- Fosters continuous learning through occupational and professional communities of practice
- Reskills the government’s workforce to match mission requirements with employee skills and ensures that these skills keep up with hyper-fast mission changes

Too often new hires find that the organizational cultures, processes, and tools do not align with their expectations—in which they may quickly leave for other employment. This is particularly the case when government technology is not up to the best private sector standards that new hires are accustomed to using.

Many human resource offices are suffering from their own critical skills shortages while at the same time needing to build capacity to develop and use innovative workforce management tools. For example, agencies often have a wide variety of workforce flexibilities and authorities—such as critical pay and hiring authorities—available that can be used to address skills gaps. However, they may not always know about or may not understand how best to use these tools.

The complex future shocks governments seek to address span the boundaries of agency jurisdictions, levels of government, sectors, and professional disciplines. In direct response, how government leaders think about the workforce must be boundary spanning as well.

Action Steps

- Develop strategies to address current mission-critical skills gaps.
- Support the health and well-being of first responders.
- Use scenario planning and strategic foresight to identify skills that may be needed as future shocks continue to evolve.
- Commit to continuous learning and reskilling.
- Recruit and develop skills across agencies, levels of government, and sectors.
- Expand the use of skills-based hiring to create a diverse workforce.
- Foster inclusive organizational cultures to make full use of new talent.
- Build the capacity of human resource offices by filling existing shortages and to serve as a strategic partner to line managers.
- Seek transparency over workforce issues so that any critical skills weaknesses in the network can be identified and addressed.

LOOKING FORWARD

Adopting New Ways to Think, Operate, and Collaborate

Societies and their governments face escalating and increasingly interrelated shocks that place enormous stress on communities and citizens. As isolated events quickly metastasize into mega-crises, governments must prepare for, respond to, and recover from these shocks, and develop the strategies to meet the mission. The key is not only to maintain a vulnerable status quo or adjust to an unsatisfactory “new normal”, but also to build more equitable and sustainable governments and societies.

The crosscutting nature of shocks are challenging governments to adopt new ways to think, operate, and collaborate. This will require new organizational cultures that embrace agility, expand beyond bureaucratic boundaries, and attract and retain talent that can thrive and capitalize on transformative technologies such as generative AI.

In short, a government entity will need to be as impactful, broad-based, and fast-changing as the complex shocks it will need to address.

Governments must build sustainability in an era of profound disruption—but also in an era when resources for resilience are becoming more sophisticated. Taken together, the actions outlined in this chapter provide practical insights and options governments can use to be ready for the next future shock—now gathering on an unforeseen, but inevitable timetable.

Top five resilience-building priorities of government executives



1. Invest in technology and infrastructure to enhance communication and output.
2. Develop plans and strategies to respond to emergencies and crises effectively.
3. Ensure strong and adaptable governance structures to make timely decisions and lead effectively during crises.
4. Invest in workforce upskilling and training to increase efficiency and productivity.
5. Promote sustainability and adopt renewable energy sources to prepare resources for the future.

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Endnotes

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