Preparing Governments for Future Shocks

Building Supply Chain Resilience Roundtable Read Ahead Materials

Introduction to the Future Shocks Initiative

Government leaders increasingly indicate that what were previously viewed as Black Swan events are now becoming more frequent — and more destabilizing — shocks. The past three years saw acceleration toward a connected world where physical goods and digital services are increasingly interdependent. The vulnerability of social and economic well-being is laid bare by reliance on connectivity and distributed value chains subject to disruption on multiple fronts.

Risks have grown due to complex variables such as geopolitical conflicts, multiple public health emergencies, energy crises, climate-related natural disasters (wildfires, hurricanes, drought), the breakdown of longstanding trade relationships, economic displacement, and economic inequality. The combination of these factors renders current planning models obsolete.

Citizens, non-governmental organizations, and commercial enterprises continue to rely on governments to help manage these uncertainties. However, traditional incident response frameworks may no longer be sufficient, as events occur across multiple domains, jurisdictions, and decision-making authorities. Rather, collaborative action to address anticipated threats requires focus and cooperation across a broad ecosystem of partners and stakeholders. Governments must prepare for "future shocks" by supporting stakeholders with insights, resources, innovation, and adaptation that characterizes a successful response to any high-impact event.

IBM, working through the IBM Center for The Business of Government and the IBM Institute for Business Value, and in partnership with the National Academy of Public Administration (the Academy), has launched an initiative to help government identify core capabilities critical to building such resilience, and make progress toward addressing major national and international priorities including the Grand Challenges in Public Administration put forth by the Academy.

Through this initiative, we are convening a series of international roundtable discussions with global leaders from across the public, private, academic, and non-profit sectors to capture lessons across six key domain areas: Emergency Preparedness and Response, Cybersecurity, Supply Chain, Sustainability, Workforce Skills, and International Cooperation. In each domain, we will harvest insights from the roundtables to identify strategies and solutions for governments to act. The first roundtables convened leaders in emergency management and cybersecurity for insightful discussions of actionable, and practical steps to build resilience by preparing for future shocks. Learn more about the initiative by reading the blog, 'Preparing Governments for Future Shocks' or listening to the podcast interview with Michael J. Keegan, IBM Center for The Business of Government.

Supply Chain Resilience – Highlights from Research

To focus the roundtable discussion on actionable insights, below are key themes and a non-exhaustive list of current leading practices that point to actions for building resiliency and agility in future supply chains. Exploring these topics in depth through the roundtable will help prepare governments to address future supply chain shocks.

Supply chain resilience and preparedness

Digital transformation across interconnected processes and extended ecosystems with the expansion of new automation technologies provides predictability, flexibility, and intelligence to operations—especially in the automating of decision-making. AI and intelligent, automated workflows can deliver 360-degree insights and impact analysis that provide this interconnectivity and optimize predictability. These workflows can benefit the workforce—digital and human—to dynamically adjust to the unforeseen with both self-learning and self-calibration.

With digital transformation, comes increased vulnerabilities and security concerns for supply chains - including critical infrastructure, which is essential for supply chain performance. Additionally, there is an escalating need for visibility into who are comprising supply chain networks as well as transparency, providing that knowledge to external stakeholders. Leveraging digital transformation and intelligent workflows can address security concerns and make this visibility possible.

Questions for consideration:

Data is critical to the success of supply chain operations from affording end-to-end visibility for resiliency.

- What can governments do to manage disruption-related risks, build resiliency and prepare for the 'supply chain of tomorrow'?
- How can governments rethink their operating strategies to build agility into its processes?
- How can governments automate workflows to deliver insights and impact analyses to provide predictability?
- What can governments do to ensure the security of supply chains and critical infrastructure from global shocks including cyber attacks?

Current leading practices:

As organizations implement technology into their supply chain practices, the following actions can help in their digital transformation.

- Use AI and machine learning to guide the quality and track performance of workflow reactions and decisions, as well as to monitor physical assets with predictability.
- Digitize to develop agile workflows to react quickly to escalating situations.
- Begin experimenting with quantum computing tools and methods to lay the groundwork for expanded capabilities.
- Combine predictive and prescriptive analysis for better decision-making, while focusing on micro-insights revealed through extreme digitalization.

Supply Chain Diversification

By its very definition, a chain is a series of entities linked, connected, or associated together. Extending that concept, a modern supply chain connects the organizations, activities, people, information, and resources that intersect to move products and services from producers to suppliers to end consumption – and now, with a focus on circularity, back again. These ecosystems are complex, interconnected, and global. They are everything but chains. They are ecosystems of partners, infrastructure, and resources.

With current-state geo-political turbulence, many organizations are investing in regionalization and localization strategies of product supply and production to decrease the risk of overreliance on a single region. They are seeking more horizontal data visibility into n-tier[1] suppliers with connectivity through logistics channels for first-kilometer to last-mile events and delivery.

Many are parsing the supply chain by segment to promote tighter collaboration with suppliers and service providers that have differentiated skills and capabilities – adding AI and algorithmic insights for increased risk management and predictive event forecasting. Virtual models, ecosystems, and digitization increasingly drive the next-generation of solutions to the biggest supply chain and sustainability challenges.

Questions for consideration:

Ecosystem partnerships are critical to managing resiliency and agility.

- How can governments evolve and digitize partnerships – cultivating collaboration and enhanced visibility, with trusted and secure connectivity?
- What strategies and technologies can governments implement today to stay ahead of threats and prepare for the next disruption?
- How could compliance with regulations impact diversification of government supply chain?

Current leading practices:

In order to be successful, evolving and modern supply chains operate through an ecosystem of partners. The below actions can enable an organization to diversify their supply chain models.

- Use segmentation techniques to examine your ecosystems in minute detail for increased collaborative opportunities across workflows with data-infused intelligent decision and action.
- Increase visibility and security in every touchpoint of supply chain workflows with extended ecosystems and partners.
- Re-evaluate supplier networks with n-tier visibility and trusted data-sharing.

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[1] N-tier suppliers are suppliers that exist beyond tier 1, contracted suppliers

Supply Chain Operations and Sustainability Initiatives

An emerging perspective among forward-thinking leaders is that open innovation with business partners drives sustainability initiatives and transformation. In fact, many are finding a stronger alignment between their sustainability strategies and digital transformation initiatives.

Complex ecosystems, of course, are mere skeletons of systems unless they are powered by data. When it comes to that data, cross-industry, multi-enterprise platforms require shared visibility, interoperability, and verified chain of custody for data aggregation. This level of transparency and accountability makes ecosystem-wide metrics essential for understanding and tackling sustainability goals and promises.

Executives and leaders from both public and private sectors are focused on improving energy efficiency, water management, and using more organic and recyclable materials – reporting that these sustainability initiatives will substantially change their supply chain models over the next two to three years. Many are looking at a portfolio of strategies that often include environmental, social, and governance (ESG) initiatives with the potential to drive lower emissions, ethical sourcing practices, and other circularity goals and programs.

Workflow digitization also contributes to helping organizations meet their sustainability objectives. As teams evaluate and build intelligent workflows, they can incorporate ways to reduce their environmental impact and move toward comprehensive circularity programs. In these programs, end-of-life products aren't disposed of, they flow back into the supply chain.

Questions for consideration:

Environmental sustainability and social impact can be integrated into your organization strategy to recalibrate value with a holistic lens of people, planet, purpose, and profit impact.

- How might sustainability strategies drive a transformation agenda that leapfrogs current thinking?
- What will be the "formula" to drive stakeholder, environmental and social value?

Current leading practices:

Sustainability initiatives are growing in importance within all facets of an organization's operations – including its supply chain model. The following actions can help with the integration of sustainability and supply chain operations.

- Optimize workflows with AI, automation and virtualization to manage carbon, waste, energy, and water consumption.
- Use virtualization to help shrink environmental footprints and support the 9 R's of circularity: Recycle, Reduce, Re-use, Repair, Refurbish, Remanufacture, Repurpose, Recover, Refuse.
- Experiment with open innovation and scientific discovery to explore future solutions and possibilities.

Key References

The U.S. General Services Administration (GSA) developed a report, [Framework for Managing Climate Risks to Federal Agency Supply Chains](#), that provides a supply chain risk management framework to address climate-related risks to supply chains and how best to prepare one's agency.

IBM's Institute for Business Value issued the report the [Chief Supply Chain Officer (CSCO) Study](#), the most recent report in the broader C-suite Study Series, examines the evolving role of the CSCO and how they are addressing major disruptions to supply chains by using data and technology to lead to innovative solutions. IBM's Institute for Business Value also conducts [IBM Think Circles](#) for supply chain, bringing together an exclusive network of change makers to engage in active collaboration around the most challenging issues businesses and supply chain leaders are facing today.

The U.S. Government accountability Office (GAO) report, [Information Technology: Federal Agencies Need to Take Urgent Action to Manage Supply Chain Risks](#), features seven practices for planning an agency wide-approach to managing supply chain risks and how best to utilize their data and technology when making decisions.

The IBM Center for The Business of Government report, [Planning for the Inevitable: The Role of the Federal Supply Chain in Preparing for National Emergencies](#), authored by Professor Handfield, examines the pandemic and uses it as an example of how federal and state governments should assess their supply chain capabilities in preparation for national emergencies. Additionally, The Center released a report, titled [The Key to Modern Governmental Supply Chain Practice: Analytical Technology Innovation](#), provides insight into the impact and influence of technology on supply chain management practices.

In response to the [White House's Executive Order 14017](#), which hopes to address the United States' critical nature of their supply chains, The National Academy of Public Administration published the report, [How to Build More Resilient, Diverse, and Secure Supply Chains to Ensure U.S. Economic Prosperity and National Security](#), which focuses on three specific policy recommendations the President and Congress can implement to enhance the resiliency, diversity, readiness, and security of the U.S. supply chain.

The U.S. Federal Emergency Management Agency (FEMA) released the [Supply Chain Resilience Guide](#) focusing on emergency managers and providing recommendations on how best to analyze their supply chains and determine next steps in improving their supply chain resilience, while also informing their logistics planning.

The U.S. Department of Defense (DoD) article, [Supply Chain Resiliency is Whole-of-Government Effort](#), examines how critical supply chain functions are to the entirety of the U.S. government, not just the military. Additionally, the [White House](#), in partnership with several other organizations, examined the country's supply chains and provided a review and recommendations on how best to build a resilient supply chain in their 100 day supply chain review.

The Information Technology & Innovation Foundation released the podcast: [The Ghosts of Supply Chains Past, Present, and Future](). The podcast highlights that even before the pandemic, a confluence of economic and geopolitical factors were disrupting global supply chains—from rising wages in China to nationalist sentiments sweeping the West, to the beginnings of a U.S.-China decoupling. The podcast breaks down the reasons for the massive disruption, discusses how industry sectors are making different strategic calculations, and considers what the future might hold.