

Driving Innovation in Times of Crisis



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Introduction

Societies face increased risks to their stability and prosperity today. The growing interconnectedness of the global economy means that disruptions in supply chains, financial markets, and health systems, affect businesses, governments, and livelihoods worldwide, broadening the span and reach of once-localized crises. Local crises often cascade, triggering consequences on the global stage.

Market integration and man-made effects on the climate, nature, and natural resources have made crises more frequent and intense. Rising atmospheric temperatures have led to a surge in extreme weather events such as floods, storms, and heat waves, which are also becoming more dangerous. Besides, climate disasters, geopolitical setbacks, and armed conflicts have left millions of people in need of humanitarian assistance in increasingly complex situations.

Moreover, the advancement of digitalization has increased the risks related to cyberattacks. Various sectors of the tangible economy, such as energy infrastructure, and the non-tangible economy, such as social platforms, have been hit by computer attacks.

In today's volatile world, global stability and prosperity are at risk. However, amidst these challenges, there are opportunities for innovation that can help individuals, businesses, organizations, and governments emerge stronger and more resilient. This is what we saw during the COVID-19 pandemic, with the development and introduction into the market of new types of vaccines in record time, a spike in digitalization, and massive shifts in business models.

Since last year, the GFCC and its member, the Japan Science and Technology Agency (JST), have started developing a new initiative called **Driving Innovation in Times of Crisis (DITC)** to deepen understanding of crises and facilitate growth and innovation.

The DITC aims to empower businesses, governments, and organizations to navigate these turbulent times and thrive.

This report serves as a focal point for what has come out of the DITC initiative. The report covers two online sessions hosted by the GFCC in 2022, shares key ideas that emerged from various discussions, reviews critical topics discussed during the 2022 GFCC Annual Meeting, and what to expect from the initiative in the future.

From the GFCC Leadership

Our societies have faced and continue to face a range of crises, including climate change and extreme weather and geological events, financial disruptions, energy volatility, global pandemics, and cyberattacks—to name a few. We all realize that learning to navigate turbulent waters is essential to any economy, and to any society that wants to remain secure, sustainable, and competitive today.

Countries, businesses, organizations, and people need to act and manage crises, as well as to learn to strategize and innovate in moments of turbulence and transformation. At the same time, they can build a competitive edge by developing the skills and capabilities needed to identify early on signals of disruption. Resilience can be—must be—a competitive differentiator.

For years—following the shocks of 9/11, the global financial crisis at the end of the first decade of the 21st century, and the COVID-19 pandemic—the pioneering work of the U.S. Council on Competitiveness has emphasized the need to build economic resilience, highlighting the importance of preparing to manage growing operational risks and disruptive scenarios.

At the GFCC, we have observed a growing interest in the impact of resilience on global competitiveness. In 2020, leaders worldwide discussed the need to build resilience as a capability during the *Now. Bridge. Reboot. Conversation Series*. One year later, the *Frame the Future* report set out a goal of redesigning supply chains and processes to be more adaptive and resistant to change.

Now, through our partnership with the Japan Science and Technology Agency (JST), we are working on DITC initiative to deepen our understanding of crises, and develop actionable recommendations to unlock new opportunities for innovation and growth.

DITC aims to gather lessons from past crises to help countries, businesses, organizations, and people identify and act upon early signals of disruption.

The DITC began in 2022 with a series of discussions across our GFCC community, and this report summarizes the initial findings generated during these events. We are excited to share these ideas with you and invite you to join the conversation in the future.



Charles O. Holliday Jr.
Chairman, GFCC



Deborah L. Wince-Smith
President, GFCC
President & CEO, Council
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Dr. Roberto Alvarez
Executive Director, GFCC

Learning to Navigate Crises

September 29, 2022

Speakers

Haruo Hayashi

President, National Research Institute for Earth Science and Disaster Resilience (NIED)

Geraldine Wessing

Chief Political Analyst & Scenario Planner, Shell

Moderators

Roberto Alvarez

Executive Director, GFCC

Deborah L. Wince-Smith

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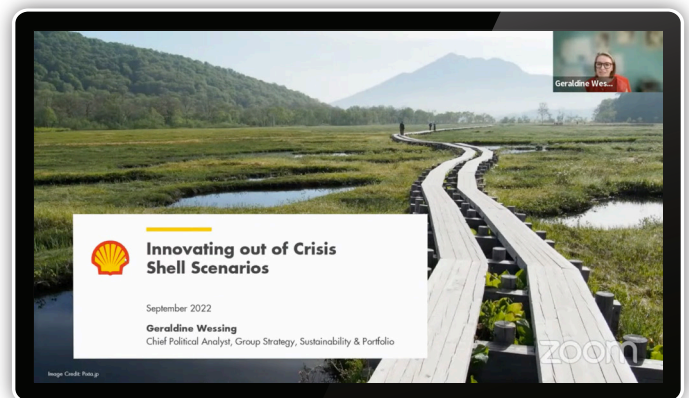
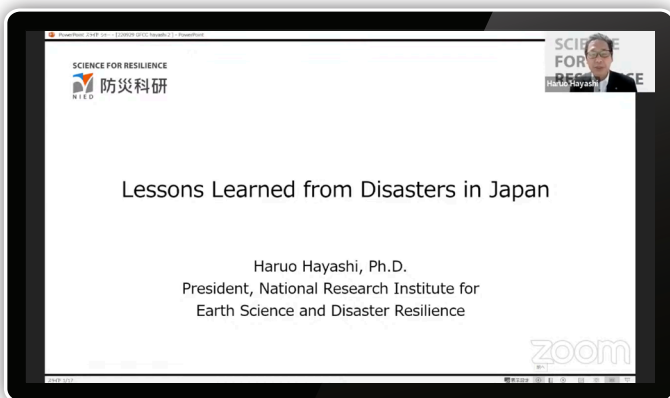
President & CEO, Council on Competitiveness

Kazuyoshi Shimada

Director, Washington D.C. Office, Japan Science and Technology Agency (JST)

Societies face increased uncertainty and volatility, with climate disasters, economic recession, and geopolitical turmoil becoming constant features in world affairs. These circumstances highlight the need for capacity building and preparedness, with cities, nations, and businesses called to develop new strategies to tackle crises before they start. This ability requires recognizing patterns and signals of anomalies to anticipate possible outcomes and be able to innovate.

Over the past three years, the COVID-19 pandemic has caused profound losses to families and their livelihoods, impacting communities and businesses. Additionally, man-made effects on the climate have also increased the occurrence and intensity of extreme weather events. Floods, storms, and heat waves are happening more often across the globe and are becoming more dangerous.



WATCH THE CONVERSATION



Historically, Japan has been subjected to higher risks of natural disasters due to its location, topography, and climate, in an area prone to earthquakes and tsunamis. Scientists predict more severe disasters in the future due to climate change. Nationwide there is growing awareness that a mega earthquake is expected to occur in the first half of the 21st century, most likely affecting the Tokyo metropolitan area, a densely populated zone, and causing considerable damage and losses of lives.

Natural disaster prevention is a priority across all policy spectrums in Japan. **For nearly 60 years, the National Research Institute for Earth Science and Disaster Resilience (NIED) has promoted research to enhance societal resilience by investing in science and technology for disaster reduction.** NIED has been working through an all-hazards approach to predict how earthquakes and other disasters will behave and then leveraging science and technology for disaster risk reduction. On top of that model, it is a three tiers strategy covering infrastructure, economy, and individual recovery.

At the multinational oil giant Shell, researchers have worked on a systems thinking methodology called Scenarios which draw a holistic understanding of the driving forces that could accelerate or neutralize risks. For more than 50 years, Shell has created scenarios to test and design strategies and inform decision-making, and ultimately build resilience. Instead of developing analysis from a single set of assumptions, scenario planning uses multiple starting points to extrapolate outcomes in a crisis response and capture signals beforehand. This approach suits the complex nature of the systems in which global societies currently operate.

If signals and signposts have been identified, warning capabilities will be enhanced. The same methodology has been used to explore resolutions to change in Shell's operating environments and as a foresight tool for planning.

Key Takeaways

Integrate planning and preparedness

The management of disaster risk reduction and prevention is still siloed, with each sector overlooking developments in its related area and associated risks. There is a growing awareness of the need to integrate the operations of different sectors working on disaster prediction, prevention, and preparedness. NIED proposes creating an online system that gathers lessons from previous disasters to help facilitators solve local problems and integrate knowledge on disaster risk reduction, climate change adaptation, and sustainable development.

Embed system thinking across organizations

Identifying signals beforehand to avoid black swan events is possible. However, it depends on having the capacity and technologies available. Most importantly, it depends on learning how to identify and integrate signals of change through the work of experienced experts. The key is to embed a systems-thinking mindset across the organization at all levels and functions. Allowing people to be more aware of their environment through education will help to build capacity and resilience in moments of crisis.

Foster a sense of community

Building the future depends on fostering a sense of community by allowing local leaders and populations to coordinate their actions and goals. Alternatively, a scenario approach can be implemented at the community level rooted in local values, tradition, and a shared vision for the future.

Learning from Past Crises to Build Future Resilience

October 21, 2022

Speakers

Charles O. Holliday
Chairman, GFCC

Yuichi Ono
Professor, International Research Institute of Disaster Science (IRIDeS), Tohoku University

Oleksiy Ustenko
Ukrainian politician and economist; MP, People's Deputy of Ukraine of the 9th convocation

Moderators

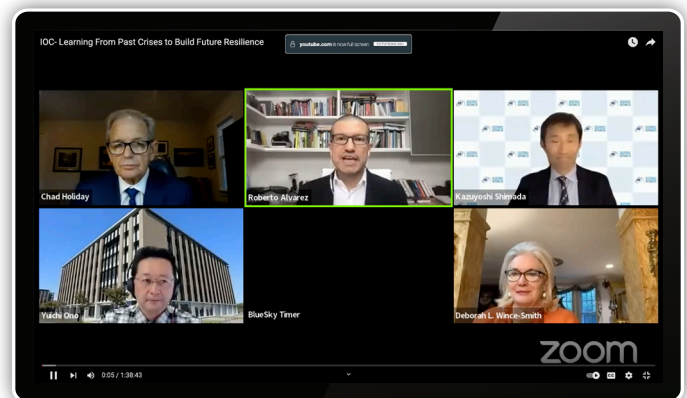
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Societies are constantly dealing with increasing risks to their stability and prosperity. Growing interconnectedness worldwide means disruptions impact businesses, governments, and livelihoods on a global scale. Globalization expanded the span and outreach of once-localized crises carrying them to the global stage.

Crises have become more frequent and intense not only due to market integration but also because of man-made effects on the climate. A rise in temperature in the atmosphere has led to an increase in the occurrence of extreme weather events, such as floods, storms, and heat waves, which are also becoming more dangerous. In addition to climate disasters, geopolitical setbacks and armed conflict have placed millions of people in need of humanitarian assistance in increasingly complex situations.



WATCH THE CONVERSATION



Japan spends many resources preparing and responding to the next big disaster. **The International Research Institute of Disaster Science (IRIDeS), Tohoku University was founded after the 2011 Great East Japan Earthquake and tsunami to advance research on natural hazards, disaster, and disaster risk reduction, aiming to contribute to ongoing recovery and reconstruction efforts in the disaster-affected areas and to being a world center for disaster science in cooperation with research organizations from many countries.**

Research on pre-disaster preparedness and post-disaster recovery is focused in Japan on natural disasters, but can be translated to many types of disasters including the impact of war. Findings on what infrastructure, skills, and mindset are needed to rebound from tsunamis in Japan can be translated to rebounding from war.

In real-time, Ukraine is testing its war preparedness and the country's resilience as it fights Russian aggression. Since February 2022, Ukraine has had to rebound from the loss of lives, critical infrastructure, and any normalcy. Additionally, they are preparing for potential health crises and an economic disaster, while dealing with a humanitarian crisis. All of this puts Ukraine in a unique spot of having to test their resilience building capabilities. Those in public office are assessing their locality's needs and how to address them, and when possible, try to put together a rebuilding plan.

Key Takeaways

The Challenge of Predictability

Preparing for a crisis and building resilience can be challenging due to the unpredictability of disasters. To counteract this unpredictability, societies need to be prepared on all levels. This means thinking outside the box on what might be required for a worst-case scenario. Having personnel and tools ready to be deployed for disasters can save lives if the crisis is semi-predictable. For scenarios where there is no way to predict the disaster striking, systems in place need to be robust and flexible to absorb any extra impact. This translates into not running systems at maximum capacity, having an up-to-date maintenance log, and educating employees so they can improvise in the case of a crisis.

Applying Research to Real Scenarios

Many universities, companies, and government organizations are trying to research and get ahead of potential disasters. Enhancing research efforts and investing in building resilience through innovation are vital ways to be more prepared before a disaster strikes. One crucial aspect of this is understanding how research and new technologies can help the communities most likely impacted by disasters. It is necessary to go beyond

the university to work with communities to see how science and technology outcomes might be implemented. Additionally, local and national policy must be understood to have a holistic approach to implementing research and technology.

Embracing a Resilient Mindset

When societies face crises, a crucial part of being prepared and able to recover is the personal mindset of those impacted. There is a growing push for resilience building to include efforts to give individuals and families the tools to be ready for a disaster and recover from one. This effort should focus mainly on disseminating information on potential disaster situations and what to do in times of crisis. Utilizing, but not taking advantage of, people's natural altruistic tendencies during disasters can progress recovery exponentially. In Japan, an effort called Bosai is a disaster risk reduction program that includes both structural and non-structural recovery efforts. Bosai solutions try to make the most of altruistic tendencies to aid structural and emotional recovery.

Utilizing and enhancing existing talent

There is a natural desire to rely heavily on technological advancements, but it is essential to balance this out by using already existing talent. Technology is important for anticipating and mitigating crises, but if it is not paired with using a trained workforce to handle these situations, the technology is useless. Institutions need money and access to the right technology and materials, but without people's skills, those resources go to waste. Having a stock of capabilities and skills is more important than a stock of items or materials.

Learning from past lessons and mistakes

Understanding what went wrong and what went right can be transformative in preparing and recovering for the next disaster. Figure out the root cause of the failures and what stems from the crisis, so you can learn from it and not repeat it. This can range from analyzing processes and systems in place, shutting down infrastructure to ensure they are all up to date, reviewing maintenance laws, and ensuring ongoing training. It takes lots of little steps and attention to detail to ensure preparedness for the next time.

Leveraging Crises as an Opportunity to Build Resilience

In early 2022, when we started to talk about a potential initiative that later materialized into DITC, the war in Ukraine had just started. We knew that the pandemic had already changed the world, but the ripple effects of the war, beyond the atrocious human costs, were not yet clear. Most of the thinking behind the project was informed by crises caused by natural events, not manmade ones. Today, we see the world engulfed in a series of manmade crises, and we have shifted the scope of DITC to reflect this.

Through DITC webinars, we convened government, industry, and research experts who approached crises from different angles. It was incredibly rich, as there is a big need in the world today to develop a multidisciplinary framework to prepare governments, companies, societies, and individuals to deal with future crises.

So...What have we learned from the webinars along the way as we developed the DITC initiatives? Here are four key takeaways we would like to share with you.

We must understand crises

Due to common misunderstandings, it is important to differentiate the various types of crises and approach them using targeted strategies. The first step requires segmenting the different types of crises that a nation, city, or company faces and may face, as well as their causes, characteristics, and dynamics. Following that, it is necessary to devise the issues at stake, the key parties involved, and the types of actions needed to avoid, anticipate, respond, and/or recover from the crisis. This is why it is so important to further the understanding of crises, as they enable concerned stakeholders to better think about future shocks and opportunities—concepts matter. Scenario planning and future visioning exercises are instrumental in helping concerned players think ahead about different types of crises.

We must raise awareness and preparedness for crises

Countries, cities, businesses, universities, international organizations, and citizens should be aware that crises matter and are becoming more frequent and intense. All stakeholders must develop capabilities and capacity to "process what is happening in a time of crises," follow real-time developments, and take action. Raising awareness on the topic is the first step in that direction. It requires purposeful action and investments in communications, stakeholder engagement, public relations, and research to absorb shock, adapt, and/or transform our society in a time of crisis.

It is a fact that we do not have a consolidated body of knowledge about crises in the globe, or a structured information resource where the lessons learned from past crises and the events that caused them are systematized. All of them are accumulated in silos. There is a need to advance the integrated knowledge about these topics, and science has a fundamental role to play in this arena.

It is a leader's task to build clarity and strategic vision

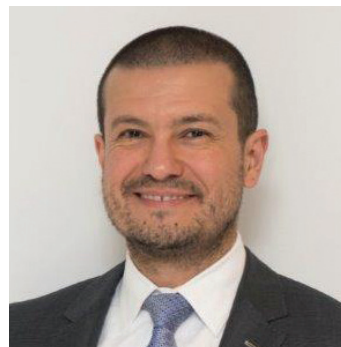
Building on their experiences and what they have seen over the years in various contexts, the experts who joined the webinars clarified that periods of crisis require strategic clarity. All members of an organization need to know what to do in times of crisis and, more importantly, clearly understand the values that should guide their actions and their expected behaviors. Raising awareness of a crisis is not enough. It is necessary to envision the destination after overcoming the crisis. During a crisis, when there is no time or infrastructure available for people to connect and coordinate actions, it is crucial for there to be well-known, deeply ingrained values that can provide the necessary guidelines for action. The mindset, language, and systems that build strategic alignment and disseminate values must be built in advance. Good leaders consider this as part of “business as usual.” Only communities that have made this effort can use crises as an opportunity for innovation. Of course, many communities, organizations, and nations can collaborate to build a strategic vision. The GFCC helps play this role.

Organizations must invest to develop crisis-related capabilities and stay fit

Nobody has the capacity to foresee and prepare for all types of potential future crises. More important than predictions or being able to address one specific situation is to develop the capability (and the capacity) to learn and act in the context of adverse events. That becomes imperative as the world enters an era of more intense and extreme events. Governments at all levels and all types of organizations need to develop and stock capabilities to respond to crises, cope with disasters, rebuild structures and human systems, and innovate in a crisis.

Developing capabilities is not enough. Organizations must be able to use those when required—upkeep is essential. That can only be obtained through such capabilities' constant exercise and training. Defining the capabilities needed in each context is critical and should be the subject of attention of leaders in all sectors.

These four topics suggest some of the fundamental elements that should be included in any crisis preparedness agenda. As we conclude this initial and exploratory phase of the DITC initiative, the GFCC and JST will concentrate future efforts and investment in investigating past crises and developing a robust conceptual framework about the theme. We hope you will not just review the content from the 2022 webinars, but also join us for the journey ahead. Feel free to contact us about this initiative and how to participate.



Dr. Roberto Alvarez
Executive Director, GFCC



Dr. Kazuyoshi Shimada
Director, Washington D.C.
Office, Japan Science and
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Four Types of Crises Require Immediate Attention

Highlights from the GFCC Annual Meeting

The annual meeting, on November 14, 2022, brought together members and fellows from 22 countries to review the state of the world and key issues in the innovation and competitiveness agenda. A critical topic covered in the meeting was the Innovating out of Crisis project, which was renamed to DITC, initiated in 2022 in partnership with Japan Science and Technology Agency (JST), which aims to advance the understanding of a crisis and inform future preparedness. The discussions highlighted four types of crises that are important to better understand and navigate a turbulent world and face future shocks.

Case 1: Energy and Climate Crisis

This case involves the urgent need to transition to a low-carbon economy in a cost-effective way, provide affordable energy to people around the globe, and address the impacts of climate change. It includes issues such as reducing greenhouse gas emissions, increasing renewable energy sources, and adapting to the effects of climate change. This type of crisis is important because the impacts of climate change, such as sea level rise, extreme weather events, and loss of biodiversity, can have significant economic and social consequences.

Case 2: Jobs and Skills Crisis with Technology and Economic Transition

This case involves the rapid pace of technological change followed by economic transition, its impact on jobs, and the need for new skills. Digital technologies create new opportunities for talent to access global markets and challenge emerging nations to retain advanced skills in their job markets. This type of crisis is important because it can potentially disrupt existing industries and create new opportunities. Still, it requires individuals, organizations, and countries to adapt and reskill to succeed in the future.

Case 3: Geopolitical Crisis of the Countries that Need to Reinvent Themselves

This case involves countries that must completely reposition, rethink, and redesign their economies and institutions. Kazakhstan is a good example of this case since it faces the challenges of diversifying its economy, looking for new global partnerships, and modernizing its institutions. At the same time, its citizens raise their voices to demand improvements in quality of life. This type of crisis is important because it highlights the need for countries to adapt to changing global economic and geopolitical conditions to be competitive and resilient.

Case 4: Complex Crisis in the Least Developed Countries

This case involves countries that are not equipped in economic terms and need to deal with various simultaneous crises, such as the COVID-19 pandemic, famine, extreme weather events and other effects of climate change, the need to reinvent their institutions, and adapt to technology change and skills displacement in the economy. This type of crisis is important because it highlights the need for these countries to address multiple challenges simultaneously to improve their economic and social well-being, and sheds light that when gradual capacity-building efforts are not up to the challenge, a new approach is needed. It might be a chance to make a game-changing innovation if they can move more quickly than developed countries.

Overall, it is important to advance the understanding of these types of crises and clarify these interrelationships to develop strategies for resilience and long-term success. This requires learning and understanding from past happenings to better prepare for the future. Our understanding and action demand collaboration and cooperation between countries, cities, government agencies, companies, universities, other organizations, and individuals. That is why the GFCC works.

What to Expect in 2023 and Beyond

We will strive to take the groundbreaking DITC initiative to new heights in 2023. Below, we delve into the key developments you can expect from this transformative project.

- **Advancements in the concept of crisis:** In 2023, we will continue redefining the concept of crisis by examining it through the perspectives of different knowledge areas and lenses, from geopolitical to economic to environmental. This approach will help stakeholders better understand the complexities of crises and develop applicable knowledge to face future situations.
- **Lessons distilled from past crises:** By conducting in-depth analyses of past crises, we will draw valuable insights on the root causes, key drivers, and effective strategies for mitigating their impact, as well as insights on the mechanisms and systems that enable and catalyze innovation in times of crisis. These lessons will be a vital resource for policymakers, organizations, and communities facing future crises.
- **Cases and discussion sessions:** To facilitate the exchange of ideas and expertise, we will organize various case study discussions and interactive sessions. These events will engage a diverse group of stakeholders from within the GFCC network and beyond, fostering collaboration and generating insights on solutions to face future shocks and advance the innovation agenda.
- **Online and in-person events:** By hosting a mix of virtual and in-person conferences, workshops, and seminars, the GFCC will provide an accessible platform for stakeholders to share knowledge and best practices. We will continue to leverage technology to create engaging, inclusive experiences that maximize participation and facilitate global cooperation during our workshops.
- **An expanded project concept and scope:** We will broaden the initiative's focus to encompass a wider range of crises, engage corporate partners, and impact businesses and policies. This expanded scope will foster a more holistic understanding of crisis management and resilience, ensuring the initiative enables participants to capture early signals of future crises and remain relevant and adaptable to the ever-evolving global landscape.

Check the [DITC webpage](#) for more information about the initiative and upcoming developments. Do not miss your chance to be part of this journey as we work together to navigate the challenges of our increasingly turbulent world and continue to advance the innovation and competitiveness agenda.

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