



**Collaborate.
Innovate.
Compete.**
2019-2020 Annual Report

This report was prepared by Simone Melo, Roberto Alvarez and Carol Ann Meares. Marina Ponticelli and Zuzanna Zak contributed during their internships.

© 2021 Global Federation of Competitiveness Councils

900 17th Street, NW, Suite 700, Washington, D.C. 20006

The Global Federation of Competitiveness Councils (GFCC) is a network of leaders and organizations from around the world committed to the implementation of competitiveness strategies to drive innovation, productivity and prosperity for nations, regions and cities. The GFCC develops and implements ideas, concepts, initiatives and tools to understand and navigate the complex competitiveness landscape.

The Global Federation of Competitiveness Councils (GFCC) is a nonprofit, 501(c)(3) organization as recognized by the U.S. Internal Revenue Service. The GFCC's activities are funded by contributions from its member organizations.

For more information, please visit www.thegfcc.org.



[/thegfcc](https://www.facebook.com/thegfcc)



[@thegfcc](https://twitter.com/thegfcc)



[/the-global-federation-of-competitiveness-councils/](https://www.linkedin.com/company/the-global-federation-of-competitiveness-councils/)

Table of Contents

A Message from the GFCC Leadership	3
2019-2020 in Review	6
GFCC Perspective: The Great COVID-19 Disruption—Is it Clearing the Pathway to the Transformation of Work?	8
GFCC Perspective: Disruption Ahead! Building Resilient Enterprises	11
2019-2020 GFCC University and Research Leadership Forum	14
The GFCC is a Global Platform	16
2019	
2019 GFCC Annual Meeting	20
Sharing the Competitiveness Story 2019	26
2019 GFCC Global Innovation Summit	28
From Our Hosts	
Centre for Research and Consulting	29
Kazakhstan Competitiveness Council	30
GFCC Perspective: Public Sector Transformation, in Kazakhstan and Worldwide	31
GFCC Perspective: Business Transformation: Engineering Business Transformation in Kazakhstan	33
Panel 1: Nations in Transformation – Challenges and Opportunities for Economic, Technological and Social Development Across the Globe	35
Panel 2: Energy in Transformation – Bridging Supply with Future Sustainability	38
Panel 3: Industries in Transformation – Building New Industries and Boosting Productivity in Today’s Economy	40
Panel 4: Cities in Transformation – Transforming the Urban Landscapes and Building Future Competitiveness Centers	43
Panel 5: <i>Transform Competitiveness!</i> What Can We Do Next?	46
GFCC Perspective: Why Transformation? It is About Speed	49

Celebrating Innovation at the GIS2019 Gala Dinner	51
2019 Global Competitiveness Awardees Profiles	53
Transformation Spotlights	
The Future of Talent and Work: The Great Talent Transition	55
Industry	56
Cities and Mobility: Nur-Sultan as a Resilient, Yet Competitive City	56
The Future of Energy	57
The Innovation Story and Innovation Future : Competing Against Luck – A Better Approach for Corporate Innovators and Public Policy Makers	57
Growth Forum	58
Thank You to the GIS2019 Sponsors	59
2020	
Now. Bridge. Reboot. Conversation Series	61
Conversation 1: Bridging Crisis and Future Prosperity	62
Conversation 2: Responses and Outcomes	63
Conversation 3: Turning Knowledge Into Impact	64
Conversation 4: Looking East	65
Conversation 5: Local Realities – Looking West	66
Conversation 6: The Economy and Society Will Need Innovation	67
Conversation 7: Accelerating Digitalization	68
Conversation 8: Global Innovation Coalitions	69
Sharing the Competitiveness Story 2020	70
From Our Host: Australian Advisory Board on Technology and Healthcare Competitiveness	71
2020 Global Innovation Summit Online	73
Day 1: Leading in Health Solutions	74
Panel 1: Putting Health Technology to Work	78
Panel 2: Vaccines – Global Innovation and Partnerships	80
Panel 3: Paving the Way for a Safer Future	82
Day 2: Building the Future Economy	84
Panel 4: Building the Future Economy	87
Panel 5: Fueling Innovation	91
Panel 6: Leading into the Future Economy	93
GFCC perspective from Australia: Crossing the Chasm: Health, Innovation and the Future Economy	95
GFCC	97

A Message From the GFCC Leadership

On behalf of the Board of Trustees and members of the Global Federation of Competitiveness Councils (GFCC), we are pleased to present the Annual Report highlighting the GFCC's accomplishments during 2019-2020.

The year was marked by one of the most extraordinary and unexpected events in history, the COVID-19 pandemic, which brought human suffering and massive disruption to economies and societies around the world. Every GFCC member country has been stricken by its destructive force. Yet, despite this global catastrophe and hardship for many, the GFCC maintained its operations, engaged its partners, and mobilized its platforms to exchange crucial knowledge and experience, and co-create a new future out of the ashes of this global devastation:

- As government, business, education, and other leaders around the world struggled to respond to this multi-dimensional crisis spanning public health, the economy, labor, education, and societal functioning, the GFCC convened eight *Now. Bridge. Reboot.* webinars between May and July 2020. During the webinar series, leaders from more than 20 nations discussed: the immediate steps their governments
- were taking to stem the virus spread and save lives; the impacts on their economy, businesses, industry, and workforce; innovations being deployed to battle the virus; and the rush to digitalization to keep businesses functioning and society stable. The dialogue then turned to the longer-term transformations across healthcare, business, and education that have been accelerated by the pandemic, and how countries can leverage these changes for rapid recovery and as a bridge to the next economy for increased competitiveness, economic growth, and prosperity. We are pleased to present summaries of this remarkable real-time dialogue in our Annual Report.
- To further capture the rich insights that emerged from the *Now. Bridge. Reboot.* conversation, 32 leaders in the GFCC community authored thought papers on leading through crisis and into the future. Published by the GFCC, these papers offer valuable perspectives drawn from experiences in leading business, research, policy, education, and innovation through crises, strategies for economic recovery, and forward looking policies to seize opportunities of the future. We thank and commend the authors for demonstrating leadership by taking time to share their wisdom during a global crisis affecting us all as individuals.
- While our plans for the GFCC 2020 Annual Meeting and Global Innovation Summit (GIS) in Australia were disrupted by the pandemic, the GFCC and its partners—the Australian Government and the Australian Advisory Board on Technology and Healthcare Competitiveness—adjusted quickly and convened a two-day virtual GIS on *Crossing the Chasm: Health, Innovation and the Future Economy*. More than 700 leaders from across the globe registered for the event. Pressing issues were addressed: responding to the health crisis with solutions rising rapidly from science and technology; international collaboration in support of that response; medical research, the health sector's innovation ecosystem, and its emerging technologies; sustainability strategies; the impact of digitalization and other technologies on business and industry; and pathways to recovery, future resiliency, and the transformation of business, key industries, and work. The Summit also spotlighted Australia's response to the pandemic, the country's recovery plan, and future manufacturing strategy.
- With great hope and determination to create a better future, the GFCC released its 2020 Global Competitiveness Principles on *Crossing the Chasm and Building the Future Economy*. These timely Principles focus on public-private partnerships to address

the pandemic's effects, innovation and future building, empowering change-makers, igniting regional and local action to speed economic recovery and build resiliency, and closing key infrastructure gaps that have frustrated our response to this crisis. These Principles, co-created by GFCC members and fellows, arise from deliberations among GFCC's thought leaders and members since the COVID-19 outbreak began.

- Undeterred by the inability to convene its 2020 Annual Meeting due to the pandemic, the GFCC University and Research Leadership Forum sprang into action, launching a new initiative on the COVID-19 disruption in the higher education sector. The collaborative effort—*Decoding the Now*—is exploring how the pandemic has impacted higher education institutions and implications for their future. We look forward to their findings which will be presented in 2021 in discussion papers created by Forum leaders.

While we did not imagine a challenge such as this crisis would come to the GFCC, we are fortunate indeed to have it as a platform for sharing knowledge, experiences, and lessons learned. We are also fortunate to have a community that is so committed and cares so deeply about each other that they have engaged in these critical GFCC global efforts even as they must cope with crisis and pain in their home countries. May we all put what we have learned from each other to good use to help mitigate the economic and societal losses within our countries, bridge the chasm of uncertainty, navigate the turbulence of transition, and transform our businesses, organizations, and economies for a better, more prosperous future.

The Annual Report also reviews the GFCC 2019 Annual Meeting and fantastic Global Innovation Summit held in the

amazing “city of tomorrow” Nur-Sultan, Kazakhstan, hosted by the Office of the Mayor of Nur-Sultan, and our partners the Center for Research and Consulting, and the Kazakhstan Competitiveness Council. This was the first GFCC Annual Meeting and Summit convened in Central Asia, a region that played one of history's most significant roles in globalization and the development of human civilization, for example, in the transfer of scientific knowledge and technology in astronomy, architecture, chemistry, medicine, and mathematics along the famous Silk Road. As nations of the world are in the midst of major economic and technological transformation, Kazakhstan was an ideal place for our Summit focused on *Transform Competitiveness!, Nations-Energy-Industries-Cities-Talent*. There was much to learn in a country at a crossroads in its history, striving to integrate into global commerce, and implement bold reforms to modernize, diversify, and liberalize their economy.

At the Summit, more than 400 participants from around the world explored revolution and rebirth—the experience of countries in profound economic change, industries being disrupted by revolutionary technologies, the need to build new workforce skills, and the potential to remake our cities. As a living laboratory for major national transition, we explored the many facets of political, economic, industrial, and social change in Kazakhstan, and learned through the lens of the personal experiences of Kazakhstani leaders who shared their stories of challenge and success as they have worked to create a new future for their country.

The GFCC bestowed its 2019 Global Competitiveness Award to Mr. Bakytzhan Sagintayev, Mayor of Almaty and former Prime Minister of Kazakhstan, as well as to His Excellency Asset Issekeshiev, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former

Mayor of Astana (now Nur-Sultan). Both of these leaders have played pivotal roles in guiding Kazakhstan through a challenging transition to a market economy and into one of the most competitive Eurasian economies filled with promise for the future.

At the 2019 GFCC Annual Meeting, members from 20 countries took stock of what they had accomplished together, planned for the future, and considered next steps for our collaborative efforts. We noted that the GFCC community continued to grow and expand its reach, as we welcomed nine new members from seven countries. The GFCC University and Research Leadership Forum convened a workshop in which members discussed a future vision for the technology-enabled University 4.0, and ideas for their upcoming agenda. This future orientation proved timely as the global pandemic has accelerated change in the education sector.

We presented the 2019 Global Competitiveness Principles—*Transform Competitiveness!*—which provide guideposts on meeting the challenges of transforming a nation's economy, cities, businesses, and skill base to improve competitiveness and raise prosperity for citizens. We released the 2019 Best Practices in Competitiveness Strategy, offering case studies on digitalization, talent development, policies and investments at the nexus of energy and manufacturing, and universities' global outreach and partnerships with industry to prepare students for their roles in the global economy and world of work. Also, we published *Connecting Farm, City and Technology to Transform Urban Food Ecosystems for the Developing World*, authored by our GFCC Fellows Dr. Fred Davies and Dr. Banning Garrett. The report discusses how new technologies can create the sustainable food ecosystems needed to feed the world's booming urban population.

Over 2019-2020, our cadre of GFCC fellows grew to 54. We welcome: Dr. Fred Davies, Regents Professor Emeritus, Department of Horticultural Sciences, faculty of Molecular and Environmental Plant Sciences, and AgriLife Research Faculty at Texas A&M University; Dr. Marcelo Augusto de Felippes, CEO of Airship do Brasil; Dr. Margareta Drzeniek Hanouz, expert and advisor on economic development, competitiveness, the future of work, innovation, and global risks; Ms. Elisa Jagerson, CEO Emeritus of FutureBrand Speck; The Hon. Dr. Jan Mládek, former Minister of Industry and Trade of the Czech Republic; Dr. Emmanuel Pohl, Chairman and CIO of the investment house EC Pohl & Company; and Dr. Ted Zoller, Director of the Entrepreneurship Center at the Kenan-Flager Business School at the University of North Carolina Chapel Hill. We are grateful to have men and women of such stature to bring insight and energy to our work.

By any measure — and especially in the face of the unexpected and disruptive global pandemic that has shaken the world — the GFCC and its members accomplished many important things during 2019-2020. Much credit goes to our fellow officers and members of the GFCC Board for their leadership during this difficult time — Secretary and GFCC Executive Director Dr. Roberto Alvarez; Mr. Chad Evans, Treasurer, GFCC, and Executive Vice President, Council on Competitiveness; Mr. Charles Kiefel AM, Chairman of The Principals Funds Management and Co-Chair of the Australian Government Advisory Board on Technology and Healthcare Competitiveness; Mr. Hiro Nishiguchi, Co-Founder and Executive Director of the Japan Innovation Network; and Mr. Robson Braga de Andrade, President of Brazil's National Confederation of Industry. We also commend the GFCC staff—Ms. Vanessa Puerta and Ms. Simone Melo— whose hard work and perseverance were instrumental in our achievements.

We plan to celebrate the GFCC's 10th anniversary and record of accomplishments during the 2021 GIS, which will be held virtually and based in the GFCC's Washington, D.C., headquarters. What we learned and co-created during the 2020 online Summit will set the stage for our agenda. A ray of light is beginning to shine in these darks times, giving us hope that we can all gather again in person in the not too distant future, as brilliant science and technology have delivered to the world vaccines in record time that will conquer this virus that is plaguing us all.

The GFCC was founded on the belief that sharing knowledge and best practices among national competitiveness organizations and among nations would provide benefit to all. During the past year, as never before, that vision has been fulfilled.



The Hon. Deborah L. Wince-Smith
President, Global Federation of Competitiveness Councils

President & CEO, Council on Competitiveness



Mr. Charles O. Holliday, Jr.
Chairman, GFCC

Former Chairman, Royal Dutch Shell plc

2019–2020 in Review

The year 2020 has been one of rapid transformation and change for humanity. The GFCC reacted to the health crisis by resuming operations online and expanding its outreach as a global platform. For the first time, the Global Innovation Summit was held during a two-day virtual event in partnership with the Australian Government and the Australian Advisory Board on Technology and Healthcare Competitiveness. Similarly, member's meetings and discussions took place through virtual platforms.

Global Innovation Summit 2020

On November 17 and 18, 2020, the GFCC held the virtual Summit *Crossing the Chasm, Health, Innovation, and the Future Economy*. The Hon. Greg Hunt MP, Australian Minister for Health, and The Hon. Karen Andrews, Australian Minister for Industry, Science and Technology, were among honorable speakers.

The Australian Advisory Board of Technology and Healthcare Competitiveness, co-chaired by Mr. Charles Kiefel AM, Chairman of The Principal Fund Management; Dr. Larry Marshall, Chief Executive, CSIRO; and Dr. Jane Wilson, Future Fund Board of Guardians, played a major role in the event's ideation, organization, and partnerships between Australia and the GFCC.

On the first day, the Summit explored health technology opportunities and priorities, with C-suite leaders from scientific, medical research, academic, cybersecurity, and innovation organizations. On the second day, discussions addressed priority areas, models, and frameworks for accelerating the transition to the next economy.

Now. Bridge. Reboot. Conversation Series

In May 2020, the GFCC launched a series of eight online conversations — Now. Bridge. Reboot. — gathering more than 40 leaders from 27 countries. The discussions aimed to position the COVID-19 pandemic as a connector, bridging the immediate effects and short-term recovery strategies to the long-term future design and transition to the next economy.

It became clear during the virtual dialogues that COVID-19 has been an accelerator and a catalyzer of emerging trends, including those related to the digital economy. Businesses, government agencies, and universities went online. While people self-isolated and countries shut down in-person services to contain the virus spread, e-commerce grew at unprecedented speed, and organizations and business models were deeply changed.

The disruption caused by the COVID-19 pandemic forced leaders worldwide to think about the resilience of their organizations, both in the public and private sectors. Cohesion and trust stood out as key values to navigate uncertain times and design a future vision for societies.

In July 2020, the GFCC invited speakers to contribute with thought pieces framing leadership in the new reality, covering topics such as remote work, crisis response and impact mitigation, new ways to lead teams in a virtual environment, the importance of diversity, digital inclusiveness, and sustainability.

The result is a compilation of insights in a flagship book, *Leading through the chasm and into the future economy*. The book includes original pieces by 33 leaders from 21 countries.

University and Research Leadership Forum: Decoding the Now

In November 2020, the GFCC University and Research Leadership Forum launched a new initiative to respond to the disruption caused by the pandemic in the higher education sector – Decoding the Now. The project will explore how COVID-19 has impacted institutions and their strategic environments, and identify potential long-term implications of the trends accelerated by the pandemic.

A Leadership Committee with the Catholic University of Portugal, University of Auckland, Queen Mary University London, Qatar University, and Universiti Teknologi PETRONAS was created to advance the Forum's goal of envisioning a technology-enabled and impact-oriented university.

The Forum annual meeting in 2020, which was supposed to happen in Lisbon, Portugal, was postponed due to the health crisis. In 2021, the Forum continues to host online discussions and release original discussion papers created by Forum leaders.

2019 in Review

In September 2019, the GFCC held its signature Annual Meeting and Global Innovation Summit in Nur-Sultan,

Kazakhstan, hosted by GFCC members Kazakhstan Competitiveness Council and the Center for Research and Consulting. More than 400 participants from across the globe joined GFCC members, fellows, and experts in panel conversations about transformation in countries, governments, and businesses.

In 2019, the GFCC presented the Global Competitiveness Award to Mr. Bakytzhan Sagintayev, Mayor of Almaty and former Prime Minister of Kazakhstan, and His Excellency Asset Issekeshov, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan). Two special recognitions were presented to the leaders of two GFCC members in Kazakhstan and co-hosts of the 2019 events: the Kazakhstan Council on Competitiveness and the Center for Research and Consulting (CRC).

New Fellows and New Members

During 2019-2020, the GFCC continued developing its network and welcomed seven new fellows and four new university members. The GFCC is pleased to announce that the following fellows are now part of our community: Dr. Fred Davies, Regents Professor Emeritus, Department of Horticultural Sciences,

Faculty of Molecular and Environmental Plant Sciences, and AgriLife Research Faculty at Texas A&M University; Dr. Marcelo Augusto de Felippes, CEO of Airship do Brasil; Dr. Margareta Drzeniek Hanouz, expert and advisor on economic development, competitiveness, the future of work, innovation, and global risks; Ms. Elisa Jagerson, CEO Emeritus of FutureBrand Speck; The Hon. Dr. Jan Mládek, former Minister of Industry and Trade of the Czech Republic; Dr. Emmanuel Pohl, Chairman and CIO of the investment house EC Pohl & Company; and Dr. Ted Zoller, Director of the Entrepreneurship Center at the Kenan-Flager Business School at the University of North Carolina Chapel Hill. GFCC fellows are distinguished leaders and globally recognized experts with sterling records of accomplishment in their fields.

During this period, four universities from four different countries joined the GFCC: Kyiv National Economic University, Ukraine; University of Victoria, Canada; Universidade Estadual da Paraíba, Brazil; and Texas A&M, United States.

Finally, in 2020, the GFCC welcomed two new professionals to the team, aiming to strengthen ties and engagement with the GFCC Community and our extended network. Ms. Vanessa Puerta joined as Head of Operations, and Ms. Simone Melo joined as Community Manager.

GFCC PERSPECTIVE

The Great COVID-19 Disruption: Is it Clearing the Pathway to the Transformation of Work?

The Hon. Deborah L. Wince -Smith

The Organization of Work has Been Disrupted

Prior to the COVID-19 pandemic, manufacturing and service enterprises were in a slow but steady transformation driven by an array of digital technologies, and cyber-physical systems. The COVID disruption has accelerated many of the transitions that were underway.

In one of its most dramatic effects, hundreds of millions of workers transitioned to telework, an organizational shift without precedent. Prior to the pandemic, about 15 percent of the U.S. workforce worked at least one day per week at home.¹ By May 2020, half the U.S. workforce was working from home.² Patterns of communication and work organization are changing to maintain performance, while production operations are being re-engineered in response to demand shifts, and the need to ensure employee health and safety. New technologies from digital systems to robots are being rapidly implemented. This kind of transformation in the economy would normally take decades to unfold, but is happening in days, weeks, and months.



The Hon. Deborah L. Wince-Smith
President, GFCC

President & CEO, Council on Competitiveness.

Will the 20th Century's Corporate Architecture Survive COVID-19?

The foundational architecture for modern corporate organization was invented at General Motors about 100 years ago, and widely adopted by companies throughout the 20th century. It has evolved into a lattice work of organizational structure and hierarchy, divisions of labor, policies,

procedures, practices, and controls – a system that organizations have optimized for efficiency, low cost, risk avoidance, safety, and employee retention.

Change is difficult in such a complex organizational system. Even a relatively minor change can echo across its many connected parts. For example, the introduction of new equipment could change work processes, job design, skill and training needs, safety protocols, and facilities design. And, while the function remains management reporting, implementing modern data analytics has driven significant change in how these reports are prepared and presented, skills required, and information gathering methods.

The pandemic is putting this foundational corporate architecture under stress. In a recent survey on the COVID disruption by the U.S. National Association of Manufacturers, 53 percent of respondents anticipate a change in operations. In another survey, 55 percent of respondents said COVID has resulted in permanent changes to their organization strategy.³

The design of this architecture was based partially on the presumption that employees mostly work a “9-5” day on

1 Table 3. Workers Who Worked at Home and How Often they Worked Exclusively at Home by Selected Characteristics, Averages for the Period 2017-2018, Economic News Release on Job Flexibilities and Work Schedules—2017-2018, Bureau of Labor Statistics, September 24, 2019.

2 COVID-19 and Remote Work: An Early Look at U.S. Data, Erik Brynjolfsson, John J. Horton, Adam Ozimek, Daniel Rock, Garima Sharma, Hon-Yi TuTe, NBER Working Paper No. 27344, June 2020.

3 COVID-19 and the Future of Business, IBM Institute for Business Value, September 2020.

employer premises. Now, suddenly, many companies have been forced to manage their operations with remote workforces supported by digital tools. For example, an April 2020 survey of human resource leaders found that nearly 50 percent of the organizations had 81 percent or more of their employees working remotely, and 15 percent reported that 60-80 percent of their employees were.⁴ This is something the architecture was never designed to accommodate.

In a study of more than three million users of digital communications in 16 metropolitan areas around the world, compared to pre-COVID levels, both meetings per person and number of attendees per meeting have increased an average of about 13 percent.⁵ Emails are up an average of about five percent, and individual emails have more addressees.⁶ It is very likely that more frequent meetings and more people in the loop have been needed to coordinate and rapidly reconstruct work processes for a virtual operation. But, in a recent survey, only 38 percent of employees believe their organizations are

helping them learn new skills needed to work in new ways, and only half say they are getting clear guidelines on how their organization will work.⁷

Digitalization offers new models for accomplishing work and designing working life, including telecommuting, working from remote locations, freelancing, and more flexible work schedules and staffing. For workers, these models can help people integrate work more seamlessly into their personal lives — if juggling responsibilities for children, health issues, or other activities — as well as access jobs outside of their geographic regions, a particularly important feature for those living in rural, declining industrial, and economically underdeveloped areas, or those who cannot afford to live in job-rich, high cost-of-living locations. Many employees report that they are enjoying working from home and being freed from long commutes — 80 percent according to recent McKinsey research.⁸

For employers, more flexible patterns of work allow them to tap a wider range of workers with knowledge and skills that can contribute value to the organization or business, but may reside in distant locations, or who cannot or prefer not to work in a 9-5, full-time job on employer premises. This broader landscape for recruiting can be especially valuable when unemployment is low and labor markets are tight, or recruiting for occupations in high demand.

There is great uncertainty about how many of the new teleworkers will return to their offices once the pandemic subsides. In a survey of human capital executives, mostly in large companies, 77 percent expect an increase in full-time employees working primarily from home at least three days a week 12 months after COVID-19.⁹ Another survey indicates that working days at home could triple after the pandemic passes.¹⁰ Recent studies indicate that about 40 percent of jobs in the United States could be performed at home, especially management, professional, and administrative support jobs

4 Gartner HR Survey Reveals 41 Percent of Employees Likely to Work Remotely at Least Some of the Time Post Coronavirus Pandemic, Press Release, Gartner Group, April 14, 2020.

5 Collaborating During Coronavirus: The Impact of COVID-19 on the Nature of Work, Evan DeFilippis, Stephen Impink, Madison Singell, Jeffrey Polzer, Raffaella Sadun, NBER Working Paper No. 27612, July 2020.

6 Ibid.

7 Ibid.

8 Reimagining the Office and Work Life After COVID-19, McKinsey & Company, June 8, 2020.

9 From Immediate Responses to Planning for the Reimagined Workplaces, Human Capital Responses to the COVID-19 Pandemic, The Conference Board, 2020.

10 Firms Expect Working From Home to Triple, Federal Reserve of Bank of Atlanta, May 28, 2020.

in professional and business services, information, finance, insurance, and public administration.¹¹

Within the context of the 20th century corporate architecture, corporations have experimented with alternative forms of work, such as flatter organizations, greater employee participation in improving operations, autonomous work teams, and alternative work schedules. For example, 57 percent of U.S. wage and salary workers have had a flexible schedule in which they are able to vary the times they begin and stop working.¹² However, prior to the pandemic, telework had been slow to catch on, experts pointing to management's fear of losing control, compromised communications, ineffective teamwork, and lower employee performance.

How a giant leap to permanent remote work would ultimately change the corporate architecture remains largely

unknown. In addition to the need to alter work processes, there could be implications across areas such as:

- Maintaining corporate culture
- Teamwork and team management
- Communications
- Employee recruitment and onboarding
- Employee training
- Information management
- Compensation for a workforce spread across geographic areas
- Staffing and scheduling
- Customer engagement and service delivery
- IT infrastructure and IT support
- Cyber security
- Physical footprint
- Employee work-life balance
- Data tracking in areas such as performance and legal compliance

COVID-19 jolted companies into major change. Looking to the future, the ongoing transformation will be amplified with rapid advances in technology — artificial intelligence, expert systems, digital assistants, chat bots, data analytics, vast sensorization and the Internet of Things, augmented and virtual reality, and co-teaming with machines such as robots — further disrupting corporate operations and driving reinvention in the organization of work, corporate structures, and systems.

The COVID-19 disruption and emerging set of powerful technological tools provide a rich landscape for management, behavioral, social, organizational development, and engineering research, and applying what is learned to help shape the future of work and reengineer corporate architecture. During this massive shift to telework, corporate leaders must take advantage of this unprecedented golden opportunity as Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc, observed, “the biggest case of learning by doing in history.”

11 How Many Jobs Can Be Done at Home?, Jonathan Dingel and Brent Neiman, University of Chicago, Booth School of business, NBER, and CEPR, June 19, 2020; Ability to Work from Home: Evidence from Two Surveys and Implications for the Labor Market in the COVID-19 Pandemic, Matthew Dey, Harley Fazis, Mark Lowenstein, and Hugette Sun, Monthly Labor Review, U.S. Bureau of Labor Statistics, June 2020.

12 Job Flexibilities and Job Schedules Summary, Economic News Release, Bureau of Labor Statistics, September 24, 2019.

GFCC PERSPECTIVE

Disruption Ahead! Building Resilient Enterprises

Mr. Charles O. Holliday, Jr.

The 21st century promises to be an era of rapid change, disruption, turbulence and transformation. To compete and prosper — perhaps even to survive — countries, companies and communities must be agile and adaptable.

Enterprise resiliency is the capacity of a society and its systems—including companies, governments, and communities—to organize, adapt, reach and maintain an acceptable level of functioning, mitigate losses, and recover quickly in the face of significant disruption. Across countries and communities around the world, the COVID-19 pandemic has propelled this issue to the top of concerns for business and government leaders. Many did not anticipate they would face such utter disruption in 2020.

As COVID-19 swept across the globe, millions of workers shifted to telework, and companies had to adjust their operations rapidly for a remote workforce. The disease and the response to COVID-19 exposed the complexity and vulnerability of global production networks. Many supply chains proved fragile under duress, and sudden materials shortages plagued some companies. Widespread shutdowns of Chinese manufacturing facilities and shipping disruptions sent ripples across the globe, and industries with key supply links into China struggled



Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc.

to maintain their operations. Other industries experienced sudden demand shifts — for example, food producers forced to change packaging as consumption shifted away from restaurants to eating at home. Manufacturers were hit with virus outbreaks in their plants, creating worker shortages and significant challenges in keeping production up-and-running.

The public does not think much about the sources of the goods on which they depend, or the complexity and fragility of supply chains. But the public came face

to face with that reality in the form of empty store shelves and shortages of key necessities.

Some industries and companies demonstrated resiliency, flexibility and adaptability. The home delivery sector scaled their workforce by more than a million in short order. Distilleries switched to producing hand sanitizers. Medical practitioners scaled telehealth to care for their homebound and COVID-vulnerable patients. But many businesses and even entire industries did not, had their operations disrupted and dismissed millions of workers worldwide.

The COVID-19 pandemic is not the last disruption companies or communities will face, and it is impossible to anticipate or even imagine all of the risks. Of course, there could be another pandemic. A widespread truckers' strike or fuel supply disruption could affect businesses and governments across a nation. A disruption could be regional like the 2015 cyberattack on the Ukrainian grid which cut power to nearly a quarter million customers.¹ An accidental release of a hazardous chemical from a local plant or passing tanker train could impact a city or community. Climate change may increase the perils of extreme weather events.

¹ Alert (IR-ALERT-H-16-056-01) Cyber-Attack Against Ukrainian Critical Infrastructure, Industrial Controls Systems Cyber Emergency Response Team, U.S. Department of Homeland Security, February 25, 2016. <https://ics-cert.us-cert.gov/alerts/IR-ALERT-H-16-056-01>.

No company or organization is immune from threat or risk, as the pandemic has shown. In a changing and turbulent global scenario, it is important to develop the capabilities to address current and emerging risks.

As the physical world and digital world converge through sensors, networks and data, what happens in the virtual world is now coming to the physical world. Industrial controls are used in nearly every industry and critical infrastructure on which communities depend. Cyber threats against these systems are increasing, and attacks can result in the disruption or destruction of the equipment they control. The cyber threat is ever evolving with a constant flow of new applications, platforms and devices. The Internet of Things will further expand the potential attack surface where disruptions can cripple the bottom line. For example, in a recent survey, the vast majority of respondents said that a single hour of downtime could cost the organization between \$100,000-\$300,000. One third said an hour of downtime costs their firms \$1-5 million.²

Business operations are more complex than ever, and technological dependencies and interdependencies are growing. Moreover, in today's fast moving business and political environment, risks are constantly changing. However, in this

environment, scenario-based preparation is not enough. It is not practical to prepare for every potential threat or plan for every contingency. Instead, we must build-in resilience, bake it into the DNA of enterprises with solid, powerful processes, trained people, and systems that can respond to whatever disruption occurs. It does not matter whether you lost your data center from a hurricane, a terrorist attack, or operating error, the same fundamentals must be in place. It's about building robust capability:

- **Have systems in place that can flag an issue.** Every day, look for what could be potential issues or risks, including external events, and determine which ones belong on the enterprise radar screen. Listen to outside perspectives, and different and dissenting points of view. Ask front line employees what risks they see.
- **Walk the talk.** Ensure the workforce understands that safety, security, and operational risk reduction are very important, and send that message frequently to reinforce the resiliency culture. Review the metrics to signal high interest. When leaders make site visits, tour the fence line, tour the plant or other facilities, demonstrating that security and safety are a high priority.

- **Train.** To build fundamental skills and good habits, train employees frequently on safety and security - and why they are important. Employees need to know, not just a simple rule to follow, but why to follow it so they can make the right decision when the time comes.
- **Test.** Test the system, multiple times a year. See what holds and identify what needs to be corrected. Malicious actors or cyber criminals may already be probing for your weaknesses.
- **Communicate.** In a disruptive event, the first hours and days are critical. Make sure key personnel are informed, and that all have an up-to-date operating picture to ensure good decision-making on the ground, in the plant and in the office suite.
- **Work with the community.** Educate local government officials on risks in the facilities located in their communities, for example, the presence of chemicals or gases, and protocols for handling these risks. When I was CEO at DuPont, after 9/11, in one state where DuPont does business, a governor decided a particular facility was of high risk, and dispatched armed guards to the site. Our team worked with the governor and his advisors to explain why armed guards are not

² <https://www.randgroup.com/insights/cost-of-business-downtime/>.

necessarily the best security response in a highly volatile, pressurized environment — and we worked together for a different, better solution for the community.

- **Look at subcontractors as extensions of your company.** Understand how subcontractors screen their employees. If you are sourcing materials, be sure to understand the sources of that supply, including raw material input and the processes used to make it. For example, more than 1,000 pets died from eating pet food that contained raw materials imported from China that were contaminated with melamine and cyanuric acid, resulting in the recall of 150 brands of pet food and multiple lawsuits.³ Understand critical interdependencies, for example, if lack of a critical part or component due to destruction of a subcontractor facility would stop your product shipments. Be sure you have backup systems.
- **Harness new technology to enhance resiliency.** A wide range of new technologies can provide new capabilities for companies and communities for assurance, monitoring, warning and responding — sensors, anti-tamper devices, health monitors, RFID, robots for hazardous incidents, self-healing

systems, digital twin, platforms for self-organizing, predictive analytics and autonomous systems, just to name a few. For example, during the pandemic, robots are being deployed around the world to disinfect spaces, make deliveries, and take patient temperatures. Supply chain mapping and modeling can provide new insights.

Many companies and governments are embracing a transformation agenda, driven by smart technologies, new manufacturing methods, the modernization of infrastructure, the establishment of smart cities and digitalized services, and more.

Many are deploying new technologies to optimize distribution and logistics, functions that digital technologies, sensors, connectivity, artificial intelligence and the Internet of Things are transforming. High performance in these functional areas provides a key competitive edge for companies such as Walmart and Amazon, and also provides an ability to respond quickly to disaster or disruption. For example, during the pandemic, Amazon scaled its operations and delivered a record breaking 1.5 billion packages during the 2020 holiday season.⁴

The outstanding data and supply chain systems that enable companies like Walmart to meet seasonal needs also allow them to respond quickly to disaster. They can flow essential goods to affected communities in the right mix of merchandise, for example, water and cleaning supplies to communities hit by extreme weather, and food, medicine, and toiletries to communities taking in an influx of evacuees. With tight communications with fleets, shipments can be redirected at any time.

As part of the transformation agenda, building more resilient enterprises and communities will make them more agile, flexible and adaptable to disruption — a key to competitiveness in an era of rapid change.

To learn more about managing operational risk, building resilient enterprises, and resiliency as a competitive edge, explore the GFCC founding member Council on Competitiveness October 2020 report [*Transform 2020: Resilience in the Age of COVID-19*](#). The report also lists a wide range of new and emerging technologies that can be deployed to increase resiliency in companies, communities, and in other settings.

³ Anatomy of A Pet Food Catastrophe, Chemical and Engineering News, May 12, 2008.

⁴ Amazon blog, December 28, 2020, <https://www.aboutamazon.com/news/retail/thank-you-to-amazon-customers-employees-and-selling-partners>.

2019–2020 GFCC University and Research Leadership Forum

The COVID-19 pandemic deeply affected the higher education sector and the research institutions. Universities shifted to online education, launched multidisciplinary task forces to address the challenges arising from the crisis, and experimented with new models to maintain operations, engage with industry, continue research, and work with communities and society.

The University and Research Leadership Forum has worked with university leaders to understand the challenges arising from the COVID-19 pandemic and identify future trends and models that can enhance the standing of universities as growth engines in the knowledge economy.

In September 2020, the GFCC launched the “Decoding the Now” initiative. It gathered university leaders and other innovation stakeholders in online conversations to map COVID-19 impacts on universities and their strategic environments, and identify new models and opportunities opened up by the innovative solutions that higher education institutions have



adopted. The GFCC has also conducted interviews with university leaders to identify the lessons learned during the pandemic and insights on the long-term implications of the new models and solutions recently deployed.

This initiative came to fruition as a response to changes catalyzed by COVID-19. It resulted from discussions held with GFCC university members in 2020, and builds on the previously launched effort to develop a future vision for the technology-enabled and impact-oriented university — as some leaders have called it, the “University 4.0.”

The University 4.0 concept was introduced during the 2019 annual meeting held in Nur-Sultan when university

members and leaders of research organizations participated in a workshop to develop ideas for the Forum’s 2020 agenda.

On that occasion, GFCC Distinguished Fellow Dr. Michiharu Nakamura, former President of the Japan Science and Technology Agency (JST) and current Advisor to the President, and Mr. Osamu Kobayashi, JST’s Director of International Affairs, presented and shared insights about how foresight approaches are used as a tool to design and inform critical projects and policy initiatives in Japan. Prof. James Metson, Deputy Vice-Chancellor at the University of Auckland, and Prof. Peter G.R. Smith, Founder & Director, Stratophase, and Pro-Vice Chancellor



for International Projects, University of Southampton, led a session focused on identifying the main topics in the agenda for future-building universities and the key technologies affecting the future of higher education institutions.

Since the workshop in Kazakhstan, the Forum has started to work to design the University 4.0 initiative and advance the understanding of technologies affecting the future of universities, how research can be better translated into impact — via innovation, human resources development, policy influence, and more — and the issues to be considered when reflecting on university models.

The Forum was scheduled to meet in Lisbon in April 2020, but the event was canceled due to the COVID-19 pandemic. The work continued through online gatherings. During 2020, leaders from universities and research organizations in the GFCC community created discussion papers addressing the key themes for the University 4.0 initiative. The GFCC will launch the materials in the first quarter of 2021.

In parallel, the Forum continued in 2019 and 2020 to disseminate the findings from the two reports *Leveraging Extreme Innovation* and *Optimizing Innovation Alliances*, both released at the end of 2018. The reports review toolkits available for universities to engage in innovation,

outline ways for higher education institutions to lead transformational technology projects, and reveal opportunities for partnerships with industry and community service. The GFCC has discussed the findings in a variety of global meetings, workshops, and forums worldwide.

In January 2019, GFCC Executive Director Dr. Roberto Alvarez was a guest speaker at the Emerging Markets Summit organized in Doha by the Times Higher Education and Qatar University. Dr. Alvarez discussed findings and lessons learned from the two reports with global participants, and Qatar University and Qatar Foundation leaders. In April 2019, the GFCC presented the reports to the deans of engineering schools in Brazil in an event organized by the Brazilian National Confederation of Industries (CNI).

In June 2019, the GFCC and CNI convened a workshop with university leaders at the global headquarters of Embraer, the Brazil-based aerospace conglomerate. The event gathered leaders from Argonne National Laboratory and the University of Illinois, both in the United States, the Catholic University of Portugal, Queen Mary University London, and Brazilian enterprises in the manufacturing, technology, and education sectors.

Photos: University and Research Leadership Forum Workshop on September 18, 2019, at Nazarbayev University in Kazakhstan.

The GFCC is a Global Platform

Australian Advisory Board on Technology and Healthcare Competitiveness

The mandate of the [Australian Advisory Board on Technology and Healthcare Competitiveness](#) (the Board) is to support the building of a strong scientific capability, business innovation and commercialisation of new ideas; this is critical to productivity and economic growth for Australia and the United States.

The Board has developed a bilateral strategic relationship with the United States Council on Competitiveness which is focused on:

- Healthcare, including genomics and precision medicine;
- Advanced computing, including quantum computing, AI, cyber security and digitization;
- Robotics; and
- Access to capital for entrepreneurship.

Mission

The industry-led Board is designed to strengthen collaboration in the fields of innovation, entrepreneurship and competitiveness between Australian and U.S. companies, research institutions and national laboratories. This partnership connects and lifts the level of engagement between Australia and the United States.

Established in March 2018, the Board recognises the importance of building these linkages to better understand technology investments, drivers and strategies; improve collaboration between private and public sectors; leverage collective investments in research, talent and technology; and identify critical technology opportunities to sustain innovation and competitiveness.

Initiatives

The Board has established and leads a United States-Australian Chief Technology Officer Dialogue with the United States Council on Competitiveness.

The one of a kind, philanthropic Chief Technology Officer's Dialogue promotes knowledge exchange by bringing together technology and innovation leaders from the public and private sectors. This key group explores mapping over-the-horizon innovation challenges and opportunities, frontiers of disruptive technologies, creating new communities of innovators, building infrastructure to support 21st century innovation, and acceleration of commercialization.

Governance

The Board was established to drive the United States-Australian partnership between the Australian Department of Industry, Innovation and Science, the Australian Department of Health, and the Council on Competitiveness.

The Board reports to the Australian Minister for Health, The Hon. Greg Hunt MP, and the Australian Minister for Industry, Science and Technology, The Hon. Karen Andrews MP.

The Board has 16 members and is co-chaired by three Australian leaders:



Mr. Charles Kiefel AM
Chairman
The Principals Funds
Management



Dr. Larry Marshall
Chief Executive
CSIRO



Dr. Jane Wilson
Future Fund Board
of Guardians,
Non-Executive
Director
Sonic Healthcare

Work With the Global Federation of Competitiveness Councils

As a member country of the Global Federation of Competitiveness Councils, the Australian Government and Australian Advisory Board on Technology and Healthcare Competitiveness co-hosted the 2020 Global Innovation Summit in November.

The Summit was appropriately themed "Crossing the Chasm: Health, Innovation and the Future Economy." The two-day event explored the impact of COVID-19 from a health, social and economic perspective, and the pivotal role that innovation and competitiveness have in supporting the future economy.

More than 700 leaders representing business, academia and governments from across the globe registered for the virtual event which included international leaders' perspectives, interactive panel discussions and presentations highlighting innovation breakthroughs.

The sharing of our knowledge is vital for global innovation and competitiveness, but it is even more critical in the global fight against the coronavirus and capitalising on opportunities by working through the challenges facing the world at this critical juncture. This highlights the importance of being part of a global network such as the Global Federation of Competitiveness Councils.

CompeteGR and GFCC – A Relationship to Last

The Council on Competitiveness of Greece, [CompeteGR](#), was established two and a half years ago under the leadership of its president Mr. Simos Anastopoulos and 13 distinguished business leaders of the Greek economic environment. Among the founding members are the President of Piraeus Bank, the President of the AmCham, the President of the Industrial Association of Greece, the CEO of Athens Stock Exchange, the CEO of the Delphi Forum as well as the leaders of some of the most prestigious companies in Greece.

The seed of this endeavor was planted a few years ago when The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness, signed an MoU with AmCham, while Mr. Anastopoulos was serving his second term as President of the body. The purpose of the MoU was to promote the cooperation between the two organizations and advance the transformation of the Greek economy in terms of competitiveness.

All global reports have been underscoring the continuous deterioration of the competitiveness level of the Greek economy for more than a decade, indicating the need for the establishment of an independent business lead. The Council on Competitiveness of Greece is more than

essential, as the country has been working to close the investment and productivity gap on its way to recovery after the last ten-years' financial crisis.

Rather than an ad hoc initiative, the country was in need of a well-governed, partisan-free institutional body to undertake the mission to improve the competitiveness levels of Greece. This is the vision that all our members – founding, regular and associate – serve today, under the leadership of our Board, and the guidance of its Advisory Board. It is worth mentioning that two of the members of our initial Advisory Board serve today as Ministers of the Government, which we consider as a testament to the direction and influence of the organization.

The work of CompeteGR and its continuous interventions has been quite welcomed by the business community, and the initial 14 founding members more than doubled within the two years of our existence. All CompeteGR members are actively participating in formal and informal dialogue with the Government and other stakeholders about the structural reforms and the mindset change required to transform the economy and business environment, while submitting practical proposals for "quick wins" and the solution of specific issues.

The **Compass** is the flagship publication of CompeteGR. It has been designed to identify the basic competitiveness pillars for Greece and develop a dynamic methodical framework, a “Compass”, which will provide:

- a) A systematic monitoring of competitiveness evolution comparatively to the international and European markets, taking into consideration the global and EU indices.
- b) An identification of the critical parameters affecting Greek realities, which are further analyzed qualitatively via systematic discussions and consultations with the various stakeholders.
- c) Calls for action within the strategic priorities already set aiming to promote growth and competitiveness.

As we believe in the power of networking and the transfer of experience, we found great value and support by joining the Global Federation of Competitiveness Councils. The GFCC has always been a source of inspiration and a knowledge provider. This took the shape of dissemination of successful case studies, participation at roundtable discussions and other events with forward-looking ideas with other academic or business leaders.

Becoming a member and participating in the GFCC global network offers the opportunity to listen and be listened to, to learn, and to discuss ideas about common priorities and concerns, such as technology, innovation, talent, and partnerships.

Competitiveness, no matter how high a country finds itself in the global rankings, is a marathon where speed is also important. Through the GFCC we could better understand challenges and struggles in other areas of the world, acquire a better understanding of tangible benchmarks and benefit from their advancement.

With the dedication of our board, members and team, the support and leadership from the GFCC and the amount of experience it represents, we will continue to expand CompeteGR's influence toward an innovative and competitive Greece.

Compete.GR



Chairman

Mr. Simos Anastasopoulos

President of Association of S.A & Limited Liability Companies
Chairman and CEO, Petsiavas S.A.
President Emeritus, American-Hellenic Chamber of Commerce

Vice Chairman

Mr. George Handjinicolaou

Chairman of the BoD, Piraeus Bank
Chairman of the BoD, Athens Exchange Group
Chairman of the BoD, Hellenic Bank Association (HBA)

General Secretary

Mr. Athanasios Savvakis

Executive Director, BioSolids S.A.
President, Federation of Industries of Greece (SBE)

Executive Director

Ms. Venetia Kousia

Members

Mr. Alexandros Angelopoulos

Managing Director, Aldemar Resorts

Mr. Nikolaos Bakatselos

President and CEO, Pyramis Metallourgia A.E.

Mr. Petros Doukas

Chairman, Capital Partners S.A.

Mr. Christos Harpantidis

President and CEO, Papastratos
Managing Director EU South East Cluster, Philip Morris International

Mr. Dimitris Kadis

CEO, Pharmathen S.A.

Mr. Dimitris Koutsos Koutsopoulos

CEO, Deloitte Greece

Mr. Socrates Lazaridis

Chief Executive Officer, Athens Exchange Group

Mr. Elias Spirtounias

Executive Director, American-Hellenic Chamber of Commerce

Mr. Michael Stassinopoulos

Executive Member of the Board, Viohalco S.A.
President, Hellenic Production Council

Mr. Yanis Stavrou

A Vice President – Executive, Federation of Industries of Greece (SBE)

Mr. Symeon G. Tsomokos

Founder and President, Delphi Economic Forum

2019

2019 GFCC Annual Meeting

The GFCC Annual Meeting gathered GFCC members, fellows, and selected guests from across the globe to review GFCC initiatives and discuss the competitiveness field state of affairs. The meeting was set up in two segments to accommodate GFCC updates on project development, discussions about member's national agendas, and identify trends shaping the future of competitiveness and innovation.

In the first segment, GFCC leadership and members worked to develop a shared understanding of the Global Competitiveness Agenda, drawing from common interests. The gathering also mapped projects in GFCC member organizations and established goals for 2019-2020.

President The Hon. Deborah L. Wince-Smith and Executive Director Dr. Roberto Alvarez recapped GFCC's main activities in the past year, highlighting publications and project findings. New members from Universidad Nacional de San Augustin Arequipa in Peru, Council on Competitiveness of Greece, University



of Illinois, Whitecap Investments, and GO Productivity presented their organizations and introduced their strategies.

The meeting was also an opportunity for the GFCC community to exchange best practices and learn about national innovation agendas. GFCC members and fellows discussed top priorities in their countries and involvement in key initiatives. GFCC also held roundtables with all the participants to outline future topics in the competitive field and prepare the GFCC agenda for future work.

Three takeaways stood out from the dialogues. First, there is a clear imperative to boost public-private partnerships and policy action as the competitiveness agenda evolves and becomes even more complex. Second, the digital transformation has driven a radical change in the economy and society as a whole,

affecting businesses, social interactions, and people's lifestyles. Third, there is a pressing need to build dialogue channels to establish the trust that can enable good governance and create positive impacts.

The meeting's second segment held fruitful discussions with members presenting case studies and leading insightful debates on the role of technology in building the next economy.

The road to enhance economic competitiveness varies across countries, with economies at different stages presenting different opportunities and strategies. Members and fellows talked about the possibilities to leverage innovation in their countries and what governments and businesses have been doing to accelerate the economy's transition.



OPPOSITE PAGE

Dr. Roberto Alvarez, Executive Director, GFCC; The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan; Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc; and Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan.

THIS PAGE

Center left: The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness.

Center right: Mr. William "Bill" H. Bohnett, President, Whitecap Investments, LCC.

The 2019 edition of *Best Practices in Competitiveness Strategy* report guided dialogues during a session dedicated to members' experiences supporting local innovation enterprises. The publication features frameworks and regional initiatives to support the scale-up of innovative and sustainable businesses.

Members presented four cases highlighting public-private partnerships to advance transformation, advanced manufacturing in the United States, Qatar's national university innovation strategy, and Kazakhstan's government policies.

Kazakhstan partners who hosted the GIS 2019 held a conversation on the national transformation project to get insights from leaders in the GFCC community on how the country can better connect to the global economy.

The GFCC Annual Meeting concluded with a panel about future innovation moderated by Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc. Discussions addressed Industry 4.0, touching new business models and the relevance of

multi-stakeholder engagements to drive economic productivity and accelerate innovation.

A group of high-level global experts contributed to the conversations in the 2019 Annual Meeting. Leaders working in government, policy, high-education, international business, research, and national businesses shared insights and inputs on the future of innovation and the state of economic competitiveness.



Top: Dr. Rohel Sánchez Sánchez, President, Universidad Nacional de San Agustín de Arequipa (UNSA), Peru; Mr. Osamu Kobayashi, Director, Department of International Affairs, Japan Science and Technology Agency; Prof. Miguel Athayde Marques, Vice-Rector, Catholic University of Portugal, and former Chairman & CEO, Portuguese Stock Exchange (Euronext Lisbon); and Prof. James Metson, Deputy Vice-Chancellor at the University of Auckland.

Center left: Ms. Jisu Hong, Associate Vice President for Economic Development and Innovation, University of Illinois.

Center right: Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc; Mr. Chad Evans, Treasurer, GFCC, and Executive Vice President, Council on Competitiveness; and Dr. Michiharu Nakamura, Distinguished Fellow, GFCC, and Senior Advisor & former President, Japan Science and Technology Agency (JST).

Bottom: Mr. Chad Evans, Treasurer, GFCC, and Executive Vice President, Council on Competitiveness.



Top left: Mr. Adham Nadim, Chairman and Director, NADIM Industries; and Dr. Elizabeth "Beth" Stroble, President, Webster University.

Top right: Mr. Kuanyszh Zhaikov, Partner, Center for Research and Consulting, Kazakhstan; Dr. Mohammed Zaidi, EVP and CTO, Alcoa (retired), and Strategic Advisory Board Member, Braemar Energy Ventures; Mr. William "Bill" D. Lese, Co-Founder & Managing Partner, Braemar Energy Ventures; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.

Center left: The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; and Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc.

Center right: Tan Sri Dr. Ir Ahmad Tajuddin Ali, Distinguished Fellow, GFCC, and Joint Chairman, Malaysian Industry-Government Group for High Technology (MIGHT); Dr. Tan Shu Ying, Principal Analyst, MIGHT; and The Hon. Jerry MacArthur Hultin, Distinguished Fellow, GFCC, and Chair and Co-founder, Global Futures Group, LLC

Bottom: Dr. Roberto Alvarez, Executive Director, GFCC; and Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan.





Top left: Mr. Simos Anastasopoulos, President, Council on Competitiveness of Greece, Chairman & CEO, Petsiavas SA, and President Emeritus, American Hellenic Chamber of Commerce; and The Hon. Jerry MacArthur Hultin, Distinguished Fellow, GFCC, and Chair and Co-founder, Global Futures Group, LLC.

Top right: Prof. Dr. Mohamed Ibrahim Abdul Motalib, Vice Chancellor and Chief Executive Officer, Universiti Teknologi Petronas; and Dr. Mariam Ali Al-Maadeed, Vice President for Research and Graduate Studies, Qatar University.

Center: Dr. Saif Al-Hiddabi, Asst. Secretary General, Research and Scientific Programs, Research Council Oman; Mr. Symeon Tsomokos, Founder and President, Delphi Economic Forum; Mr. Adham Nadim, Chairman and Director, NADIM Industries; and The Hon. Robert William Alexander "Bob" Barbour, Director and Chief Executive, Centre for Competitiveness, and CEO, The Smart Grid Ireland Electricity Cluster.

Bottom: Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc; and Dr. Roberto Alvarez, Executive Director, GFCC.



Top left: Ms. Yasmin M. Hilpert, former Senior Director of Policy and Engagement, GFCC; and Prof. James Metson, Deputy-Vice Chancellor (Research), the University of Auckland.

Top right: Mr. Alexander Idrisov, Co-Founder, Eurasia Competitiveness Institute, and President, Strategy Partners; and Tan Sri Dr. Ir Ahmad Tajuddin Ali, Distinguished Fellow, GFCC, and Joint Chairman, Malaysian Industry-Government Group for High Technology (MIGHT).

Center left: Mr. William "Bill" D. Lese, Co-Founder & Managing Partner, Braemar Energy Ventures; and Mr. Kainar Kozhumov, Partner, Center for Research and Consulting, Kazakhstan.

Center right: Ms. Nathalie Younan, Research Project Manager, Qatar University; and The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness.

Bottom: Mr. Chad Evans, Treasurer, GFCC, and Executive Vice President, Council on Competitiveness; Prof. Miguel Athayde Marques, Vice-Rector, Catholic University Portugal, and former Chairman & CEO, Portuguese Stock Exchange (Euronext Lisbon); The Hon. Dr. Jan Mládek, Distinguished Fellow, GFCC, and Director, The Czech Institute of Applied Economics, Ltd., Prague; and Ir. Dr. Aidid Chee Tahir, Chief Strategy Officer, Universiti Teknologi PETRONAS.

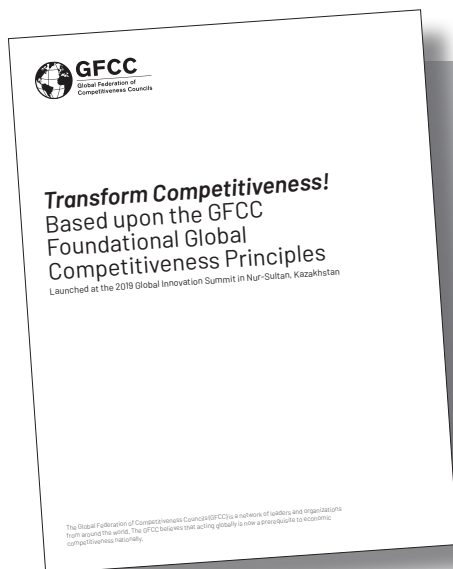


Sharing the Competitiveness Story 2019

The Global Innovation Summit 2019 marked the release of two leading publications: *Best Practices in Competitiveness Strategy* and the *Global Competitiveness Principles*. The Best Practices report, *Transform Competitiveness*, showcases transformation strategies, policies, and programs in Ecuador, Kazakhstan, Qatar, and the United States. The goal is to share lessons learned among the GFCC Community to help countries and organizations meet today's productivity challenges and leverage economic opportunities. The GFCC *Principles* emphasize the importance of leveraging digital technologies and global connectivity to boost economic growth and create a positive impact. The two documents are available on the GFCC website at www.thegfcc.org. We encourage members to share the publications with their country's public and private sector leaders and peers and foster the Global Competitiveness Agenda together.



Captions



Transform Competitiveness!

Co-created by GFCC members and fellows, the Global Competitiveness Principles provide an important framework as countries, regions, and cities strive to be competitive, grow their economies, and become more prosperous. The 2019 edition emphasizes key competitiveness drivers such as investment in research and development; education and training for all citizens; sustainable and responsible development of natural resources; strong intellectual property rights; a stable, transparent, and efficient environment that encourages business investment, formation, and growth; and open trade.

Transform Competitiveness! Best Practices in Competitiveness Strategy

The Best Practices report enables sharing of concepts, tools, experiences, and lessons learned among GFCC members to stimulate learning and advance the competitiveness agenda worldwide. The 2019 publication features transformation strategies, policies, and programs focused on education and skills development, manufacturing, energy, public services provision, and higher education institutions, highlighting outstanding examples from Ecuador, Kazakhstan, Qatar, and the United States.



2019 GFCC Global Innovation Summit



Skyline of Buenos Aires.

From Our Host: Center for Research and Consulting

On behalf of the Center for Research and Consulting (CRC) team, we thank the GFCC members, participants and co-hosts (GFCC team and Kazakhstan Competitiveness Council) for making the GIS 2019 happen. The summit has become a unique opportunity for Kazakhstan's and world's entrepreneurs, policymakers and leaders to contribute to common productive dialogue on the overarching transformation topic.

The location of the summit was remarkable. Nur-Sultan has become the first-ever city in the Central Asian region to welcome our GFCC fellows, marking a new point on the GFCC's map. Both the country and the city are examples of the summit's theme, "Transform Competitiveness." Kazakhstan has made a tremendous leap forward in development within its 28 years of independence. By leveraging its oil and gas resource endowments, the country has stepped on a promising but challenging track of transforming its economic priorities, human capital, and spatial policies. Thus, the ideas raised during the GIS 2019 are timely and relevant to both Kazakhstan's and overall Central Asian region's strategic orientation.

The theme of the summit "Transform Competitiveness: Nations – Energy – Industries – Cities – Talent" perfectly frames the questions raised by policy-makers worldwide on how to respond to the increasingly changing world order, rapid technological advancement, and



Left: Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.



Right: Mr. Kainar Kozhumov, Partner, Center for Research and Consulting, Kazakhstan.

globalization challenges in the developing and developed world. We have heard ideas and success stories from our GFCC fellows engaging in various countries' policy formulation. We have discussed local challenges facing Kazakhstan and have received valuable feedback from experienced entrepreneurs. Panel discussions, combined with the annual University Leadership Forum and practical workshops, underscored the necessity of leveraging talent transformation and human capital advancement in the path to economic development.

For the CRC host team (primarily engaged in research work), it was a challenging first experience to conduct a global summit in Kazakhstan. Yet, a collaboration with the GFCC team and Kazakhstan Competitiveness Council has added quality to the event's organization.

The GIS 2019 experience is also a common product of our respected partners and sponsors, who contributed financial resources and valuable content to the summit. Primarily, we would like to thank our general partners – The Foundation of the First President of the Republic of Kazakhstan, Mayor's Office of Nur-Sultan, and Eurasian Resources Group – for supporting us from the inception of the organization process. Special acknowledgment is to be given to the Eurasia Competitiveness Institute as a GFCC Founding partner and a co-organizer of the Eurasia Competitiveness Dialogue workshop.

Finally, we are grateful to our local partners and sponsors – Astana International Financial Center (AIFC), Kazakhstan Growth Forum, Nazarbayev University Social Development Fund, BI Group, and Baiterek Development – for providing infrastructure and financial support, and bringing their ideas and speakers to the summit.

As a host team, we are delighted to continue the tradition of conducting the Global Innovation Summit and the GFCC Annual Meeting, as it is a valuable contribution to international collaboration and idea exchange. Thank you, the GFCC team, for the opportunity to host the GIS 2019 in Nur-Sultan, and we are looking forward to meeting you all in Australia in 2021.

From Our Host: Kazakhstan Competitiveness Council

On behalf of the Kazakhstan Growth Forum, we would like to thank the GFCC Fellows, members, team, friends, and all the over 500 attendants who made possible the 2019 Global Innovation Summit and the K19: Kazakhstan Growth Forum. For many participants, our country represents a long trip from home, and for most people, an unconventional destination for a global innovation summit. But considering the declining role of incrementalism in innovations, we note that radical breakthroughs need inspiration from surprising, unorthodox places. The 2019 Global Innovation Summit became such a place where, by leveraging the GFCC and Kazakhstan Growth Forum's networks, we questioned prevailing paradigms and stereotypes, sensed new trends and signals from numerous initiatives, and elaborated on new competitiveness frontiers and practices around the globe. We thank all of you for contributing to this remarkable experience!

We rarely expect innovations to come from emerging economies. Owing to weak domestic customer experiences and export-driven businesses, innovations from developing economies focus largely on cost efficiency in manufacturing and supply chain management. Digitalization has empowered emerging markets' startups to disrupt not only local incumbents but also global giants. Disruptive revolutions arising from the



Mr. Eldar Abdrazakov
Chairman, Kazakhstan Competitiveness Council,
and Founder and CEO, Centras Group, Kazakhstan.

emerging markets might sweep entire industries and ecosystems on a global scale and transform the global landscape.

Innovations in the emerging markets should also be considered in light of the rising economic power of the developing economies. Digitalization is accelerating the pace of change. The shorter legacy of historical investments and a greater sense of urgency boost the search for game-changing opportunities. Change management and value formation are a necessity for local companies. Most of the companies are born with a strong hunger for market transformation. The deep motivation and agile practices form a good base for creating an innovation competency.

The hidden potential for consumption in emerging economies gives another foundation for discovery and exploration. Although most emerging economies

focus on exporting resources or goods, and domestic consumption is largely overlooked, it does not stop market transformers. The low purchasing power hides true local demand but creates a base for the low-end disruption and readiness for innovations in the “not-good-enough” solutions.

Shortening the innovation cycle and boosting the vitality index by improving the quantity and quality of innovative ideas do not protect from transformative trends. The three megatrends of urbanization, digitalization, and sharing economy are creating the conditions for shaping radical innovations and impacting existing industries and ecosystems. No country is immune to these megatrends. Their impacts are demonstrably evident in developing countries. Certainly, innovative and disruptive business models powered by the megatrends and proven in the low-end consumer segments might become new contagious drivers of low-cost and “good-enough” transformations. Good learning experiences surely can emerge from surprising places.

On a final note, we would like to praise the GFCC's mission and active role in enabling cross-border learning and mutual collaboration. The culture of radical openness and unconventional discovery empower our GFCC community to make a difference in our countries. Thank you so much for your trust and generosity in letting us lead the way in 2019. See you in Australia in 2021!

GFCC PERSPECTIVE

Public Sector Transformation, in Kazakhstan and Worldwide

Mr. Anuar Buranbayev, Mr. Kainar Kozhumov and Ms. Aigerim Kushumbayeva

The Trends Have Not Been Promising

Back in 2019, the world had already encountered the challenges of an economic slowdown. We have seen rapid demographic and socio-economic changes, interconnected with sweeping technological disruptions. An aging population in the developed world and the continued childbirth growth in the developing world have brought new challenges to economies and governments. Due to a slowdown of the global economy, poverty has swept through the developing world even more sharply, adding more pressure on public participation in the economy.

Additionally, increased political tensions raise the probability of inter-state conflict escalation. These tensions, in turn, have pushed public expenses on the military sector and security. Various destructive ideologies are gaining momentum globally, leading to increased radicalization and polarization of societies and inadequacies in social capital.

The shock from the pandemic outbreak in 2020 demonstrates that the challenges persist and are systemic. Governments haven't been able to cope with COVID-19 impacts coupled with an aging population, technological disruptions, increased urbanization, and globalization. All these factors require us to reconsider the relationship between the state, businesses, and society to achieve a common positive outcome.



Where To Move?

These challenges increase the demand for a more sustainable, flexible, and transparent public sector. Moving towards a customer-centric and common value-creating approach to the public sector is key to this transformation. Transparency can hardly be achieved without complete digital transformation in the public sector.

One can raise the fundamental question of how much governments should interfere in the lives of their citizens and economies. The limited economic freedom that resulted from world quarantine measures by the public authorities has brought bigger challenges, especially in terms of rising poverty and inequality. The dilemma is still in a place of whether the governments that limit business activities for achieving social outcomes



Top left: Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.

Top right: Mr. Kainar Kozhumov, Partner, Center for Research and Consulting, LLP, Kazakhstan.

Bottom right: Ms. Aigerim Kushumbayeva, Analyst, Center for Research and Consulting, LLP.

do any good for their citizens' well-being and wealth in the long run.

As Michael Porter and Mark Kramer pointed out in *Creating Shared Value* (HBR) article back in 2011, the key approach for governments should turn diametrically towards the idea of shared value for businesses and society.

Governments' current regulatory environment assumes the "us versus them" attitude towards business, acknowledging its detrimental impact on society by trying to achieve profit maximization. The "trade-off" logic has swept through the capitalist world to create the fallacies among policymakers that businesses create obstacles for the well-being of societies. The 2020 pandemic lockdowns have demonstrated the reverse — innovations stemming from the business sector have benefited societies more than the government regulations, allowing for remote working and communicating opportunities.

As a result, the public sector needs to rethink its approach to policymaking towards "shared value" thinking, weighing the costs and benefits of their regulatory limitations on businesses for societies. Companies should be allowed to step up in creating the positive externalities of increasing efficiency worldwide.

The traditional divide between the public and private sectors needs to end and turn to collaborative action with a common purpose for long-term societal benefit. Forward-thinking and impact assessment tools are crucial for this collaboration to be effective and spur economic and societal well-being.

.....

The traditional divide between the public and private sectors needs to end and turn to collaborative action with a common purpose for long-term societal benefit.

How Is the Public Sector in Kazakhstan Transforming?

The public sector transformation in Kazakhstan has long been stagnating due to the lack of government integrity, and flourishing corruption stemming from oil revenues. There is a lack of government motivation to achieve societal and economic good, a common syndrome in natural resource-dependent states. Developing countries are often grounded on the principal-agent problem, whereas the principal has long been lacking and the entire government apparatus has been the agent.

Two factors characterize a demand for paternalist nature in this case: middle-income trap-related stagnation and fall in petroleum prices. For a long time now, legal businesses have been heavily taxed to achieve societal well-being. This situation has paralyzed private sector innovation and growth, while societal demands keep growing.

As a result, the new generation of policymakers has acknowledged the need for deregulating the markets, providing liberty to businesses. This future view goes much in line with Porter and Kramer's idea of shared value, as strategists in Kazakhstan now understand the value of business activities on societies.

Thus, public sector transformation is inclined towards a customer-based approach to policymaking, benefiting society as an ultimate goal. Dialogues with business leaders are becoming more frequent and productive, and are reflected in the strategic plans of the government. President Kassym-Jomart Tokayev has also pointed to a need for government sector restructuring into an efficiency-driven sector, minimizing the government size and maximizing the public-private collaboration.

Despite its long petroleum-dependent history, Kazakhstan is finally approaching maturity and acknowledges that state officials need to pursue public sector structural transformation. Developing countries worldwide have seen a great need to transform during the continuing pandemic, acknowledging, finally, that the interests of businesses and societies are not as opposing as was perceived before.

GFCC PERSPECTIVE

Business Transformation: Engineering Business Transformation in Kazakhstan

Mr. Eldar Abdrazakov

Innovation is a top priority for most corporate and national leaders. In today's world, the largest businesses are apprehensive about being disrupted by small startups. The S&P 500 companies' average tenure continues to contract because younger and nimbler startups keep surpassing larger incumbents.

In many cases, despite ample resources and advanced knowledge, countries and corporations reportedly fail to deliver on their ambitious visions. This is because innovation requires constant investment, substantial resources, and efforts, at the risk of reaching often insignificant results.

Large corporations share the need for increased agility and "striking oil" in new categories and clusters. On the one hand, organizational rigidity, internal politics and culture, inadequacies in the reward system, gaps in organizational capabilities, and internal inertia can turn business operations into a "curse." On the other hand, the same companies believe exploiting the same outdated competencies will fuel innovation. This is not the case. Resource-rich countries such as Kazakhstan are similar to the large corporations struggling with a "curse." These countries enjoy only marginal successes in transforming their economies and business cultures.



Mr. Eldar Abdrazakov
Chairman, Kazakhstan Competitiveness Council,
and Founder and CEO, Centras Group, Kazakhstan.

These are three questions we should ask to engineer business transformation:

1. Where are the foundations of multi-track growth drivers?
2. Who may empower game-changing innovations?
3. How do you accelerate the right business models?

Incumbent's Inertia

In many cases, emerging market leaders come from export-oriented industries and succeed in promoting their priorities and views on government policies. In the business sector, the key profit centers run the show. We all know that the future will become increasingly uncertain, which asks countries to divert the resources and their economies' potential. Nevertheless, likely, large industries will still hold the power of bringing the largest revenues to the economy in the future.

This situation leads to the "incumbent's inertia," which tends to preserve the status quo within dominating businesses. Status-quo industries are characterized by their conservative legacy, regulatory environment, and regional economic value structures. Overall, there is little room for transformation dynamics. Radical transformations require mass mobilization and coordinated efforts from the whole ecosystem.

According to the Centrals 500 country's top companies list, the twenty largest corporations account for 88 percent of the aggregated profit in Kazakhstan. The energy and material sectors alone account for 68 percent of revenues and 82 percent of the aggregated profit. No single IT company has been able to make it to the top ranking. This outlook demonstrates that there has been little progress in economic transformation.

Digitalization can change the future scenario. Until now, the sustaining innovations in emerging markets rarely challenged global giants. But current disruptive revolutions arising in developing economies can sweep entire industries and ecosystems on a global scale and transform the corporate landscape. Startups continue to disrupt value chains and industries from various directions with different organizational capabilities, mindsets and business models.

Transformation Features

Companies seek to survive in the face of market disruptions by improving internal evaluation and investment approaches. Strategies include downstream complementary assets critical for commercializing new technologies, coupling basic and applied research functions, reconfiguring organizational forms and structures, forging effective partnerships with challenger firms, establishing a separate entity to fend off the threat, and being willing to tear apart their core business. These procedures embody five critical transformation frontiers:

- Vision
- Capacity
- Capability
- Culture
- Partnership networks

Vision-building is the obvious and easiest to accomplish on the list. Thanks to the multitude of strategy consultants, visions are delivered quickly and comprehensively. Capacity to execute the vision and to scale up differentiate the leaders and laggards. Owing to the higher pace of technological changes and organizational learning, capability differentiates the

high-speed and medium-speed leaders. Culture helps to convert an army of corporate mercenaries into the brotherhood of crusaders. The right culture finds the right moments for questioning prevailing paradigms and changing original plans. Finally, partnership networks in the form of ecosystems, network platforms, and value chains enable the creation of new values and transform industries and categories.

In Kazakhstan, transformational readiness has mainly relied on vision-building. Although, often, organizations are not strong enough to deliver on their ambitious expectations. The country suffers from a lack of large-scale entrepreneurial corporations. Local players quickly retreat to backup dumping strategies. This is mostly explained by the price-sensitive local consumer and stifling bank loan-financed growth. The big question mark lies within a new trait called the 'killer feature.'

The Killer Feature

Businesses constantly question and rewrite paradigms. For instance, startups created a way of measuring their value by evaluating their impact on consumers' attention and behavior. The tendency of searching for a 'killer feature' shifted the transformation battleground and is affecting not only companies but industries and, ultimately, the entire ecosystem.

Innovations at the value formation, distribution, and appropriation create decoupling opportunities and disrupt existing customer value networks. The priority changes to nurturing emerging markets' consumers and understanding their underserved demands.

There is a lot of potential in exploring the population outside the market share consumption in emerging economies. Often, developing countries focus on exporting resources or goods and overlook domestic consumption because of lower local purchasing power. However, this situation has not stopped the market transformers. The low local purchasing power cultivates a base for low-end disruption and readiness for innovations.

The non-consumption is being outsmarted by the 3E decomposition: enabling, equipping, educating. New technological advancements and regulatory concessions have enabled consumers and operators to open domestic consumers' hearts and wallets. Powered by digitalization and the use of smartphones, domestic consumers and suppliers have actively engaged in economic activities. Usually, the low-end consumer is extremely price-sensitive, but there is an increased interest in product value education. I believe low-end breakthroughs can truly bring about disruption. Finally, the consumer revolution empowers the downstream customer value chain operators.

Stay nimble with the changes! Stay in tune with the domestic consumer!

PANEL 1

Nations in Transformation

Challenges and Opportunities for Economic, Technological and Social Development Across the Globe

PANELISTS

Mr. Simos Anastasopoulos

President, Council on Competitiveness of Greece (CompeteGR)

Dr. Miguel Athayde Marques

Vice-Rector, Catholic University Portugal

Former Chairman & CEO, Portuguese Stock Exchange (Euronext Lisbon)

Mr. Agris Preimanis

Director, Head of Kazakhstan, European Bank for Reconstruction and Development

Tan Sri Dr. Ir. Ahmad Tajuddin Ali

Distinguished Fellow, Global Federation of Competitiveness Councils

Joint-Chairman (Industry), Malaysian Industry-Government Group for High Technology (MIGHT)

His Excellency Askar Zhumagaliyev

Minister of Digital Development, Innovations and Aerospace Industry, Republic of Kazakhstan

MODERATOR

Mr. Eldar Abdrazakov

Chairman, Kazakhstan Competitiveness Council

Founder and CEO, Centras Group

Situation

Countries worldwide have started a transformational process to keep up with changes in the digital environment and ensure their participation in an evolving global market. Traditionally, initiatives focused on promoting growth, and rising income levels remained within economic and industrial policies. Today's challenges ask for a holistic approach. National projects must connect social development, innovation, international expansion, industrial diversification, and technological integration. There is also a strong need to improve governance structures and build partnerships with stakeholders across sectors.

Key Questions

- What role do transformation strategies play on national agendas?
- What countries are at the leading edge in implementing transformation initiatives? What have they done?
- What are the key enablers? What is missing?

Challenges

One of the main challenges that countries face is to implement an inclusive and sustainable transformation strategy. National agendas must integrate

economic, social, and environmental goals and adapt to an increasingly digital world. Partnerships across sectors are crucial to develop a plan at the national level. A robust strategy engages public and private sectors and civil society in building capacities and capabilities that match future economy needs and drive high-quality growth. Technology has enabled transformation at speed and scale. But without a real commitment to human development, sustainability and inclusiveness, nations will not prosper. The goal is to boost innovative business models and invest in policymaking that promotes rising income levels and better living standards.

Opportunities

Promote Partnerships (PPPs)

Convergence between public and private sectors is critical for achieving development goals and improving competitiveness. Innovative partnerships that bring together business, government, and civil society facilitate financing initiatives against a background of limited public resources. Promoting shared vision and goals for the whole country instead of applying a siloed mentality can help fulfill sustainable economic growth and make a real impact.

Investing in Digital Transformation

Digitalization will penetrate all sectors of society. Financing digital infrastructure to accommodate universal broadband and electrification is an essential feature in any transformation strategy. Governments must harness the power of digital technologies with a focus on people development and inclusiveness. Technology solutions can simplify administrative procedures and improve institutional design, transforming the relationship between citizens and the state. Digital technologies can also bring more transparency and efficiency. On the corporate side, data analysis, automation, and artificial intelligence can increase productivity. Technology also allows companies to scale-up and reach broader markets.

Upskill Workforce

Governments need to invest in training and upskilling the workforce to meet future economic demands. During the next decade, automation and AI will impact [1.2 billion employees](#) worldwide and change the nature of work. Future jobs will demand new digital abilities coupled with soft skills, such as teamwork, adaptability, leadership, and problem-solving. Many countries risk rising inequality due to the lack of upskilling opportunities. National initiatives must address the challenge of automation and build a sustainable and equitable work future. Corporations also have the

responsibility of communicating and training employees to adapt to new roles in a digital environment.

Engagement in International Networks

Transformations are happening across the globe. Global outreach and collaboration are crucial parts of a country's transformation agenda in an ever-evolving globalized world. Country participation in global networks can help identify opportunities, and exchange knowledge and best practices. Engaging in international projects creates connections, facilitates the understanding of different realities, and fosters national development.

Lead Into the Future

Global leadership is crucial for driving deliberative action and change. Leaders must have a future vision, and build resilient and innovative strategies that tackle challenges and opportunities for economic and social development around the world. The goal is not to react to changes in societies, but to be a co-creator and driver, leading into the future as a change-maker.

.....
"There are so many facets to transformation. Digitalization is at the front end as well as at the back end. But we all know that transformation is a holistic approach. At MIGHT, we developed a framework called FIRST, which accounts for finance, infrastructure, regulation, skills, and technology."

Tan Sri Dr. Ir. Ahmad Tajuddin Ali

Distinguished Fellow, Global Federation of Competitiveness Councils
Joint-Chairman (Industry), Malaysian Industry-Government Group for High Technology (MIGHT)



Mr. Eldar Abdrzakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan; Mr. Agris Preimanis, Director, Head of Kazakhstan, European Bank for Reconstruction and Development; Mr. Simos Anastasopoulos, President, Council on Competitiveness of Greece (CompeteGR); Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Distinguished Fellow, Global Federation of Competitiveness Councils, and Joint-Chairman (Industry), Malaysian Industry-Government Group for High Technology (MIGHT); Dr. Miguel Athayde Marques, Vice-Rector, Catholic University Portugal, and former Chairman & CEO, Portuguese Stock Exchange (Euronext Lisbon); and His Excellency Askar Zhumagaliyev, Minister of Digital Development, Innovations and Aerospace Industry, Republic of Kazakhstan.



Mr. Simos Anastasopoulos, President, Council on Competitiveness of Greece (CompeteGR); and Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Distinguished Fellow, Global Federation of Competitiveness Councils, and Joint-Chairman (Industry), Malaysian Industry-Government Group for High Technology (MIGHT)..

PANEL 2

Energy in Transformation

Bridging Supply with Future Sustainability

PANELISTS

The Hon. Robert Barbour

Director and Chief Executive, Centre for Competitiveness

CEO, Smart Grid Ireland Electricity Cluster

Mr. William “Bill” Bohnett

President, Whitecap Investment

Mr. Arman Kashkinbekov

CEO, Association of Renewable Energy of Kazakhstan

Dr. Mohammad Zaidi

Strategic Advisory Board Member, Braemar Energy Ventures

Former EVP & CTO, Alcoa

MODERATOR

Mr. Charles O. Holliday, Jr.

Chairman, Global Federation of Competitiveness Councils

Former Chairman, Royal Dutch Shell plc

Situation

Energy is the backbone of any economy. According to the IEA, 81 percent of the global energy mix comes from fossil fuels, particularly coal, gas, and oil. The old supply model can no longer hold. Worldwide, countries face the challenge of protecting the environment and meeting a growing demand for electricity at affordable prices. The impacts of climate change already threaten biodiversity and human life. The question is not if there will be an energy transition, but how fast can it happen? It is time to boost investments in research and development to improve energy efficiency and deploy renewable technologies at scale.

Key Questions

- How can countries simultaneously secure affordable energy supply, and drive transformation in energy power generation and consumption?
- What opportunities are being created by technology growth?
- How can energy-rich countries leverage today’s assets to build a sustainable and prosperous future?

Challenges

The time to break the link between fossil fuels and economic growth has passed. Energy transformations require systemic action across sectors with the active involvement of multiple stakeholders. Only a commitment to a global effort can reduce CO₂ emissions without compromising economic productivity. Governments, businesses, and civil society must engage in policymaking, improving research, and redrawing business models that will lead to a zero-carbon energy sector. Technology growth is crucial to drive and scale transformation. Achieving the goals set by the Paris Agreement depends on how fast technological breakthroughs can make clean energy economically competitive, more efficient, and widely available. Investments in research and development towards renewable sources, such as solar and wind, advancements in storage, smart power grids, and urban mobility, require public-private partnerships. Another challenge is reducing inequality. In today’s world, nearly one billion people live without electricity. Providing widespread access to energy at an affordable price is the bedrock of inclusive economic growth.



Mr. William "Bill" Bohnett, President, Whitecap Investment; and The Hon. Robert William Alexander "Bob" Barbour, Director and Chief Executive, Centre for Competitiveness, and CEO, The Smart Grid Ireland Electricity Cluster.



Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc.

Opportunities

Boost Digital Transformation to Improve Efficiency

Improvements in energy efficiency have significant implications for consumers, businesses, governments, and the environment. Digitalization can transform the energy sector, increase energy value, reduce costs, and drive economic growth. The use of sensors, data analysis, and automation offers ways to optimize energy use. Further developments in artificial intelligence and deep learning capabilities will provide a real shift in the energy sector. On the end-user side, connected devices in a smart house and intelligent energy management systems monitor consumption and reduce energy waste.

Scaling Up Initiatives to Reduce Costs

Investing in renewables is becoming more profitable every year, with solar panels and energy storage costs going down as market share expands. Conversely, economic returns from fossil fuels have reached a historic low with declining oil prices. There is an opportunity for businesses focused on scaling access to clean energy. Financing innovation and technology solutions to create more efficient turbines and disruptive energy storage technologies leverages the possibility to deploy at scale.

Investing in a New Distributed Energy

Distributed energy means investing in a model anchored in the end-user and away from large power plants. Technology developments have made available microgrids at lowered prices. "Prosumer" is a new buzzword to describe people who consume and produce energy, an increasing practice across the globe. Deploying small power grids that generate energy from renewable sources can be a game-changer for businesses and consumers, reducing climate change effects.

Include Sustainable Targets for Business and Governments

Stakeholders at all levels have a role to play in the energy sector transformation. Governments, big companies, and particularly SMEs, which account for most economic activity worldwide, must adopt frameworks aligned with sustainable development goals. A collective effort is critical to driving transformation in the energy sector. Only a commitment involving all actors can expand the access to clean energy and mitigate climate change effects while boosting productivity and generating jobs, economic growth, and prosperity.

.....
 "What we can say is that roughly 50 years from now, we'll be on a new energy system than we are today, all of our scenarios say that. The problem is, if it takes till the end of the century, we're going to have more global warming than we would want."

Mr. Charles O. Holliday, Jr.
 Chairman, GFCC

Former Chairman, Royal Dutch Shell plc

PANEL 3

Industries in Transformation

Building New Industries and Boosting Productivity in Today's Economy

PANELISTS

Prof. Dr. Mohamed Ibrahim Abdul Mutalib
Vice Chancellor and Chief Executive Officer, Universiti Teknologi PETRONAS

Dr. Mariam Ali Al-Maadeed
Vice President for Research & Graduate Studies, Qatar University

Mr. Kairat Kelimbetov
Governor, International Financial Center Astana

Mr. Adham Nadim
Chairman and Director, Nadim Industries

Prof. Peter G.R. Smith
Founder & Director, Stratophase
Pro-Vice Chancellor for International Projects, University of Southampton

MODERATOR

Mr. Chad Evans
Treasurer, Global Federation of Competitiveness Councils
Executive Vice President, Council of Competitiveness

Situation

Technology has opened the door to reinvent industrial processes. The insertion of automation, robotics, artificial intelligence, 3D printing, data analytics, and quantum computing at scale in the years ahead will change the scenario completely. Smart industries will be more productive and efficient, and likely to reduce costs in the longer-term. A technological transformation will add value to industry jobs as programming replaces plant workers and demand grows for high-skilled professionals. Automation will also create opportunities for organizations to redesign processes and develop new business models.

Key Questions

- How can countries accelerate the introduction of advanced technologies across industries and boost productivity economy-wide?
- Which industries pose the greatest opportunities for future growth? What do countries need to position themselves in that context?
- What are some of the best recent examples of countries that succeeded in building new industries and transforming their economies?

Challenges

The increased use of automation in industry-related activities will drive several changes in the job market. In today's economy, [one-in-four jobs globally](#) are in the manufacturing sector. Estimates predict a third automation wave in the mid-2030s could replace [45 percent of jobs among low education workers](#). By then, experts foresee using artificial intelligence and robotics in sectors that require responsive actions, such as construction and transport. Countries face the challenge of investing in human resource development to meet new job market demands, avoid unemployment, and foster economic prosperity. There will be an increased need for lifelong learning and upskilling to meet industry needs. On the corporate side, businesses will take up a more fragmented and competitive market. Changing patterns in consumer demands will solicit more customization and personalization.

Opportunities

Technology Will Allow New Manufacturing Models

Until recently, focus on cost-reduction and efficiency has driven industries to seek mass production. The insertion of technologies at lower prices will increase industry capacity and allow new manufacturing models. Against the



Mr. Chad Evans, Treasurer, GFCC, and Executive Vice President, Council on Competitiveness; Prof. Dr. Mohamed Ibrahim Abdul Mutalib, Vice Chancellor and Chief Executive Officer, Universiti Teknologi Petronas; and Dr. Mariam Ali Al-Maadeed, Vice President for Research and Graduate Studies, Qatar University.

trend of large plants in the 20th century. Businesses centered on niche markets at a smaller scale and managed locally can thrive in an environment powered by digitization.

The Products of Cutting-Edge, Clean Industries Are in High Demand

Awareness of climate change impact, air pollution, and biodiversity loss has increasingly pushed consumer demands

towards high carbon substitutes. The green economy proportion in market capitalization is growing faster than the fossil fuel industry. Estimates predict market capitalization to reach 7 percent by 2030 or even 10 percent with accelerated investments. There are opportunities for innovating in the green economy in urban mobility, such as electric cars, energy renewables, water infrastructure, food, and agriculture.

"I see the education sector as the backbone for any improvement in industry. R&D is a major part in this transformation and this can be either in small companies, in partnership with universities, or large corporations with their own research department."

Dr. Mariam Ali Al-Maadeed
Vice President for Research and Graduate Studies,
Qatar University



Mr. Kairat Kelimbetov, Governor, International Financial Center Astana; Mr. Adham Nadim, Chairman and Director, Nadim Industries; and Prof. Peter G.R. Smith, Founder & Director, Stratophase, and Pro-Vice Chancellor for International Projects, University of Southampton.

Multi-Stakeholder Initiatives to Lead Industrial Policies

An increasingly competitive global market calls for innovative industrial models. National policies must focus on R&D in partnership with the private sector and universities to leverage technologies that drive sustainable growth. New financial models that engage multiple stakeholders and better account for risk-sharing and risk-tolerance will likely increase. In parallel, there is a role for governments and policymakers to improve smart regulation that reduces administrative burden and simplifies legislation to boost industrial innovation.

Invest in Human Resources to Foster Economic Growth and Competitiveness

Technology will not by itself drive the transition to the next economy. Leadership is the key to achieve industrial transformation and economic growth. On the one hand, digital platforms lowered learning barriers. On the other hand, a knowledge-based economy calls for lifelong learning, technical and soft skills, and innovative thinking across disciplines. The countries that invest in upskilling and reskilling the workforce and educating youth with hard and soft skills will be at the forefront of industrial innovation.

.....
"The quick solution is always to just go and buy the state-of-the-art technology and implement it. But then you have to afford it... We spotted early on that industries had to connect with R&D institutions that could bring up the level of technology in the Egyptian factories. We needed to develop to the level where we can own the technology."

Mr. Adham Nadim
Chairman and Director, Nadim Industries

PANEL 4

Cities in Transformation

Transforming the Urban Landscapes and Building Future Competitiveness Centers

PANELISTS

Mr. Anuar Buranbayev

Partner, Center for Research and Consulting, LLP

The Hon. Jerry Hultin

Distinguished Fellow, Global Federation of Competitiveness Councils

Co-Founder, Global Futures Group, LLC

Ms. Bekturova Malika Yerlanovna

Deputy Mayor of Astana

Prof. James Metson

Deputy Vice-Chancellor, University of Auckland

Datuk Dr. Mohd Yusoff Sulaiman

President & CEO, Malaysian Industry-Government Group for High Technology (MIGHT)

MODERATOR

Dr. Roberto Alvarez

Executive Director, Global Federation of Competitiveness Councils

Situation

Today, half of the world's population lives in cities. The number of people in urban areas has more than doubled over the past 40 years. Estimates predict the total to reach 5 billion by 2050. Future cities will have to accommodate high living standards and competitive employment opportunities to attract innovators. Digital management and technology solutions can transform the cityscape, such as infrastructure, housing, and transport, to improve city functionality. Sustainability is another pressing matter. It is urgent to design solutions that reduce environmental impacts that can affect people's health, particularly high air pollution, rising temperatures, and lack of adequate clean water.

Key Questions

- What are the key attributes today for a competitive city? Which cities are on the rise? What are they doing?
- What decision areas and types of solutions should cities prioritize to become more efficient, healthy and sustainable? How can technology be used for that?
- What institutional and financial frameworks are needed to catalyze investment in sustainable urban infrastructures?

Challenges

Future cities face different challenges depending on their development level and demographics. For most of the world, the population will continue to grow, putting pressure on local's infrastructures. Optimizing the design and use of public spaces, finding solutions for improving urban mobility, and adequate housing are among the main tasks. Conversely, in developed nations, such as Japan and most parts of Europe, predictions foresee a decline in city residents. A big challenge relates to an aging population that will put additional strain on healthcare and needs further adaptation in services provision. A comprehensive city development strategy must also address inclusiveness and sustainability. Migratory patterns will contribute to increased racial and cultural diversity in urban areas. Cities face the task of creating policies that reduce social segregation and polarization. Finally, urban areas produce 70 percent of global greenhouse gas emissions and are vulnerable to climate change effects. Climate action must become a priority. Governments, businesses, and academia must work together towards achieving climate change targets at the local level.

Opportunities

Use Technology to Improve Mobility

Traffic congestion and time spent commuting is a big problem in cities. The transition to automated, connected, electrified urban mobility can provide optimized public transport to meet citizen needs. Replacing fossil fuel cars with electric vehicles can reduce air pollution. Data analytics, the Internet of Things (IoT), a high-resolution global positioning system (GPS), and artificial intelligence can also help manage and monitor cities in real-time. These technology solutions can increase energy efficiency, improve public-services provision, enhance productivity, and improve the quality of life.

Harness Local Assets to Boost Development

There is no one-size-fits-all model for city development. A transformation strategy must evaluate the state of the city and assess challenges to plan the future by harnessing the power of local assets. Policies that suit cities in Silicon Valley do not translate immediately to Helsinki or emerging capitals in Southeast Asia. In Malaysia, for instance, a development strategy has been attracting tourists to historical towns, such as Malacca, which is an UNESCO world heritage site.

Attract Global Talent and Universities

Global connectivity will increasingly allow people mobility across the globe. Cities will compete for highly skilled professionals coming from different cultural backgrounds to lead

transformation strategies. A diverse environment combining people with multidisciplinary skills is a fertile ground for unlikely ideas that open the door for innovation. Attracting global universities that connect researchers to local and international students, industries, and businesses is also a strategy to accelerate transformation.

Create City Networks to Exchange Best Practices

There is an emerging trend towards strengthening urban governance to influence policymaking, allocate resources, and drive development. Platforms that connect cities through networks can facilitate best practices exchange and knowledge sharing, and improve urban management. The European Union has been developing a framework since 2016



Dr. Roberto Alvarez, Executive Director, GFCC; Bekturova Malika Yerlanovna, Deputy Mayor of Astana; The Hon. Jerry Hultin, Distinguished Fellow, Global Federation of Competitiveness Councils, and Co-Founder, Global Futures Group, LLC; Datuk Dr. Mohd Yusoff Sulaiman, President & CEO, Malaysian Industry-Government Group for High Technology (MIGHT); Prof. James Metson, Deputy Vice-Chancellor, University of Auckland; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP.

to allow municipalities to participate in transnational governance and take a more prominent role in the bloc's decision-making processes.

Attract Clean Manufacturing to Urban Areas

For the past 50 to 70 years, industries have been pushed out from cities as a sign of progress to reduce noise and air pollution, opening free space for green areas. Innovation and technological developments have drastically changed the scenario. In many cases, Industry 4.0 initiatives operate at a small scale, occupy less space in urban areas, and do not damage the environment. Bringing clean industries, such as 3D printing, to cities, can attract investments and drive development.

.....
 "There is no cookie cutter plan for how you make a smart city or how you transform a city. You have to ask where are we, where are we headed, what are our assets? In the last 10 years, we've created 360,000 new jobs in the high-tech industry. There have been nearly 70 incubators created in New York."

The Hon. Jerry Hultin
 Distinguished Fellow, Global Federation of Competitiveness Councils
 Co-Founder, Global Futures Group, LLC



Prof. James Metson, Deputy Vice-Chancellor at the University of Auckland; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP.



The Hon. Jerry Hultin, Distinguished Fellow, Global Federation of Competitiveness Councils, and Co-Founder, Global Futures Group, LLC; and Datuk Dr. Mohd Yusoff Sulaiman, President & CEO, Malaysian Industry-Government Group for High Technology (MIGHT).

PANEL 5

Transform Competitiveness!

What can we do next?

Situation

Societies are going through an accelerated change powered by the fast development of digital technologies. In parallel, there are pressing issues, such as climate change, inequality, and diversity, shaping business, work, society, and life. The competitiveness agenda is part of this dynamic process. Companies, regions, and nations need to step ahead, implementing innovative strategies to boost sustainable productivity and growth. The competitiveness agenda in the future economy must simultaneously foster a strong business environment, promote innovation, address global challenges, and invest in

people's development. Countries worldwide are approaching the transition to the digital economy by implementing new policy frameworks and transdisciplinary national strategic projects focused on Industry 4.0, business digitization, and talent development.

Key Questions

- How are the frontiers of competitiveness being re-shaped?
- What new topics should be part of competitiveness agendas?
- What types of new policy solutions are countries implementing to drive future competitiveness and growth?

Challenge

There are many challenges as economies and societies transition to a competitive digital age. Data gathering powered by artificial intelligence (AI) raises the risks of surveillance, privacy violation, and discrimination. Embracing digital connectivity is crucial to boost growth and increase wealth. But without transparency and good governance, societies face the possibility of manipulation and control in the hands of authoritarian regimes and big technology companies. Another critical point is talent development. Digital technologies are transforming the job market. While there is not a consensus on how far AI will lead to job loss, it is clear that there

PANELISTS

Mr. Alexander Idrisov

Co-Founder, Eurasia Competitiveness Institute

President, Strategy Partners

His Excellency Asset Issekeshov

Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan)

The Hon. Dr. Jan Mládek

Distinguished Fellow, Global Federation of Competitiveness Councils

Former Minister of Industry and Trade, Government of the Czech Republic

Dr. Michiharu Nakamura

Distinguished Fellow, Global Federation of Competitiveness Councils

Senior Advisor & Former President, Japan Science and Technology Agency (JST)

Dr. Saif Al-Hiddabi

Asst. Secretary General, Research and Scientific Programs, Research Council Oman

MODERATOR

The Hon. Deborah L. Wince-Smith

President, Global Federation of Competitiveness Councils

President & CEO, Council on Competitiveness



Dr. Michiharu Nakamura, Distinguished Fellow, Global Federation of Competitiveness Councils, Senior Advisor & former President, Japan Science and Technology Agency (JST); Mr. Alexander Idrisov, Co-Founder, Eurasia Competitiveness Institute, President, Strategy Partners; The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; Dr. Saif Al-Hiddabi, Asst. Secretary General, Research and Scientific Programs, Research Council Oman; The Hon. Dr. Jan Mládek, Distinguished Fellow, Global Federation of Competitiveness Councils, and former Minister of Industry and Trade, Government of the Czech Republic; and His Excellency Asset Issekeshov, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan).

will be an inevitable change in how people work. The workforce must go through upskilling and reskilling. Also, countries, regions, and companies must address climate resiliency and invest in sustainable policies and businesses that reduce climate change impacts and prevent disruptive scenarios.

Opportunities

Invest in Human Capital

Work as societies know is due to change. The increasing use of digital technologies, such as the Internet of Things, data analytics, and AI, across all sectors, will pave the way for a disruptive

"Transition to digital society will take place inevitably, whether we want it or not. It is a fast phenomenon which is taking place...In cities, we need to introduce 5G as fast as we can. And we need to train people, not necessarily IT, but new teachers, new doctors, new engineers, and so on."

His Excellency Asset Issekeshov

Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan)



The Hon. Dr. Jan Mládek, Distinguished Fellow, Global Federation of Competitiveness Councils, and former Minister of Industry and Trade, Government of the Czech Republic; and His Excellency Asset Issekeshov, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan).



Dr. Michiharu Nakamura, Distinguished Fellow, Global Federation of Competitiveness Councils, Senior Advisor & former President, Japan Science and Technology Agency (JST).

transformation in the job market. Workers with skills in digital technologies will be in high demand, especially those with both hard and soft skills. Governments and businesses who invest in education and human capital will have a chance to boost productivity and efficiency, running innovative economies that empower people's talents.

Boost Industry 4.0

Technology will allow countries to create more competitive and innovative industrial sectors. Digital technologies will help industries have safer, automated, and faster production lines, with reduced long-term costs, and it will create the possibility of on-demand manufacturing.

Industries will set up production to suit consumers' needs, and redesign business models based on predictive analytics, allowing strategic control.

Integrate Multiple Players

How competitive a nation will become in the next economy will depend on how governments, the corporate sector, and universities integrate strategies and build partnerships. Nations should improve their regulatory environments to be conducive to public-private partnerships and growth. Leadership and the implementation of purposeful actions aimed to drive mindset change are essential to accomplish this. Universities and all other stakeholders (industries, corporations,

startups, national labs, research institutions, venture capitalists) need to embrace innovation and collaboration.

Promote Sustainable Businesses

Business cannot grow by ignoring social dynamics. Climate change, inequality, and lack of diversity are just a few pressing issues. There is an opportunity for entrepreneurs to invest in sustainable businesses that address these matters through innovative solutions. Rethinking business models from a different perspective can drive competitiveness and boost productivity while also creating a positive impact.

GFCC PERSPECTIVE

Why Transformation? It Is About Speed.

Dr. Roberto Alvarez

We are living through a time of accelerated change, when adaptation strategies alone cannot guarantee success in competition, relevance and continuity for organizations, nor create growth opportunities, nor lead to prosperity. The 2019 Global Innovation Summit was designed with this notion in mind, both with the intent to raise the awareness on the need for transformation and catalyze learning on transformation strategies and initiatives.

But what is the rationale for that? What is the chain of events and happenings that lead to the need for transformation? In short: Why is transformation needed? Here is my take on the matter.



Dr. Roberto Alvarez, Executive Director, Global Federation of Competitiveness Councils

Technology is Accelerating Faster and Faster

Technology is accelerating¹ and has become a major force shaping the future of organizations and society. As the pace of technological advancement increases, we will less and less see technology changing in discrete steps, even if key milestones are met over the years. Many challenges arise from technological change, and the risk of disruption² increases for incumbent companies.

Increasingly cheaper technology devices contribute to the democratization of access, but new technologies have also tended to produce winners-take-most³ outcomes, where dominant firms obtain more market power, and there is more pressure on other sectors to keep up with technological change.

New Business Models Are Emerging – and New Issues for Policy to Tackle

There is a visible proliferation of new business models, which come to life as companies identify unmet needs rather than look for additional outlets for existing offerings. The key to success in today's world is seen in the performance of companies such as Uber, AirBnb, Amazon, and Alibaba, for instance. These firms have used new technologies and combined personalization, asset sharing, usage-based pricing, collaborative ecosystems and agility features in order to transform⁴ their industries. Traditional business models are being replaced by more efficient, flexible and cost-effective digital solutions to allocate and organize resources.

¹ <https://singularityhub.com/2016/03/22/technology-feels-like-its-accelerating-because-it-actually-is/>.

² <https://www.linkedin.com/pulse/age-disruption-roberto-dos-reis-alvarez/>.

³ <https://www.brookings.edu/blog/up-front/2020/02/25/technology-and-the-future-of-growth-challenges-of-change/>.

⁴ <https://hbr.org/2016/10/the-transformative-business-model>.

The Lifespan of Companies Is Declining

Companies that fail to change and focus on fighting to avoid disruption are at higher risk of disappearing in the coming years, as the average lifespan of companies is being reduced. A recent study by McKinsey says that, by 2027, 75 percent of companies currently on the S&P 500 will have disappeared. This is mostly due to the inability of firms to anticipate trends and, above all, to change their strategies, product lines, organizational structures, priorities, behaviors, power structures and mindsets. Corporate longevity requires a change in mindset through which companies act purposefully to disrupt themselves and create the future, staying ahead of emergent competitors.

The Shelf Life of Skills Is Shortening

Along with the urge to evolve, not only companies are seeing their lifespan shrink but the shelf life of skills is also being reduced. As digital technologies continue to advance at a rapid pace, both companies and people in the workforce have a tougher time in developing new capabilities and acquiring new skills at an incremental rate. It has become absolutely critical for white- and blue-collar workers to acquire new skills in a continued, life-long, and accelerated fashion. The lack of skills is a major factor driving the displacement of people out of the workforce and hindering growth, costing jobs and billions in lost production.

Institutions (Law, Regulations, Government Organizations) Are Slower to Move Than Business

In order to drive future growth, productivity increase and prosperity, governments need to focus on innovation. They do that through a variety of ways, including investments in science and technology, partnerships with industry, the creation of legal frameworks to facilitate technology commercialization, public-private partnerships and more. However, as technology accelerates and new businesses emerge, businesses are increasingly moving faster than government and institutions, which need to evolve and take into account the transformations in the economic landscape. An element of novelty in today's reality is that not just policies, but institutions, are demanded to adapt quicker than ever before and should be engineered to catalyze innovation and experimentation, not hinder them.

We Have an Array of Complex Issues to Address Around the Globe, and Societies Demand Solutions

Societies around the globe are overwhelmed with complex, systemic problems such as climate change, inequality, global health threats, terrorism, food and water shortages, and beyond. The United Nations Foundation sheds light on some of the key issues that display fast-moving trajectories and require speedy solutions. On top of that, as we look to cross the COVID-19 chasm and go into a future economy and society, communities around the world are challenged to turn the crisis into an opportunity to reimagine, redesign and rebuild economic models and institutions. In the midst of this complex scenario, a reflection

emerges: how can we appropriately apply technology to address pressing issues? How can governments and institutions quickly provide concrete answers to society demands?

In such a fast-paced world, it has become extremely difficult to succeed merely by adaptation and playing catch-up — we need speed. Companies, higher education institutions, government agencies, policy organizations, and other stakeholders need to focus on transformation. Adaptation is not a feasible alternative.

The 2019 Global Innovation Summit preceded the new COVID-19 pandemic, which has compounded the challenges described above. Some of the changes and events expected for the coming years and decades will most likely come sooner as a result of the acceleration caused by the pandemic. We see change accelerating in front of us, from digitalization across all sectors of the economy to a stronger demand from society for governments to address inequality. We will need to innovate in business and institutions, and we will need to do it at speed.

Companies are putting in place strategies and organizational solutions to allow for experimentation with new technologies and business models, outside of their current core businesses. Universities are mingling with industry and society. Governments are called to create spaces for institutional experimentation, allowing entrepreneurs to quickly deploy and test new solutions. This approach requires a fundamental change in the approach to be followed: from control to experimentation and learning. The faster any organization can learn, systematize learnings and take action, the better positioned it will be to transform. We need speed. We do not have time to adapt — in business, in policy, and even in our professional lives.

Celebrating Innovation at the GIS 2019 Gala Dinner



Traditional Kazakhstan dance.

A Gala reception closed the second day of the Global Innovation Summit in Nur-Sultan, gathering the GFCC network for a dinner celebration.

This invitation-only reception was an immersion in the host country's cultural heritage. GFCC members, fellows, and guest speakers had the opportunity to watch traditional music and dance performances, and taste Kazak wine and food. The GFCC presented the Global Competitiveness Award to His Excellency Asset Issekeshov, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan). The GFCC award recognizes prominent leaders whose voice and insights have advanced the global competitiveness agenda in their organizations, cities, and nations. The GFCC also presented two special recognitions to Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.



Top: Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc.



Bottom: His Excellency Asset Issekeshov, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan)

2019 GFCC Awardees Profiles

In 2019, the GFCC presented the Global Competitiveness Award to two leaders for the first time: Mr. Bakytzhan Sagintayev, Mayor of Almaty and former Prime Minister of Kazakhstan, and His Excellency Asset Issekeshiev, Executive Director of the Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade of Kazakhstan, and former Mayor of Astana (now Nur-Sultan).

The awards recognize their leadership role in driving transformation and competitiveness in Kazakhstan during the challenging transition to the digital economy and growing global connectivity.

Mr. Sagintayev led Kazakhstan from 2016 to 2019 and is currently the Mayor of Almaty, the country's biggest city. Mr. Sagintayev has an extensive career in public service and occupied several high-level positions, such as Minister of Economic Development and Trade, and First Deputy Prime Minister of Kazakhstan for Regional Development.



Mr. Kainar Kozhumov, Partner, Center for Research and Consulting, Kazakhstan; Mr. Adham Nadim, Chairman and Director, NADIM Industries; The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc; His Excellency Asset Issekeshiev, Executive Director, Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade, Kazakhstan, and former Mayor of Astana (now Nur-Sultan); Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.

Mr. Sagintayev has led the creation of an innovation ecosystem in Kazakhstan focused on accelerating business competitiveness and digitalization. During his time in office as Prime Minister, Mr. Sagintayev implemented key economic policies focused on privatization and improving business growth.

He also designed an ongoing national strategy to promote digital transformation in traditional economic sectors, such as manufacturing, transport, and agriculture, in addition to establishing incentives for e-commerce and financial technologies. The award recognizes Mr. Sagintayev's commitment, guidance, and focus on improving the country's business environment and governance.



Top left: Mr. Adham Nadim, Chairman and Director, NADIM Industries; The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; His Excellency Asset Issekeshov, Executive Director, Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade, Kazakhstan, and former Mayor of Astana (now Nur-Sultan); and Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc.

Top right: Mr. Adham Nadim, Chairman and Director, NADIM Industries; The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness; Mr. Bakytzhan Sagintayev, Mayor of Almaty and former Prime Minister of Kazakhstan; and Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan.

At left: Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc; His Excellency Asset Issekeshov, Executive Director, Foundation of the First President of the Republic of Kazakhstan, former Minister of Industry and Trade, Kazakhstan, and former Mayor of Astana (now Nur-Sultan); Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan.

The second awardee, Mr. Issekeshov, also has an extensive public service career in high-level positions. He was the Chief of Staff to former President Nazarbayev and Mayor of Nur-Sultan from 2016 to 2018. Mr. Issekeshov is responsible for national industrial policy development and diversification in Kazakhstan.

As Minister for Industry and Technology, Mr. Issekeshov implemented policies to boost foreign direct investment in the manufacturing sector, significantly increasing national exports. The Kazakh Invest, a national foreign direct investment and promotion agency that he helped create, serves as an example of a development strategy to other Eurasia's emerging economies.

Special Recognitions

The GFCC also granted two special recognitions to Mr. Eldar Abdrazakov, Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan; and Mr. Anuar Buranbayev, Partner, Center for Research and Consulting, LLP, Kazakhstan. The special acknowledgments recognize their work to forge global partnerships, improve Kazakhstan's global standing and advance the competitiveness agenda in the country.

CRC's leading partner Mr. Buranbayev has developed relevant initiatives in the competitiveness field, particularly in bridging public and private sectors in city

and national competitiveness strategies. The Center develops and implements programs at the city, regional, and national levels to boost economic growth and prosperity.

Mr. Abdrazakov leads the KCC and other innovative projects, such as the Kazakhstan Growth Forum. The forum is a private platform to analyze economic trends, challenges, and business opportunities, while also recognizing leaders in the country and attracting global speakers and partners from across the globe.

Transformation Spotlights

The Future of Talent and Work: The Great Talent Transition

Dr. Margareta Drzeniek Hanouz

The transformation of work and talent is essential for a successful future where competitiveness, innovation, technology, and business growth can thrive. Businesses, individuals, and governments are crucial components in facilitating the successful future development of work and talent. But the talent landscape has moved faster than the development of necessary skills, resulting in asymmetry. Four trends are shaping the future of work and talent: digital transformation, workspace change, the insertion of disruptive technologies, and an aging population across the globe.

Digital transformation pushes business models to change significantly, requiring fast adaptation, new mindsets, and digital skills to transform the talent base. Workspace change compels businesses to consider how to manage the transformation effectively. The expansion of automation and robotics requires not to view these new developments as the technology that will cause a rise in unemployment, but rather that will lead to a change in skills necessary for the workers' development and enhance human capacities. When analyzing the talent transformation, governments and businesses need to ensure that aging populations across the globe remain employable in the context of digitalization and adapt a lifelong learning approach, especially in education.



Dr. Margareta Drzeniek Hanouz, Senior Fellow, Global Federation of Competitiveness Councils, and Managing Partner, Horizon Group.



Mr. Sanzhar Kettebekov, Executive Board Member, Satbayev University, Almaty, Kazakhstan.

Industry

Mr. Sanzhar Kettebekov

The emergence of Industry 4.0 has provided an opportunity for innovation and development in various industrial sectors, pushing countries such as Kazakhstan to advance manufacturing strategies. Kazakhstan deployed a national plan starting with investment in digitalization in the mining sector, which involved public-private partnerships as well as government policies. For instance, under national rules, local companies' budget spending must reserve one percent for R&D. Human capital and enterprise-wide adoption also turned out to be crucial in this process with the need for skilled and qualified officials as well as a focus on startup companies.

Policies for incubator-like technology transfers and artificial intelligence technology laboratories were put under the digital Kazakhstan and Industry development programs. Gaps were also identified such as cost-cutting opportunities through the use of mines as storage where up to 30 percent of transaction costs could be lowered. The initiative also aims to upskill and reskill the workforce.

Currently, the focus of Industry 4.0 in Kazakhstan is scaling up and expanding local businesses to the global stage, with emphasis on investment in startup companies and regional opportunities. There is a project to form a silk road startup initiative. It is estimated that annually there are now about 10,000 projects within the regional economic belt, with the number expected to grow in a couple of years.



Ms. Bekturova Malika Yerlanovna, Deputy Mayor of Astana.

Cities and Mobility: Nur-Sultan as a Resilient, Yet Competitive City

Ms. Bekturova Malika Yerlanovna

Nur-Sultan wants to become a global city, attracting innovators and global talents. To realize a vision for the future, the local government has boosted investments on three main pillars: education, finance, and infrastructure. The biggest challenge has been balancing the fast-paced growth of the city's population, with 50,000 new inhabitants each year, and the need for new roads, public transport, an efficient sewerage system, and housing.

The local project aims to establish the city as a future educational hub for the region. The Ministry of Education introduced a set amount of spending per pupil to guarantee quality education and built 14 new private schools in 2019. Half of the schools under this program are international, aiming to attract foreign tutors and world class education. Local governors also want to establish Nur-Sultan as a regional financial center. The construction and SMEs will remain the main economic drivers, with 58.5 percent of the local GDP and 70 percent of taxes coming from SMEs. The population growth will also push expansion of the services sector, with a growing demand for barbershops, schools, and supermarkets.

The Future of Energy

Mr. William “Bill” D. Lese

The world is going through an energy transformation. Technological advancement coupled with the growing pressures of climate change have accelerated the transition away from hydrocarbons towards various renewable energy sources. The production and distribution of clean energy are being enabled at a rate previously thought impractical but now made possible through digitization. But this multidimensional situation is complex. It stands that the solutions are equally as complex. Support for the energy transition must come from all sectors involved: energy supply, transport, construction, industry, government, and consumers. Collaboration and connectivity are increasingly important as nations worldwide approach the growing immediacy of climate change impacts.

Despite the obstacles, positive signs are evident: cost reductions in solar energy by a factor of seven, and national policies to incentivize renewables. The transition has also been predicated upon the private sector and the innovative energy solutions that will emerge from businesses and startups. In the automotive industry, electric vehicles have been the focus of the future. All sectors need to work together to ensure a successful energy transition and move the 20th century era of hydrocarbons into the 21st century of multidimensional clean energy systems.



Mr. William “Bill” D. Lese, Co-Founder & Managing Partner, Braemar Energy Ventures.

The Innovation Story and Innovation Future : Competing Against Luck – A Better Approach for Corporate Innovators and Public Policy Makers

Mr. Teddy Hall

More than two billion people worldwide live with less than 3 USD a day. For most of the corporate sector, these disadvantage populations are excluded from target lines for products and services. But the large number of non-consumers represents an untapped potential for businesses and policymakers. Pioneers investing in expanding and scaling up local markets are market-creating innovators who pull infrastructure and resources into their businesses and countries. Successful companies, such as Ford and Bank of America in the United States, to KIA, Toyota, Samsung, and Honda in Asia, have strategically adapted their business models to serve large populations from low-middle income classes.

Businesses and policymakers must invest in aligning market share expansion to lift people out of poverty. Entrepreneurs who turn non-consumption into vast marketplaces not only enrich their companies but their communities. The idea is to develop business models that help people struggling with their financial and professional lives to leapfrog and participate in the consumer market. Coupled initiatives and strategies will enable people to participate in the economy, creating job creation, wealth, and prosperity to countries and communities. And, in the process, increase political stability, and improve social well-being.



Mr. Teddy Hall, Senior Partner, Lippincott.

Growth Forum



Participants in the 2019 Growth Forum

Kazakhstan Growth Forum was established in 2011 in the context of a growing trend of business dialogues and their influence on the formation and development of new opportunities for business and corporate executives.

In 2019, leading industry experts discussed topics, such as new frontiers of competitiveness, growth strategies, and economic metrics, and shared their assessment on economic trends and growth factors. Also at the event, awards were presented to Kazakhstan's best CEOs of the year, and business case studies on innovation and growth were analyzed. The forum is organized by the largest financial holding Centras and the Kazakhstan branch of YPO – Young

Presidents' Organization, uniting more than 30,000 young top managers around the world. The forum is intended to become a platform for interactive exchange of views.

Kazakhstan Growth Forum has become a constructive and professional platform for regular debate, analysis, and search for solutions to the strategic problems of economic development of Kazakhstan and domestic business.

Thank You to the GIS2019 Sponsors

Organizers

Global Federation of Competitiveness Councils



Center for Research and Consulting



Kazakhstan Competitiveness Council



General Partners and Sponsors

The Foundation of the First President – Elbasy



City of Nur-Sultan, Mayor's Office



Eurasian Resources Group (ERG)



Partners

International Financial Center Astana



Kazakhstan Growth Forum



Eurasia Competitiveness Institute



Nazarbayev University Social Development Fund



Sponsors

JSC National Managing Holding Baiterek



BI Group



2020

Now. Bridge. Reboot. Conversation Series

The global COVID-19 crisis highlighted weaknesses in societies, created massive short-term challenges and accelerated long-term transformations.

This scenario prompted the GFCC to engage its global network to shed light on the crisis, share ideas on the key attributes for the future economy, and identify the strategies and steps needed to take us there. Between May and July 2020, the GFCC hosted eight online conversations gathering more than 40 speakers from business, academia, policy, the entrepreneurial sector, and government from more than 20 nations.

The conversations aimed to share learnings on solutions deployed, foster thinking about emerging trends, shape collective action, and build new partnerships. Sessions were separated into three phases of action: **Now**, focused on crisis mitigation; **Bridge**, addressing the transition between the crisis and the future economy; and **Reboot**, centered around the opportunities to shape a more sustainable, innovative, inclusive and prosperous future.

SERIES HOSTS



The Hon. Deborah L. Wince-Smith
President, GFCC

President & CEO, Council
on Competitiveness



Dr. Roberto Alvarez
Executive Director, GFCC

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 1: Bridging Crisis and Future Prosperity

May 6

Summary

The COVID-19 pandemic created a multidimensional and complex systemic crisis. In May 2020, services and establishments in Europe opened up after the first wave of COVID-19 devastated the continent. Meanwhile, the infection's curve was still rising worldwide, aggravating economic hardship and inequality. There were significant data and information gaps, posing challenges that resulted in a plethora of divergent responses and strategies across nations. Overall, leaders recognized the need to scale-up research and analysis. It was also crucial to mobilize multiple stakeholders to improve the collective capacity to explore the situation, develop agreements on priorities, and build trust. Trust is what keeps societies and economies functioning, and will be much needed to reboot.

- The COVID-19 crisis brought about challenges across sectors. Universities shut down and moved online in many parts of the globe. Financial markets experienced volatility, and access to capital became difficult. The pandemic tested logistical systems, revealing fragilities in healthcare supply systems. In developing countries, lack of access to clean water, insufficient infrastructure, and unstable electrification imposed severe difficulties in the fight against the virus.
- It is crucial to reinforce openness, freedom of speech, and international mobility, critical factors for building innovative and thriving societies. Emergency powers should not lead to the erosion of human rights and democracy.
- Increased government participation in the economy and citizens' lives stood out as a trend following the outbreak, with renewed awareness on the importance of restructuring national industrial capabilities, and investing in entrepreneurial initiatives to boost innovation.
- The disruption created an opportunity to redesign the future, investing in purposeful leadership focused on inclusiveness and sustainability. The new business and operation models emerging from the crisis need to contribute to a future vision that balances civilization's economic development and nature.

PANELISTS



Mr. Charles O. Holliday Jr.
Chairman, GFCC
Former Chairman,
Royal Dutch Shell plc



Mr. Hiro Nishiguchi
CEO, Japan Innovation
Network



Dr. Kandeh Yumkella
Member of the
Parliament,
Sierra Leone
Former Director
General, UNIDO



Prof. Isabel Capelo Gil
Rector, Universidade
Católica Portuguesa

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 2: Responses and Outcomes

May 20

Summary

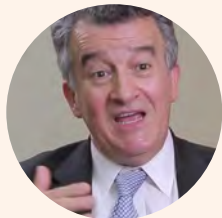
National responses to COVID-19 were uneven. Health, social and economic impacts put stress into political systems and call for literate, compassionate and resolute leadership. Across the globe, societies faced a wave of misinformation, fake news, and political distrust. The systemic disruptive effects underscored two fundamental human imperatives: transparency and trust. In a crisis, people expect consistent and clear communication and purposeful action plans from governments, and flexibility, resiliency, and empathy from businesses. Building partnership between public and private sectors is also crucial to overcome the crisis, and drive future prosperity and address economic inclusion.

- The responses to the COVID-19 crisis varied across the globe. Priority areas and outcomes were intertwined with pre-existing local problems and depended on systems available. In developing nations, the pandemic added another layer of complexity to policy responses in countries already burdened by high unemployment rates, high debt, and precarious infrastructure.
- COVID-19 unleashed economic hardship and poverty in developing and developed nations. Governments need to come up with solutions to support the livelihoods of the most fragile segments of society.
- The economic reboot will demand partnerships and joint efforts across sectors. Leadership must come from business, not only from governments, to mitigate pandemic effects, drive positive change and prioritize livelihoods. There needs to be equal priority of livelihood and business survival. If there is no business, there is no livelihood.
- There is a gap between mindset and perspective, leading to mental traps, separating responsibilities and action areas. Leadership is vital in both the private and public sectors, along with their ability to problem-solve together.
- The coronavirus accentuated the importance of redesigning multilateral organizations. The World Health Organization, the World Bank, the IMF, the American Development Bank, etc., must work cooperatively and provide global solutions.

PANELISTS



Dr. Jane Wilson
Guardian, Australian Future Fund
Co-Chair, Australian Government Advisory Board on Technology and Healthcare Competitiveness



Dr. Rogerio Studart
Global Leader, New Climate Economy Initiative, WRI
Former ED (Board member), World Bank & IADB



Her Excellency Nathalie Cely
President, Center for Innovation and Competitiveness
President, Educate Foundation
Former Ambassador of Ecuador to the United States



Mr. Dylan Jones
Deputy Minister for Western Economic Diversification, Government of Canada



Dr. Joaquin A. Guerra-Achem
Vice-Rector for Academic and Educational Innovation, Monterrey Tech



Mr. Christos Megalou
CEO, Piraeus Bank

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 3: Turning Knowledge Into Impact

May 27

Summary

COVID-19 highlighted the complex interfaces between scientific evidence, policy, and public opinion, whereas clear and consistent communication stood out as a success factor. The pandemic also called for and illustrated the potential of transdisciplinary research, accelerated technology transfer, and cross-sector collaboration. Societies watched breakthrough innovation in vaccine development from research connecting different domains of knowledge. But the health crisis is only the first urgent matter to address. There are social and economic challenges that demand engagement and problem-solving from multiple stakeholders. The private sector, universities, governments and entrepreneurs have to work together to find sustainable and durable solutions to the world's most pressing issues, such as climate change, cybersecurity threats, and increasing inequality. Leaders from various sectors must discuss ways to incentivize coalitions and platforms that can positively impact and prepare societies for the future.

- Technology transfer across industries was key to creating a unified front on pandemic-related matters. Effective and novel innovations often incorporate multiple disciplines.
- Many future solutions will arise from systemic approaches and cross-sector partnerships between universities, industry, government, communities and entrepreneurs working together to create new models for the economy. Although national-level solutions are pivotal during uncertain times, governments and businesses must also focus conversations on local realities and drive impactful initiatives at the local level.
- As the world reorganizes itself around new boundaries and guidelines for living safely, there's been a movement to push things online. Social distance accelerated digitization but also brought inequality to the forefront. Not everyone has available the infrastructures and resources needed to support virtual work and learning, which exacerbates income inequalities and leaves behind those who cannot afford the technology or do not have access to broadband internet.
- The pandemic demonstrated the importance of mobilizing knowledge to develop sustainable solutions and avoid future disruptions related to climate change and biodiversity loss. Scientific evidence shows that the continuous destruction of native forests increases the incidence of zoonotic diseases. The WHO is investigating the possibility that the eradication of wildlife habitats facilitated the spread of the coronavirus among humans.

PANELISTS



Prof. Tan Sri Zakri Abdul Hamid
 Science Advisor,
 Campaign for Nature
 Scientific Advisor to
 the President, Islamic
 Development Bank
 Distinguished Fellow,
 GFCC



Prof. Colin Grant
 Vice Principal, Queen
 Mary University
 of London
 British Council, Chair
 of the Education
 Advisory Group



Mr. Paul Levins
 Co-Founder and former
 Chief Strategy Officer,
 Xinoa
 Chief Business Officer,
 SousZen



Ms. Victoria Alonso
 Founder & CEO,
 Chipsafer
 UN Young Leader for
 SDGs



Petros Doukas
 Mayor of Sparta, Greece
 Distinguished Fellow,
 GFCC

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 4: Looking East

June 3

Summary

Asia was the first continent hit by the coronavirus pandemic. Early response and institutional learning from dealing with past health crises, particularly SARS and MERS, enabled nations to respond and flatten the virus' curve. Social norms and available IT infrastructure also accounted for successful response, containment, and control of the COVID-19 outbreak in the region. Asian nations have invested in education to improve sanitation and change social behaviors related to hygiene and public health. An outcome of previous situations is mask-wearing to avoid spreading diseases. Scientific and technological development in the region has allowed massive testing to occur from the first months of the pandemic.

- Early response was pivotal to prevent the spread of the virus, including using IT tools to move services online, making COVID-19 testing easy and accessible, and establishing consistent communication between governments, businesses, and individuals.
- Adapting economic policies was crucial to support people's welfare and industries hit by lockdown measures, such as tourism and services. Businesses also played a leadership role, adapting priorities and operations, focused on strengthening resiliency.
- COVID-19 demonstrated the importance of creating early warning mechanisms to allow governments to act fast when facing an unexpected situation. Institutionalizing learning from past disruptive scenarios can turn crisis responses into assets for the future.
- A multilateral approach to sustain new configurations for global supply chains must deal with a renewed focus on the manufacturing sector and local realities. There is an opportunity to implement new technologies, such as touch-free toilets, and establish sanitation as a strength in societies. Global responses must coordinate action and decision-making of multiple players, sharing information and resources to protect human life and prosperity.

PANELISTS



Mr. Adham Nadim
Chairman & CEO,
Nadim Industries



Tan Sri Dr. Ir. Ahmad Tajuddin Ali
Co-Chair, Malaysian Industry-Government Group for High Technology
GFCC Distinguished Fellow



Mr. Rashed Abdul Kareem Al Blooshi
Undersecretary,
Department of Economic Development of Abu Dhabi



Mr. Tae-Shin Kwon
Vice-Chairman & CEO,
Federation of Korean Industries
GFCC Distinguished Fellow



Ms. Yu Serizawa
President & CEO,
Forma Corporation
Management Board Member, Groupe Renault



Mr. Jack Sim
Founder and CEO, World Toilet Organization & BOP Hub
Distinguished Fellow, GFCC

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 5: Local Realities – Looking West

June 17

Summary

The pandemic deeply impacted Western economies, particularly stressing fragilities in supply chains and local manufacturing capabilities. It demonstrated the degree of dependency on foreign nation’s manufacturing capabilities and highlighted gaps in the distribution of critical pharmaceuticals, medicines, healthcare supplies and protective equipment. Yet, economic impacts have been uneven and vary a lot depending on the level of economic diversification, percentage of trade in the total economic output, and types of government stimulus packages. When it comes to dealing with the health crisis and curtailing the spread of the virus, government policies have varied significantly, even within Europe. For instance, while most nations deployed lockdown measures, and mask-wearing, Sweden kept businesses and schools

open, and did not close international borders. The long-term results of different policy approaches need to be assessed in the future.

- The COVID-19 pandemic has been a multidimensional challenge, demanding quick government action across many fronts – the health crisis, the economy and increased unemployment, misinformation, the need for rapid organizational changes, etc. – seeking to meet multiple objectives, sometimes in the face of conflicting interests.
- Data gaps became a challenge for governments designing strategic plans to react and recover. Unemployment data, for instance, can take up to two months to be available in certain nations, leaving policymakers without precise numbers to operate upon.
- Transitioning into a post-pandemic world will require balancing local realities with national and international concerns. Crisis management and policy responses depend on addressing uneven territorial impacts, at economic, health, and social levels. Digitalization opens opportunities for regions to reach larger markets, driving growth and prosperity.
- Although national responses vary considerably, there are two shared lessons stemming from the crisis. First, nations must invest in economic diversification, boosting national manufacturing capabilities. Second, the public and private sectors need to commit to clear and consistent communication to develop higher levels of trust.

PANELISTS



Mr. Alexander Idrisov
Co-Founder, Eurasia Competitiveness Institute
President, Strategy Partners



Dr. Jan Mládek
General Director, The Czech Institute of Applied Economics
Former Minister of Industry and Trade and Minister of Agriculture, Czech Republic



Mr. Simos Anastasopoulos
President, Council on Competitiveness of Greece
Chairman & CEO, Petsiavas SA



Prof. Sylvia Schwaag Serger
Chair, Swedish Foundation for International Cooperation in Research and Higher Education
Deputy Vice Chancellor, Lund University



Ms. Joan Macnaughton
Chair of the Board, The Climate Group
GFCC Distinguished Fellow

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 6: The Economy and Society Will Need Innovation

June 24

Summary

The disruption caused by COVID-19 spurred innovation across every dimension of life. Digitalization reached a full cycle. Work moved online, and companies and employees adapted management and communication to digital platforms. Education also changed, with schools and universities switching to virtual or hybrid learning. New products, services, and business models emerged. Lockdown measures and social distancing contributed to the booming of e-commerce. The unique moment of disruption created an opportunity for countries and businesses to address social gaps and invest in innovation models that accelerate the transition to the future economy.

- Governments must allocate budgets and stimulus packages to build the future – not for going back to business as usual. The digitalization that spurred during the pandemic will accelerate areas of innovation and opportunity in government, finance, energy, education, housing, biotechnology and education.
- New innovation models and digital transformation can facilitate access to capital, expertise and mentoring for entrepreneurs worldwide. There is a lot of untapped innovative potential worldwide due to lack of inclusiveness and education. Challenges, such as access to capital, underdeveloped skills, and the absence of market knowledge, stand in the way of millions of people who cannot take advantage and enjoy available opportunities.
- A downside of innovation and digitalization is the potential raised for surveillance and monitoring of entire populations. It is crucial to establish data governance at the global level. The public and private sectors must partner to boost investments in robust systems dedicated to data integrity and verification, to achieve sustainability and resiliency, and to ensure respect for privacy and freedom of movement.
- The transition to a post-COVID-19 situation will be gradual, more towards an accommodation process than a sudden change. Another major transformation is a shifting operational focus from efficiency to resilience in economies and business.

PANELISTS



Ms. Bedy Yang
Global Managing
Partner, 500 Startups



Mr. Chad Evans
Treasurer, GFCC
Executive Vice-
President, Council on
Competitiveness



Ms. Gianna Sagazio
Innovation Director,
Brazilian National
Confederation of
Industry (CNI)



Prof. Jim Metson
Deputy Vice-
Chancellor, University
of Auckland



**Dr. Michinari
Hamaguchi**
President, Japan
Science and
Technology Agency
(JST)

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 7: Accelerating Digitalization

July 1

Summary

The pandemic has created a perfect storm to accelerate digitization. For many people, 2020 has been the year when work, learning, and even social life moved to fit into a computer screen. Business models and government services adapted to operate through virtual platforms during lockdowns. But the rapid digital shift has also put a strain on underlying social structures, accentuating inequalities and complicating access to the job market for people with low paid jobs. In the United States, the pandemic put a spotlight on the urban-rural divide, and raised a call for universal broadband and improvements in digital infrastructure. Across the globe, experts are discussing ways to improve accessibility and digital inclusiveness and provide solutions to accelerate digital transformation.

- COVID-19 was the ultimate test on the infrastructure and systems that enabled many countries worldwide to rapidly move to online work, online education, and the use of telemedicine to deliver healthcare. But the pandemic highlighted and accentuated inequalities since digital infrastructures and capabilities are not accessible to everyone.
- It is crucial to provide upskilling and reskilling programs to the workforce. Workers need to undertake adequate training to move into a digital age, empowering economies to handle the fourth industrial revolution. For instance, partnerships between the public and private sectors can support SMEs, exposing businesses to new technologies that can improve capabilities and create value.
- Data is at the center of the fourth industrial revolution and digitalization. The digital economy entails the convergence of an array of different technologies to create a digital society. Critical areas for new models include manufacturing, finance, healthcare, and education. Technology solutions such as the Internet of Things, artificial intelligence, 3D printing, cyber technologies, automation, and robotics can develop hybrid societies in which cyber-physical systems provide autonomy and intelligence at an unprecedented level.
- The bottom line is that digitalization impacts all aspects of life and society. Multilateral mechanisms, governments and the private sector must invest in data governance and improve institutions to protect human rights in the digital sphere, especially privacy and freedom of speech.

PANELISTS



Prof. Aleksandar Subic
Deputy Vice-Chancellor and Vice President at RMIT University



Dr. Ashwani Kumar
Former Minister of Law and Justice, Government of India
GFCC Distinguished Fellow



Mr. Eldar Abdrazakov
Chairman, Kazakhstan Competitiveness Council, and Founder and CEO, Centras Group, Kazakhstan



Dr. Michael Nelson
Director for Technology and International Affairs, The Carnegie Endowment for International Peace
GFCC Senior Fellow



Ms. Regina Njima
Founder and CEO, Kizo Ventures



Dr. Saif Al-Hiddabi
Asst. Secretary General, Research and Scientific Programs, Research Council Oman

NOW. BRIDGE. REBOOT. CONVERSATION SERIES

Conversation 8: Global Innovation Coalitions

July 8

Summary

After eight thought-provoking conversations about ways to bridge the disruptive pandemic landscape and speed up the future economy, two key takeaways stood out: COVID-19 is an accelerator of emerging trends, such as digitalization, and a highlighter of social and structural weaknesses. While a portion of society experienced the revolution in remote work, online education and the boom in e-commerce, others confronted a lack of access to healthcare, poor existing IT infrastructures, and economic vulnerability. Partnerships and global coalitions can help design solutions that meet these challenges by harnessing the power of collaboration, diversity, and multidisciplinary. The post-pandemic recovery creates an opportunity to design the future through strategic alliances focused on sustainable development and inclusive prosperity.

- The pandemic further strained historical structural inequalities in societies, particularly for economically and socially disadvantaged groups. Public policies and business leadership must take measures to address racial disparities when designing and planning reboot strategies.
- COVID-19 has been an accelerator of existing trends in society, chief among them is digitalization. Speed and resiliency will remain critical needs in government and business operations as nations transition to the future economy.
- Governments, businesses, and citizens have to work together to address the digital divide stressed by the COVID-19 situation. Societies must prioritize new models and partnerships to accelerate technology commercialization and scale up initiatives that increase accessibility and inclusiveness to digital platforms.
- Developing sustainable and durable solutions to reduce climate change impacts is crucial for a responsible economic reboot. Global networks must be ready to embrace and engage with sustainability efforts, supporting the targets of the Paris Climate Agreement. Initiatives to drive clean tech innovation and new business models could accelerate the energy transition without putting a burden on taxpayers.

PANELISTS



Mr. Charles O. Holliday Jr.
Chairman, GFCC
Former Chairman,
Royal Dutch Shell plc



Ms. Lori Schmidt
President, Lorai
Management Group



Ms. Myriam Taylor
Co-Founder and CEO,
Muxima Bio



Mr. William "Bill" Bohnett
President, Whitecap
Investments

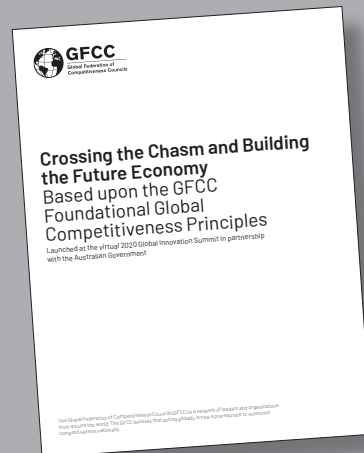


Dr. Peter Gruss
President and CEO,
Okinawa Institute
of Science and
Technology (OIST)

Sharing the Competitiveness Story 2020

In 2020, the GFCC developed and released two publications to address the competitiveness agenda in the context of the COVID-19 pandemic and the unprecedented crisis it unleashed. The 2020 Global Competitiveness Principles highlights the importance of fostering public-private partnerships for crisis response, innovation strategies, and frameworks to speed up recovery and build resiliency. In addition, the GFCC produced and organized a thought papers series on leadership during the crisis to boost the transition to the future economy. The result is the book *Leading Through the Chasm and into the Future Economy*, compiling insights on the topic authored by 33 leaders from 21 countries.

Crossing the Chasm and Building the Future Economy



Co-created by GFCC members and fellows, the 2020 *Global Competitiveness Principles* arise from a series of virtual conversations held since the COVID-19 outbreak began. The dialogue involved key global competitiveness, business, technology, entrepreneurship, policy, and thought leaders within the GFCC network. The 2020 *Principles* emphasize skill and talent development, enhancing regional and local action to speed economic recovery, build resiliency, close infrastructure gaps, and build sustainable economic systems.

Leading Through the Chasm and into the Future Economy

Leading through the chasm and into the future economy provides insights on leadership authored by 33 leaders from 23 countries who are shapers in their fields of expertise. C-suite professionals in energy, business consultancy, law, finance, social entrepreneurship, sustainability, government administration, and nonprofits share perspectives, reflections, and innovative ideas for leaders to leverage the crisis as an opportunity for growth and transformation.



From Our Host: Australian Advisory Board on Technology and Healthcare Competitiveness

Australia warmly thanks GFCC fellows, members and supporters for making the landmark virtual Global Innovation Summit in November 2020 an outstanding success.

Co-hosted by the Australian Government and Australian Advisory Board on Technology and Healthcare Competitiveness, the virtual event attracted more than 700 participants. Leaders from business, academia and government from across the globe enjoyed keynote presentations from international leaders and interactive panel discussions, and explored the latest innovation breakthroughs.

Despite the evolving challenges presented by the COVID-19 pandemic, Australia was pleased to host the 2020 Summit as a committed member country of the GFCC. In 2020, meeting virtually became the new norm, and at times, it was difficult to truly feel connected. Pivoting the event to become fully virtual in response to the pandemic allowed us to consider how we might cross the chasm and use our global partnerships to innovate, develop leading health solutions and build future economies. As The Hon. Greg Hunt MP, Australian Government Minister for Health (pictured), noted in his



The Hon. Greg Hunt MP, Australian Government Minister for Health.

opening address, it is truly a testament to innovation that we were able to hold a summit about innovation during a global pandemic.

In addition to making the event virtual, we endeavoured to make the theme — *Crossing the Chasm: Health, Innovation and the Future Economy* — and program meaningful to both the current and future global context. The two-day event explored the impact of the COVID-19 pandemic from a health, social and economic perspective, as well as the pivotal role that innovation and competitiveness have in supporting the future economy.



The Hon. Karen Andrews MP, former Australian Government Minister for Industry, Science and Technology.

In his address on health and competitiveness, Minister Hunt spoke about how the COVID-19 pandemic has driven systemic changes to the way healthcare is delivered around the world. In Australia, there has been unprecedented integration across many areas of the health sector, including health protection, primary care, aged care, mental health, disability care, hospitals and research.

Minister Hunt was proud to share an evidence-based approach to the COVID-19 response and recovery measures. Australia's decisive actions minimised the spread of the virus in the community and the government's numerous economic

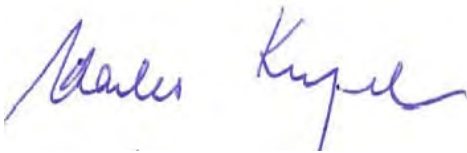
stimulus packages sustained businesses and households throughout the year. As a result, Australia is one of the countries least affected by the pandemic, and the economy performed well in 2019-2020. Confidence in the health response to COVID-19 continues to be essential in underpinning efforts to restore the Australian economy.

The Hon. Karen Andrews MP, in her former capacity as the Australian Government Minister for Industry, Science and Technology (pictured), outlined how investments in crucial economic sectors during the pandemic and the aftermath are equally vital to Australia's recovery agenda. Investing in innovative projects to support both rapid and longer-term transformation of ideas into

new products and treatments will make a real difference to people's lives – both locally and globally. These investments not only improve people's health, they will contribute to better social and economic outcomes as the country responds to the disruption of the pandemic on daily life.

While Australian researchers are pioneers in many areas of health sciences and practical medicine, our COVID-19 response has benefited from our strong global partnerships in areas such as virus research, global health surveillance, disease treatment and vaccine development. These partnerships enabled Australia to speed up research translation and technology deployment into new health solutions and will continue to support us as we move into pandemic

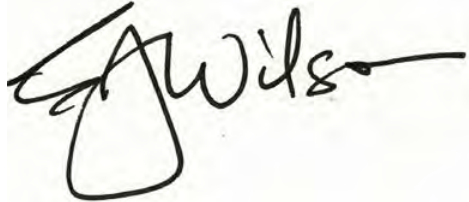
recovery and beyond. Knowledge sharing is vital for global innovation and competitiveness. It is even more critical in the global fight against the coronavirus and for capitalising on opportunities by working through the challenges facing the world at this critical juncture. This underscores the importance of being part of a global network such as the GFCC.



Mr. Charles Kiefel AM

Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness

Chairman, The Principals Funds Management



Dr. Jane Wilson

Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness

Future Fund Board of Guardians, Non-Executive Director, Sonic Healthcare



Dr Larry Marshall

Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness

Chief Executive, Commonwealth Scientific and Industrial Research Organisation

2020 Global Innovation Summit Online

The 2020 GFCC Global Innovation Summit—*Crossing the Chasm: Health, Innovation and the Future Economy*—convened government leaders, academics, CEOs, and entrepreneurs in a two-day online event to discuss health technology solutions and strategies to respond to the COVID-19 socio-economic crisis, and ways to accelerate the future economy.

The Summit, hosted in partnership with the Australian Government and the Australian Advisory Board on Technology and Healthcare Competitiveness, aimed to advance the global innovation and competitiveness agenda by sharing knowledge and exchanging best practices. The Summit, which featured panels of high-level speakers from around the world, was hosted by key Australian leaders including the Australian Minister for Health, The Hon. Greg Hunt MP; the Australian Minister for Industry, Science and Technology, The Hon. Karen Andrews MP; Chairman of the Principles Fund Management, Mr. Charles Kiefel AM; Chief Executive of CSIRO, Dr. Larry Marshall; and the Non-Executive Director of Sonic Healthcare and Future Fund Board of Guardians, Dr. Jane Wilson.

Day 1: Leading in Health Solutions

The current global crisis is, first and foremost, a health crisis. Global economic recovery depends on nations and organizations COVID-proofing cities, the key centers of economic

activity. In the short term, the ability to respond swiftly guided by scientific evidence has been a decisive factor in government efforts to manage the effects of the COVID-19 disruption. On the first day,

the Summit explored developments in health technologies to respond and mitigate COVID-19 impacts, pathways for vaccines, and frameworks to accelerate innovation in health.



Leader Perspective: Crossing the Chasm: Health, Innovation and the Future Economy: Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc; His Excellency Arthur B. Culvahouse Jr., former United States Ambassador to Australia; and The Hon. Deborah L. Wince-Smith, President, GFCC, and President & CEO, Council on Competitiveness.

Leader Perspective: Crossing the Chasm: Health, Innovation and the Future Economy

Mr. Charles O. Holliday, Jr.
Chairman, GFCC

Former Chairman, Royal Dutch Shell plc

Ambassador Arthur Culvahouse Jr.
United States Ambassador to Australia

The Hon. Deborah L. Wince-Smith
President, GFCC

President & CEO, Council
on Competitiveness

In the pandemic's aftermath, organizations and corporations worldwide will face new challenges and questions. Leaders and communities will need to transform their economies into more inclusive, diverse, and sustainable systems that can unleash the power of innovation. Mr. Charles O. Holliday, Jr., Chairman, GFCC; and former Chairman, Royal Dutch Shell plc; and GFCC President The Hon. Deborah L. Wince-Smith discussed the importance of global

partnerships based on shared values with the U.S. Ambassador to Australia Arthur Culvahouse. COVID-19 has shown how collaborative efforts can catalyze inventions and achieve practical solutions. For example, partnerships among companies, universities, and governments have been crucial for creating and distributing COVID-19 vaccines. Encouraging and investing in further collaboration among nations, companies, universities, NGOs, and governments will pave the way towards a more resilient and sustainable future. The United States and Australian representatives pledged to expand cooperation between the two countries for trade, economic engagement, health, and innovation.

Leader Perspective: Health and Competitiveness

The Hon. Greg Hunt MP
Australian Minister for Health

The COVID-19 pandemic has been one of the biggest challenges that humanity has faced since the Second World War and has irreversibly changed healthcare

delivery. COVID-19 demonstrated that deploying digital and other technologies could save and protect lives, enhance communications across the health sector, and improve the delivery of health-care and the medical experience, while collaboration uniting the private and public sectors can boost the innovation process. For example, by deploying technology and changing operations quickly, the Australian government was able to check up on people's physical and mental health regularly and on their compliance to necessary restrictions. Innovative public and private partnerships backed by state funding underpinned the creation of a national telehealth system that provided medical consultations and medicine delivery to people's homes through electronic prescribing and home-dispensing procedures. This digital transformation has been enabled by an ever-expanding portfolio of technology platforms and innovations, which have also been crucial for deploying efficient testing procedures as well as new ways of producing and distributing vaccines worldwide. The power of cooperation and innovation will



Leader Perspective: Health and Competitiveness: The Hon. Greg Hunt MP, Australian Minister for Health.

be necessary in helping Australia and the rest of the world restore and strengthen national economies.

Leaders Dialogue: The Australian Experience and the Role of International Collaboration to Support the Global Response to COVID-19

INTERVIEWER

Dr. Mehmood Khan

Executive Chairman, Life Biosciences, Inc.

Former Chairman, Council on Competitiveness

INTERVIEWEE

The Hon. Greg Hunt MP

Australian Minister for Health

Former Council on Competitiveness Chairman Dr. Mehmood Khan interviewed Australian Minister for Health, The Hon. Greg Hunt MP, on Australia's COVID-19 experience. They discussed Australia's national coordinated strategies and the importance of early decision-making based on scientific evidence to mitigate

.....
"The crisis enabled the transformation, not just in technology, but also in governance."

the short- and long-term impacts of the virus. Minister Hunt also discussed the Long-Term National Health Plan, which prioritizes preventive medicine and special care for elderly physical and mental health.

Dr. Mehmood Khan: A successful response in the fight against COVID-19 is often a combination of preparedness and correct decision-making at the start of the emergency. What policies and strategic decisions were in place that allowed Australia to manage the responses successfully? Could you comment on the 2019 National Health Plan?

The Hon. Greg Hunt: We had a combination of preparation and decision-making. In 2017 and 2018, the World Health

Organization reviewed our pandemic preparedness plan and determined that Australia was well-prepared for an endemic. The bodies of the Department of Health are designed to be a hub, physically and technologically linked across government and vertically within. The National Incident Room is deeply integrated into this structure. We also had a coordinating mechanism of the National Trauma Center, special air service, and the Australian medical assistance team that could be rapidly deployed. All of those existed before the pandemic. And all of those were implemented at the same time. The Chief Medical Officer of Australia and I formed a Cabinet sub-committee, called the National Security Committee, the principal decision-making body with the Prime Minister chairing it. He owned the process we had in place. We were able to make informed rapid, real-time decisions but in a contestable environment and then focus on implementation.

Khan: You described an actual integrated system-wide innovation capacity. I read through Australia's Long-Term National Health from 2019. After the pandemic



Leaders Dialogue: The Australian Experience and the Role of International Collaboration to Support the Global Response to COVID-19: Dr. Mehmood Khan, Executive Chairman, Life Biosciences, Inc., and former Chairman, Council on Competitiveness; and The Hon. Greg Hunt MP, Australian Minister for Health.

experience, what would you do differently with the hindsight of what we have learned?

Hunt: Innovation and healthcare are inextricably linked. It is the story of the last 200 years of medicine, and it is accelerating. If you think of the Australian example—from 50 years life expectancy in late 1800, to mid-1980s, and a child born today—you see the fastest growth in life expectancy in human history over the course of beyond a century. That's directly linked to medical research, innovation, competition, and the exchange of ideas. About the Long-Term National Health Plan, Australia has a hybrid health system. It is not fully nationalized as the United Kingdom (UK) model, and it is not privatized like the U.S. model. Australia's system is a combination of public and private. During the pandemic, we had a very strong cooperation within our state system. If I were to change anything, it would have been moving even faster on that front. During the pandemic, the Prime Minister created a National Cabinet. The Cabinet became a transformative body. A second decision-making body coordinated the work of the states and territories. If we thought of that a year ago, it would have made it even faster and easier. The crisis enabled the transformation, not just in technology but also in governance.

Khan: One of the challenges we're all facing around the world, particularly in developed countries, is dealing with an aging population. My company is very interested in expanding the healthy part of longer living, requiring less intervention in medical terms. What do you have in mind for Australian national policy around aging well?

Hunt: Our principle on aging is first to make sure that there's the hope of care. And the best care of all is preventive. There's a lot of work that has been done on the preventive health of older Australian men, which includes both

.....
 "We can do things much more quickly, subject to safety. Humanity is immensely flexible, and we just have to give ourselves the task and set those rapid stretch goals. Sometimes, what you would call urgent short term rapid needs can lead to the most extraordinary innovation."

physical and mental health. One of the great crashing impacts on elderly health comes from loneliness and isolation. We need, as a society, as a country, and as a governance system, to improve and build connections for the isolated or lonely older citizens. They really are at double risk. It is incredibly important to build those networks. That's a key part of what we do. Secondly, there's the physical support that we're looking at building from age 45-50 onwards. The idea is to give people that sense of custodianship of their health. And then the third element is transforming the actual aged care system.

Khan: You very astutely mentioned in your speech that the decades-long plan to deploy technology was implemented

in weeks. This situation raises a question for me as a medical scientist: what was the bottleneck? What was preventing us from using existing technology to transform the quality of care? As we look to the future, what else is sitting on the shelf that we're not doing?

Hunt: It's probably been the two great learnings for me during this year: the power of partnership with the population and the ability to bring forward reform. Blood donations and vaccination rights have continued because the population was very focused on their health and contributed to the response. The second thing is that we have been able to bring forward reform faster. I mentioned the governance and some of the other reforms, but telehealth is probably the signature. This has become a standard platform for our operations. There was a cultural change and a bureaucratic change. We had to keep the doctors and nurses safe because we saw examples overseas — whether in New York, Italy, or Spain — where a catastrophic health outcome took place, exposing medical professionals. We wanted to keep our elderly and patients safe. We took that platform that we had been developing, and we rolled the dice and implemented it. And we were able to iterate. We recognize there's a change needed. We had a plan, but we just ditched that plan and adopted it overnight because the technology platform had been built. What is the key learning? We can do things much more quickly, subject to safety. Humanity is immensely flexible, and we just have to give ourselves the task and set those rapid stretch goals. Sometimes, what you would call urgent short-term rapid needs can lead to the most extraordinary innovation.

*This interview was shortened and edited to fit the report format. Watch the full original interview on the [GFCC Youtube Channel](#).

PANEL 1: PERSPECTIVES

Putting Health Technology to Work

PANELISTS

Dr. Stefan Hajkowicz

Senior Principal Scientist
Group Leader Data61 Insights
CSIRO

Prof. Mary Foley AM

Managing Director
Telstra Health

Dr. Karen Holbrook

Regional Chancellor
University of South Florida
Sarasota-Manatee

Distinguished Fellow
GFCC

MODERATOR

Dr. Rob Grenfell

Health Director, Health and
Biosecurity
CSIRO

Situation

The COVID-19 pandemic has been a live test for digitalization in healthcare systems worldwide. Lockdown measures and the need to avoid face-to-face contact to reduce the spread of the virus pushed the implementation of telemedicine through digital platforms that, in many cases, were already available but did not find usage. Computer science and data modeling mechanisms also played a crucial role in containment and mitigation strategies worldwide. Most important, the development of multiple COVID-19 vaccines at a record pace proves the efficacy and efficiency of applying computer power to scientific knowledge and international collaborative research. The silver lining is that the emergency of the global health situation pushed ten years of digital transformation to a span of a few months in the health sector. In the coming years, health systems are expected to operate at the intersection of healthcare delivery, data science, digital strategy, and policymaking.

Challenges

An innovative ecosystem is emerging in the health sector, with the increased use of disruptive technologies such as artificial intelligence, machine learning, the Internet of Things (IoT), robotics, and

blockchain. Countries and organizations face practical challenges in accelerating the galloping wave of technological advancement. Research translation and technology transfer from industry to the healthcare sector is necessary for scaling new technology-based solutions and expanding their use around the world. Countries such as the United States, United Kingdom, China, Canada, and India have boosted investments in health technologies to speed up their development and deployment. It is also crucial to provide funds and incentivize knowledge exchange, research, and co-creation. Finally, the application and use of new technologies depend on advancing regulatory frameworks, and deepening discussions on ethics and privacy to deliver better and more inclusive healthcare to all people.

Key Questions

- How can economies accelerate digital transformation, and what does it mean for future ways of working, learning, and teaching?
- What are some of the most relevant and complex issues arising in connection with digital solutions and digitally driven transformation?



Putting Health Technology to Work: (clockwise from upper left) Dr. Stefan Hajkowitz, Senior Principal Scientist, Group Leader Data61 Insights, CSIRO; Dr. Karen Holbrook, Regional Chancellor, University of South Florida Sarasota-Manatee; Dr. Rob Grenfell, Health Director, Health and Biosecurity, CSIRO; and Prof. Mary Foley AM, Managing Director, Telstra Health.

- What has been the impact of digital transformation on healthcare and medicine?
- What are the main challenges that big digital technology companies are facing when trying to unleash the potential of digital technologies?

Opportunities

New Ways of Teaching and Learning

The digital revolution accompanying the pandemic has proved to be a highly fruitful consequence of the global crisis, creating opportunities for a more productive future. Online teaching and learning scaled effectively, demonstrating unprecedented potential to expand education opportunities for young people, and will likely catalyze a new familiarity with digital technologies. This

could blossom into a broader interest in healthcare technology, digital technologies, and artificial intelligence, setting-up new generations for future inventions and successes.

More Investment in Healthcare Technology

The pandemic played a significant role in raising awareness about the importance of healthcare technology and the need for greater support and investment in research in the field. While the United States has been the largest investor in healthcare technologies globally, the United Kingdom, Canada, China, and India are now investing very significant sums of money to ensure that healthcare technology research is fostered and supported.

Escaping the Economic Slump

Digital technologies, such as artificial intelligence and blockchain, can provide significant benefits across the economic sphere. The digital revolution might help societies escape a future economic depression in the same way that electricity prevented the collapse of economies around the world after the 1920 Spanish flu. There has been a relative productivity increase with employees working remotely with less time spent commuting. Digital technologies could also become roadmaps to a yet unexplored prosperous future.

PANEL 2: LEADERS DIALOGUE

Vaccines – Global Innovation and Partnerships

PANELISTS

Dr. Victor Dzau

President
National Academy of Medicine
(United States)

Mr. John Crothers

Australian CEO
Abbott Labs

Dr. Dean Moss

CEO
UniQuest

MODERATOR

Ms. Jane Halton AO PSM

Chairman
Coalition for Epidemic Preparedness
Innovations

Situation

The pandemic's health and socio-economic devastation pushed a race for a vaccine to save lives, stop human suffering, and rescue economies, which led to innovation breakthroughs and first-hand international collaborations. Research labs, universities, governments, pharmaceutical companies, and biotechnology industries worldwide cross-checked information on virus genomics and proteomics and connected available toolkits in different scientific domains. Cooperative schemes were also crucial to deploying and managing COVID-19 testing and contact tracing and advancing drug therapeutics with safety and efficacy. Guaranteeing global health security depends on supplying and deploying vaccines to the world population. Multilateral engagements to foster inclusive and equitable vaccine distribution are crucial to improve public health globally.

Challenges

Scientific advancements and vaccine development alone will not bring the pandemic to an end. Social and policy challenges remain in securing immunization for populations and effectively reducing health risks globally. On the one hand, equitable access to vaccines for everyone is crucial to fully recover the global economy. Without vaccines,

COVID-19 will risk greater inequality and xenophobia among countries. On the other hand, misinformation, conspiracy theories, and the spread of fake news undermined confidence in vaccines and health strategies to contain and mitigate the impacts of the virus and reduce its spread.

Key Questions

- What steps were fundamental for a record speed vaccine development?
- What is required for global health security in response to the COVID-19 pandemic, and the likelihood of future pandemics?
- What is needed in terms of manufacturing capability, partnerships between governments and private enterprise, and broader innovation?

Opportunity

Multi-Stakeholder Engagements

Governments, universities, pharmaceutical companies and research institutes played a crucial role in COVID-19 responses across the globe. Multiple research institutes launched scientific studies to discover virus sequencing and genomics, measure virus transmission, and model its spread using data analytics. Partnerships between



Vaccines – Global Innovation and Partnerships: (clockwise from upper left) Ms. Jane Halton AO PSM, Chairman, Coalition for Epidemic Preparedness Innovations; Dr. Victor Dzau, President, National Academy of Medicine (United States); Dr. Dean Moss, CEO, UniQuest; and Mr. John Crothers, Australian CEO, Abbott Labs.

researchers and industry made possible the development of testing kits, protective equipment, and the landmark Oxford University–AstraZeneca vaccine. These achievements have forged new partnerships that can create opportunities to engage in future collaborations. Deepening these ties across sectors will pave the way for addressing other complex challenges such as climate change and rising inequality.

Continue Investments in Quality Science

The pandemic underscored the importance of continuous investments in science to support policy and decision-making. Successful responses took place in countries where governments coordinated strategies based on evidence and scientific advice. Previous investments in infrastructure and basic research were

crucial to developing COVID-19 antibody tests, PCR testing, and data modeling of the pandemic spread and its impacts. Leaders worldwide should review budgets to increase funding for R&D. This strategy will strengthen the economy, make the world cleaner and safer, and help fight the spread of diseases.

Strengthening Multilateralism

The COVID-19 pandemic affected the whole world and demonstrated the extent to which countries on the global North and South depend on each other to find a safe and effective way out of the crisis. The COVAX Facility, a multi-stakeholder engagement led by the Coalition for Epidemic Preparedness Innovation (CEPI) and the World Health Organization (WHO), has been coordinating and supporting the deployment of vaccines worldwide.

This type of public-private international cooperation is essential to guarantee the safety of the world's population and can also serve as an example for leadership to address other global threats such as terrorism, climate change, gender-based violence, and rising inequality. COVID-19 demonstrated the importance and relevance of strengthening multilateralism and rebuilding international institutions.

PANEL 3: PERSPECTIVES

Paving the Way for a Safer Future

PANELISTS

Dr. Cathy Foley
Chief Scientist
CSIRO

Prof. Ian Frazer AC
Chairman
Australian Medical Research
Advisory Board

Dr. Michinari Hamaguchi
President
Japan Science and Technology
Agency (JST)

Mr. Simos Anastasopoulos
President
Council on Competitiveness of Greece

Dr. Erol Harvey
CEO
Aikenhead Centre for Medical
Discovery

MODERATOR

Dr. Jane Wilson
Future Fund Board of Guardians
Non-Executive Director, Sonic
Healthcare
Co-Chair, Australian Advisory Board
on Technology and Healthcare
Competitiveness

Situation

Countries across the globe have faced multiple socio-economic and health challenges arising from the COVID-19 pandemic. It has been crucial to put health safety measures in place, supply and distribute vaccines, and provide care for people in need. This urgent call for innovative and rapid solutions has helped expand medical field horizons, engaging multidisciplinary frameworks and different technologies to mitigate the pandemic's devastating effects. More than ever, medical research is necessary to build a better future. Partnerships across sectors and organizations have also been crucial to tackle the virus and its impacts on multiple fronts. Governments had to work fast and in tandem with each other, putting forward mitigation strategies under the pressure of an emergency. COVID-19 demonstrated the importance of building resilient systems and capabilities to prepare for the next pandemics or other severe disruptions.

Challenges

Governments around the world were in a life and death race against time. They had to work around-the-clock to develop quick diagnostic techniques and a vaccine, and to produce a greater volume of medical supplies, such as masks and ventilators. Vaccine development and

distribution became imperative as the only solution to conquer the virus. Over the past decades, different circumstances have driven careful planning and education programs to create and administer vaccines. During the COVID-19 pandemic, taking the time typically used to develop a new vaccine was not an option; research and vaccine testing had to be accelerated. Another difficult task has been to scale-up production rapidly under the right conditions and to distribute vaccines globally.

Key Questions

- What common challenges and situations have countries faced in the past year?
- What have been the common efforts in finding ways to navigate the pandemic?
- What can countries learn in terms of acquired capabilities to protect themselves from future health crises?

Opportunities

Economic Restructuring

Governments and businesses have engaged in a rapid technology transfer process that underpinned the manufacturing shift needed to meet the global demand for vaccines and other



Paving the Way for a Safer Future: (clockwise from upper left) Dr. Cathy Foley, Chief Scientist, CSIRO; Prof. Ian Frazer AC, Chairman, Australian Medical Research Advisory Board; Dr. Michinari Hamaguchi, President, Japan Science and Technology Agency; Mr. Simos Anastasopoulos, President, Council on Competitiveness of Greece; Dr. Erol Harvey, CEO, Aikenhead Centre for Medical Discovery; Dr. Jane Wilson, Future Fund Board of Guardians; Non-Executive Director, Sonic Healthcare; and Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness.

pandemic-related health and safety products, with extensive use of digital technologies to manage logistics and supply chains. Nations have also reviewed supply chain capacities and tried to address existing gaps, kickstarting the local production of products and investing in partnerships and logistics optimization.

Engineering Applications to Science and Manufacturing

Governments and businesses that have coordinated and collaborated across different sectors had better responses to COVID-19 than others. Coordinating various specialists' skills and bringing them to bear to solve a problem or address a complex challenge is an engineering task. Science translation using engineering project management principles

enabled a speedy vaccine production and manufacturing shift to produce essential medical equipment. The intangible benefits of this new way of organizing scientific and production processes gives new hope for the post-COVID-19 world.

International Scientific Cooperation

Science diplomacy has been crucial in the fight against COVID-19 and the primary expression of global cooperation. Scientific communities worldwide worked together to develop a body of knowledge, and share information that could help fight the coronavirus. This new approach to science was instrumental in vaccine development. Open-source research and digital technologies fostered rapid scientific discovery, technology development, and practical cooperation.

Day 2: Building the Future Economy

COVID-19 accelerated trends and catalyzed transformation across sectors. Work and education moved online, e-commerce boomed, new businesses and organizational models emerged. The new drive to speed up innovation processes is likely to remain a permanent feature in the future economy. Also, the pandemic raised greater alarm about social gaps and the effects of climate change on societies. Inclusiveness and sustainability will be at the center of business strategies and policies. On the second day, the Summit addressed priority areas and industries for the future economy, models to accelerate innovation, and financial architectures for businesses to access capital.

Leaders Dialogue: In Conversation—Innovation and Competitiveness

INTERVIEWER

Mr. Charles O. Holliday, Jr.
Chairman, GFCC

Former Chairman, Royal Dutch Shell plc

INTERVIEWEE

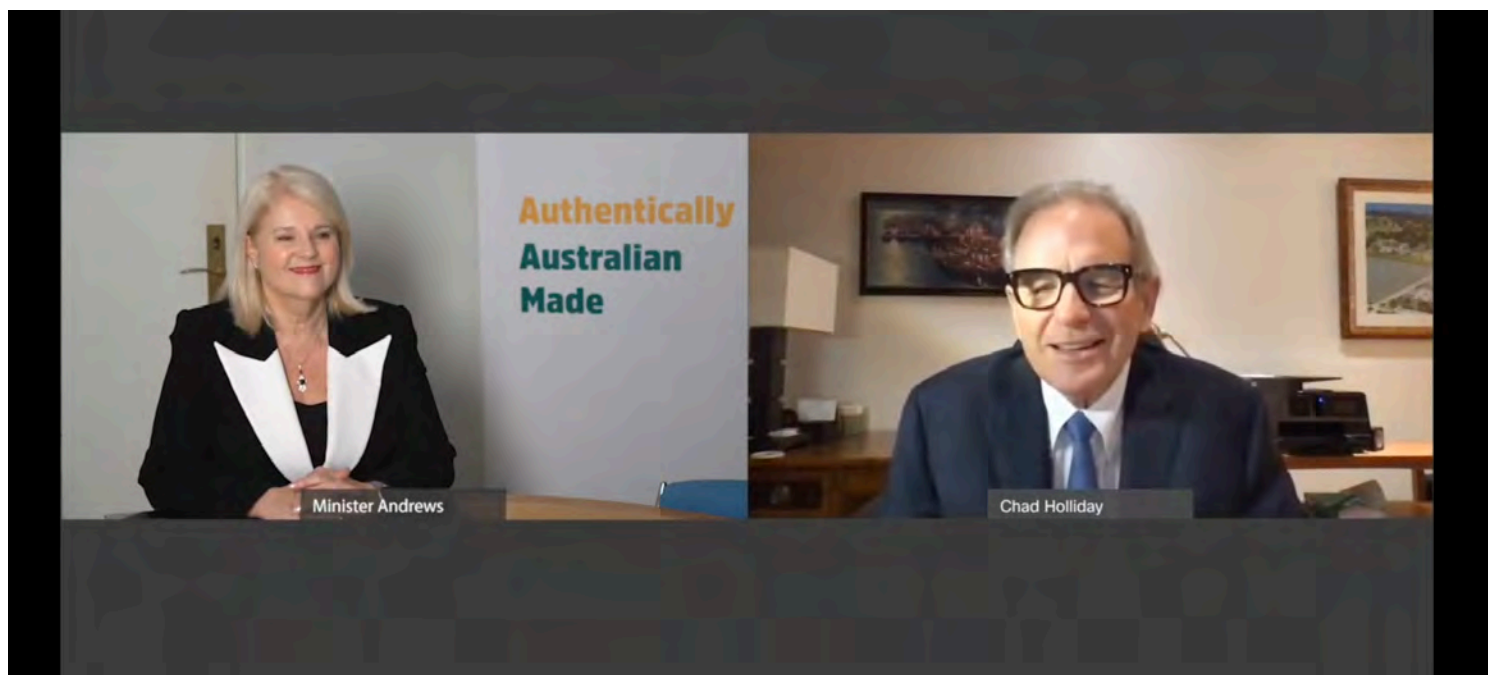
The Hon. Karen Andrews MP
Australian Minister for Industry, Science
and Technology

Australia has used the pandemic as an opportunity to review economic priorities and industrial policies, assessing its national strengths and weaknesses. A key part of the recovery strategy involves ramping up national manufacturing capacity, investing in supply chain resilience, and boosting digital transformation. The government has worked with the business sector to mitigate the financial impacts on sectors particularly affected by lockdowns and travel restrictions, such as hospitality, tourism, and education. Also, investments have been made to boost the potential of recycling, food and beverage, medical equipment, space, clean energy, and defense industries. In the long run, Australia plans to create an enabling environment focused on business-to-business collaboration and networking to increase productivity and competitiveness, powered by digitalization across sectors.

Mr. Charles O. Holliday, Jr.: What steps has the Australian government taken to address COVID-19, and how do you see the pathway out of this situation?

The Hon. Karen Andrews: In Australia, we have been very clear that this is a health and an economic crisis. We have been doing our best to deal with both of them. On the health focus, we took action to secure our borders very early. We prepared appropriate medical stocks and supplies of essential medical equipment and, particularly, personal protective equipment. That meant that we needed to look at what we could do to secure our supplies from overseas and ramp up our national manufacturing. From an economic perspective, we have provided the support we can to businesses and individuals affected by job losses. Some industries have been significantly disrupted. Education, but also tourism and hospitality, have all been very seriously affected. And there are others. We looked at what we could do to support those businesses and position them for recovery. And that's probably the point that we are at the moment. We are looking at the steps we need to take for our long-term recovery in Australia.

Holliday: I know manufacturing is very much a part of Australia's strategy. Could you elaborate on that?



Leaders Dialogue: In Conversation—Innovation and Competitiveness: The Hon. Karen Andrews MP, Australian Minister for Industry, Science and Technology; and Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc.

Andrews: Manufacturing is a very important part of our recovery. As the minister responsible, my view was that we needed to play to our strengths. We couldn't continue to try and be all things to all people because, ultimately, we were just spreading our resources too thin and probably not maximizing the opportunities. About 18 months ago, we started looking at where our priorities were, where our strengths were. With the pandemic, we've had to put the 'COVID-19 lens' over the work that we were doing to see whether or not there were any gaps. And there were, in terms of what we're now calling the Supply Chain Resiliency Initiative. We have comparative and competitive strengths in resources, technology, and critical minerals processing. When we started to look at the other areas, we have manufacturing strengths in food and beverage, and there are some enormous opportunities for us to build on that capacity. We have abundant food in Australia, at least three times as much food as we can consume

here. We have opportunities to grow our export significantly. Our food and beverage is a key industry, along with recycling and clean energy. Medical products are another priority for us. We also need to make sure that we're looking at defense and space. We are ideally located in the Southern hemisphere for the space industry with a couple of natural advantages. We are working with NASA on their Artemis program so that we can link our businesses into the supply chains in key priority areas for NASA.

Holliday: Could you comment more on what Australia has done to build up economic resilience?

Andrews: We identified some critical issues. And I should caveat everything that I'm saying on the basis that we are a trading nation and we'll always be a trading nation. We need to look at how to build the capacity to either manufacture or secure our economy in times of a crisis. For instance, we've identified that we were very dependent on bringing in

personal protective equipment manufactured out of Australia. That can't continue, and we've already taken steps to make sure that we can produce it. We're going through a process to look at all those gaps to meet the needs of Australia or to secure supply chains, considering that transport and freight are a significant issue for us. We are in an island continent in the Southern hemisphere. We're going to be looking at how we can secure and diversify very strong supply chains in times of crisis and bring into our country the goods we need. We have made a conscious decision that we're probably not going to manufacture and produce in Australia.

Holliday: We're all as individuals, families, and countries reflecting on lessons learned from the COVID-19 pandemic. I know it's still early in the process, but do you have any early learning from your practice?

Andrews: The standout is the diversification of the supply chain. The first step that we are taking is to ensure that we have supply chain resiliency because we have learned so much about the difficulties that we encountered in insecurity. We don't know what the next issue is going to be. No one knows. All that we can do is put in place mechanisms to deal with the likely scenarios. It may well be another health crisis. How do we make sure that we can secure what we need to support our population in Australia? And then, of course, we will turn our minds to the lights of our nearest neighbors, particularly in the Pacific region, as to how we would be able to support them.

Holliday: You have to make budgetary decisions as a country and put a significant amount of funds toward research to support these new manufacturing strategies. Was that a difficult decision to make as a government?

Andrews: I wouldn't say it was a difficult decision, but it was a lengthy decision, and there was a lot of rigor applied to how we were going to develop the strategy and how we were going to roll it out. Our manufacturing strategy is focused on competitiveness and resiliency. There's also a clear job focus on what we have done. There are three key parts of our manufacturing strategy. The first one is to build scale. We are not looking only at supporting individual businesses. We are looking for a consortium for businesses to work together. We believe that the missing part here in Australia is the business-to-business collaboration. We need our businesses to look at how they can support each other, build it, and scaling manufacturing that way. That's probably the key piece within the strategy. We've long talked in Australia and internationally about the need to have industry-research collaboration and making sure we're

.....
"We are looking at how we take charge of the digital economy here in Australia, how we can grow it, how we can start the transition into a full-scale digital economy by 2030. It is a work in progress, and I'm very keen to work with other nations. "

looking at the commercialization of good ideas. How do we take that research that has been done at universities or CSIRO, which is our leading science agency, to commercialize it and turn it into scale? And the third stream is how we support Australian businesses to become part of international supply chains. And I think I've touched on the opportunity that we have with NASA and the Artemis program, or we're also looking for other options for us to be part of the supply chains for other nations as well.

Holliday: This interview wouldn't be complete if we didn't talk about digital transformation. How to keep digital moving forward at the same time that we need jobs for people? What is the right pace for digital transformation?

Andrews: We've started from the announcement that the Prime Minister made about a year ago, saying that, by 2030, he wanted Australia to be a leading digital nation. I'm supportive, and we've got to make sure that we bring the population with us on the digital journey. Digital is a key cause of great optimism for many businesses and many individuals, but there's also a portion of the population for whom autonomous operations equate to job losses. There's a lot of work that we need to do to make sure that we communicate correctly that the digital economy is not something that should be seen as a threat. It is an opportunity for us as part of our manufacturing strategy. We are looking at how we take charge of the digital economy here in Australia, how we can grow it, how we can start the transition into a full-scale digital economy by 2030. It is a work in progress, and I'm very keen to work with other nations.

PANEL 4: PERSPECTIVES

Building the Future Economy

PANELISTS

Dr. Pradeep Philip

Lead Partner
Deloitte Access Economics

Prof. Russell Boyce

Chair for Intelligent Space Systems
University of New South Wales

Dr. Mohd Yusoff Sulaiman

CEO
Malaysian Industry-Government Group
for High Technology (MIGHT)

Dr. Tony Lindsay

Director
Lockheed Martin Australia
and New Zealand

Dr. Maher Hakim

Chief Advisor of Innovation
and Enterprise
Qatar Research, Development and
Innovation Council

MODERATOR

Dr. Roberto Alvarez

Executive Director
GFCC

Situation

The COVID-19 pandemic accelerated and amplified trends in businesses and societies, advancing digital transformation across sectors. E-commerce grew substantially, education moved online, and remote work became a reality through the extensive use of digital platforms. This rapid shift towards digital will have lasting consequences at the macro and microeconomic levels, signaling changes in industry mixes, supply chain logistics, capital allocation priorities, and organizational models. Building the future economy depends on assessing and overcoming the effects of the pandemic on the global economy and strengthening partnerships to design future strategies.

Challenges

Countries and organizations must be ready to embrace the growing complexity of a changing economic landscape, navigating and thriving in uncertainty. Resilience means that leadership must nurture the ability to innovate, applying cutting-edge technologies across the board, adapting existing solutions to multiple scenarios. Countries and organizations also face the challenge of preparing the workforce at speed and scale towards a big work transition, which will be a challenge for most businesses

and economies. Future workforce attributes will not stop at technical skills, although that is going to be necessary. It will be crucial to stimulate people's ability to grapple with complex situations with creativity, leadership, and ethics. It is also essential to design policy instruments and infrastructure that open the door to innovative system dynamics, including diversity as an asset.

Key Questions

- What are the main opportunity areas to build the future economy?
- What can be done to boost future industries?
- Which industries are best adapting to the COVID situation? How?
- What is the role of manufacturing in the future economy?
- How can countries accelerate the development of future skills?
- What will attract capital to sustainable and resilient projects?

Opportunity

Diversification Drives Robustness

The pandemic spotlighted the fragility of economies dominated by or landlocked between a handful of industries.



Building the Future Economy: (clockwise from upper left) Dr. Roberto Alvarez, Executive Director, GFCC; Dr. Mohd Yusoff Sulaiman, CEO, Malaysian Industry-Government Group for High Technology (MIGHT); Dr. Pradeep Philip, Lead Partner, Deloitte Access Economics; Prof. Russell Boyce, Chair for Intelligent Space Systems, University of NSW; Dr. Tony Lindsay, Director, Lockheed Martin Australia and New Zealand; and Dr. Maher Hakim, Chief Advisor of Innovation and Enterprise, Qatar Research, Development and Innovation Council.

Diversifying the industrial and service base, and portfolio of economic assets will help nations reduce economic risks and build additional capabilities needed in the future economy. Extending services and manufacturing strategies simultaneously is a way to plan for and buffer risks.

Inclusive Growth Strategies

The sustainability of future economic systems depends on designing growth and human capital strategies together. For the past decades, in both advanced and emerging economies, millions of people worldwide have been left behind by globalization, automation, and industry and market shifts. Inclusiveness must be embedded into development plans, unleashing untapped market and human capital potential.

Boost Data infrastructure

Future industries will be highly dependent on and fueled by data. Countries and organizations must build infrastructure to facilitate analytics and optimize the structure of information systems, including ways to transport and store data. Many companies are already investing in cutting-edge computing devices, bringing computation and data storage close to the location where they operate to improve responsiveness and save bandwidth. Policies aiming to lower transaction costs associated with data flows will also advance the future economy.

Explore Convergence in Different Technologies

Multiple disruptive technologies—such as artificial Intelligence (AI), quantum technologies, blockchain, Internet of Things (IoT), robotics, big data, and

biotechnology—are converging on the global economy simultaneously. Convergence and combining these different technologies to create new innovations and building upon each other can unlock multiple opportunities and enablers for building the future economy.



Leaders Perspective: Innovation – Shared Values and Partnerships: The Hon. Arthur Sinodinos AO, Australia's Ambassador to the United States of America.

Leaders Perspective: Innovation – Shared Values and Partnerships

The Hon. Arthur Sinodinos AO

Australia's Ambassador to the United States of America

The COVID-19 virus is a common enemy and threat to everyone. It crossed borders, countries, and sectors, yet has also been a catalyst for unity. To fight this pandemic, governments, researchers, and the public and private sectors have all engaged in global partnerships. The most successful ones have been those rooted in shared values, such as security, fairness, liberty, and trust. Australia and the United States have strong and long-standing relationships. Both countries are built on a solid foundation of liberal values, resulting in a liberty-and-opportunities-for-all mentality

shared by both American and Australian citizens. This similarity has blossomed into a values-based, scientific and technical partnership that has progressed since 1968, allowing scientific collaborations without the need for government steering or intervention. Unfolding technological revolutions—such as artificial intelligence, cloud computing, and genomics—present several long-term opportunities and challenges for like-minded countries. The United States and Australia share an ambitious vision for progress. They will keep working closely to realize these technologies' potential while also creating a fair level playing field that will live up to human values.



Technology Focus: Innovation Breakthroughs: (clockwise from top) Dr. Thomas Zacharia, Director, Oak Ridge National Laboratory; Prof. Isabel Capeloa Gil, Rector, Universidade Católica Portuguesa; and Prof. William Rawlinson AM, University of New South Wales.

Technology Focus: Innovation Breakthroughs

MODERATOR

Prof. Isabel Capeloa Gil

Rector, Universidade Católica Portuguesa

PRESENTATIONS

Dr. Thomas Zacharia

Director, Oak Ridge National Laboratory

Prof. William Rawlinson AM

University of New South Wales

The opportunity at the intersection of human biology and digital technologies has enabled innovation breakthroughs in health and accelerated the development of solutions to fight COVID-19. The Oak Ridge National Laboratory (ORNL), which is part of the U.S. Department of Energy, applied its expertise in computational science, advanced manufacturing, data science, and neutron science to support research on coronavirus therapeutics

and antivirals. ORNL provided access to its supercomputer called "Summit" to the broader R&D community to find solutions to the COVID-19 emergency. "Summit" currently participates in a high-performance computing consortium that brings together computational resources from more than 30 institutions, including other national laboratories, universities, and industries. The computer has been used to analyze the COVID-19 structure and biology, with the capacity to test billions of molecules of potential antiviral drugs in a single day. A conventional computer would take months to run similar experiments. Researchers have applied the digital resources to analyze a growing volume of data on small molecules' interactions with COVID-19's two proteins. Also, computational power and artificial intelligence (AI) techniques have been deployed into an integrated system to monitor the pandemic's evolution. Data mining facilitated the understanding of COVID-19 diagnosis, treatment,

epidemiological, and management challenges. Data modeling has been used to provide deep insights into how the virus is transported in different environments, such as open rooms, offices, bars, restaurants, schools, and transportation hubs. In Australia, the University of New South Wales employed genome sequencing work to look at the virus's characteristics. Genome data help to identify possible outbreaks, anticipating risks and possible transmission between populations.

PANEL 5

Fueling Innovation

PANELISTS

Mr. Sam Sicilia

CIO
Hostplus

Dr. Emmanuel Pohl AM

Chairman and CIO
ECP Asset Management

Ms. Alicia Gregory

Head of Private Equity
Future Fund

Mr. Hiro Nishiguchi

CEO
Japan Innovation Network

Ms. Gianna Sagazio

Innovation Director
Brazilian National Confederation
of Industry

MODERATOR

Mr. Charles Kiefel AM

Chairman
The Principals Funds Management

Co-Chair
Australian Advisory Board on
Technology and Healthcare
Competitiveness

Situation

Innovation is the main driver of future growth and prosperity. Investments in innovative practices and technologies in the digital and medical field have helped countries deal with healthcare shortcomings. They are now essential tools to help national economies recover from the economic and social devastation brought about by the pandemic. Advancing cutting-edge and transformational strategies requires funding and forward-thinking capital allocation. Public-private partnerships can be used to enable risk-sharing models that direct money to R&D and facilitate access to capital for startups. Governments will redirect efforts and policies, and increase attention to private investments, public funding, and sustainability. The goal will be to direct capital flows towards companies that engage in innovative activities, particularly innovative startups with cutting-edge technological potential that will ultimately benefit economies and move societies forward. Fueling innovation and creating channels for development with multiple funding sources will be the main focus in the attempt to drive progress across different sectors.

Challenges

State officials, investors, and new businesses face the difficult task of deciding when, how, and who to choose when

allocating funds and capital. The main subject of discussion at the government level will be deciding which sectors to prioritize to grant public funding. Nations will have to establish best practices and policies to ensure that capital is efficiently directed towards areas of the economy that have been identified as strategic drivers for economic, technological, and social development. Investors will redirect their capital into fruitful business models that hold innovative potential, and will need to scan the new competitive environment to create groundbreaking ways and solutions to manage risks in this highly digitalized world. Business people will have to develop a quick eye for potential market opportunities for future products and services, while increasing attention to technology development.

Key Questions

- What will the global investment scene look like post-pandemic?
- Which skills will the businesses of the future have to develop to be successful?
- Where should private and public funding be redirected to help governments deal with the post-pandemic economic slump and to kickstart national economies?



Fueling Innovation: (clockwise from upper left) Mr. Hiro Nishiguchi, CEO, Japan Innovation Network; Mr. Charles Kiefel AM, Chairman, The Principals Funds Management, and Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness; Ms. Alicia Gregory, Head of Private Equity, Future Fund; Mr. Sam Sicilia, CIO, Hostplus; Ms. Gianna Sagazio, Innovation Director, Brazilian National Confederation of Industry; and Dr. Emmanuel Pohl AM, Chairman and CIO, ECP Asset Management.

Opportunities

A More Innovative Future Ahead

Countries around the world realize that a multidisciplinary approach is key when facing unexpected crises. At the same time, the pandemic has shown that innovation is crucial when dealing with global emergencies. This deep understanding has underscored the overall need for a strong innovation system. The goal is to foster innovation practices able to reach every aspect of human life. In this pool of potential opportunities, new businesses will have to withstand the sustainability and innovation thresholds and bridge the technology gap to stay competitive in the global market.

Multidisciplinary Approaches for the Future

Investors and governments alike have multidisciplinary programs in mind when steering future flows of private and public capital. These strategies will result in new technological practices in healthcare, biomedicine, education, and advanced manufacturing. These areas are destined to be part of our economic future. Venture capital investments are being directed toward funding and supporting innovative startup companies across different sectors.

Venture Capital Investments

Venture capital can generate employment and contribute to repositioning economies around the world. Investments in new businesses focused on innovation and applying new knowledge to create products and services will generate jobs in the future. This boost to national economies is essential to help them through the aftermath of the pandemic. Such investments could become the pipeline for new economic, technological, and social assets that will help countries thrive in the future.

PANEL 6

Leading into the Future Economy

PANELISTS

Dr. Roberto Alvarez

Executive Director
GFCC

Mr. Charles Kiefel AM

Chairman
The Principals Funds Management

Co-Chair

Australian Advisory Board on
Technology and Healthcare
Competitiveness

Dr. Larry Marshall

Chief Executive
CSIRO

Co-Chair

Australian Advisory Board on
Technology and Healthcare
Competitiveness

Dr. Jane Wilson

Co-Chair
Australian Advisory Board on
Technology and Healthcare
Competitiveness

MODERATOR

Mr. Charles O. Holliday, Jr.

Chairman, Global Federation
of Competitiveness Councils

Former Chairman, Royal Dutch
Shell plc

Situation

Building the future economy requires purposeful leadership with strategic vision and timely action. During the COVID-19 pandemic, leaders have had to react to the crisis while keeping a future vision. It is also crucial to open doors for diverse voices and youth, fostering an inclusive and sustainable path to the future. New models will emerge from rebuilding and restructuring national economies in the pandemic's aftermath. It is crucial to keep in mind that leading the development and implementation of innovative practices starts with openness, understanding, and trust, with authority stemming from knowledge and not from the title. In times of crisis, people recognize legitimacy and power in those who have answers. During the COVID-19 pandemic, societies have their trust in healthcare professionals, universities, and the scientific community looking to them for solutions and reassurance. This new legitimacy has changed grassroots expectations of leadership for the future. The next generation of leaders will have to earn trust through openness, knowledge, and innovation.

Challenges

Leaders of the future will have to face organizational challenges as never before. In all fields of human existence, the main challenge will be about fueling innovation through an efficient

organization. Crises often fuel invention. The COVID-19 pandemic, for instance, has catalyzed innovation and digital development, allowing scientific communities and governments to gather knowledge and solutions quickly to battle the virus. The dire need for a vaccine drove governments to try new technical approaches to speed-up vaccine development. The challenge after the pandemic will be how to keep these new processes going even without the state of emergency. Another challenge is how to prepare the next generations of leaders to operate in a future environment of greater uncertainty and to face even more complex global challenges. Leaders worldwide will have to be trained to deal with crises, disasters, and other disruptions quickly and effectively, displaying the leadership and communication skills to move nations and organizations forward.

Key Questions

- What is needed to build the future economy? How to take principles and turn them into action?
- How do we allocate capital in a diverse way to foster the development of new, innovative resources around the world?
- How can we expand the conversation on leadership and innovation?
- How can we learn from different examples of leadership?



Leading into the Future Economy: (top row) Dr. Jane Wilson, Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness; Mr. Charles Kiefel AM, Chairman, The Principals Funds Management, and Co-Chair, Australian Advisory Board on Technology and Healthcare Competitiveness; (bottom row) Mr. Charles D. Holliday, Jr., Chairman, Global Federation of Competitiveness Councils, and Chairman, Royal Dutch Shell plc; Dr. Larry Marshall, Chief Executive, CSIRO, and Co-Chair Australian Advisory Board on Technology and Healthcare Competitiveness; and Dr. Roberto Alvarez, Executive Director, GFCC.

Opportunities

Innovative Futures Ahead

Where leaders laid out effective ways to deal with the pandemic, communities felt a deep sense of trust. We have seen in the past how bold, entrepreneurial, and effective leadership resulted in world-changing innovations. Electricity, refrigeration, and telephone communications are all examples of good leadership catalyzing inventions that drove transformative economic and industrial growth, and made life easier. Government officials and leading entrepreneurs with capital to invest, alongside the digital opportunities of today and the technologies now emerging, have the power to shape the future and make people's lives better.

Communities and Shared Values

Getting out of crises requires good leadership, trust, communication, kindness, and sense of community. Emergencies show societies the importance of collaboration and cooperation. Great leaders have fostered that sense of belonging which brings us together as countries. Decency, kindness to each other, and a sense of charity have led humans to help struggling communities and people through fundraisers and donations. This sense of community will be an important pillar for future societies and generations.

The Power of Diversity

Countries with diverse communities and immigrants can foster a higher degree of competitiveness and innovation. Diversity, in all its aspects, is crucial for

knowledge creation. Younger generations have the stamina and the curiosity that leads to questions being asked. These questions are the powerplant for innovation. Diversity improves wealth creation, productivity, and competition, shaping a world in which cooperation and competition are not mutually exclusive. The GFCC aims to leverage diversity, create networks and collaboration across 30 countries to foster conversations about innovation, leadership, and future realities while unleashing the power of cooperation and mutual learning.

GFCC PERSPECTIVE FROM AUSTRALIA

Crossing the Chasm: Health, Innovation and the Future Economy

The landmark 2020 GFCC Global Innovation Summit devoted two days in November to the exploration of current and future global health challenges, innovation models and opportunity areas for growth through different lenses.

Throughout dynamic panel conversations, high profile speakers and leaders from across Australia and the globe shared their visions for creating the solutions demanded by the COVID-19 crisis and seizing emerging opportunities for growth. The multi-dimensional crisis posed by the COVID-19 pandemic has created some of the most difficult challenges that our leaders have faced in centuries, but countries that led with innovative solutions are "crossing the chasm" into the future economy.

Given the current global crisis is first and foremost a health crisis, it was fitting to devote the first day of the summit to an exploration of innovative health solutions emerging from the COVID-19 pandemic and beyond. Sessions examined emerging health technologies, vaccines and patient safety. Panel discussions



Australian Government

AUSTRALIAN ADVISORY BOARD
on Technology & Healthcare Competitiveness

provided opportunities to share knowledge and benefit from other member countries' insights and lessons learned.

One of the many highlights of the day included the Leaders' Dialogue on Vaccines, moderated by Australian leader Ms. Jane Halton AO PSM (pictured). In November 2020, COVID-19 vaccine candidates were still under development, but there was no certainty that any would result in a safe and effective vaccine. Yet, the world has never before had at its disposal the science and technology toolkit that was brought to bear for this process — a global mission to produce a vaccine to reduce the health, social and economic impacts of the COVID-19 pandemic. As well as the economic considerations of the development process,



Ms. Jane Halton AO PSM, Chairman, Coalition for Epidemic Preparedness Innovations.

participants also discussed issues for the future of global health security and the likelihood of future pandemics.

Day two was devoted to the discussion of priority areas and industries for the future economy, examining frameworks and models to accelerate innovation and financial mechanisms that support innovators to better access capital. Topics included innovation and competitiveness, fueling innovation breakthroughs, building and leading the future economy, and strengthening shared values and partnerships.

Participants enjoyed a lively dialogue discussing the challenges and opportunities for economic systems and society in a post-COVID-19 context. Leaders examined the rise and benefits of digitalisation – catalysing change across industries and driving integration – and considered global risks such as climate change. Throughout discussions, the pressing need for innovation and adaptation was prevalent.

In the final high-profile panel conversation, moderated by GFCC Chairman Mr Charles O. Holliday Jr (pictured), four thought leaders shared their views on the role of leadership during the current crisis and into the future economy, as well as their perspectives on how the global competitiveness landscape is changing. It was fitting that the closing session of this landmark summit was ultimately a clarion call for stakeholders from across all sectors – health, innovation and economics – to collaborate, strategise and agree on priorities and next steps for building the future economy. Australia looks forward to continuing and building on these conversations at the 2021 Global Innovation Summit.



Mr. Charles O. Holliday, Jr., Chairman, GFCC, and former Chairman, Royal Dutch Shell plc.

Global Federation of Competitiveness Councils

SUSTAINING AND GENERAL MEMBERS

Australia

Advisory Board on Technology and Healthcare
Competitiveness

Government of Australia

Brazil

National Confederation of Industry – CNI/SENAI/
SESI/IEL

Canada

Western Economic Diversification Canada

Greece

Council on Competitiveness of Greece –
CompeteGR

Delphi Economic Forum

Japan

Japan Innovation Network

Japan Science and Technology Agency – JST

Kazakhstan

Kazakhstan Competitiveness Council

Malaysia

Malaysian Industry-Government Group for High
Technology – MIGHT

Qatar

Qatar Research, Development and Innovation
Council – QRDI

Russia

Eurasia Competitiveness Institute

United States

Council on Competitiveness

UNIVERSITY AND RESEARCH MEMBERS

Australia

Aikenhead Centre for Medical Discovery

Monash University

RMIT University

Brasil

Universidade Estadual da Paraíba

Canada

University of Victoria

Germany

Ludwigs-Maximilian University Munich

Greece

American College of Greece

Japan

Okinawa Institute of Science and Technology

Malaysia

Universiti Teknologi PETRONAS

Mexico

Monterrey Institute of Technology and Higher
Education

New Zealand

University of Auckland

Peru

Universidad Nacional de San Agustín de Arequipa

Portugal

Catholic University of Portugal

Qatar

Qatar University

Ukraine

Kyiv National Economic University

United Kingdom

Queen Mary University of London

University of Southampton

United States of America

Arizona State University

Georgetown University

Purdue University

Texas A&M Engineering Experiment Station

University of California San Diego

University of Chicago

University of Illinois

University of North Carolina at Chapel Hill

University of South Carolina

Webster University

CORPORATE MEMBERS

Al-Dabbagh Group

Athens Exchange Group – ATHEX

Bahas, Gramatidis and Partners

Center for Research and Consulting

Lockheed Martin

Nadim Industries

Piraeus Bank

Whitecap Investments LLC

GFCC FELLOWS

Distinguished Fellows

Zakri Abdul Hamid
Amr Al-Dabbagh
C. Derek Campbell
Nathalie Cely
Lee Yee Cheong
Luciano Galvão Coutinho
João A. H. Da Jornada
Petros G. Doukas
Luis Fernandes
Nika Gilauri
Yanos Gramatidis
Karen A. Holbrook
Jerry M. Hultin
Carole Hyatt
Charles Kiefel, AM
Stephen Kingon
Ashwani Kumar
Tae Shin Kwon
Joan MacNaughton, CB Hon FEI
Christos Megalou
Peter Meyers
Jan Mládek
Michiharu Nakamura
Liam Nellis
Lucas Papademos
Richard Parker, CBE, FREng

Emmanuel Pohl
Frank-Jürgen Richter
Laura Sandys
Jack Sim
Rogerio Studart
Ahmad Tajuddin Ali
Manuel Trajtenberg
Gregory F. Treverton
Simon Peter "Pete" Worden
Kandeh K. Yumkella

Senior Fellows

Edward D. Agne
Marcelo Augusto de Felippes
Rehan N. Chaudri
Fred Davies
Margareta Drzeniek Hanouz
Mark Esposito
Dionisio Garcia
Banning Garrett
Kwanza Hall
Kathryn Hause
Greg Horowitz
Elisa Jagerson
Nkem Khumbah
Susan McCalmont
Mark D. Minevich
Michael Nelson
Ted Zoller

GFCC TEAM

Charles O. Holliday Jr.
Chairman
The Hon. Deborah L. Wince-Smith
President
Roberto Alvarez
Executive Director and Secretary to the Board
Chad Evans
Treasurer
Vanessa Puerta
Head of Operations
Simone Melo
Community and Communication Manager



Global Federation of Competitiveness Councils

900 17th Street, NW, Suite 700

Washington, DC 20006

USA

T +1 202 969 3382

www.thegfcc.org

info@thegfcc.org