



**GFCC**

Global Federation of  
Competitiveness Councils

# Growing

2017-2018 Annual Report

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900 17th Street, NW, Suite 700, Washington, DC 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.

For more information, please visit [www.thegfcc.org](http://www.thegfcc.org).

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# A Message from the GFCC Leadership

On behalf of the board of directors and members of the Global Federation of Competitiveness Councils (GFCC), we are pleased to present the Annual Report highlighting the GFCC's accomplishments in 2017.

It was a year marked by growth, increasing momentum, and the launch of new efforts and groundbreaking initiatives. The GFCC welcomed new members, extending our global reach and further enriching our network with geographic, cultural, socio-economic and sectoral diversity. For the first time ever, the GFCC has all classes and types of members — private sector councils, government agencies, universities and corporations — bringing different knowledge, distinct perspectives, and diverse insight into our work and deliberations.

Our research and analytical engines — members of the GFCC University and Research Leadership Forum — formed two task forces that examined "extreme" innovation projects and large-scale scientific platforms

around the world, and the diverse practices universities deploy to engage in partnerships, especially with entrepreneurs and industry, to enhance student experiences and commercialize the results of university research. GFCC members will find great value in the reports of the task forces' findings and analyses.

We welcomed new global leaders and creative minds to our cadre of GFCC Fellows. These distinguished business and non-profit executives; entrepreneurs; investors; government and university leaders; and global strategists, advisors and visionaries have tremendous insights grounded in deep experiences, providing the GFCC with multiple perspectives on the global competitiveness landscape.

The GFCC launched the Global Competitiveness Academy to provide an intensive learning experience on trends in technology and competitiveness, and models and growth initiatives to boost innovation. The lessons of the Academy will be drawn from real-life cases informed by the experiences of our diverse network of members and fellows — as well as from cutting-edge knowledge from our academic partners. Through the Academy, the GFCC aims to create a growing global network of practitioners with the knowledge and skills to promote innovation and prosperity around the world.

GFCC members continued on their journey of learning, convening in Kuala Lumpur, Malaysia for the 2017 GFCC Annual Meeting and Global Innovation Summit, hosted by the Malaysian Industry-Government Group for High Technology (MIGHT). The Global Innovation Summit brought together influential leaders and thinkers from around the world to explore the *Sustainable Future of Production, Consumption and Work*, activities on the precipice of technological disruption and transformation. Rigorous deliberations addressed how nations can leverage new technologies for positive impact on society and sustainability, and how the GFCC can help catalyze learning, the co-creation of solutions and help lead the world onto a more sustainable pathway to the future.

GFCC members enjoyed the opportunity to experience a country rapidly transforming its economy, a global treasure with a multi-ethnic and multi-cultural heritage, and one of the world's richest sources of biodiversity. Kuala Lumpur showcased its important node in the global economic system, with gleaming skyscrapers, colonial architecture, high technology and Asian traditions.

At the Summit's Gala Dinner, the GFCC presented its Global Competitiveness Award to Professor Tan Sri Zakri Abdul Hamid, Co-Chairman, MIGHT.

The award honors his tireless work to build Malaysia's capabilities in high-technology, as a guardian of the planet's biodiversity and for his global leadership in promoting sustainable development.

This report celebrates the GFCC's achievements and progress made in 2017 and 2018, and we are excited to have been able to share many of these accomplishments with our distinguished members and community of fellows. We look forward to tackling new challenges in 2018 and 2019, and invite you to join us in Buenos Aires, Argentina to discuss new topics at the 8th GFCC Annual Meeting and Global Innovation Summit. An agenda can be found on the GFCC website.

We are proud of the GFCC's record of achievements in 2017, expanding its global presence and infusing its efforts with new energy, fueled by the intellectual contributions of a growing membership participating in more exchanges of knowledge, experiences and best practices. We celebrate the fulfillment of a vision that countries could come together in mutually beneficial partnership around the themes of innovation and competitiveness, learn from each other and promote the prosperity of all of our nations. As we continue to live up to that vision, we are confident that GFCC members will find the knowledge and insight gained, the ability to co-create with other remarkable people and the camaraderie enjoyed worthy of their commitment of time, energy and resources.



**The Hon. Deborah L. Wince-Smith**  
President, Global Federation of Competitiveness Councils  
President & CEO, Council on Competitiveness



**Charles O. Holliday, Jr.**  
Chairman, Global Federation of Competitiveness Councils  
Chairman, Royal Dutch Shell plc

# Introduction

During 2017–2018, the GFCC explored new ways to foster innovation, economic prosperity, growth and competitiveness. We expanded our portfolio with new reports; launched pioneer initiatives; and, in the process, gained 13 new members and six fellows from more than 15 countries, together aiming to accelerate competitiveness in a collaborative effort.

As a community of organizations and leaders from business, government and academia, we bring together competitors with the common goal of exchanging best practices and discovering new strategies for a better future through collaboration within the community.

The world around us is changing in ways previously unimaginable. Dramatic technological trans-

formations are challenging businesses, policy makers and societies. The GFCC community is committed to exploring these issues and finding solutions to some of the most pressing challenges of our times. How can the GFCC both help boost innovation on the national level and create added value for our members at the global level? What terms and conditions need to be present to propel governments and businesses into the future? And what policies are needed to accommodate the changes and challenges of the future? These were some of the central questions GFCC members asked in 2017 and 2018, and they determined our way forward with new initiatives and goals.

Expansion of the GFCC membership base facilitates the quest to reach its goals and strengthen its network. In the past year, the GFCC welcomed:

- The **Japan Innovation Network (JIN)** — as a Sustaining Member with Board representation — an innovation platform that promotes global collaboration and business growth;
- The **Abu Dhabi Department of Economic Development**, which catalyzes a sustainable, knowledge-based economy in the Emirate of Abu Dhabi;
- The Middle East's largest construction company, **Consolidated Contractors Company (CCC)**;
- The **Aikenhead Centre for Medical Discovery (ACMD)**, an industry hub in Australia fusing medicine with engineering, science and industry to have an impact on the health care field;
- The **Athens Exchange Group (ATHEX)**, a leader in promoting capital markets in Greece;
- **Western Economic Diversification Canada**, a federal department aiming to boost competitiveness in Canada's western provinces;
- **Kazakhstan's Center for Research and Consulting LLC**, which focuses on preparing Kazakh businesses and policy makers for the emerging era of technological disruption;
- Several corporate and individual members, such as **Piraeus Bank**, **Justitia Advisory Ltd.**, **Tenaga Nasional Berhad**, and **Mr. Anson Chan**; and
- **Purdue University**, **Bond University** and **Queen Mary University of London** joined our list of elite research university members.

In addition to these new members are individuals who joined as GFCC Fellows, lending their significant insight and experience from distinguished careers in business, government, technology and competitiveness. The newest GFCC Fellows include:

- **Tan Sri Dr. Ir. Ahmad Tajuddin Ali**, Co-Chairman of the Malaysian Industry-Government Group for High Technology (MIGHT);
- **Mr. Yanos Gramatidis**, Chief Executive Officer at Justitia Advisory Ltd. in Cyprus;
- **His Excellency Mr. Tae-Shin Kwon**, former Finance Vice-Minister of the Republic of Korea and current CEO of the Korean Economic Research Institute (KERI);
- **Dr. Frank-Jürgen Richter**, Chairman of the Horasis Group;
- **Ms. Laura Sandys**, a former UK Member of Parliament for South Thanet who currently leads the consultancy firm Challenging Ideas; and
- **Dr. Michael Nelson**, the IT Advisor for Cloudflare, which has improved the performance and security of more than seven million websites worldwide.

The GFCC University and Research Leadership Forum had two task forces presenting the preliminary results of their studies in November 2017. In a collaborative effort, the task forces tapped inputs and expertise from GFCC members and developed two reports, *Optimizing Innovation Alliances* and *Leveraging Extreme Innovation*. Both publications serve as a resource and exchange of best practices within the GFCC university and research organization community, highlighting the role these institutions play in fostering innovation, and boosting national and international productivity.

In November 2017, the GFCC officially launched the Global Competitiveness Academy (GCA) during the Global Innovation Summit held in Kuala Lumpur, Malaysia, and announced the partnership with GFCC member Arizona State University (ASU) to start the new program "Transformative Leadership & Innovation for Competitiveness" (TLIC). Building on the assets of the GFCC and ASU, the GCA is a distinct and intensive learning framework that will develop a new cadre of global business and government leaders attuned to the drivers of competitiveness and sustainable growth.

# Sharing the Competitiveness Story

The Global Innovation Summit marked the release of the 2017 flagship publications: *Best Practices in Competitiveness Strategy* and the *Global Competitiveness Principles*. The best practices report, *The Sustainable Future of Production, Consumption*

*and Work*, highlights best practices and lessons learned from GFCC member organizations, sharing expertise and experiences within the community. The documents can be accessed on the GFCC website, and we encourage you to share

them with your country's public and private sector leaders, and your peers. Together we can champion the Global Competitiveness Agenda.



## *Competitiveness and Our Sustainable Future*

The GFCC and its network of more than 30 national competitiveness organizations agreed to the 2017 GFCC *Global Competitiveness Principles*. First launched in 2010, the *Global Competitiveness Principles* offer an overarching framework for recommended national policies and programs aimed at fostering innovation, competitiveness and prosperity in the 21st century economy. This year's edition focuses on policies that boost competitiveness and provide a sustainable future in times of technological change and innovation.

## *The Sustainable Future of Production, Consumption and Work: Best Practices in Competitiveness Strategy*

The GFCC promotes debate and dialogue with the idea of accelerating competitiveness through collaboration. In this year's edition of the best practices report, we highlight examples from GFCC members in Brazil, Ecuador, Qatar, and the United States.



# Production, Place and People: The Sustainability Opportunity for Business

## **Charles O. Holliday, Jr.**

Chairman, Global Federation of Competitiveness Councils  
Chairman, Royal Dutch Shell plc

There was a time when businesses operated on the belief that the costs of poor quality — defects, scrap and rework — were just the cost of doing business. But, a growing global quality movement turned that notion on its head with new methods that showed improving quality cuts costs and raises productivity. In a similar way, business thinking about sustainability is changing, from a focus on regulatory compliance to a broader perspective that includes the potential for cost, competitive and intangible benefits by improving the sustainability of operations.

When we think about sustainability, we often think about renewable energy, the life cycle of materials, pollution and waste. These remain incredibly important, but businesses can benefit from a broader view. With a fundamental dependence on sustainable growth and stable, sustainable societies in the countries in which they operate, businesses are key stakeholders in nearly every facet of sustainability — as producers, innovators, employers and members of a community.

For producers, new technologies are creating significant opportunities for cost-competitive increases in sustainability. New smart

manufacturing technologies — sensors, and real-time data analytics and controls — enable greater optimization of production operations, cutting energy, water and materials use, reducing costs and environmental impact. Additive manufacturing allows for design features and production never before possible, with the potential for optimal use of materials and reduced material waste. New sophisticated software and data analytics can be used to develop optimal delivery schedules and routing, cutting fuel use and even the number of vehicles needed. For example, Japan's largest chain of small convenience stores established an IT infrastructure and integrated store information system that enabled supply chain optimization, and better matched supply with local demand, significantly reducing the number of truck deliveries serving stores on a daily basis.

Agriculture and food production is a top contributor to greenhouse gas emissions and accounts for 70 percent of the world's water consumption. Companies in the industry are key players for feeding a booming global population more sustainably. For example, selling 3,000 different food and beverage products around the world, PepsiCo re-thought its production and supply chain from seed-to-shelf to conserve water. Biotech companies are positioned to develop field crops with higher

yields and more nutrition, increasing the output of agriculture without increasing the land used.

Through the products they make, some businesses have leverage in helping others become more sustainable, for example, by producing energy efficient equipment, innovative packaging, alternative fuels and green chemicals. DuPont — a global agriculture, chemical, biotech and materials giant with a strong commitment to sustainability — sells into every major industry in the world, providing ingredients in countless value chains, with a broad impact on global industries.

For innovators, growing global demand and societal expectations for sustainable solutions — in energy, infrastructure, transportation, agriculture, natural resource extraction, buildings, equipment and more — is a golden opportunity for innovations of all kinds and at every scale, a tremendous market opportunity for businesses in many industries.

Businesses operate in a larger context — in a community — dependent on reliable and efficient infrastructure, the availability of skilled workers, and the smooth flow of people, goods, services and information across the community. And, more likely than not, that community is a city — 80 percent of global GDP is generated in cities — making city operations a crucial factor affecting business productivity and competitiveness.



Moreover, urban dwelling is expected to increase by 60 percent by 2050, and account for two-thirds of the world's population. Many of the fastest growing urban areas are in rapidly developing emerging economies, the large markets and labor pools of the future. Cities are where technology meets talent for innovation. And cities are home to most of the world's top universities, places businesses increasingly look to for research collaboration and skilled employees, places that spin-out the start-ups that

inject vitality into a regional economy and business sector making them more economically sustainable.

The urban metabolism — sanitation, water and air quality, mobility and education — has a significant effect on the health, wellbeing and quality of life of a city's citizens and its ability to attract talent and grow the economy. But, as the world undergoes the largest wave of urban growth in history, population growth in cities has placed pressure at the nexus of energy and sustainability. Cities

account for close to two-thirds of world energy consumption and more than 70 percent of global greenhouse emissions.

It just makes sense for businesses to engage in creating smarter and more sustainable urban and community environments. Energy efficient buildings, fuel efficient transportation options, smart grids, and intelligent roads and highways to support optimal routing for supply and distribution will help reduce business costs and disruptions. For example,

when buildings and their systems are designed for optimal efficiency, energy savings of 60 percent to 80 percent are possible without sacrificing comfort or cost effectiveness.

Finally, in the years ahead, the disruptions caused by the accelerating march of new technologies across the economy is expected to simultaneously eliminate and create hundreds of millions of jobs, and change the occupations in demand and the skill mix needed. For example, we already see significant global competition for talent in machine learning and algorithms as the Age of AI unfolds.

Despite the positive effects anticipated from the flow of new technologies, businesses, job markets and societies will struggle to adapt. Today, one can cross the United States and see once thriving communities now in severe decline, lacking sustainability during previous economic and industrial transitions.

As technology and new business models reshape all industries and sectors, from manufacturing to food production, from logistics to energy, ensuring a sustainable pool of labor in stable communities will be a common business challenge.

Societies will need to develop the skills required for the workforce and social solutions to mitigate the

hurdles of transition. Employers will need to engage the education, and workforce and economic development communities to ensure that a future workforce is prepared and available, and that current workers can adapt.

Sustainability has been a key theme running through the GFCC's *Global Competitiveness Principles, Best Practices in Competitiveness Strategy* and Annual Global Innovation Summits. This includes knowledge exchanges on sustainable cities, production and consumption, infrastructure, energy and natural resource use — all vital to creating sustainable economic growth for advanced and developing countries, as well as bringing economic opportunity and improved standards of living to the under developed world. The GFCC can play a key role in catalyzing learning, the co-creation of solutions, and accelerating implementation of what we learn and create, helping lead the world onto a more sustainable pathway to the future.

# 2017 Annual Meeting

GFCC Members and Fellows convened for the 2017 GFCC Annual Meeting hosted by the Malaysian Industry-Government Group for High Technology (MIGHT). Annual meeting participants engaged in a variety of workshops, engaging in multi-stakeholder collaboration and implementing competitiveness initiatives.



The GFCC Annual Meeting brings GFCC members together to report on the progress of their own initiatives and on common goals within the competitiveness field. Ultimately, these discussions lead to the development of goals for the GFCC network as a whole. The 2017 Annual Meeting was organized into two main segments engaging GFCC members and fellows.

The meeting's initial segment was dedicated to developing a common understanding of participants' agendas and the current state of GFCC affairs, both contributing to the greater Global Competitiveness Agenda. GFCC members delivered brief presentations highlighting their agendas and priorities for the coming year. In their presentations, member organizations addressed their top priorities, key initiatives in which they are involved and notable changes since 2016.

These discussions led to further explorations of emerging competitiveness issues, and ways in which the GFCC agenda can address them. As forces such as urbanization, climate change and the exponential growth of technologies drive global transformations, competitiveness agendas are becoming increasingly complex and multi-faceted. Developing and implementing competitiveness strategies requires integrating multiple factors and diverse perspectives, collaboration, and joint action at both local and global scales.

Conversations proceeded to the second segment, featuring an assortment of Convergence Workshops to identify initiatives that could be carried out collaboratively within the GFCC framework. Participants discussed multi-actor

initiatives, support for next-generation leaders, and developing greater insight into policy frameworks.

GFCC stakeholders later engaged with members in a conversation about competitiveness leadership and transformation, exploring different factors involved in developing and implementing innovation and competitiveness strategies in different countries. This conversation was facilitated by GFCC President, the Hon. Deborah L. Wince-Smith; Dr. Pradeep Khosla, Chancellor of the University of California at San Diego; H.E. Ibrahim Al Omar, Governor of the Saudi Arabian General Investment Authority (SAGIA); Eldar Abdrazakov, Chairman of the Kazakhstan Competitiveness Council and CEO of Centras Group; and Gianna Sagazio, Director of Innovation for Brazil's National Confederation of Industry, and Superintendent, Instituto Eivaldo Lodi.

Participants reflected on the importance of recognizing the world's most exceptional competitiveness leaders and change-makers, for example, through the Global Competitiveness Award presented at the conclusion of each year's Global Innovation Summit.

The GFCC's 2017 Annual Meeting concluded with an exploration of competitiveness and sustainable development, with insight from Professor Tan Sri Zakri Abdul Hamid, Co-Chairman of the Malaysian Industry-Government Group on High Technology (MIGHT). Today's competitiveness landscape is characterized by ongoing development of solutions to global sustainability challenges.

Throughout the Annual Meeting, conversations were enhanced through input from a wide array of global experts, representing organizations in the fields of government and policy, higher education, international business, research and national competitiveness.

## Our Host for the Global Innovation Summit



Created in 1993 to promote continuing modernization and innovation within the Malaysian economy, MIGHT plays a central role in the Southeast Asian competitiveness landscape. A public-private partnership linked to both the Science Advisor of the Malaysian Prime Minister and key industrial leaders in the private sector, MIGHT's work is based on the premise that science and technology can catalyze the rapid development of Malaysia's economy and the advancement of Malaysia into high-income status.

As host of the 2017 Global Innovation Summit, MIGHT recognizes that international integration is important for entrepreneurial success. By working with partners from the Americas, Europe and Malaysia's neighbors within ASEAN, Malaysian start-ups can root themselves in a global culture of competitiveness through collaboration. With a focus on sustainability and evidence-based industrial practices, MIGHT has led Malaysia's cutting-edge economic and industrial development for three decades, building transnational bridges while targeting key emerging industries such as biotechnology.

Current projects include developing "sustainable & smart cities" as well as promoting Malaysia's research into innovative business models such as blockchain. With a mission to "serve the nation in advancing competency in high technology through partnership towards sustainable development," MIGHT has served, and continues to serve, as a valuable asset in the global competitiveness movement.



**Top left:** Dr. Hamad Al-Ibrahim, Executive Director for Research and Coordination, Qatar Foundation.

**Top center:** Mr. Juan Pedro Córca, Director of Entrepreneurship and ICT, City of Buenos Aires Government.

**Center left:** The Hon. Deborah L. Wince-Smith, President, GFCC; and the Hon. Dato' Sri Nancy Shukri, Minister in the Prime Minister's Department.

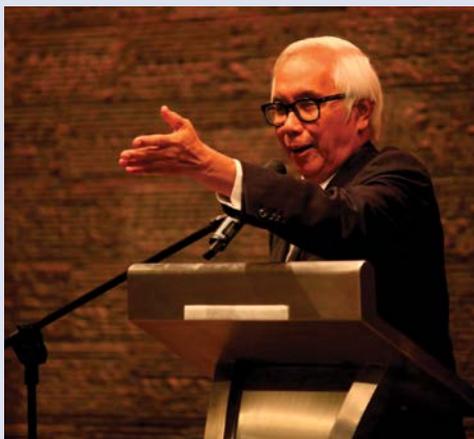
**Bottom left:** Mr. Chad Evans, Executive Vice President, Council on Competitiveness.

**Top right:** Ms. Gianna Sagazio, Director of Innovation, National Confederation of Industries Brazil (CNI), and Superintendent, Instituto Euvaldo Lodi.

**Center right:** Panel session at the 2017 GFCC Annual Meeting.

**Bottom center:** Datuk Dr. Mohd Yusoff Sulaiman, President & CEO, MIGHT.

**Bottom right:** The Hon. Jerry Hultin, President and Chairman, Global Futures Group, and GFCC Distinguished Fellow.



**Top left:** Ms. Lori Schmidt, CEO, GO Productivity; and Ayedh Al-Otaibi, Deputy Governor, Saudi Arabian General Investment Authority.

**Top center:** Prof. Isabel Capeloa Gil, Rector, Catholic University of Portugal; Prof. Jouko Väänänen, Vice Rector, University of Helsinki; and Prof. Peter Smith, Pro Vice Chancellor International, University of Southampton.

**Center left:** Ms. Hala Al Ameri, Director, Competitiveness Office of Abu Dhabi; Dr. Stefan Kraxner, Former Competitiveness Advisor, Competitiveness Office of Abu Dhabi; Prof. Harris Pastides, President, University of South Carolina; Mr. Adham Nadim, Chairman & Managing Director, Nadim Industries; and Prof. Isabel Capeloa Gil, Rector, Catholic University of Portugal.

**Top right:** Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Co-Chairman, MIGHT.

**Center right:** Dr. Roberto Alvarez, Executive Director, GFCC; Prof. Isabel Capeloa Gil, Rector, Catholic University of Portugal; and Prof. Luis Gustavo Martins, Vice Rector, Catholic University of Portugal.

**Bottom left:** The Hon. Dato' Sri Nancy Shukri, Minister in the Prime Minister's Department.

**Bottom center:** Prof. Tan Sri Zakri Abdul Hamid, Co-Chairman, MIGHT.

**Bottom right:** Dr. Hamad al Ibrahim, Executive Director, Qatar Foundation; and Prof. Datuk Dr. Raduan Che Rose, CEO, National Council of Professors.



**Top:** Mr. Hiro Nishiguchi, Executive Managing Director, Japan Innovation Network; Dr. Michael Cottam, Vice President for Academic Affairs, Webster University; Dr. Raslan Ahmad, Senior Vice President, MIGHT; and Mr. Ken Chapman, Executive in Residence, GO Productivity.

**Center:** 2017 GFCC Annual Meeting participants.

**Bottom:** Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Co-Chairman, MIGHT; and the Hon. Dato' Sri Nancy Shukri, Minister in the Prime Minister's Department.

**Top:** Ms. Gianna Sagazio, Director of Innovation, National Confederation of Industries Brazil (CNI), and Superintendent, Instituto Euvaldo Lodi; Mr. Chad Evans, Executive Vice President, Council on Competitiveness; and Prof. Tan Sri Zakri Abdul Hamid, Co-Chairman, MIGHT.

**Center:** Ms. Anthea Long, General Manager, Department of Industry, Innovation & Science; and Ms. Lori Schmidt, CEO, GO Productivity.

**Bottom:** Mr. Alexander Idrisov, CEO, Eurasia Competitiveness Institute.

# 2017 University and Research Leadership Forum



The GFCC's University and Research Leadership Forum, a collaborative and dynamic think tank comprised of research organizations from around the world, aims to apply academic research to practical issues, build alliances between universities and industry, and generate a growth-centered culture in institutions of higher education.

The Forum launched two task forces at its inaugural meeting in London in 2016: Optimizing Innovation Alliances and Leveraging Extreme Innovation. The preliminary research of these task forces — case studies of 18 university-industry alliances, and research and interviews with individuals involved in 17 big, bold and transformational extreme innovation projects — was presented at the 2017 Forum. The final research results offered by each task force were published in September 2018. An executive summary will be available online, with the full reports available exclusively to GFCC members.

## Optimizing Innovation Alliances

- What practices do universities have to engage with outside partners in innovation?
- How are they evolving?
- What are the key trends?
- What do they have to say to university operations?



## Leveraging Extreme Innovation

- How do universities take part in extreme innovation projects?
- What are the impacts for society?
- How could universities better engage in extreme innovation?
- What structures, capabilities, and functions are needed?



### CO-CHAIRS

#### **Prof. Christoph Hock**

Former Vice President for Medicine  
University of Zurich

#### **Dr. Hassan Rashid Al-Derham**

President  
Qatar University

### CO-CHAIRS

#### **Prof. Sethuraman "Panch" Panchanathan**

Executive Vice President and Chief Research  
and Innovation Officer of Knowledge Enterprise  
Development  
Arizona State University

#### **Prof. Edward Byrne AC**

President and Principal  
King's College London

- 8 conceptual categories
- 52 archetypes of practices
- 400 practices reviewed
- 3 generations of practices identified
- 7 key trends

- 17 transformational technology projects
- 80 countries involved
- \$250bi+ in funding
- 7 key findings
- 5 overarching recommendations



**Top:** Dr. Matthew Johnson, Partnership Manager, King's College London; Prof. Isabel Capelo Gil, Rector, Catholic University of Portugal; and Mr. Chad Evans, Executive Vice President, Council on Competitiveness.

**Center:** Ms. Lori Schmidt, CEO, GO Productivity; Dr. Pete Worden, Distinguished Fellow, GFCC; and Dr. Ayedh Al-Otaibi, Deputy Governor, SAGIA.

**Bottom:** Dr. Nkem Khumbah, Senior Fellow, GFCC; Ms. Alison Townley, Advisor, American College of Greece; and Prof. Luis Gustavo Martins, Vice Rector, Catholic University of Portugal.

**Top:** Prof. Dr. Mohamed Ibrahim bin Abdul Mutalib, Vice Chancellor, Universiti Teknologi PETRONAS; Dr. Roberto Alvarez, Executive Director, GFCC; and Dr. Sethuraman "Panch" Panchanathan, Executive Vice President, Knowledge Enterprise, Arizona State University.

**Center:** Dr. Jari Kinaret, Director, EU Senior Graphene Flagship; and Prof. Harris Pastides, President, University of South Carolina.

**Bottom:** Dr. Sethuraman "Panch" Panchanathan, Executive Vice President, Knowledge Enterprise, Arizona State University; the Hon. Deborah L. Wince-Smith, President, GFCC; and Mr. Charles O. Holliday, Jr., Chairman, GFCC.



# 2017 Global Innovation Summit

## From Our Host

On behalf of MIGHT, we would like to express our appreciation to the GFCC fellows, members and friends who participated in the recently held Global Innovation Summit 2017 in Kuala Lumpur, Malaysia. Many of you have flown long hours and traveled a great distance to join us and for that we thank you!

With the current disruption brought about by the advancement of technology, it is apt that the theme for the 2017 Summit was "the sustainable future of production, consumption and work," which requires partnership and collaborative solutions. The creation and deployment of sustainable production and consumption models at a global scale require accelerated learning in policy, business, finance and workforce development.

GIS2017 brought together more than 200 industry captains, leading innovators and strategic thinkers from more than 25 countries around the world. Many conversations, deliberations and recommendations on the sustainable future of production, consumption and work towards a competitive ecosystem have taken place and being established post summit.

As a partnership organization, MIGHT strongly advocates partnership and collaboration as a key component to success. Global networking, collaboration and engagement are becoming more relevant and important, as most of the challenges we face

today are global in nature. Therefore, we are pleased to be part of the GFCC community where global collaboration is given the utmost priority.

Also, hosting the 2017 Global Innovation Summit provided opportunities for Malaysians to observe the discussions, listen to case studies, and be part of the exchange of insights, creative ideas and holistic thinking by thought leaders who participated in the summit. We hope those who attended the GIS2017 found the agenda thought-provoking and food for thought in crafting their own strategies.

Like everyone else, we want to leave the world a better place for future generations. We want to ensure Malaysia continues to grow and develop as a knowledge-based society that's prosperous and peaceful, and to achieve these goals in ways that are sustainable, inclusive and equitable. GIS2017 has provided us a platform to share these aspirations and perhaps opportunities to work towards a common goal with our partners and collaborators.

We would like to thank all our sponsors, especially the platinum sponsor, Tenaga Nasional Berhad; and bronze sponsor, UEM Berhad. Our special thanks also to our strategic partners, the Northern Corridor Implementation Authority, National Professor Council and SIRIM Berhad. We believe your participation and contribution to GIS2017 have also

benefited your organizations in a great way. We have indeed benefit greatly from the partnership established.

Let's foster a more mutually beneficial partnership among the GFCC ecosystem. Together, we deliver impact through partnership!



**Prof. Tan Sri Zakri Abdul Hamid**  
Co-Chairman  
MIGHT



**Tan Sri Dr. Ir. Ahmad Tajuddin Ali**  
Co-Chairman  
MIGHT



**Datuk Dr. Mohd Yusoff Sulaiman**  
CEO  
MIGHT

# The Sustainable Future of Production, Consumption and Work

The world is experiencing a time of unprecedented transformation affecting business, work and society alike. Rapid advances in technologies such as artificial intelligence, sensors, robotics and additive manufacturing are creating a tectonic shift in the way we produce and consume goods, and rendering the world a better, safer, healthier, more prosperous place.

No industry or country will be unaffected. Technology is reshaping business across industries and sectors around the world, from manufacturing to food production, from logistics to energy. This provides a new opportunity for innovative business models, and a massive boost in resource utilization and efficiency. For example, the quest for economic competitiveness is increasingly associated with capabilities in advanced manufacturing.

While this age of disruption and transformation is creating a host of opportunities, the world faces critical challenges. Urbanization, a booming global population and climate change are putting pressure on food production and natural resources such as energy and water, creating a moment in history that requires new solutions to build sustainable business models, economies and societies.

The 2017 Global Innovation Summit discussed *The Sustainable Future of Production, Consumption and Work*,



Mr. Chad Holliday, Chairman, GFCC; Prof. Tan Sri Zakri Abdul Hamid, Co-Chairman, MIGHT; the Hon. Deborah L. Wince-Smith, President, GFCC; and the Hon. Dato' Sri Nancy Shukri, Minister in the Prime Minister's Department, Government of Malaysia.

which brought together more than 400 leaders from 30 countries around the globe with background in business, government and academia. Hosted by the Malaysian Industry-Government Group for High Technology (MIGHT), and with the generous support of Malaysian companies, the Summit allowed for vigorous discussions and valuable conversations between the speakers and the wider audience.



**Top left:** Dr. Michael Cottam, Dean of Military Campuses and Online Education, Webster University; Mr. Chad Evans, Executive Vice President, Council on Competitiveness; Prof. Luis Gustavo Martins, Vice Rector, Catholic University of Portugal; and Mr. Adham Nadim, Chairman & Managing Director, Nadim Industries.

**Top right:** Dr. Frank-Jürgen Richter, Chairman, Horasis Group.

**Center left:** Dato' Ir. Hj. Azman bin Mohd, CEO, Tenaga Nasional Berhad; the Hon. Dato' Sri Nancy Shukri, Minister in the Prime Minister's Department, Government of Malaysia; and Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Co-Chairman, MIGHT.

**Center right:** Ms. Ida Semurni Abdullah Ali, Program Director, MIGHT; the Hon. Deborah L. Wince-Smith, President, GFCC; Mr. Loo Kok Seng, Senior General Manager, Tenaga Nasional Berhad; and Dato' Ir. Hj. Azman bin Mohd, CEO, Tenaga Nasional Berhad.

**Bottom right:** Datuk Ir. Dr. Abdul Rahim Hashim, Vice Chancellor, University of Malaya; Ms. Gianna Sagazio, Innovation Director, CNI, and Superintendent, Instituto Euvaldo Lodi; Mr. Jack Sim Founder & CEO, BoP Hub; and Mr. Loo Kok Seng, Senior General Manager, TNB Bhd.



## SESSION 1

# Prospering — How Will Global Transformations Shape Our Future?

### ● P A N E L I S T S ●

**Mr. Anson Chan**

Chairman and CEO  
Bonds Group of Companies

**Dr. Ayedh Al-Otaibi**

Deputy Governor  
Saudi Arabian General Investment  
Authority (SAGIA)

**Mr. Hiro Nishiguchi**

Executive Director  
Japan Innovation Network

**Dr. Pete Worden**

Chairman  
Breakthrough Prize Foundation

### ● M O D E R A T O R ●

**Mr. Charles O. Holliday Jr.**

Chairman  
Global Federation of Competitiveness  
Councils

Chairman of the Board  
Royal Dutch Shell plc

## Situation

Change is an integral component of prosperity. Disruptive technologies, however, accelerate the rate of change significantly and shatter the norms and rules to which we have grown accustomed. Successful transformation requires an acceptance of the change and a readiness to embrace a new status quo.

Nations and regions around the world seek to influence their futures through opportunities that range from technological advancement in artificial intelligence (AI) to a new entrepreneurial system, from environmental accountability to economic diversification. In this potential for unparalleled positive global change, there must be new solutions to build sustainable business models, economies and societies.

## Key Questions

- How can we use disruptive technology to address our sustainable development goals?
- How do we account for externalities that such changes may bring?
- What does the recent past of technological advancement predict for the future?
- What characteristics does a sustainable future possess?

## Challenges

This unprecedented period of transformation and disruption in major sectors will bring a new wave of challenges. Innovation strategies must account for demographic and climate change, in the face of rapid urbanization. Opportunities to address these problems stem from revolutionary abilities to connect. Exploiting this increase in connectivity will allow us to maintain sustainability in the areas of economics, business and society, as we attempt to find solutions to these challenges faster than new ones are created.

## Opportunities

**Leverage new technologies.** The current wave of new technology is changing the way people conceptualize and create. Embracing the potential of new technologies can allow us to form new systems of knowledge, address problems in new ways and unleash value creation.

Space technologies, for instance, are at the verge of a massive democratization, propelled by the launch of several satellite constellations. They will be instrumental in enabling advanced manufacturing, boosting productivity across supply chains and in the use of natural resources, protecting wildlife and more.



**Left:** Mr. Anson Chan.

**Right:** Mr. Hiro Nishiguchi addresses audience, pictured with Dr. Ayedh Al-Otaibi.

**Below:** Mr. Anson Chan, Dr. Ayedh Al-Otaibi, Mr. Hiro Nishiguchi and Dr. Pete Worden in conversation with moderator Mr. Charles O. Holliday, Jr. (second from left.)

### Implement new performance metrics.

Investment in sustainable solutions can be turbocharged if new accounting and performance evaluation systems are engineered and incorporated into government and business practices. Such systems should consider impact to a broader set of stakeholders than shareholders and have a long-term perspective.

### Invest in society transformation.

To increase integration, influence and competitiveness in the global economy, countries and cities should invest in future-looking industries and infrastructures. Nations like Saudi Arabia are building initiatives such as Vision 2030, focused on increasing inbound foreign direct investment (FDI) from 3.8 percent to 5.7 percent of Saudi Arabian GDP, with focus on economic diversification and investment in new industries.

**Focus on innovation.** Groundbreaking capabilities in AI provide new opportunities to optimize activities and focus human attention on more demanding, innovative tasks. As these advancements progress, repetitive and simple tasks demand less of our time. We need to increasingly center education and work around creativity.



**Increased Collaboration.** Increased connectivity creates new opportunities for collaboration across sectors and geographies. New models of engagement across industries and sectors in society need to be forged and deployed in large scale to boost innovation and scale-up new and sustainable solutions.

.....  
 "Five years ago, no one would have seriously mentioned collaboration between startups and large corporations in Japan. Now, it has become common sense. We see this every week."

**Hiro Nishiguchi**  
 Executive Director  
 Japan Innovation Network

## SESSION 2

# Producing — How Will We Make, Build and Assemble Things?

### ● P A N E L I S T ●

**Dato' P'ng Soo Hong**  
Managing Director  
First Solar Malaysia

**Prof. Jari Kinaret**  
Director  
EU Graphene Flagship

**Dr. Harris Pastides**  
President  
University of South Carolina

**Mr. Mauricio Zuazua**  
Partner  
A.T. Kearney

### ● M O D E R A T O R ●

**Datuk Dr. Mohd Yusoff Sulaiman**  
President & CEO  
Malaysia Industry-Government Group  
for High Technology (MIGHT)

## Situation

Technology is reshaping business across industries and sectors, from manufacturing to food production, from logistics to energy. With new technologies such as sensors, robotics, additive manufacturing and advanced materials, and their potential to improve efficiency, building capabilities in advanced manufacturing is an increasing focus in the quest for economic competitiveness. In the years

to come, economic competitiveness will be increasingly associated with the capacity of countries to transition to the new manufacturing era, and establish and scale companies that create the technologies that enable advanced manufacturing.

## Key Questions

- What industries will be most affected? How?
- What can be done to minimize the downside of technology transformation and maximize the upside?
- Can countries, regions and cities play active roles in reshaping industries and generating growth in manufacturing sectors? How?
- Which industries are emerging? How can we embed sustainability into them?
- How is innovation changing? What is needed in business, policy and education to adapt to that?

## Challenges

Technology innovation in manufacturing enables a higher level of automation in the production process, leading to a better product for the consumer, and a faster and more efficient way of producing. Moreover, while past industrial revolutions had tremendous impact

on the environment, pollution and climate change, the current industrial revolution, Industry 4.0, could enable a much more environmentally sustainable industrial age.

The impact of technology innovation on production as a whole — that is, the integrated value chain including various stages of manufacturing, commercialization and distribution — is hard to predict. Automation may lead to workforce reductions as some workers are replaced by robotics and artificial intelligence (AI), while new types of knowledge and skills come into high demand, creating major challenges in manufacturing workforce development. New workforce knowledge and skills will be required to design and produce products of the future.

The implications of future technological disruption and transformation remain somewhat unclear for businesses, the workforce, our societies and the political frameworks required to accommodate these changes. However, benefits and challenges are likely to be uneven across workers at different education levels, across different industrial sectors and global regions, and among small, medium and multinational enterprises. For example, a region's stage of development may play a key role in its readiness for transformation and adaptability to rapid change.



Dato' P'ng Soo Hong, Prof. Jari Kinaret, Dr. Harris Pastides and Mr. Mauricio Zuazua in conversation with moderator Datuk Dr. Mohd Yusoff Sulaiman.

## Opportunities

### Multidisciplinary and Flexibility

With technological change having somewhat unforeseeable effects on the development of work and production, the workforce of the future should be flexible, adaptable, analytical, problem solving and strategic in approach. Multidisciplinary knowledge and skill will be increasingly valuable as future technology developments could have applications in multiple sectors (e.g., 3D printing in mechanical engineering, but also medicine).

### New Materials — New Opportunities

Research on new materials and their applications in manufacturing will become increasingly important. For example, applications for graphene range from PV solar cells and energy storage, to sensors and coatings that make airplanes more lightweight

and thereby more fuel efficient. Investments in developing new materials and their applications are crucial for sustainable production.

### Qualification and Education

Educating the workforce is an effort not limited to universities and other formal education. Apprenticeship programs and industry internships provide valuable hands-on experience for developing workforce skills.

### Competitiveness and Collaboration

Innovation is a collaborative effort and yet it makes nations, regions, companies and universities more competitive. Competitiveness and collaboration should not be seen as contradictions, but rather as two puzzle pieces that fit together seamlessly.

.....  
 “Beyond human capital is ecosystems' ability to diffuse technology and innovation to smaller companies. This inclusiveness is a critical factor.”

**Mr. Mauricio Zuazua**

Partner  
 A.T. Kearney

## INNOVATION SPOTLIGHT

# Innovation, Technology and Competitiveness in Malaysia — an Interview with the Honorable Dato' Sri Nancy Shukri



**The Hon. Dato' Sri Nancy Shukri**  
Minister in the Prime Minister's  
Department  
Government of Malaysia

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

President & CEO  
Council on Competitiveness

**Ms. Wince-Smith:** You have a very interesting and distinguished background — law school, business school, and you now represent a very important constituency in Malaysia. Tell us about your career as a female leader, as it's one of our challenges in competitiveness to ensure that more women come into leadership roles.

**Minister Shukri:** I started my career as an NGO activist, helping the government to help more women become more independent. I tried to consider all the resources that I have in order to help them. When I began my career, I always said, "I am not a politician. I am a woman here to help other women." In my second term, I

became a minister in charge of law, as opposed to innovation, which was very challenging. After three years in this role, I was asked to move on to a different portfolio: a leadership role at MIGHT. When I was asked to take charge of innovation, I saw this as a good opportunity, not just to help women, but to help people as a whole. The Prime Minister, at the beginning of his term, saw that an innovation agency could help Malaysia grow as a nation. This is a very good platform for us to help people through knowledge, technology and innovation. We can create an environment for people to innovate, building a new generation of innovators for the country. Through our efforts, we are making innovation a culture.

**Ms. Wince-Smith:** The theme of innovation links to entrepreneurship. You yourself are an entrepreneur; you created and led a successful business before your involvement in politics. In your job now, you are a systems integrator. How do you bring together the leaders of different teams, integrating them for a common agenda?

**Minister Shukri:** I make them see the needs of the people from the perspective of what they are doing. I started engaging with some young entrepreneurs in my constituency. I see many talents there. The kind of

facilities they have, however, are not up to the standards that I would like to see. In the city, there are many opportunities, but in my home state in Sarawak, and representing the rural areas, the people have different needs. I talk to them and they are very ambitious. They need a certain kind of assistance, but how? The feasibility of business is in question. Maybe, in the future, there will be other ways of helping the people. How much, as politicians, can we help? Only within certain limits. We must have a system. We have a government that is so generous. However, we want the people to be independent. If people are independent, they are happy. But we need to provide them with a platform.

**Ms. Wince-Smith:** That is fascinating to hear you speak of the challenges in the rural areas in particular. In the competitiveness arena, there is a great concern about urbanization. How do we marry the two, taking the city environment that is creative and dynamic, and help it to manifest in the rural areas? Is this through technology, interconnectivity?

**Minister Shukri:** As a leader, you must be forceful and persistent. I've been trying to have new housing built in my constituency. I was given approval for about 52 acres to start. We are looking at 400 acres to build upon,

allowing young people to stay in their home towns. This will afford them land resources to farm or start their own business, while still being connected to a greater sphere. Those interested in business are engaging online through new IT systems, just to promote their products. It is already happening.

**Ms. Wince-Smith:** So, the tools are already being applied in creative ways for entrepreneurship. Finally, tell us about your biggest challenge going forward: where would you like to see your legacy going in the years to come?

**Minister Shukri:** I am blessed with a committed team and blessed to be in a country with a forward-thinking leader. Our latest initiatives involve all of the nation, especially the young, to share with us what they would like to see in the next 30 years. It is a guide for us as leaders. The people are the ones who make us work. I know that within five years, we will see great results in Malaysia's development.

.....  
 "As a politician, the people become your consultants. It is important to understand that business and policy decisions should, in the long run, bring prosperity for all. Staying competitive is a crucial part."

**The Hon. Dato' Sri Nancy Shukri**  
 Minister in the Prime Minister's Department  
 Government of Malaysia

## SESSION 3

# Consuming — How Are We Going to Supply the Goods Needed by Humanity?

### ● P A N E L I S T S ●

**The Hon. Jerry Hultin**

President and Chairman  
Global Futures Group, LLC  
GFCC Distinguished Fellow

**TPr Norliza Hashim**

CEO  
Urbanice Malaysia

**Mr. Paul Levins**

Chief Strategy Officer  
Xinova

**Mr. Ricardo Pesce**

Managing Director  
Embraer Asia-Pacific

**Dr. Mohd Shuhaizam Mohd Zain**

CEO  
Bioeconomy Corporation

### ● M O D E R A T O R ●

**Dr. Frank-Jürgen Richter**

Chairman  
Horus: The Global Visions Community

## Situation

Population growth and the improvement of standards of living are coupled with more demand for food, goods, services and infrastructures. With 3.5m additional people on this planet by the end of the century, the pressure on natural resources, infrastructures, urban, rural and logistical systems is increasing. Connecting new business models and technology could be a useful vehicle for economic growth, sustainability and natural resource efficiency.

## Key Questions

- How are we going to feed people in the future and what are new distribution, production and technology models that could act as enablers?
- Where will the goods come from in the future? What are the challenges with local vs. global production?
- How can new consumption (and production) models be coupled with urban development? What are some of the new, technology-enabled solutions for cities that can bolster sustainability?

## Challenges

Driven by global population growth, geographical patterns of production and consumption are changing rapidly, influencing demographics, consumer and societal preferences, and urbanization.

With the considerable advancements in artificial intelligence (AI) in recent years, a race in capabilities between humans and robots is underway. AI has reached achievements beyond our wildest concepts, but basic education remains rooted in past ideas about learning. As a result, education can lead people to be good "robots" as opposed to good creators, while working to improve the global condition requires creativity.

## Opportunities

**Think and build unconventional tech-powered solutions.** New technologies, paired with creative business concepts, are creating innovative solutions to global problems, both new and old. Creative Innovation allows problems to be reframed and out-of-the box solutions for production, distribution, services and urban infrastructures to be implemented. For instance, electric air-lifted transportation will soon be democratized in cities, alleviating ground congestion and cutting emissions.

**Break R&D boundaries.**

Interdisciplinary collaboration is needed to maximize the results of R&D. Connections across disciplines can create multi-dimensional solutions that address a range of problems that may have otherwise seemed unrelated. Supported by technology and new business and organizational models, R&D



Tprr Norliza Hashim addresses audience, pictured with the Hon. Jerry Hultin and Dr. Mohd Shuhaizam Mohd Zain.



Mr. Ricardo Pesce, Mr. Paul Levins and the Hon. Jerry Hultin in conversation with moderator Dr. Frank-Jürgen Richter.

endeavors can be extended beyond corporate boundaries, leveraging R&D capabilities and resources increasingly spread in society.

**Re-frame education.** Our ability to create is the source of our intellectual value. Humans will never be able to compete with advanced robots and AI on measures of productivity or efficiency - but humans are strongly superior in creativity. Making the human mind and creative process a priority in education will help to build the innovators of the future. This will require a new type of education system in which creative potential is encouraged over rote ability.

**Innovate in city infrastructures and metabolism.** Consumption and the utilization of natural resources are concentrated in cities, directly or indirectly — that is, embedded in products and services. A drive towards sustainable urban infrastructures — including distributed clean energy

generation, closed-loop systems for water and waste treatment, urban production of food and goods and the sharing of assets enabled by digital platforms can boost innovation and sustainability.

**Leverage cities as talent hubs.** Cities harbor competitiveness drivers such as cutting-edge research universities, outlets for the arts, incubators for entrepreneurship and world-class facilities for high technology and are thereby acting as hubs for creativity and innovation. Such assets attract the creative talent that drives innovation, competitiveness and economic performance, with impacts in local and national level.

.....  
 “Nations, regions and cities will become more self-contained, as we are able to produce what we need in small batches, increasing production efficiency.”

**The Hon. Jerry Hultin**  
 President and Chairman, Global Futures Group,  
 and GFCC Distinguished Fellow

## SESSION 4

# Working — How Will We Work and Live in a Sustainable Way?

### ● P A N E L I S T S ●

**Datuk Ir Dr. Abdul Rahim Hashim**  
Vice Chancellor  
University of Malaya

**Mr. Loo Kok Seng**  
Senior General Manager  
TNB Bhd

**Ms. Gianna Sagazio**  
Innovation Director  
National Confederation of Industry, and  
Superintendent, Instituto Euvaldo Lodi;

**Mr. Jack Sim**  
Founder  
BOP Hub

### ● M O D E R A T O R ●

**Mr. Suhaimi Sulaiman**  
Group Editor-In-Chief  
Astro Awani

## Situation

The incorporation of new technologies is expected to simultaneously eliminate and create hundreds of millions of jobs in the years to come. A sustainable and prosperous future will only be possible if social cohesion is kept and countries have globally competitive pools of makers, doers, innovators and entrepreneurs. Societies will need to adapt, developing the skills required for the workforce and social solutions to mitigate the hurdles of transition. Education itself will be reshaped by technology and new models for partnerships will be made.

## Key Questions

- Where will the jobs of the future come from?
- What are key risks that societies will face in transitioning to a new production era? How can they be mitigated?
- What new models and solutions for education delivery are emerging?
- What are the best examples of industry-government collaboration around the globe to prepare future doers, makers and innovators?
- What are the key skills we need to emphasize? How can they be developed?

## Challenges

With rapid advancements in technology, job redundancy and workforce reductions are likely in the years to come. Technology improvements and the sectors that will be affected by technological change the earliest are still relatively unknown, creating challenges in planning for a change that is unforeseeable.

Machines and humans generally do not compete on a level playing field when it comes to manual labor. Robots and artificial intelligence do not have human flaws or sicknesses, and eliminate the need for health insurance, and occupational health and safety regulations. As a result, employment for people will increasingly depend on their human

.....  
"Through disruptive technology, certain jobs will become obsolete. In response, we, in education, must nurture adaptable students."

**Datuk Ir. Dr. Abdul Rahim Hashim**  
Vice Chancellor  
University of Malaya

traits such as curiosity, courage, compassion, commitments, and collaboration ("The 5 Cs"). Developing these skill sets in a flexible workforce challenges the existing educational system. Education delivery and learning techniques have not changed significantly in the past centuries, and these learning methods will produce "by-the-book graduates" rather than adaptive, innovative minds with applicable knowledge.

## Opportunities

**Give education a stronger focus on industry needs.** New technologies will require new skill sets and different approaches to education and training. University education needs a strong focus on the application of knowledge to real-world problems and providing students with opportunities to gain industry experience. Entrepreneurialism and adaptability to changing production and new market



**Top left:** Moderator Mr. Suhaimi Sulaiman.

**Top right:** Mr. Jack Sim and Mr. Loo Kok Seng.

**Bottom:** Datuk Ir Dr. Abdul Rahim Hashim, Ms. Gianna Sagazio and Mr. Jack Sim.

.....  
 “In Brazil, CNI has partnered with industry to create 25 innovation institutes nationwide, in addition to our existing 60 vocational training institutes. In doing so, CNI was able to train millions of workers and engage in international partnerships to ensure the global competitiveness of our workforce.”

**Ms. Gianna Sagazio**

Innovation Director

Brazilian National Confederation of Industry, and  
 Superintendent

Instituto Euvaldo Lodi

opportunities, as well as curiosity to explore innovation and process improvements are traits that can be fostered and taught.

**Start early on to prepare an adaptable workforce.** The education system as a whole should be seen as an integral part of industrial development and progress. An interest in engineering and collaborative personality traits are important assets for the workforce of tomorrow and should be developed starting at the primary school level.

**Leverage technology and unleash human potential.** Routine functions and activities are very likely to be automatized. Technology can be used to expand access to education and training and put in place solutions for workforce life-long education. Education needs to be oriented toward problem solving and made continued and adaptable.

**Partner to develop soft skills.** Joint programs with industry, education institutions and company employees are a possible solution to ensure the industry applicability of knowledge. With a rising skills shortage in the high-skill industries, companies have an interest in training and educating the workforce. Also, this collaborative approach can help provide the increased resilience needed to meet future technological, market and business model disruptions.

## INNOVATION SPOTLIGHT

# The Innovation Ecosystem in Malaysia



**Mr. Abdullah Arshad**  
COO, National Innovation Agency  
Malaysia

Innovation derives not only from competitive business practices, but also from a comprehensive societal focus on the creative potential of people. Education is an important aspect in this regard, especially to Malaysia's innovation ecosystem — and education needs to be re-thought entirely. Students' communication and creative thinking skills are more important than ever and should be encouraged. As technology continues to globalize and democratize, raising a cohort of independent young Malaysians equipped to self-organize remains a priority for Malaysia's policy makers and business leaders.

Commercialization of these innovations is a key element of competitiveness strategy for the 21<sup>st</sup> century. Developing the appropriate intellectual property laws that encourage innovation and commercialization is a priority for the National Innovation Agency Malaysia.

This legal framework will be paired with partnerships between the government and Malaysian start-ups, with government equity investment and support serving to ease the burden on small firms as they expand production.

The "quadruple helix" of government, consumers, academia and industry is the primary focus of government innovation policy. Constructing bridges of dialogue between these institutions, building capacity across these sectors, is the cornerstone of the National Innovation Agency Malaysia's mission to develop an economy that competes not only in manufacturing, but in cutting-edge science and technology as well.

**INNOVATION SPOTLIGHT**

# New Innovation Frontiers

**Mr. Chad Evans**

Treasurer  
Global Federation of Competitiveness  
Councils

Executive Vice President  
Council on Competitiveness

The very foundation of the world's innovation ecosystem has been shaken by the democratization and decentralization of research and development. Small teams and individuals empowered as never before to engage with the research community and develop products that compete in global markets.

From 3D printing to crowdfunding and open innovation platforms, tools are quickly emerging within the marketplace that are enabling an unprecedented democratization of innovation. The digital age and the "fourth industrial revolution" have allowed even small amounts of capital to effectively finance research and production.

Public-private partnerships, with small research teams coordinating with industry and public organizations to solve social and economic

problems are the key to using this democratization of research to the fullest, and can be used to address the demographic and geographic barriers within the science and technology field by finding creative approach to an inclusive innovation process. As R&D continues to merge with entrepreneurship, partnerships bridging sectors of society can catalyze collaboration in research and innovation to generate an unprecedented level of social and economic advancement.

## SESSION 5

# Maximizing — How Will We Turbocharge Natural Resources Value?

### ● P A N E L I S T S ●

**Mr. Erik Stenehjelm**

Executive Director, Research Strategy and Impact Management  
Qatar Foundation

**Mr. Daniel Gonzaga**

Global New Products Development Director  
Natura

**Ms. Letina Connelly**

Vice President, Chief Strategy Officer and CTO  
IBM Asia-Pacific

**Ms. Lori Schmidt**

CEO  
GO Productivity

### ● M O D E R A T O R ●

**Prof. Tan Sri Zakri Abdul Hamid**

Co-Chairman  
MIGHT

## Situation

Advancements in science and technology have enabled humans to tap and harness more and more of the Earth's natural resources for productive capabilities. However, this has raised global concerns about sustainability and the efficiency of natural resource use, creating strong interest in developing a framework for how best to address natural resource needs around the world.

## Key Questions

- What are the low hanging fruits for efficiency gains in the use of natural resources?
- What are the key technologies that will enable efficiency in natural resources?
- What is the role of impact investment? How can that be expanded?
- What regulatory frameworks are needed? Where are they more advanced in the globe?

## Challenges:

The just distribution of natural resources' value remains a challenge. For instance, as the emerging field of biotechnology continues to expand and assume prominence in global markets, disagreements between "gene rich" developing countries and "technology rich" developed countries over benefit-sharing from this lucrative field become increasingly likely.

Policy frameworks for interaction between local communities and corporations involved in resource extraction are needed as global value chains continue to expand into developing regions of the world. However, dialogue on such policy frameworks remains very much in flux.

Sustainability of resources, particularly in urban areas, poses another issue of concern. Urbanized areas such as Qatar must adapt their value chains and eco-

nomie structures to effectively utilize increasingly scarce resources, while also expanding into an array of emerging fields to diversify the economy.

The convergence of increasing resource use with innovations ranging from artificial intelligence to the use of drones to map resource deposits forms one of Earth's greatest challenges and opportunities of the 21st century. Strategies to respond must integrate public and private interests into a balanced framework of sustainable development.

## Opportunities

**Drone mapping.** In an era of historically high natural resource consumption, using the latest technology in unmanned aerial vehicles to map terrain and prospect for energy resources may offer a means to increase productivity and maximize efficiency in resource extraction. In countries with vast tracts of potentially fuel-rich land, drones offer an innovative way to streamline the energy supply chain. Drones can be used to support preservation and gather data to help us manage natural resources.

**New techniques in desalination.** Water is undoubtedly the world's most vital resource. Conserving and recycling water meets the needs of both sustainability-minded citizens and efficiency-minded private firms. Finding ways to desalinate energy production facilities may serve as the key to building more environmental



**Top left:** Moderator Prof. Tan Sri Zakri Abdul Hamid and Mr. Erik Stenehjøm.

**Top right:** Mr. Daniel Gonzaga addresses audience, pictured with Ms. Letina Connelly.

**Bottom:** Mr. Daniel Gonzaga, Ms. Letina Connelly, Mr. Erik Stenehjøm and Ms. Lori Schmidt in conversation with moderator Prof. Tan Sri Zakri Abdul Hamid (center).

consciousness and resource security around the globe, especially in areas where water is a scarce resource.

**Invest in biotechnology.** Biotechnology is one of the fastest emerging scientific fields of recent years. Regions such as the Amazon and Malaysia's rainforests represent gene-rich wellsprings of economic potential that need to be paired with capital investment in such a way that local communities benefit from the exchange. From cosmetic products to chemical compounds, the untapped genetic resources of the developing world present an exciting prospect as biotechnology continues to expand global value chains. Investments in biotechnology — species cataloging, DNA sequencing, biobanks etc. — are essential to build competitive advantage.

**Turbocharge data collection and processing.** Sensors are becoming extremely cheap and can be connected to the Internet. Their dissemination can help us to better understand and monitor ecosystems, as well as to increase efficiency in natural resources utilization.

**Learn from nature.** Nature has evolved over hundreds of millions of years and perfected a variety of elegant, robust and efficient design solutions. Businesses, governments and innovators can draw examples and inspiration in nature for new productions methods and processes — for agriculture and manufacturing goods — and products.

.....  
 "There is a big discrepancy between countries rich in natural resources and countries rich in technology. How we will turbo charge natural resources' value will depend greatly on the interaction between these two parties."

**Prof. Tan Sri Zakri Abdul Hamid**  
 Co-Chairman  
 MIGHT

## INNOVATION SPOTLIGHT

# Intellectual Property's Multi-Sector Influence



.....  
"IP is the secret to successful innovation, business, education and policy."

**Mr. Johnson Kong**  
Board of Governors  
IIPCC

Intellectual property (IP) is more than a legal framework — it is the keystone to creating value in a developed economy and, in doing so, benefiting society as a whole. The International Intellectual Property Commercialization Council (IIPCC) defines IP as "creations of the mind: inventions, literary, artistic works; symbols, names and images used in commerce." The correlation between the robustness of a country's intellectual property framework and the capacity of that country for sustained development and growth, supports IIPCC's view of intellectual property as a guarantor of value in a modern economy, without which innovation lacks legal assurances.

IIPCC highlights that IP goes far beyond the domain of the public sector and is directly related to innovation, the success of

business, education and policy, and entrepreneurialism. Through outreach programs with the Korean education system, the IIPCC is engaged in concerted efforts to foster a culture of innovation and creativity at a global scale, with intellectual property as an integral aspect of such a culture.

In a separate initiative, the IIPCC has developed the IKR, a tool for tagging and demonstrating ownership of trade secrets, music, movies and videos, R&D, designs and data. IKR supplements patent and trademark protections with an added layer of security to safeguard the value of firms' creative contributions to society.

## INNOVATION SPOTLIGHT

# Palm Agroforestry System — The Natura Experience in the Amazonian Region



.....  
 “Productivity of the oil palm agroforestry is greater than the prediction based on monoculture.”

**Mr. Daniel Gonzaga**  
 CTO  
 Natura Cosmetics

Deforestation has plagued Brazil's Amazon rainforest, the result of palm oil monoculture farming. Natura, a company largely based on the use of biotechnology to revolutionize the cosmetics industry, aimed to find a solution to the ecological problems associated with palm oil by developing a model of biodiverse “agroforests” that combine compatible species to both increase productive efficiency and mitigate the ecological pitfalls of monoculture farming.

With local Amazonian farmers providing a workforce, the project paired an emphasis on sustainability with a data-driven approach to productive efficiency. Early results for the project showed higher palm oil output than traditional monoculture farming, even when using less hectares of land.

Through Natura's SAF Dendê's agroforests initiative, Açai and a number of short-term cultures are incorporated to enhance the profitability of the initiative for local agriculturalists, in addition to bolstering the biodiversity of the farms themselves. Recognizing that new methods of production call for new avenues of thought, Natura has invited students, teachers, researchers and technicians to visit their agroforests and contribute to the project with cutting-edge scientific input on both the ecological and commercial fronts.

Merging a scientific approach with an entrepreneurial belief in improving production systems sustainably, the initiative has shown remarkable results as a productive enterprise and ecologically-aware endeavor.

## SESSION 6

# Converging — What is the Policy Mix Needed for Future Production

### ● P A N E L I S T S ●

**Prof. Dzulkifli Abdul Razak**  
President  
International Association of  
Universities

**Dr. Michinari Hamaguchi**  
President  
Japan Science and Technology  
Agency

**Mr. Alexander Idrisov**  
President  
Strategy Partners Group

**Mr. Juan Pedro Córca**  
Senior Manager  
National Institute of Industrial  
Technology of Argentina

**Tan Sri Dr. Ir. Ahmad Tajuddin Ali**  
Chairman  
UEM Group Berhad

### ● M O D E R A T O R ●

**Mr. Charles O. Holliday Jr.**  
Chairman, Global Federation of  
Competitiveness Councils

Chairman of the Board, Royal Dutch  
Shell plc

## Situation

Recent advancements in science and technology have widened the path to economic prosperity at a global level, but the benefits yielded by those advancements have been uneven. Developing a comprehensive system of policies to address the disruptive

potential of the "Fourth Industrial Revolution" remains a vital priority for states and private actors alike.

## Key Questions

- What new models for government organization, action and policy are needed?
- How can we accelerate policy learning, and global deployment of new technologies and sustainable business models?
- How can investments in sustainable projects be unlocked? What frameworks and tools are needed?
- What types of alliances and coalitions involving industry, government and academia are needed?
- What global platforms for collaboration are missing?

## Challenges

New advancements in science and technology bring many new opportunities, but also challenges. Governments are challenged to produce new policy solutions relating to industrial policy, education, business regulations, investments in research and development, and social policy. The transition to a new digital era lowers the bars to wealth. Yet, existing inequalities can lessen the positive impact on its distribution and overall prosperity.

.....  
"We must utilize science, technology and policymaking to design our promising future."

**Dr. Michinari Hamaguchi**  
President  
Japan Science and Technology Agency

The effects of such innovation go much further and affect the way that we work and live, as well as the way that we structure and define our lives. Policymakers need to come up with the appropriate road maps and policies to lead their nations and societies into a continuously prosperous future through this transition.

## Opportunities

**Embrace innovation.** Adopting a risk-averse stance in an era of exciting and rapid development means forfeiting a unique opportunity to generate wealth and improve lives. Focusing policy efforts on public education would equalize opportunities without sacrificing the competitiveness of the economic system. Through an incentive-based structure and support for entrepreneurship, scientific advancements can be harnessed to catapult societies into the 21st century.



Tan Sri Dr. Ir. Ahmad Tajuddin Ali, Mr. Juan Pedro Córca and Dr. Michinari Hamaguchi.



Prof. Dzulkiifi Abdul Razak.

### Build prosperity at the intersection of inclusiveness, innovation and global integration.

While new technologies bring opportunities to improve the way of life, existing inequalities need to be addressed. Generating the wealth needed to ensure the basic wellbeing of all citizens will be a crucial first step. Redistribution can only be effective after a prolonged period of vigorous economic development. Government policies should simultaneously focus on seeking more balanced and less unequal societies, the promotion of innovative and transparent business practices and integration into the global economic system.

**Design the future.** Long-term policy frameworks are needed to create conditions for sustained growth. Steady growth allows standards of living to be improved and/or to remain quite high. Dialogue-enabled public-private partnerships can be established to jointly envision desired future stages in society and critical areas, orienting long-term business-government innovation partnerships to create new solutions and future value for society — backcasting.

This approach should also ensure that disruptions to key sectors are mitigated.

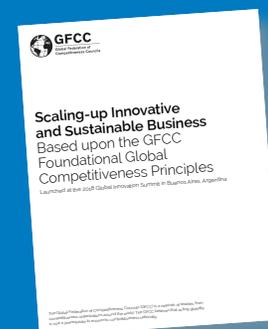
**Retaining talent.** While the circulation of knowledge is important to today's economy, talent retention is important for developing nations. Retaining local talent by crafting an environment favorable to innovation is crucial. In addition to incentivizing companies to invest in the Fourth Industrial Revolution, governments should recognize the complex interplay of political and economic issues and seek to create the conditions for young talent to start-up and scale-up enterprises within the country.

**Combine growth with inclusiveness.** Connecting growth and the attainment of productivity gains with the improvement of living standards is a critical aspect to be observed in order to maintain social, economic and environmental sustainability in the long-run. Policy matrixes should balance wealth creation with the generation of opportunities for citizens at all levels and improvements in living standards.

.....  
 “Values, rather than just value, should be at the core of decision making in the 21<sup>st</sup> century.”

**Prof. Dzulkiifi Abdul Razak**  
 President  
 International Association of Universities

Read about GFCC's *Global Competitiveness Principles* that are in line with the United Nations Sustainable Development Goals.



# Reflecting on the Sustainable Future of Consumption, Production and Work

Competitiveness is increasingly interconnected with sustainability — not a single nation, region or city will be truly competitive and thrive in the future if that nexus is neglected. Beyond environmental issues, sustainability has a lot to say about economic performance, the capacity to attract and retain talent, and the possibility of life at the local and global scales. Bridging growth, competitiveness and sustainability will depend on new concepts, technologies and business models. The solution will increasingly depend on innovation in different dimensions of business, government and society.

The global sustainability drive is not just about the moral imperative that we all have with the planet and future generations. In fact, it is mostly about the new investment and growth opportunities that are created by sustainable business models and new technologies. Such new innovative solutions can help companies, cities and nations to be more efficient, lower costs and create value.

The 2017 Global Innovation Summit included forward-looking conversations on different dimensions of human activities and society — from policy to manufacturing, from education to the use of natural resources. They were informed by the multi-dimensional sustainability notion outlined here, and the fact that, in addition to a very sophisticated level, technology has reached an unprecedented pace of change.

Production, consumption and work are being transformed at a global scale. While the flow of goods over the global GDP peaked in 2008 and has declined since then, data flows increased 45 times between 2005 and 2014 and are expected to grow 21 percent per year (CAGR) until 2021 — this trend will continue. Technology transformation — propelled not just by digital technologies — will reshape how we produce and move things around, make transactions, work, engage in public conversations and live.

This Summit has allowed us to take a wider look at all of these aspects, exchange examples for best practices across the wide network of leaders in the GFCC and take inventory — if you will — of what should be on the top of the agenda of nations, cities and businesses to address existing challenges and turn them into opportunities for prosperity, growth and economic development.

Prosperity will result not just from the adoption or use of new technologies but, above all, from new concepts and human systems. Out-of-the-box thinking is needed for societies to seize technological opportunity. An important development, still to be made, has to be about the concepts, systems and methods that we use to account and compensate performance in business and government — which define how we think and make decisions on investment priorities. They should be engineered to capture impact on society in a more systematic way.

In order to shape our collective future in a positive way, societies need to enhance their focus on innovation, bet on transformation and invest in future-oriented industries and infrastructures. Profound transformations are needed in education systems worldwide, which should simultaneously expand access and increasingly focus on the development of imagination, creativity and soft skills. The good news is that technology can help in education transformation and also enable new types of collaboration across different sectors of society and the globe, but it will not provide answers alone — new collaboration models are needed.

This notion that collaboration is important is particularly relevant in the manufacturing realm. Key technologies for future manufacturing are currently under development — in advanced materials and IoT, for instance — and their dissemination can be accelerated through joint efforts involving government, research and industry. The adoption of standards is a particular area of attention. In a more general way, collaboration has to be coupled with competition in order to drive performance.

As processes across supply chains become increasingly automated, governments, companies and the education sector have to shift the focus and prepare a more flexible, analytical and creative workforce. New solutions for workforce development are required and

partnerships between industry and education, like apprenticeship schemes, have to be expanded.

The conversations on prosperity and production shed light on the importance of reframing, retooling and boosting education. Talent is the most important resource for any nation, and people should be at the center of competitiveness strategies, as Deborah L. Wince-Smith and Nany Shukri discussed. On the one hand, countries need to create opportunities for their people; on the other, human capital is the main asset that countries have.

People are increasingly living in cities and all flows — of goods, energy, natural resources, information, money, etc. — converge in urban settlements, where the bulk of consumption happens. The battle for the sustainable future of our planet will be won or lost in cities, as the former UN Secretary-General Ban Ki-Moon once said.

Societies will need to implement innovative — and even unconventional — and systemic technology-enabled solutions to drive city sustainability. Those will range from clean energy systems to far-fetched airlifted transportation systems. Sustainable infrastructures and innovative systems for water, energy, heat and waste will be an essential part of the solution — and a big opportunity for business.

Once again, innovation will be the key for the realization of a sustainable reality. The already mentioned need

for new collaboration and education models was again strongly stressed in the conversations. A new concept highlighted in the conversations is that national competitiveness can be built ground-up, from the city to the country, leveraging the potential of cities to act as magnets for global talent.

Multi-stakeholder partnerships will be essential for nations to endeavor into the advanced manufacturing age. Focus on industry needs and the development of soft skills are practical guidelines on how to build a sustainable future for work. Traditional barriers between industry and education and along education levels need to become fluid. The fast-paced world we live in requires education and workforce development to become life-long endeavors. Economic systems and work will only become sustainable if governments, businesses and workers partner to enable the continuous upgrade of skills.

Sustainability in the use of natural resources can be boosted by new technologies — such as drones and advanced materials and automation applied to desalination — and, above all, by a renewed understanding on ecosystems and processes that take place in nature. Biomimicry and nature-inspired solutions for food production and manufacturing have the potential to drive sustainability and increase yield at the same time — further investigation, understanding and translation of concepts is needed.

In a broader sense, biotechnology is a fundamental area for investments in science, technology and innovation. Emerging nations have important natural assets and need to couple them with knowledge, research capabilities and global business structures in order to allow for the creation and scale-up of new solutions. That should be sought via a combination of local developments and global partnerships. Sensors, data analytics, AI, networks and computation offer new opportunities to identify, catalog, monitor, understand and maximize the benefits from natural resources and biodiversity.

Building a sustainable future for consumption, production and work will require updated policy mixes around the globe. Prosperity will arise from the convergence of innovation, growth and inclusiveness, and policy frameworks should be designed to connect those perspectives.

Public-private partnerships will be essential for the sustainable future of consumption, production and work. New planning/design models can be used to catalyze joint work across sectors and launch initiatives to build desired future states/realities, embracing innovation as an essential tool. Their implementation would require a lot of coordination and advanced dialogue platforms in society.

As global demographic changes unfold, emerging nations will be at the forefront of the expansion of global markets, urbanization and the fight against global warming. Innovation will be fundamental to address all those aspects, new businesses created, and competitive and sustainable economies shaped.

In 2018, the GFCC will take this conversation to Argentina to discuss ways of "Scaling-up Sustainable and Innovative Businesses." In many ways, the events in Buenos Aires will continue and add new perspectives to what was discussed in Kuala Lumpur. Through its commitment to global engagement and convergence, the GFCC hopes to enable new partnerships and the dissemination of best practices that could accelerate innovation, sustainability, competitiveness, growth and prosperity at a global scale.

Every year, the GFCC releases a statement of Global Competitiveness Principles. The document results from vigorous discussions within the GFCC community, which has more than 35 nations represented. Since 2016, the GFCC has aligned its principles with the United Nations Sustainable Development Goals (SDGs), recognizing that competitiveness and sustainability go hand-in-hand. In fact, this realization is not new for the GFCC.

Back in the 2013, the GFCC initially launched the Competitiveness Decoder® ([decoder.thegfcc.org](http://decoder.thegfcc.org)), which has advanced visualization and statistical tools built on top of 36 years of data for 101 countries and 135 metrics, organized in eight dimensions:

- Economic performance;
- Economic complexity;
- Capital;
- Infrastructure;
- Talent;
- Innovation;
- Quality of life; and
- Future growth.

The metrics and dimensions were carefully defined by GFCC members and experts during a process that took two years. The notion that competitiveness and sustainability are connected is reflected in the selection of metrics for quality of life and future growth. The idea is simple: not a single country will be truly competitive in the long-term if social and environmental sustainability are not addressed. In other words, if its citizens do not experience better living conditions and make political systems unstable; in a similar fashion, if natural resources have to be deeply consumed to deal with climate change and environmental harm.

Find out more about the Global Competitiveness Agenda in the GFCC's Global Competitiveness Principles and Best Practices: *Scaling-up Innovative and Sustainable Businesses*.



# Gala Dinner

A Gala Dinner concluded the second day of the Global Innovation Summit in Kuala Lumpur. In addition to a guest appearance from Her Royal Highness Sultanah Hajjah Kalsom of Pahang, distinguished GFCC members and fellows addressed the GFCC network's assembly.

This by invitation-only event featured a group of traditional dancers to entertain the guests with a display of Malaysian culture. Professor Tan Sri Zakri Abdul Hamid was honored as 2017's recipient of the Global Competitiveness Award. This Award recognizes prominent leaders whose voices and insight have advanced the global competitiveness agenda through their cities, regions and nations. The GFCC offers its warmest congratulations to Professor Abdul Hamid for his considerable accomplishments on behalf of Malaysia in the fields of science, higher education and innovation.



**Top:** Professor Tan Sri Zakri Abdul Hamid accepts the 2017 Global Competitiveness Award.



**Bottom:** The Hon. Deborah L. Wince-Smith, President & CEO, Council on Competitiveness, and President, GFCC, welcomes HRH Sultanah Hajjah Kalsom of Pahang to the GIS 2017 Gala Dinner.



**Top left:** Prof. Tan Sri Zakri Abdul Hamid accepts the 2017 Global Competitiveness Award in Kuala Lumpur.

**Top right:** HRH Sultanah Hajjah Kalsom, Sultanah Pahang.

**Bottom:** GIS 2017 Gala Dinner.

# 2017 Global Competitiveness Awardee

## Profile: Professor Tan Sri Zakri Abdul Hamid

The GFCC presented the 2017 Global Competitiveness Award to Professor Tan Sri Zakri Abdul Hamid for his contributions to building a culture of competitive excellence in his native Malaysia, the Southeast Asian region and across the globe. As Science Advisor to Malaysia's Prime Minister, Joint Chairman of the Malaysian Industry-Government Group for High Technology (MIGHT), Chairman of the Malaysian Biotechnology Corporation (BIOTECHCORP), Chairman of the National Professors Council, former holder of the Tuanku Chancellor Chair at Universiti Sains Malaysia, founding Director of the university's Centre for Global Sustainability Studies, Pro-Chancellor at Universiti Perguruan Sultan Idris and a member of the International Advisory Council of Taylor's University, Professor Zakri has demonstrated a lifelong commitment to the use of science and technology to improve the lives of citizens through innovative problem-solving.

With the goal of launching Malaysia into high-income status by 2020, Professor Zakri has linked government and industry, policy and practice with an eye for emerging opportunities. Biotechnology has remained a passion for Professor Zakri, who has sought to merge his focus on growth with sustainable ecological



practices. Going beyond promoting economic development, he has built on a foundation of environmental sustainability in planning Malaysia's innovation projects. In 2017, he was named an ASEAN Biodiversity Hero for his efforts in regional scientific leadership.

The GFCC believes that bridging academic and industrial institutions represents an immensely powerful tool in transforming global social and economic frameworks. The role of MIGHT in promoting partnership between the public and private sectors is an excellent model for advancement in the 21<sup>st</sup> century. For developing economies across the world, the example set by MIGHT under Professor Zakri's leadership presents a path to navigate the disruptive "fourth industrial revolution" while preserving the richness of their natural environment.

For his efforts to grow Malaysia's innovative potential through the use of cutting edge scientific and technological breakthroughs, as well as in safeguarding the biodiversity of Malaysia and the world, the GFCC was honored to present the 2017 Global Competitiveness Award to Professor Zakri. As a scientific thinker, forward-oriented policy maker and formulator of his nation's 21<sup>st</sup> century competitiveness strategy, he has earned the respect of the world's innovation networks. With the Global Competitiveness Award as a symbol of collaboration, the GFCC hopes to continue engaging with the Malaysian scientific and innovative community, with Professor Zakri as a keystone of that process.

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