

MEGATRENDS

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Towards an Innovation Economy



The 2015 Khazanah Megatrends Forum (KMF) was brought to a close with the Closing Address by YAB Dato' Sri Najib Tun Razak, Prime Minister of Malaysia and Chairman of Khazanah Nasional Berhad. With a speech that was firm, reflective and earnest, Dato' Sri Najib acknowledged that while it is true that the government has an important role to play in national innovation, it needed to better streamline its role in the innovation space to maximise its effectiveness and efficiency.

The Prime Minister began his speech by providing a general overview of Malaysia's economic history, which has been a story of structural change. Malaysia has successfully transitioned from an agriculture-based economy to a manufacturing-based economy and into a service-based economy today. However, he noted that the next challenge for Malaysia was to evolve into an "innovation" or "knowledge economy."

According to Dato' Sri Najib, a knowledge economy is one where organisations and people acquire, create, disseminate, and use knowledge more effectively for greater economic and social development. He added that Malaysia's economic growth moving forward can no longer be driven by the traditional factors of production – capital, labour and land – but instead by innovation and productivity.

However, the pathway towards such an economy has been made more difficult by a variety of external headwinds. Given that the government's public fiscal scope is now more limited due to its goal

to reduce the fiscal deficit and debt levels, it was therefore more imperative that Malaysia transitions into an "innovation economy."

In transitioning towards an "innovation economy," the Prime Minister highlighted the role of government in promoting innovation, stating that governments had a hand in selecting and developing new industries even in the most developed nations. He cited the example of Silicon Valley in the United States which was commonly misconceived as a region that developed as a hi-tech hub only because of groups of private individuals.

However, the growth of Silicon Valley had strong government participation. During the 1950s, for instance, the Cold War and the space race led the US Department of Defence to demand more efficient integrated circuits, microprocessors, and computing capacity. Firms such as Fairchild Semiconductor and Intel grew to meet that challenge. The US Department of Defence's Advanced Research Projects Agency also gave rise to something we all use today called 'The Internet.'

The Prime Minister cited examples from Germany and Singapore as well. However, what was perhaps the most surprising was his example from South Korea. He informed the crowd that even giants such as Samsung and Hyundai have benefited from Government support. In 2012, Samsung was given approximately USD155 million worth of subsidies, 82 percent of which ... *continued on Pg 2*

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was for Research and Development initiatives, while Hyundai received USD81 million in subsidies.

Thus, given the vital role of government in innovation, Dato' Sri Najib highlighted some of the efforts undertaken by the Malaysian government to encourage the development of a knowledge-driven innovation economy. These include initiatives such as the Multimedia Super Corridor, which has, since its inception in 1996, contributed over RM275 billion in revenue to the economy, RM206 billion worth of investments, and more than 147,000 jobs and the establishment of entities such as the Malaysian Global Innovation and Creativity Centre (MaGIC) the Innovation Agency of Malaysia.

The government's innovation initiatives were further reflected in the 11th Malaysia Plan, which takes a two-pronged approach to address Enterprise Innovation as well as Social Innovation. The Prime Minister also highlighted the prioritisation of STEM subjects and English language skills in education to cultivate future talent that will thrive on a global scale.

Against this backdrop, Dato' Sri Najib stated that the question is not so much whether the Government should play a role in the innovation space, but what sort of role it should play. He stated that the entities in the Government involved in innovation include 5 departments under the Prime Minister's Department; 3 Ministries with direct technology funding; 6 Ministries with technology associations; 3 regulators; 4 councils that he chairs, 3 development corporations with funding, 7 development agencies or corporations, and a myriad more.

Thus, he acknowledged that with such a variety of entities with so many roles to play, there is a risk of fragmentation within the innovation space and that this is a challenge that the government needs to deal with. The Prime Minister stated that the government must address the number of government agencies involved and determine which are absolutely essential, enhance communication between them, and reduce any red tape that may be threatening efficiency.

Dato' Sri Najib closed his speech with a call to action in which he urged the state, firms and individuals, from both the public and private sectors to rely less on the traditional factors of production, to further innovate, to take intelligent risks and to generate an inclusive future for all of Malaysia.

Special Address

Innovation and Cities

By Prof Tony Venables



Why Cities Matter

- We live in the urban age where the world is 50% urbanised. By year 2050, it is projected that two-thirds of the world will be living in cities.
- Challenges to this trend are particularly acute for countries that are less developed. On the other hand, countries that are more developed need to learn how to harness the potential of their cities.
- Cities are places with complex interactions so there are real challenges for policymakers to ensure their cities are more competitive.

Characteristics of a Thriving City

- Cities are richer and more productive. Empirical studies show that on average, each doubling of city size raises productivity by 5-8%.
- Cities are high cost places, ie Commuting costs, congestion costs, land cost etc.
- In cities, productivity benefits exceed real costs. At the margin, productivity and cost cancel out so cities are competitive. Hence, there is a large economic surplus attached to cities.

Innovation and Cities

- Innovation is concentrated in cities but not necessarily the biggest cities. There are different sources of innovation in cities which come in different forms ie "siloes" vs "networked" innovation.
- Network innovation is becoming more prevalent in the real economy due to the stage of technology cycle.
- Innovation is a dynamic process that builds a broad set of capabilities across sectors. If cities have good communication and networks, cities can be a home for growing innovation and be seen as incubators for a wide range of activities for small firm start-ups.
- Therefore, policymakers should re-think traditional innovation policies to become more cities-oriented.

Luncheon Address

Responsible Business: What Is It and How Do We Ensure It?

By Sir Mark Moody-Stuart



Alliance of Business and Civil Society

- Corporations that are responsible have values, practice transparency and communicate with the society. They are motivated to serve their customers and return values to their shareholders. They are also prepared to work with the civil society.
- Corporations have to listen to their customers and shareholders and be prepared to embrace changes in order to be responsible to society. One of the most encouraging developments of this area is increased alliances between business and civil society organisations.

Agents of Change

- There are two types of pressure to motivate a business to engage in new principles: consumers and shareholders.
- Consumers (represented by civil society): consumers within or outside the company play an important role.
- Shareholders: shareholders are now more aware – they ask intelligent questions about issues such as human rights, industrial issues, climate change etc that look into the long-term sustainability of the company.

Future trends

- There is a need for responsible businesses to hold steadfast to their principles in deprived countries. Responsible companies operating in deprived countries can provide a potential benefit in providing initiatives to set new standards in these countries.
- Climate change will also be a megatrend in the future. Some of the environmental problems that need to be addressed are air pollution, rising global temperature and the need to improve renewable energy.

Special Address

No Ordinary Disruption: The four global forces that are breaking all the trends

By Jonathan Woetzel



Shift of Economic Activities from DMs to EMs

- Nearly half of global GDP growth from 2010 to 2025 will come from 440 emerging-market cities. Developing countries will also have ~150 cities with a GDP greater than USD50bn by 2025.
- Urbanisation in new EMs cities give rise to new demand, with nearly 3 billion people set to join the consuming class by 2025.

Productivity Growth to Make up Slack of Aging world

- 60% of the world's population live in countries with sub-replacement fertility rates. As the elderly increasingly outnumber working-age people, pressure is building on the labour force and tax revenues needed to support public expenditures are diminishing.
- With slowing population growth, productivity needs to pick up the slack. For Malaysia to maintain its GDP growth rates, it will need to increase its productivity growth sharply, from 2% presently to 4%.

Technological Change is Disruptive, but Provides Upstarts with Opportunities

- Technological impact is ubiquitous, with digital and mobile technologies being adopted at an unprecedented rate.
- While technological change benefits entrepreneurial upstarts, it also carries the risks of workers losing their jobs to automation and mismatch of skills to work in higher-tech fields.

Greater Global Interconnections as the Fourth Force

- Cross-border flows have increased 5-fold since 1990, with networks of global trade flows expanding from USD1.8trillion in 1990 to USD17.2trillion in 2013.
- This causes intensified competition and the disappearance of local jobs. Firms allocating capital the same way as the pasts in a changing world need to relook its decision making.



Reflections on Day 2 by Tan Sri Dato' Azman Hj Mokhtar, Managing Director of Khazanah Nasional Berhad

If I were to describe the 2015 Khazanah Megatrends Forum (KMF) in one word, it would be 'resonance.' The theme, "Harnessing Creative Disruption: Unlocking the Power of Inclusive Innovation" was one that I thought resonated very deeply among both our incredible speakers as well as our participants. This was clear in Day 1 and it carried on into Day 2.

Day 2 was therefore a worthy successor to our fantastic Day 1. Where Day 1 was more technical in nature, due to Macro & Markets and Firms & Transformation, Day 2 developed on the foundations built in Day 1 to deliver sessions that were more focused on the more 'human' side of things. Indeed, 'people' will always be the ultimate stakeholder of all that we do.

We began Day 2 with a discussion on cities and innovation by Professor Tony Venables of Oxford. I really enjoyed how he wove the two topics together; innovation requires networks and what



Book Launch *Khazanah Megatrends Forum: Reflections on a Decade*

The penultimate event of KMF2015 was the launch of a new book: ‘Khazanah Megatrends Forum: Reflections on a Decade.’

This richly detailed and visually pleasing book is not merely to adorn the coffee table. Although replete with sentimental photographs of the first ten years of KMF (2005 – 2014), it nonetheless provides meaningful and informed analysis of the insights, knowledge and wisdom presented across the years and the megatrends, as well as being a record of who spoke at each KMF, what the sessions were, and what was discussed.

The Book Launch ceremony was attended on stage by the YAB Prime Minister Dato’ Sri Mohd Najib Tun Haji Abdul Razak, Tan Sri Nor Mohamed Yakcop and Tan Sri Azman Mokhtar. A short video film creatively showcased not only the book, but also the first ten years of KMF itself with glimpses of many of the notable speakers and diverse events. Finally, the YAB Prime Minister was presented with the first copy of the book, before going on to deliver the Closing Address of KMF 2015.

A copy of the book was made available for every attendee. The organisers of the Khazanah Megatrends Forum sincerely hope that our guests will enjoy and appreciate this book, and continue to show their support for this annual gathering in future years.

better form of network organisation than cities. Where Tony provided the cities view of innovation, Jonathan Woetzel gave us the larger global macro trends of innovation, describing the four global forces that were breaking all the conventional socio-economic trends.

This led nicely into our first panel session of the day, Growth & Development. We had a panel of outstanding speakers and, fortunately for us, there were significant differences in views across the participants! YB Khairy Jamaluddin, Malaysia’s Youth and Sports Minister, spoke articulately, as ever, on the need for Malaysia to build the fundamentals for an innovation economy. He quoted our Concept Paper that, “After all, you have to learn to build the wheel before you can build the Tesla.”

We were then treated to an incredibly empowering presentation by Hugh Herr who showed us both the incredible power of technology and the incredible power of the human spirit. In particular, I’m glad that he spoke of the technology first, before concluding on the human aspect. I think the audience was truly moved by his presentation. The ‘human’ aspect of KMF was then carried forward by Sir Mark Moody-Stuart’s Luncheon Address, a true gentleman leader of business. His discussion on responsible leadership was very insightful, delivered like a true statesman.

After lunch, Jonathan Cavendish showed us the future of the entertainment industry in performance capture technology. What I thought was most apt was the ‘human’-ness of that technology. Motion capture puts actors at the forefront, bridging the distance between animation and live action. The second panel session, People & Leadership sought to address the balance required between adventure and ethics. It was a very lively session with thought-provoking comments by the speakers.

As we closed on the 11th instalment of KMF, we also took a look back at a decade of KMF where we were reminded of KMF’s humble beginnings all the way to what it is today. With the gracious support of YAB Dato’ Sri Najib Razak, we launched the, “*Khazanah Megatrends Forum: Reflections on a Decade*” book which serves as a historical archive for the past decade. YAB Dato’ Sri Najib then closed the 2015 KMF with an earnest speech recognising that while governments do have a role in national innovation, the Malaysian government may be playing too much of a role and thus, it would be necessary to manage the fragmented innovation space.

KMF 2015 was a truly memorable one for me, personally and I do hope that that is also true for everyone attending. Indeed, the richness of the 2 days of KMF 2015 will resonate with me for a very long time.

Session 3: Growth and Development

From Mountain High to River Deep -Will Emerging Markets Become 'Submerging' Markets?



Trust Our Youth

- We need to “trust our youth” to continue the country’s future development. Increasing innovation also requires the change in mindset of innovation, and this can primarily be achieved through the youth.
- There is an emergence of “digital natives” who were raised in a technology-driven environment. More opportunities can be created if we can tap into their ability to transform themselves from consumers to producers of technology.
- In the current age of technology, there are unprecedented opportunities for people to set up and expand their own enterprises. Thus, the young population of Malaysia should be harnessed to fuel innovation and through education, cultural change and urban development.

Educational Reform

- Education is fundamental in catalysing innovation through an “organic” way rather than the “inorganic” way through the use of “honeypots” or incentives.
- The educational system needs to be strong enough to equip the future workforce with the fundamental rigour to innovate. Education needs to move beyond basic literacy and move to higher order thinking skills.
- There needs to be alternative quality pathways of success to harness as many young people as possible to become skilled workers, such as or Technical Vocational Education and Training (TVET).

Inclusive Innovation

- Government plans are a top-down approach. However, the future of innovation should come from the masses and hence there should be an environment that encourages greater risk-taking where the few that succeed can help to create greater wealth and job opportunities.
- In the 11MP, the Malaysian government is focusing on supporting the Bottom 40% (B40) by creating opportunities such as increasing connectivity between urban and rural areas through the Pan-Borneo Highway.
- Two-thirds of world inequality are inter-national and are hardly being addressed. This has important implications on trade policies which in turn has implications on national growth of countries inequality.

Session 4: People and Leadership

The Yin and Yang of Inclusive Innovation - Balancing Adventure with Ethics



Sources of Innovation

- A society that is innovative is one that is diverse both in its people as well as intellectual diversity e.g. at MIT Media Lab, every research group is distinct. Because every group is distinct, there are a lot of interesting boundaries. Innovation happens at the interface between formal disciplines.
- Entrepreneurship can also start from a sense of frustration. For example, during Malek Ali's morning commute to work, he discovered a need for quality content for working professionals on the radio.
- Furthermore, entrepreneurs consist of 3 types: professionals, people with a lot of passion and want to start a company to start a social problem, and people who have no choice (necessity is the mother of invention)

Motivation for Innovation

- Giving team the resources that they need, give them high level goals and then get out of their way, don't micro-manage. A greater motivation than money is the opportunity to work on a societal problem that deeply concerns a person, particularly one that that person is passionate about and wishes to have a hand in solving.
- Giving managers courage because in innovatio, one is going to do a lot of things and make mistakes but managers do not want to make mistakes. So one needs to give people courage and authority to deviate from the norm.

Is Malaysia doing enough to foster innovation?

- According to Tan Sri Zakri, things are not in place. There is a lot of research in local universities but they are not connected to the relevant problems in the country. Academia is not in sync with private sector. Therefore, there needs to be greater dialogue between the two groups.
- Malaysian culture thus far is not conducive to innovation. Malaysia ranks no. 1 in the world in Hofstede's power distance index i.e. less powerful members of organizations and institutions accept and expect that power is distributed unequally. This top down culture makes it difficult for the right decisions to be made.

Special Address

By Jonathan Cavendish



The entertainment industry is changing, and it is changing rapidly

- A 2014 survey in the United Kingdom showed 21% fewer consumers watching television and more using alternative modes. These changes lead to a significant increase in contents viewed online at home, with an increase in demand for online subscriptions.
- As a consequence, the film industry is under greater pressure to produce better stories, writing, characters as well as acting via utilising new tools as well as removing the middle-man problem to be able to capture the audience and make profit
- A way for this is the 'Performance Capture' technology used by 'Imaginarium' and the business model used 'The Imaginarium' way.
- 'Performance capture' is an innovative way to provide believability in things not human, using real actors in virtual studios and 3D settings. The Imaginarium has harnessed the Creative Disruption of technology by pioneering performance capture technology.

Creative excellence is the core to great story telling

- We now live in an environment that pushes for creative excellence. Viewers have more choice on show content and can instantly provide reviews, an ecosystem that encourages better material and better creativity.
- Despite the galvanic changes that are taking place in the creative industry, there are still four constant ingredients in making a great story worth telling: 'Great stories', 'Great writing', 'Great characters' and 'Great Acting'. Without these, a story is only good to the story teller.



Special Address

By Prof Hugh Herr

Limitations from Disabilities can be Curtailed with Technology

- Previously, most disabilities were either left as-is or addressed using chemicals or artificial prosthetic limbs.
- Advances in technology has allowed people to overcome their disabilities, and sometimes enhance past abilities.
- Thus, it was not the human body that was disabled and broken but technology. This is good news as technology can be changed and adapted.

Understanding Natural Human Physiology is Key to Fully Harness the Potential in Bionics

- Definition of Bionics: Constructs artificially added into the human body to normalise or even augment the human body.
- BIONX is about modeling the functionality of the natural human body and embedding this knowledge into a synthetic form.
- BIONX has been fitted on over 1,000 people and has had a profound impact on people's ability to perform ordinary things

Enhancement in Bionics Technology will Disrupt the Way People Lead Their Lives

- In 50-80 years, it would be commonplace to see people with some sort of bionic attachments to their body. The human body will be like a clay and identity itself will be plastic and malleable, providing a potential for a greater human experience.
- However, public policy must play a vital role in mitigating possible detrimental uses of such technology.