MEGATRENDS

The Official Khazanah Megatrends Forum Magazine

Issue 05/2015/1 | 5th - 6th October 2015

HARNESSING CREATIVE DISRUPTION

UNLOCKING THE POWER OF INCLUSIVE INNOVATION

KHAZANAH NASIONAL

KHAZANAH MEGATRENDS FORUM 2015

Co-organised with
KHAZANAH RESEARCH INSTITUTE

KHAZANAH NASIONAL

KHAZANAH MEGATRENDS FORUM 2015

presents

SHUTTLECOCKS, CINEMA AND ARTISTIC DISRUPTIONS

Featuring

Amir Muhammad

Jonathan Cavendish

Chris Chong Chan Fui

Dain Said

Diffan Sina Norman

and a special appearance by

Gita Wirjawan

The Khazanah Megatrends Forum (KMF) focuses on economic, business and financial issues – which are considered rational left brain activities. In recent years, a tradition has been established to explore the KMF theme from an artistic perspective.

This year, the Forum's Special Event explores creative disruptions through presentations by luminaries who are themselves disruptors in the arts. The Event will feature works of art and images created specifically for this Forum.

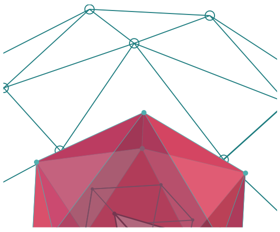
Curated by Datin Saidah Rastam

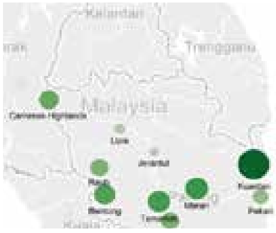
About The Venue

This year's Special Event carries the disruptive element forward by taking place in an unconventional venue. Delegates are encouraged to step outside their comfort zone and walk to the venue through the KLCC Park or Suria KLCC. There will be ushers along the way.

5TH OCTOBER 2015
MONDAY NIGHT
8:30PM
REFRESHMENTS FROM 7PM
WISMA CENTRAL

Content





HARNESSING CREATIVE DISRUPTION
Unlocking the Power of Inclusive Innovation

ABOUT KMF2015 THEME LOGO

This year's Khazanah Megatrends Forum 2015 theme logo is inspired by the Platonic Solids, which are three-dimensional objects that are equiangular (all angles are equal) and equilateral (all sides have the same length), whose faces (or sides) are of the same size and shape. Greek philosopher Plato associated each of the five Platonic Solids with an element, namely the 4-sided tetrahedron (fire), the 6-sided cube (earth), the 8-sided octahedron (air), the 12-sided icosahedron (water), and the 20-sided dodecahedron (the cosmos). The KMF logo is constructed with the tetrahedron, the cube and the dodecahedron, as fire represents the adventure for innovation, while earth represents the need to be grounded in ethics, and the cosmos represents the universe we live in. Thus, the KMF2015 logo embeds the idea that thriving in our universe requires a delicate balance of adventure and ethics.

Foreword by the Managing Director

It gives me great pleasure to welcome you to the eleventh Khazanah Megatrends Forum. I know that many of you look forward to KMF every year, and we in turn are very grateful for your support and anticipation.

When we started the Forum some eleven years ago in late 2005, my colleagues and I certainly had no grand plans to build a major knowledge forum series. KMF then was just a run-of-the-mill, year-end strategy planning retreat for Khazanah. It had just five external speakers, with a small captive audience of Khazanah's few senior executives, and was held on a former penal colony in Pulau Jerejak, off Pulau Pinang. Fast-forward more than a decade to today: KMF attracts some 50 highly in-demand, local and international speakers, and an 800-strong diverse audience of thought leaders and practitioners from the fields of investment, economics, management, academia, government, social sector, the arts and civic society. From Sultans, Prime Ministers, Presidents, Governors, eminent economists ... to artists, cultural and civic society leaders, scientists and even robots[1] have spoken at KMF.

At its core, KMF is still very much a conference on investment, economics and management – but it has somehow morphed into much more than that. Over the years, what have become mainstay segments have been added on areas such as: development, ethics, leadership, technology, innovation. Over time too, special events have featured: creativity, arts and culture, and the environment. Now, every year, KMF has become a venue to launch books and to introduce independent and artisanal crafts and food entrepreneurs. Without really planning it, KMF has also become: an informal mini-reunion of Khazanah alumni; a place around which some companies and especially pan-regional investee companies build their board retreats; a networking event that has resulted in many a productive investment deal or a relationship that has led to many a new programme.

Over the decade, we have covered a wide range of themes, from the relatively straightforward but no less important, such as *Malaysia 2057* (to commemorate our 50th year of Merdeka in 2007), *The Big Shift* (from West to East in 2012), *Apocalypse Averted?* (and reconfiguring a post-Lehman New Normal, 2009). In other years, more weighty and challenging concepts and ideas were introduced and taken on. This was somewhat risky at one level, as these tend to be fairly heavy academic topics being brought to a general and diverse audience. These include the themes on: *Reclaiming the Commons* (2010), *Paradox* (2013), and *Efficiency Frontier* (2014). Yet they all worked, and quite novel ways of distilling these big ideas were found, and some pathways were offered: from the power of collective action and collaboration to overcome the problem of the commons ... to finding harmony in and redefining situations of paradox ... to the need to scale the efficiency frontier. In between, underlying and constant throughout the decade, were themes or sub themes around Complexity, Transformation, Execution, Development, Cities, and Institutions.

This year, we are presenting the important and timely theme of *'Harnessing Creative Disruption – Unlocking the Power of Inclusive Innovation'*. During the GLC Graduation ceremony

[1] An award-winning Japanese robot tried in 2014, but there was technical failure on the day!

of the GLC Transformation Programme recently, we had highlighted that, while the programme has recorded many important achievements, one of the gaps that persists is the gap in terms of innovation capacity. Indeed, most Malaysian companies, and many in the emerging world, are vulnerable to the big disruptions from technology and innovation that are happening in all sectors and industries. There is a big silver lining though; with those risks there are also many opportunities to harness these forces to our advantage at the firm, institutional and national levels. The Concept Paper and Programme of speakers and sessions that we have prepared here will give, *insyaAllah*, a flavour of this most thought-provoking theme.

In line with KMF's tradition of looking at issues from multiple lenses, the Monday night Special Event has carved its own following and become a much awaited event-within-an-event on its own. This year's presentation of *'Shuttlecocks, Cinema and Artistic Disruptions'* promises to be a somewhat unique event; edgy and quirky, looking at 'frugal and disruptive innovation' from the eyes of artists in the unlikely venue of Wisma Central nearby. This is in sharp contrast to last year's elegant evening of *'Malam Terang Bulan'* at the *Dewan Filharmonik Petronas.*

On Tuesday, *insyaAllah*, before the closing of KMF by the YAB Prime Minister, we will commemorate the ten-year journey of KMF with the launch of a special book: *'Khazanah Megatrends Forum – Reflections on a Decade.'* I say 'special' because I hope that you will find this to be no mere coffee table book of glossy photos, but what we believe is a most meaningful record to capture, preserve and present the knowledge and wisdom gleaned from our many distinguished speakers who have honoured us with their participation over the years.

Coming back to the present, it has been an eventful and significant year for Khazanah. Thankfully, we have built a significant amount of resilience in our investment portfolio and in our building of an institution to the point that we have entered this current round of market and economic turbulence from a position of strength, *Alhamdullilah*. We have also recently opened our fifth overseas office, in London. In addition to our continuing work in driving catalytic investments domestically, as shown in our recent announcement of some RM6.77 billion of domestic investments, the overseas footprints represent our portfolio strategy of a diverse and balanced investment portfolio which underpins our stated objective of 'Building True Value'. This consolidates our global footprint to ensure that we have the widest awareness and access to emerging trends, innovations and valuable opportunities.

This KMF also marks the first since the Khazanah Research Institute, which Khazanah 'parented', has been in operation for a full year. This year's KMF is co-organised by both Khazanah and KRI in this regard, and we are pleased to see KRI making its mark already on the national stage by partaking in original research that is pushing the boundaries of national and policy-making debate and discourse.

Once again, on behalf of Khazanah and KRI, let me record a special thanks to the many who have contributed to the making of this year's KMF, and indeed KMF over the course of the last decade. Finally, most of all let me take this opportunity to once again thank *all* of you for being here, for your continuing support and participation, and to wish you a lovely and productive couple of days.

Tan Sri Dato' Azman Hj Mokhtar
Managing Director, Khazanah Nasional Berhad

KHAZANAH NASIONAL

KHAZANAH MEGATRENDS FORUM

The Khazanah Megatrends Forum (KMF) has become one of the highlights of the year at Khazanah. Held annually preceding Khazanah's strategy and business planning cycle, KMF brings together experts and thought leaders to discuss the main megatrends, as well as to address topical matters of interest.

The Forum is entering its eleventh annual instalment in 2015. It will continue to be a platform for the gathering of Malaysian corporate leaders, policy makers, think tanks and practitioners from the public and private sectors as well as civil society. It is well attended by over 500 senior leaders.

The Forum is organised around four core sessions:

• Macro and Markets

• Firms and Transformation

• Growth and Development

• Leadership and People

KMF2015 is co-organised with Khazanah Research Institute.

KHAZANAH NASIONAL

Khazanah Nasional Berhad (Khazanah) is the strategic investment fund of the Government of Malaysia. Khazanah holds and manages selected commercial assets of the Government and undertakes strategic investments on behalf of the nation. We are involved in sectors such as power, telecommunications, finance, healthcare, aviation, infrastructure, leisure and tourism, and property, amongst others.

Our listed portfolio includes Axiata Group Berhad, CIMB Group Holdings Berhad, Tenaga Nasional Berhad, IHH Healthcare Berhad, UEM Sunrise Berhad, Telekom Malaysia Berhad, and Malaysia Airports Holdings Berhad.

Khazanah was incorporated under the Companies Act, 1965 in Malaysia on 3 September 1993 as a public limited company and commences operations a year later. Khazanah is owned by the Minister of Finance Incorporated except for one share held by the Federal Land Commissioner.

KHAZANAH RESEARCH INSTITUTE

The Khazanah Research Institute, sponsored by Khazanah Nasional Berhad, is a not-for-profit organisation and is incorporated as a company limited by guarantee. It started operations in the latter half of the first quarter of 2014.

The objective of the Institute is to undertake analyses and research on the pressing issues of the nation and, based on that research, provide actionable policy recommendations.

We do this:

- Firstly by carrying out rigorous impartial research and analysis that is founded on facts and data.
- Secondly, by convening workshops, round tables, conferences and talks for subject matter experts, policy makers, thought leaders and interested members of the public, as appropriate.
- Thirdly, by being an advocate of our research findings and policy recommendations.

Our current research programmes are as follows:

- The new economy for Malaysia
- Inequality of wealth, income and opportunities
- Cities
- Malaysia studies
- Map of Malaysia

I am thrilled that this year's KMF theme is daring us to act: dare to disrupt, dare to be innovative, and dare to move onto the uneasy grounds of change. Indeed, we face a low-growth period amidst the trying conditions of the domestic and global economy. While last year's KMF focused on the importance of shifting from an input-led growth model to one driven by technological progress, this year we develop that concept further by exploring the obstacles in targeting both innovation and inclusion.

Both majority and minority shareholders constantly demand great total shareholders return, but the former desires a high dividend payout, whilst the latter, usually the louder voice, prefers higher earnings growth and higher share prices. Unless we are in an abnormal commodity or credit supercycle, it is mathematically impossible to attain both high dividends and high earnings growth for a sustained period of time. And technological innovation has further intensified the competition for profit, not just among the existing rivals, but also from substitute products or services and new entrants. Disruption is real and taking its toll – this is the biggest threat.

In light of this, I have a lot of sympathy for corporate leaders, and understand that being pushed to achieve all that is asked of them is ambitious and challenging. This year's forum is asking you to take a good, hard look at disruption, to embrace it and to harness it for your businesses – but seeing if it can be inclusive. This makes the task more daunting; coping with the accelerating pace of innovation and also meeting shareholders' and board members' expectations is a formidable challenge. One way is to become a truly ambidextrous organisation, capable of both exploiting current internal capabilities to generate returns, while also exploring future growth paths for long-term success. It is easier said than done. Very, very few firms are actually ambidextrous.

So, to those who make these demands, to those whose objectives conflict, to CEOs, board members, shareholders and stakeholders: it is time to think more deeply on how to balance delivering results in the short-term, while undertaking strategic decisions to secure the firm's long-term future. One cannot constantly command higher dividends and share prices, and yet preach about innovation and inclusion – such a conflict in objectives only serves to weaken each purpose. In addition, finding that balance must be complemented by public policymakers who ensure that the benefits gained from all the returns of innovation are accrued to *all* stakeholders. Thus, corporate managers must take on risk and adventure to run as fast as possible, but it is also incumbent on the government to ensure that they run as *far* as possible.

The adventure begins now – good luck and welcome to KMF 2015.

Datuk Hisham Hamdan
Executive Director, Investments and
Head of Khazanah Research & Investment Strategy,
Khazanah Nasional Berhad

On behalf of the Khazanah Research Institute, I would like to welcome you to this year's KMF.

Raising household incomes lies at the heart of the policy work we are doing at the Institute. As our first publication "The State of Households" sets out, the best measure of whether economic policy is improving the welfare of the general population is to examine whether real median household income has increased. Our most recent publication, "Building Affordable Homes" delves into this theme in detail in the context of housing. If we can reduce the cost of housing (which we believe can be done) real incomes and well-being should increase.

The theme for this year's KMF - Creative Disruption - encapsulates our concerns. Disruption is not a new phenomenon as we have always been searching for a better, faster and cheaper way of doing things. The question is whether it is beneficial. Some might say that in the main it is for consumers and households. For the same amount or less, they get something better, faster and cheaper. Even if their nominal incomes do not go up, their purchasing power and therefore their real incomes do. Furthermore, creative disruption creates new profit pools and jobs, which is of undoubted benefit to the owners and workers who are fortunate enough to own or get those.

But does this increase the welfare of the general population? Old jobs and the old profit pools are destroyed. Household incomes of those affected will go down, and in some cases permanently. Is this a sacrifice that we should make?

We hope to explore these issues and more in the next two days and we hope that you will join us in this adventure.

Dato' Charon Mokhzani
Executive Director, Khazanah Nasional Berhad and
Managing Director, Khazanah Research Institute

By Kylie Anne Francis and Nicholas Khaw

Introduction

In 1488, Portuguese nobleman Bartolomeu Dias discovered the Cape of Storms or, as it was later renamed, the Cape of Good Hope. Dias was on a royal mission, appointed by King John II of Portugal to head an expedition around the southern tip of Africa in hopes of finding a sea-based trade route to India. The discovery of the Cape of Good Hope meant that Europeans could trade directly with India and bypass the overland route through the Middle East, which was controlled by the Ottomans, with its expensive middlemen. Even though the voyages were far beyond their borders, the traders in the Middle East were adversely affected; indeed, they were disrupted. This eventually led to the rise of Western European Age of Discovery powers such as the Portuguese and the Spanish and the eventual downfall of the Ottoman empire which, in the years following the death of Suleiman the Magnificent, had been labelled 'the sick man of Europe."

Yet, we must not forget that the Ottomans themselves disrupted one of the greatest empires in global history – Roman Empire under the Byzantines. The wars between the Byzantines and the Ottomans culminated in the conquer of Constantinople in 1453 by the Ottomans, which effectively ended the Roman Empire. The Ottomans became the dominant empire due to their innovations in military strategy and the prominence of Muslim intellectuals such as Ibn Khaldun, Ibn Battuta, and Al-Kashi while the Romans, and much of Western Europe, were mired in the Middle (or Dark) Ages. Of course, the Romans themselves had displaced the Greeks as the dominant global hegemon centuries earlier. Hundreds of years later, the Portuguese and Spanish, which had disrupted the Ottomans were themselves disrupted by the British Empire and its Industrial Revolution. Innovations in technology for textiles and manufacturing, such as the Spinning Jenny and the Steam Engine, enabled the British to become the largest empire in world history. Of course, subsequently, the British themselves were disrupted by the industrial powers of Germany, Russia and the United States. In short, while it is true that the overall picture is more complex, the rise and fall of entire empires and hegemons can also be viewed via the lens of innovation and disruption.

If this sounds familiar, it should: this rise and fall of empires due to disrupting and being disrupted is exactly the fate of many companies and nations today as a result of what economist Joseph Schumpeter called 'creative destruction'. 'Creative destruction' is a process by which new technologies, products, methods of production and means of distribution make old ones obsolete, forcing existing companies to rapidly adapt or fail entirely. More recently, we have also seen the rise of a different development: cheaper and poorer-quality products that initially reached less profitable or non-target customers, but eventually reshaped entire industries as core customers changed the way in which they perceived and valued products. This process is what management guru Clay Christensen terms 'disruptive innovation.'

Thus, we invoke the term 'Creative Disruption', differentiating it from Creative Destruction, which can be understood as changing the way core customers are valued, profit pools are restructured and even how entire industries are reshaped, but in a dynamic, creative and ethical manner

To be clear, both 'creative destruction' and 'disruptive innovation' result in winners and losers. However the goal, idealistic as it may be, is to maximise the benefits of such processes; thus, winners receive their rewards or returns, and the costs are minimised such that people, firms, and nations do not become totally obsolete. In particular, if people are any firm or nation's ultimate stakeholders, then we need to ensure that their livelihoods, cultures and lifestyles are not entirely destroyed. Disruption is necessary; adapting to the evolution of political, technological and socio-economic environments is crucial to thriving. However, this must be differentiated from pure destruction. Thus, we invoke the term ‘Creative Disruption’, differentiating it from Creative Destruction, which can be understood as changing the way core customers are valued, profit pools are restructured and even how entire industries are reshaped, but in a dynamic, creative and ethical manner.

Creative Disruption or: How I Learned to Stop Worrying and Love the Adventure

The pace of innovation is increasing, as evidenced by the reduced length of the Schumpeterian Cycles of Innovation and Entrepreneurship. In 1785, the first Schumpeterian Cycle (also known as the Kondratiev Wave) of water power, textile and iron lasted 60 years, but the most recent Cycle of digital network, software and new media is expected to last 30 years. Examining patent registration reveals more: since the 1970s, patent registration in the United States increased exponentially. In addition, in terms of years of adoption – measured by years it takes to achieve a 90% penetration rate in local markets – the tablet took just 7 years to reach 90% penetration whereas the car, invented in the late 1800s took 75 years.

At the firm level, this furious pace of technological innovation is shortening the lifecycle of companies. At the beginning of the last century, the average life span of an S&P 500 company was greater than 60 years, whereas it stands at just 18 years today. 98% of American companies disappear within 11 years. The average lifespan of a company in Japan and Europe is 12.5 years. In terms of CEO tenure, the average tenure of Fortune 500 Company CEOs has declined from about 10 years in 2000 to 8.1 years in 2012[1]. On the jobs angle, researchers at Oxford suggest that 47% of today’s jobs will be replaced by computers and machines within the next two decades. At its height, Kodak employed 145,000 people; Facebook employs just 6,000 while Instagram, when it was bought by Facebook for $1 billion, employed just 13.

Yet, for all the benefits that innovation brings, there can be significant costs or dangers as well. For instance, there were the Middle Eastern and Silk Road traders who were adversely impacted by the Portuguese discovery of a sea route to India and the Far East. Examples abound in history of people who had their jobs replaced by automation in manufacturing such as in the automotive industry in Detroit or replaced by disruptive outsourcing such as in the United States and in Europe. Furthermore, research has shown that while productivity and employment in the United States have closely tracked each other for decades after World War II, that pattern has started to decouple after 2000[2] . The trends diverge: productivity continues to rise but employment growth has halted, and by 2011, a significant gap appears between the two lines, showing economic growth “with no parallel increase in job creation.” The authors argue that technology is behind “both the healthy growth in productivity and the weak growth in jobs.” Thus, innovation and Creative Disruption is a potentially lethal double-edged sword.

Inclusive Innovation, defined by the World Bank as “any innovation that leads to affordable access to quality goods and services for the poor on a sustainable basis and with extensive outreach.”

With that said, despite the costs of innovation, its exponential acceleration should not be thought of as a doomsday scenario. Ultimately, whether or not we can engender a robust innovation economy hinges upon our ability to balance our desire for stability and security with the dynamic change that innovation brings and thus, engender Creative Disruption rather than Creative Destruction. We must focus our harnessing of Creative Disruption such that its benefits accrue to all stakeholders, be it the nation, the firms or the people. We must therefore be inclusive to generate truly robust development. This ergo requires us to pursue Inclusive Innovation, defined by the World Bank as “any innovation that leads to affordable access to quality goods and services for the poor on a sustainable basis and with extensive outreach.”

This concept is perhaps best highlighted by Charles Leadbeater in his book, The Frugal Innovator. In it, he describes the four attributes of ‘frugal’ or, indeed, inclusive innovation which are lean, simple, clean and social. Lean is about constructing systems that cut out all forms of waste. Simple is about optimising functionality to the essence of what is needed, making the innovation easy to use and thus enabling it to spread rapidly. Clean is about re-thinking, looking to re-use ideas, products meant for other purposes and waste, with a focus on business models. Social is about involving a larger network of people in inclusive innovation to generate the desired outcomes. Furthermore, such innovations can come in many shapes and sizes; it is not always about technology. Malaysia, for instance, has seen some truly Inclusive Innovations that were not technology-driven but were, rather, institutional innovations. One such example is FELDA[3] land

[1] It is true that average CEO tenure increased to 9.7 years in 2013, but this is due to CEOs who delayed their retirements in the wake of the economic downturn, thus extending their time in the post. CEOs who departed in 2013 were older at an average of 62 years compared to an average of 60 years from 2000 to 2012. The extra 2 years of work explains, for the most part, the increase in average tenure in 2013.

[2] For more, please see the 2014 book, “The Second Machine Age: Work, Progress and Prosperity in Time of Brilliant Technologies by Erik Brynjolfsson and Andrew Mcafee.

[3] Federal Land Development Authority

schemes, launched in 1957, which worked to resettle the rural poor into newly developed areas and to organise smallholder farms growing cash crops, unlocking economic opportunities for millions of people. Another is Tabung Haji, the world's first modern Islamic bank, which has financially enabled millions of Muslims in Malaysia to pursue the hajj, who otherwise might not have been able to.

This notion of marrying Creative Disruption with the need for social inclusion leads us to the theme of this year's Khazanah Megatrends Forum which is, "Harnessing Creative Disruption: Unlocking the Power of Inclusive Innovation." As we have seen, innovation is a powerful force of nature; one that is set to grow exponentially moving forward and as such, cannot be ignored. How we utilise that innovation ultimately determines whether we achieve Creative Disruption or not. Thus, this year's Khazanah Megatrends Forum seeks to explore ways in which we can optimally and ethically harness the power of Creative Disruption, wielding it to our purposes such that we can ensure the continuing growth of nations, firms and, most importantly, people. Central to enduring this hyper-speed era of innovation is the spirit of adventure. Adventure comes with uncertainty, and this resonates deeply with contemporary times where uncertainty is normality and increasingly so. The spirit of adventure will prove paramount in embracing risk and change to reap the rewards of Creative Disruption and unlock the power of Inclusive Innovation.

Towards an Innovation Economy: The Malaysian Context

The momentum of economic growth in Malaysia has fallen over time. Growth has averaged at just 4-5% per annum over the past decade and a half, compared to 6.5% between 1980 and 2000. Furthermore, post GFC, be it a result of introducing stimulus packages to support the economy or lower global costs of capital that led to increased debt-based consumption, household and government balance sheets have been stretched. In addition, there has been a sharp decline in investments as a share of GDP, which reflects a diminishing anticipated rate of return on capital. Looking at listed Government-Linked Companies (G20), net profits grew at a compound annual growth rate of 10.2% from 2004 to 2014; while a large portion of this growth was due to the GLC Transformation Programme (GLCT) which improved efficiencies and enhanced governance, this was also in some part driven by global megatrends like the commodity and credit cycles. However, recent broader macro factors such as the weakening Ringgit and declining oil prices are expected to impact G20 net profit in 2015. This does not bode well for Malaysia. In this low growth environment, it is more vital than ever for the country to innovate.

... to grow in wealth, countries need to diversify by shifting into increasingly sophisticated and unique products.

But the economics of innovation are very different for those at the frontier versus those who are striving to catch up. According to Ricardo Hausmann, to grow in wealth, countries need to diversify by shifting into increasingly sophisticated and unique products. When we consider the economic history of Malaysia, there is a host of structural transitions in its economy, shifting from an agriculture-based economy in the 1960s and 1970s to a manufacturing-based economy in the 1980s and 1990s and onto a services-based economy in present day. These transitions were enabled by adopting technology from abroad and supporting entrepreneurial private enterprise through state investments, protective tariffs, and subsidies. As demonstrated by Ha-Joon Chang in his book, Kicking Away the Ladder, this is a common development policy strategy in many nations that are far from the global technology frontier. After all, you have to learn to build the wheel before you can build the Tesla. This allowed for the flourishing of the Electrical and Electronics Industry in Penang, the development of the steel industry in Malaysia and perhaps most iconic of all, the introduction of PROTON, indigenously-designed and produced passenger cars.

Therefore, countries grow and economies undergo structural change by producing different things, not necessarily more of the same. A development strategy of technology adoption may function very well, but only up to a point, as evidenced by the tin mining, the Electrical and Electronics and the automotive industries in Malaysia. Beyond this limit, economies need to diversify their product in order to thrive – or even survive. Perhaps more worrying for the status quo, from a macro-economic standpoint, is that capital is at its most mobile since World War 1, enabling would-be domestic investors to park their money elsewhere. Recent examples include the disruption of Malaysia Airlines by Air Asia, and the disruption of telecommunication companies such as Axiata, Maxis and DiGi by free data-based communication platforms such as WhatsApp. In the future, we may even see disruptions to the electricity grid distribution of Tenaga Nasional Berhad via renewable energy sources that allow buildings and communities to take themselves 'off-grid.'

Harnessing Creative Disruption – If It Ain't Broke, Fix It Anyway

In sports, it is a generally widely-held belief that it is easier to win a championship than it is to defend it. Similarly for individuals, firms and nations, past successes – great heights though they may be – can sow the seeds of future failure. The reasons are numerous; perhaps it is due to pure complacency, a belief that government protection of vested interests will endure, or even a fallacy of financial metrics that are ill-prepared for an age of Creative Disruption. The spirit of adventure that enabled the initial success may have fizzled out in its maintenance. Therefore, we must ask ourselves: what sort of tools, methods and thought processes do we need in in pursuing Creative Disruption within the individual, firm or nation, and how do we equip ourselves to best navigate through its exponential evolution? Innovation is at the heart of the solutions to these issues, but how do we actively engage in innovation, and what kind will it be?

In hypothesising through a framework to answer those questions, we turn to Harvard management guru Clayton Christensen. In his article, "The Capitalist's Dilemma," he introduces three forms of innovation. The first is called performance-improving innovations, which replace old products with new and better models. The second is efficiency innovations which help companies make and sell mature, established products or services to the same customers at lower prices. This form of innovation is most related to operational efficiency. The third is named market-creating innovations, which transforms complicated or costly products so radically that they create a new class of consumers or market altogether.

... the evolution of technology is such that, as we progress, nations, firms and people not only need to engage in Creative Disruption by embracing innovation, but must also prepare to be disrupted.

Translating these innovations to the context of economies, firms and people is fairly straightforward. In essence, we can ask the following three questions – firstly, how do we create better products or outputs (whether it is more inclusive growth or an iPhone or our financial analysis skills)? Secondly, how do we make ourselves more efficient in what we do (whether it is reducing the leakage rate of social programs, personnel re-juggling or exercising in the morning)? Thirdly, what is something new that we can do to improve ourselves (whether it is a new economic industry or a deeper understanding of economic history)?

Therefore, the evolution of technology is such that, as we progress, nations, firms and people not only need to engage in Creative Disruption by embracing innovation, but must also prepare to be disrupted. To wholeheartedly engage in a vortex of Disrupting and Being Disrupted requires a spirit of risk-taking and adventure. While adventure may be one of the core values required for Creative Disruption, we must also leave room for ethics – how do we ensure that we are well-equipped to undertake Christensen's three forms of innovation in an ethical manner, and what are the challenges in doing so? It is this broad set of questions that the 2015 Khazanah Megatrends Forum seeks to confront to guide policymakers, corporate decision makers and, finally, people, to thrive in an era of pervasive disruption while simultaneously ensuring that the gains from Creative Disruption accrue to all stakeholders in the local, national and global communities.

The Panels

The Khazanah Megatrends Forum is now a decade old. In that decade, the KMF has discussed themes ranging from a shifting global economic climate to a reclamation of the global 'commons', a new context where uncertainty is normality to the need to generate growth with inclusion in an age of paradox, and most recently, the need to scale the efficiency frontier. In those discussions, the KMF has always emphasised the need to move beyond the maximisation of shareholder value to the maximisation of stakeholder value – in this case, the nation, the firm and the individual. Thus, in keeping with the tradition of KMF, panel discussions on Harnessing Creative Disruption: Unlocking the Power of Inclusive Innovation will be continue to be organised along four perspectives: on how the various markets are affected, what does the theme mean to firms and society in general, and what are the imperatives of leadership?

Session 1

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

In the years leading to the burst of the Dot Com bubble in the early 2000s, investors were frenetically trying to put as much of their money into internet-based companies, regardless of revenues at the time. Internet-based companies were the next big thing, or so the market thought, leading to an 'Animal Spirits[4]' type charge of investors into the bubble. This facilitated vast amounts of physical hardware such as cable lines for connectivity that would power the Dot Com companies in their operations. When the bubble burst, Dot Com companies went bankrupt and their investors were left with billions of dollars in losses. However, the physical hardware prevailed and the mass supply of cables worldwide laid the foundation for internet adoption on a truly global scale.

Animal Spirits would rear its head again. Due to the Dot Com bubble's burst, the Federal Reserve cut interest rates in the United States, encouraging higher volumes of mortgages by more Americans, even if they could not afford it. We all know what happened next: the

[4] 'Animal Spirits', coined by British economist John Maynard Keynes, n his 1936 book The General Theory of Employment, Interest and Money to describe the instincts, proclivities and emotions that ostensibly influence and guide human behavior.

Federal Reserve raised rates, which led to defaults on mortgages and foreclosures that catalysed the near-collapse of the American financial system. The 2008 Global Financial Crisis and the subsequent Eurozone Crisis produced slackening economic performance worldwide. However, cheap money soon flooded global markets when the Federal Reserve cut rates to zero and undertook aggressive quantitative easing. This cheap money needed to find a home; it flowed into emerging markets in search of yield, and into technology in search of growth. Arguably, the latter, helped along by greater capital mobility than ever, spurred venture capital and angel investments in new cutting-edge technology businesses globally.

However, in the past year, beginning in mid-2014, the threat of external headwinds has risen significantly. Global commodity prices, particularly oil, have dropped precipitously. China's economic growth has decelerated and, further, the People's Bank of China have undertaken a series of devaluations of the Chinese Renminbi. Furthermore, the threat of interest rate hikes by the United States Federal Reserve looms large. In addition, in many advanced nations, a narrative of secular stagnation, a condition of negligible or no economic growth in a market-based economy, has emerged over the past decade or so. Given this, there is a sizable risk that emerging markets may, over time, follow in the footsteps of Latin American nations such as Argentina and Venezuela and become 'submerging' markets, and face their own secular stagnations. Against this backdrop, we ask the following questions:-

- Beyond greater capital mobility and cheap capital, what other macro and market conditions are most conducive to the rise of innovation and, subsequently Creative Disruption?
- In light of recent domestic and economic headwinds, how likely are Emerging Markets to become 'Submerging' Markets?
- What is the role of innovation and Creative Disruption in preventing Emerging Markets from regressing to a weaker economy and preventing secular stagnation?

Session 2

Firms and Transformation: Learning to Fish - How do Firms Harness Creative Disruption?

Research has shown that while companies must strive for market-creating innovations, they must also undertake performance-improving and efficiency innovations to flourish. Firms must constantly reflect backwards, attending to the products and processes of the past while also looking to the future, seeking for innovations that will propel it moving forward. This reflects what Michael Tushman, an organisational theorist at the Harvard Business School, describes as an "ambidextrous organisation" which "requires executives to explore new opportunities even as they work diligently to exploit existing capabilities." The challenge for Malaysian firms is to simultaneously be both good "exploiters" and good "explorers". However, as Tushman acknowledges, this is not a straightforward proposition: "many CEOs view the competing demands of the core businesses and the new units as a set of trade-offs to be made." Under pressure from a board that demands constant returns, how do CEOs justify investments in riskier long-term innovation propositions?

This issue is further compounded by the fact that freer capital flows globally have led to hot money and short term portfolio flows in many capital markets. This skews the goals of businesses towards generating short-term returns for fear of impatience by investors to take long positions. Indeed, Michael Porter argues that, "The single-minded pursuit of shareholder value, measured over the short term, have been enormously destructive for strategy and value creation ... [This] has focused managers on the wrong thing when they should really be focusing on creating economic value sustainably over the long term." He highlights a further failure in global capital markets in which capital markets across the world tend to be copycat capital markets. He contends that there is a tendency for stakeholders in the capital markets to identify winners, after which all other companies in the industry would be pressured to replicate what the 'winner' or current industry darling is doing.

Against this backdrop of greater incentives for short term measures versus riskier long-term yet innovative investments, what should firms do? One approach would be to "fire bullets, then cannonballs." This means that companies launch low cost, low risk and low distraction experiments before making big bet[5]. Another approach could be 'leapfrogging.' In this context, firms or even individuals 'leapfrog' existing challenging circumstances by going over rather than going through these circumstances. For instance, if corrupt middle-men are hindering the relationship between farmers and consumers, mobile phone technology can bridge the information gap in agriculture distribution. Against this context, the panel seeks to answer the following questions:-

- How do firms prepare themselves to both harness Creative Disruption and prevent being disrupted?
- To what extent does the presure to provide immediate returns – measured by TSR – reduce a firm's ability to undertake innovation, which is more long-term in nature?

[5] For more, see the 2011 book, "Great by Choice: Uncertainty, Chaos and Luck – Why Some Thrive Despite Them All" by Jim Collins and Morten T. Hansen.

- Under pressure from the need to generate constant short-term returns, how do CEOs justify and undertake investments in riskier long-term innovation propositions?

Session 3

Growth and Development: The Innovation Economy Won't be Built in a Day - What Should Policymakers and Players Do?

We have posited that countries grow and economies undergo structural change by producing different things, not necessarily more of the same things. A natural question to ask, therefore, is what is the role that the state, via its public policymakers, should take in harnessing Creative Disruption for its economy, such that it has the capacity to produce new things? Economists Ha-Joon Chang, Dani Rodrik and Ricardo Hausmann have long argued the case for the role of the state in the economy, particularly industrial policy. Research by Dani Rodrik distinguishes industrial policy as a process of discovery – one where firms and the government learn about costs and opportunities, while engaging in strategic coordination. Rodrik argues that the right question is not so much whether a government should try to pick winners, but whether it has the capacity to let the losers go. This is corroborated by Ha-Joon Chang, who argues that, "If we remain blinded by the free-market ideology that tells us only winner-picking by the private sector can succeed, we will end up ignoring a huge range of possibilities for economic development through public leadership or public-private joint efforts."

More broadly, the state – in collaboration with the private sector – also has a major role in building the institutions of its nation as well as the regulatory environment of its economy. These tasks, if left solely to the private sector, will likely succumb to conflicts of interest and lobbyist-funding. The curation of institution-building and regulatory-enhancement must thus be done by the state as these issues tie in strongly with a nation's identity. Indeed, Rodrik argues that, in designing 'Capitalism 3.0,' countries have the right to protect their own social arrangements, regulations, and institutions though they do not have the right to impose their institutions on others. The state has to, therefore, undertake the difficult task of developing its institutions and regulations to optimally harness Creative Disruption while simultaneously balancing the need to protect its national interests, culture and society. Against this backdrop, the panel seeks to discuss the following issues:-

- To what extent should policymakers engage with and provide support for, but not crowd out, the private sector to decide on new innovative industries to drive economic development?

- Given that new industries tend to be more risky and thus more likely to fail, how should national stakeholders bear the financial/fiscal costs of implementing new industries?

- What sort of institutional arrangements and regulatory environments are most conducive to harnessing Creative Disruption, without destroying national identity and society?

Session 4

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

Ultimately, the ones who will harness and undergo the adventures and ethical dilemmas of Creative Disruption will be people. As we have seen, the exponential evolution of innovation simply means that the world will become more uncertain and, potentially, more volatile. Yet, as always, in uncertainty lies opportunity. Thus, it is those people who are most imbued with the spirit of Adventure who will best grasp these opportunities. Throughout history, the spirit of Adventure has been required for all ventures and innovations. Consider the case of the Portuguese voyagers, led by Bartolomeu Dias, who navigated unchartered waters around the Cape of Good Hope to discover an ocean route to India. Or the case of Marie Curie, a two-time Nobel Prize winner, who conducted pioneering research on radioactivity that is now pervasive in our lives today. Or the case of Microsoft and Facebook, with their founders dropping out of university to pursue their innovative ventures. Whether driven by profit or by intellectual curiosity or by a desire to do good, the point remains: Adventure was a critical component of their individual journeys to innovate.

Yet, on the other hand, there is an ethical component to innovation – perhaps the most important issue of all. History is littered with unfettered adventurers causing destruction to nations, societies and people. Examples include Belgians setting up purely extractive institutions in the Congo, the creation of financial products such as Collateral Debt Obligations prior to the 2008 Financial Crisis, and the construction of weapons of mass destruction. The key, therefore, to harnessing Creative Disruption is to balance the spirit of Adventure with the notion of Ethics. This is perhaps best captured in the movie Jurassic Park where chaos theorist Dr. Ian Malcolm (played by Jeff Goldblum) registers his disapproval of the genetic engineering that produced dinosaurs. Specifically, he says, "Yeah, yeah, but your scientists were so preoccupied with whether or not they could that they didn't stop to think if they should." This is particularly poignant in the era of widespread innovation and invention.

The ability to create and change things has never been so accessible to so many. In weighing the value of products and processes, it is also critical to consider their potential exploitation - the case of 'drones' is illustrative of this. Thus, all stakeholders who participate in the economy and society must consider the issue of ethics in anything they desire to create, innovate or disrupt. Perhaps the most important principle of all is this: whatever we create, innovate or disrupt, in a world where we are now increasingly limited only by our imagination, we must also be limited by our conscience. Towards this end, the panel considers the following questions:-

- For a society to succeed In Harnessing Creative Disruption while Unlocking the Power of Inclusive Innovation, how do we balance the spirit of Adventure – so crucial to undertaking new, innovative pursuits – with the notion of Ethics?
- What are the contemporary ethical issues in harnessing Creative Disruption?
- What can leaders do to ensure that the benefits of Creative Disruption are disseminated to society while managing its downsides, and thus, unlock the power of Inclusive Innovation?

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SHARE WITH US YOUR THOUGHTS!

#MYKMF2015

In line with this year's KMF theme – "Harnessing Creative Disruption: Unlocking the Power of Inclusive Innovation" – we invite you to give your thoughts and opinions on 'innovation'. We strive to make KMF an interactive experience and thus audience participation is greatly appreciated. We welcome fully your answers, in 140 characters or less *a la* Twitter, to the following questions:

1. In the context of the KMF2015 theme, what do you think is an example of an inclusive innovation?
E.g. Soccket - Electricity is generated by kicking a football around, capitalising on players' energy in electricity scarce areas

2. On the other hand, what do you think is an example of a non-inclusive innovation?
E.g. Atomic bomb - Using the power of atomic energy for the primary purpose of mass destruction

3. What is an example of an inclusive innovation that you would like to see?
E.g. Forward-Looking Credit: Credit is granted to people based on their future abilities, as determined by psychometrics, not just their histories.

Kindly send in your responses via:

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@mykmf2015
+6019 283 4056
www.kmf.com.my/3q

*Please note that a selection of responses will be anonymously published on Twitter **@mykmf2015** and **www.kmf.com.my**



"A MAGICAL EVENING...
I BELIEVE EVERY MALAYSIAN
SHOULD SEE THIS."

Putri Juneita Johari

"...BARU BERBALOI
PAKAI ORCHESTRA!"

Dato' Mokhzani Ismail, RTM Orchestra

"...LEFT ME BUZZING!"

Dr Jillian Ooi, Rhythm in Bronze

MALAM TERANG BULAN

"...THAT SUCH ART, HISTORY
AND INSPIRATION COULD
CONVERGE SO PERFECTLY IN
OUR STILL-PROMISING
NATION... WHAT HAPPENED IN
DEWAN FILHARMONIK WAS
TRULY PRECIOUS."

Tunku 'Abidin Muhriz, The Malay Mail

"...A MESMERISING EVENING."

Isabella Soliano

"WE WERE ALL
MOVED TO TEARS."

Datin Paduka Marina Mahathir

"...AN UNFORGETTABLE
EXPERIENCE."

Tan Sri Dr Jemilah Mahmood

"THE BIRTH OF OUR NATIONAL
ANTHEM AND A MUCH DEEPER,
MOVING NARRATIVE ABOUT WHAT
WE DREAM AND WHAT IS BORNE
TO US ON THE WIND. HEART,
HUMOUR, STUPENDOUS
PERFORMANCES... IT WAS A PIECE
THAT SHONE."

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KHAZANAH
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Welcome Remarks & Introduction to KMF2015

Tan Sri Dato' Azman Hj Mokhtar

Managing Director,
Khazanah Nasional Berhad

KHAZANAH NASIONAL

Tan Sri Dato' Azman Hj Mokhtar is the Managing Director of Khazanah since 1 June 2004. He was previously the Managing Director of BinaFikir Sdn Bhd from 2002 until May 2004. Prior to this, he was a Director and Head of Research at Salomon Smith Barney and Union Bank of Switzerland in Malaysia.

He graduated with distinction in M. Phil in Development Studies from Darwin College, Cambridge University, United Kingdom as a Chevening scholar. He is a Fellow of the Association of Chartered Certified Accountants, United Kingdom and is a Chartered Financial Analyst charter holder. He also holds a graduate diploma in Islamic Studies from the International Islamic University, Kuala Lumpur.

Opening Address

Tan Sri Dato' Seri Utama Nor Mohamed Yakcop

Deputy Chairman,
Khazanah Nasional Berhad;
Chairman, Khazanah Research Institute

KHAZANAH NASIONAL

Tan Sri Dato' Seri Utama Nor Mohamed Yakcop is the Deputy Chairman of Khazanah Nasional Berhad. He is also the Chairman of Khazanah Research Institute. He was previously the Minister in the Prime Minister's Department, after serving as the Second Finance Minister until 9 April 2009. Prior to this, he was the Special Economic Adviser to the Prime Minister.

Tan Sri Nor was with Bank Negara Malaysia from 1968 to 2000, where he was responsible for the implementation of Islamic banking in Malaysia, the setting-up of the bilateral payments mechanism between Bank Negara Malaysia and Central Banks of South-South countries and the setting-up of the Rating Agency Malaysia Berhad.

He graduated from the University of Malaya with a Bachelor of Economics (Honours) degree and also from the Catholic University of Leuven, Belgium with an M.B.A. (cum laude) degree.

Closing Address

YAB Dato' Sri Mohd Najib Tun Abdul Razak

Prime Minister of Malaysia;
Chairman, Khazanah Nasional Berhad

KHAZANAH NASIONAL

YAB Dato' Sri Mohd Najib bin Tun Abdul Razak is the current Prime Minister of Malaysia and Minister of Finance. He is also the Chairman of Khazanah since 7 May 2009.

Dato' Sri Mohd Najib started his career at the Malaysian central bank, Bank Negara Malaysia and later served at the national oil company, Petroliam Nasional Berhad (Petronas). His political career began in 1976 when he was elected as the Member of Parliament for Pekan. He has held various cabinet posts including Deputy Minister at the Ministry of Energy, Telecommunications & Posts, Ministry of Education and Ministry of Finance. He also headed several ministries as Minister at the Ministry of Culture, Youth & Sports, Ministry of Defence and Ministry of Education. He also served as the Menteri Besar of Pahang from 1982 to 1986.

Dato' Sri Mohd Najib holds a degree in Industrial Economics from Nottingham University.

Day 1 Luncheon Address

Dato' Sri Nazir Tun Abdul Razak

Chairman, CIMB Group;
Board Member,
Khazanah Nasional Berhad

Mohamed Nasri Sallehuddin

Executive Director, Corporate & Support Services, Company Secretary and Head of Legal, Khazanah Nasional Berhad

Dato' Sri Nazir Razak is the Chairman of CIMB Group Holdings Berhad. He joined CIMB's corporate advisory department in 1989 and had served the bank in various capacities before being appointed as Chief Executive in 1999. After 15 years as Chief Executive of CIMB, Nazir became Chairman on 1 September 2014. He spearheaded the Group's transformation from a Malaysian investment bank to a regional universal bank via several acquisitions throughout the region.

Nazir is a Director of Khazanah Nasional Berhad, and is a member of the Investment Panel and Chairman of the Investment Panel Risk Committee of the Employees Provident Fund's Board. He graduated from the University of Bristol with a B.Sc. (Hons) and obtained an M.Phil. from the University of Cambridge.

CIMB Group is an investee company of Khazanah Nasional Berhad.

Mohamed Nasri Sallehuddin joined Khazanah on 1 September 2009. Prior to that, he was a partner with a leading law firm in Malaysia, advising clients on corporate law and the legal aspects of corporate restructuring, take-overs and mergers.

He obtained his LLB (Hons) degree from Aberystwyth University (Wales) and MBA from the University of Strathclyde Business School. He was called to the degree of an Utter Barrister by the Honourable Society of Gray's Inn in 1995 and admitted to the High Court of Malaya as an advocate and solicitor in 1996.

Day 2 Luncheon Address

Sir Mark Moody-Stuart

Chairman, Hermes Equity Ownership Services;
Former Chairman,
Anglo American plc and
Royal Dutch Shell Group

Mohd Izani Ashari

Executive Director,
Managing Director's Office,
Khazanah Nasional Berhad

Mark Moody-Stuart is currently Chairman of Hermes Equity Ownership Services. He was formerly Chairman of Anglo American plc (2002–2009) and of the Royal Dutch Shell Group (1998–2001). He has a doctorate in geology.

He is currently a Director of Saudi Aramco and was on the board of Accenture (2001–015) and HSBC (2001–2010). His other current positions include Chairman of the Innovative Vector Control Consortium, Vice Chairman of the UN Global Compact Board and Chairman of Global Compact Foundation, Honorary Co-Chairman of the International Tax and Investment Center, and Member of International Council for Integrated Reporting. He is also on the FTSE ESG Advisory Committee.

Mark is the author of Responsible Leadership – Lessons from the front line of sustainability and ethics. Limited copies of the book will be made available on KMF Day 2.

Mohd Izani Ashari joined Khazanah in April 2009 and is an Executive Director in charge of GLC Transformation Programme, coordinating GLCs contribution to various national agenda such National Transformation Programmes and Bumiputera Agenda.He has been pivotal in the initial development which forms the foundation of the Government Transformation Program.

He has 30 years of working experience covering six different industries mainly with multi-nationals and large companies including Shell Malaysia, Maybank, Sime Darby, Petronas, and Malaysian Airline System (MAS). He has spent 20 years of his career specialising in organisation transformation/reengineering.

He holds a Masters Degree in Construction Management from Reading University, UK and Bachelor's Degree in Quantity Surveying from John Moores University, Liverpool, UK.

Day 1 Special Addresses

Datuk Marjorie Yang

Chairman, Esquel Group

Datuk Marjorie Yang is Chairman of Esquel Group, a Hong Kong-based textile and apparel manufacturer with operations throughout the world that produces 100 million cotton shirts every year for well-acclaimed brands.

Marjorie has been a Member of the National Committee of the Chinese People's Political Consultative Conference since 2003. She also serves as Member of the Commission on Strategic Development as well as the Advisory Committee on Innovation and Technology of the HKSAR Government.

Marjorie is the Chairman of the Council of the Hong Kong Polytechnic University. She also serves as Member of the various advisory boards at Harvard University, Harvard Business School, MIT Sloan and Tsinghua University's School of Economics and Management. Marjorie is also on the boardsof The Hongkong and Shanghai Banking Corporation Limited and Swire Pacific Limited.

Omar Siddiq Amin Noer Rashid

Executive Director, Investments, Khazanah Nasional Berhad

Omar Siddiq joined Khazanah on 1 July 2015. Previously, he was Managing Director and Regional Head for Technology, Media, Telecoms and Aviation in the Investment Banking Division at CIMB Investment Bank, Malaysia. He was with Khazanah as Director, Investments for one and a half years from 1 August 2008 to 28 February 2010. Omar Siddiq has also served at the London and Kuala Lumpur offices of PricewaterhouseCoopers previously.

He read Economics at the London School of Economics and is a Fellow member of the Institute of Chartered Accountants in England and Wales as well as a CFA charterholder.

Charles Leadbeater

Author and independent strategic advisor

Charles Leadbeater is a best-selling author and strategic advisor to companies, governments and cities. His books include *We-Think: mass innovation, not mass production* and *The Frugal Innovator*. His TED talks on innovation have been watched by several million people. Charles was Industrial Editor and Tokyo Bureau chief at the Financial Times before becoming Assistant Editor at the Independent where he helped Helen Fielding devise Bridget Jones's diary. He went on to become an advisor to Tony Blair and then David Miliband. He is chair of the digital education project Apps for Good which won a Google Global Impact award in 2013.

A copy of The Frugal Innovator is made available in the KMF goodie bag.

Jiv Sammanthan

Executive Director and Head of Managing Director's Office, Khazanah Nasional Berhad

Jiv Sammanthan joined Khazanah in June 2010 as Director in the Managing Director's Office. He was appointed as Executive Director at the Managing Director's Office in June 2011. Prior to Khazanah, Jiv spent 18 years with PricewaterhouseCoopers (PwC) both in London and Kuala Lumpur. He was a partner of the PwC Performance Improvement Consulting practice in Kuala Lumpur.

He holds a degree in Commerce from the University of Birmingham, England and is an Associate of the Institute of Chartered Accountants in England and Wales (ICAEW).

Day 2 Special Address

Sebastian Thrun

Founder and CEO, Udacity;
Founder, Google [x]

Sebastian Thrun is founder and CEO of Udacity, whose mission is to democratize education. Sebastian was the founder of Google [x] where he led the development of the Google self-driving car, Google Glass, and other projects. Prior to that, he was professor at Stanford and Carnegie Mellon in artificial intelligence and robotics. Thrun has received several awards including the inaugural Smithsonian American Ingenuity Award for Education in 2012. His work has been highlighted in 50 Best Inventions of 2010 by TIME magazine. Thrun has authored over 380 academic papers and several books, and is member of the National Academy of Engineering.

Javier Santiso

Executive Director,
Khazanah Europe Investment Limited

Javier joined Khazanah on 1 August 2015. He heads Khazanah Europe Investment Limited, a wholly-owned subsidiary which provides advice and support on investments in Europe which are of strategic interest to Khazanah. Previously, he was Managing Director, Global Affairs & New Ventures at Telefonica. He has also served as Director General and Chief Economist at OECD Development Centre.

He studied in Paris, Oxford and Boston at Sciences Po and HEC School of Management, Oxford University and Harvard University. In 2009, he has been awarded as one of the Young Global Leaders by the World Economic Forum.

Dr Jonathan Woetzel

Director, McKinsey & Company,
Shanghai

Dr. Jonathan Woetzel is a Director with McKinsey & Company and the McKinsey Global Institute (MGI) director based in Shanghai. In his 29 years with the Firm, Jonathan has advised clients in a range of industries – including energy, materials, technology and industrial–helping transform local companies into globalleaders, and developing policyrecommendations for government.

Dr. Woetzel is active in urban development globally. He co-chairs the Firm's Urban China Initiative with Columbia University and Tsinghua University. He established McKinsey's China practice in the 1990s including managing its Shanghai location. He has written five books on China.

Dr. Woetzel is the co-author of No Ordinary Disruption. Limited copies of the book will be made available for redemption on KMF Day 1.

Chinta Bhagat

Executive Director, Investments and Head of India Office,
Khazanah Nasional Berhad

Chinta joined Khazanah on 15 July 2015. He leads Khazanah's India operations based in Mumbai, in addition to co-leading Khazanah's healthcare portfolio. Previously, he was Managing Partner at McKinsey & Co in Singapore., and head of McKinsey's Healthcare practice in the region.

Chinta has broad experience in investments, driving portfolio company performance, and designing and implementing governance systems. Prior to McKinsey, he held various positions at an engineering and construction firm in India, culminating in his role as CEO.

Day 2 Special Addresses

Prof Hugh Herr

Associate Professor, MIT Media Lab; Founder and CTO, iWalk Inc

Hugh Herr is creating bionic limbs that emulate the function of natural limbs. In 2011, Time Magazine coined Dr. Herr the 'Leader of the Bionic Age' because of his revolutionary work in the emerging field of Biomechatronics - technology that marries human physiology with electromechanics. A double amputee himself, he is responsible for breakthrough advances in bionic limbs that provide greater mobility and new hope to those with physical disabilities.

He is currently Associate Professor of the Biomechatronics research group at the MIT Media Lab. He is the Founder and Chief Technology Officer of iWalk Inc., a company that commercializes the BiOM, first in a series of products that will emulate or even augment physiological function. Hugh's story has been told in the biography *Second Ascent, The Story of Hugh Herr*; a 2002 National Geographic film, *Ascent: The Story of Hugh Herr*; and episodes and articles featured in CNN, The Economist, Discover and Nature.

Prof Adrian David Cheok

Director, Imagineering Institute; Professor of Pervasive Computing, City University London

Adrian David Cheok is Director of the Imagineering Institute, Iskandar Malaysia and a chair Professor of Pervasive Computing at City University London. He is Founder and Director of the Mixed Reality Lab, Singapore.

He was formerly Full Professor at Keio University, Graduate School of Media Design and Associate Professor in the National University of Singapore. He has worked in real-time systems, soft computing, and embedded computing in Mitsubishi Electric Research Labs, Japan. He has been working on research covering mixed reality, human-computer interfaces, wearable computers and ubiquitous computing, fuzzy systems, embedded systems, power electronics.

Adrian graduated from the University of Adelaide with a Bachelor of Engineering (Electrical and Electronic) with First Class Honours in 1992 and an Engineering PhD in 1998.

Imagineering Institute is a research lab funded by Rhizophora Ventures Sdn Bhd, a subsidiary company of Khazanah Nasional Berhad.

Jonathan Cavendish

TV and film producer; Co-Founder, Imaginarium Studios

Jonathan Cavendish is an award-winning producer and co-founder of The Imaginarium Studios, a leading Performance Capture studio and production company, founded alongside Andy Serkis in 2011.

Cavendish's first film, December Bride, won 21 international awards including a Special Jury Prize at the European Film Awards. He followed this with a chain of successful films, including *A Man Of No Importance*, *Ordinary Decent Criminal* and *Gangster No.1.*

Cavendish also produced *Bridget Jones's Diary*, grossing \$290 million worldwide, and the Academy Award-winning *Elizabeth: The Golden Age*, starring Cate Blanchett. In 2011, *Croupier*, starring Clive Owen became the most successful independent film release of the year in the U.S.

He is currently producing a version of Rudyard Kipling's *The Jungle Book* alongside Warner Brothers Studios, with Andy Serkis directing, and working with Double Negative TV on *Fungus the Bogeyman* for broadcast on Sky, Christmas 2015.

The Imaginarium Studios is an investee company of Khazanah Nasional Berhad.

Dominic Silva

Executive Director and Head of Investments, Khazanah Nasional Berhad

KHAZANAH NASIONAL

Dominic Silva joined Khazanah in August 2008 as Director, Investments. He was appointed Executive Director, Investments in May 2010 and Executive Director, Head of Investments in Feb 2014.

Prior to joining Khazanah, he spent 18 years in the banking sector, 12 of which were spent with ABN AMRO Bank in regional and international roles across the areas of relationship management, structured finance, capital markets, risk and portfolio management and strategic business development. Prior to ABN AMRO Bank, he worked with a major Japanese financial group in Asia within the Corporate Finance division.

A finance graduate from University of Wales, he also completed his Senior Management Program at Henley Management College, UK.

Prof Tony Venables CBE

Professor of Economics,
University of Oxford

Tony Venables is Professor of Economics at Oxford University where he also directs the Oxford Centre for the Analysis of Resource Rich Economies and a research programme on urbanisation.

He is a Fellow of the Econometric Society, the Regional Science Association, and the British Academy. Former positions include chief economist at the UK Department for International Development, professor at the LSE, manager of the trade group in the World Bank, and advisor to the UK Treasury.

He has published extensively in the areas of international trade and spatial economics, and natural resources. Publications include *The Spatial Economy; Cities, Regions and International Trade*, with M. Fujita and P. Krugman and *Multinationals in the World Economy* with G. Barba Navaretti.

Hamdan Abdul Majeed

Director, Investments,
Khazanah Nasional Berhad

Hamdan Abdul Majeed is a Director in the Investments division of Khazanah Nasional Berhad. He currently leads Khazanah's regional office in the northern region of Malaysia and is also the Executive Director of ThinkCity, a community-based urban regeneration agency. Prior to joining Khazanah, he had a career in investment banking where he was involved extensively in debt capital markets advisory specialising in structured finance, project finance and advisory.

In 2012, he was awarded the Eisenhower fellowship for his work on urban development and leadership on cities. In 2014, he was recognised by World Cities Summit as a young leader on urban development and city transformation. Hamdan holds a degree in Economics and Management from University of London.

Tengku Dato' Sri Azmil Zahruddin

Executive Director, Investments,
Khazanah Nasional Berhad

Tengku Dato' Sri Azmil Zahruddin joined Khazanah as an Executive Director of Investments in October 2011. His main role is overseeing new investments and divestments in sectors within his portfolio.

Prior to joining Khazanah, he was the Chief Executive Officer of Malaysia Airlines. He joined Malaysia Airlines as the Chief Financial Officer in August 2005. Before that, he was the Chief Financial Officer and then Managing Director / Chief Executive Officer of Penerbangan Malaysia Berhad. He was also with PricewaterhouseCoopers in their London and Hong Kong offices where he was in the Audit and Business Advisory Services division, specialising in financial services.

He holds a degree in Economics from the University of Cambridge and is a Chartered Accountant.

SESSION 1: MACRO AND MARKETS

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

Sharifatu Laila Syed Ali

Group CEO, ValueCAP

Sharifatu Laila is ValueCAP's Group CEO and played a key role in the setting up of the Company in 2002. ValueCAP has interests in two wholly owned licensed asset management subsidiaries with Group AUM in excess of RM5 billion. In addition to traditional portfolio management offerings, the Group provides alternative portfolio management strategies i.e in Sustainable & Responsible Investing (SRI) and Islamic Exchange Traded Funds.

Sharifa began her career at PNB and later served the Employees Provident Fund, managing funds across the domestic & regional market space.

A Capital Market Services Representative's License (CMSRL) holder, Sharifa has an MBA (University Malaya), BSc (Hons) (Universiti Kebangsaan Malaysia and completed Harvard's Advanced Management Programme in 2011.

ValueCAP is an investee company of Khazanah Nasional Berhad.

Stephen Hagger

Managing Director and Head of Equities, Credit Suisse Securities (Malaysia) Sdn Bhd

Stephen Hagger is a Managing Director and the Head of Equities for Credit Suisse in Malaysia. His team has been rated number one by Institutional Investor more than ten times. He also heads up Credit Suisse equity research in ASEAN and is the country head for Credit Suisse in Malaysia.

Prior to joining Credit Suisse in 1998, Mr Hagger was the Managing Director and Head of Research at BZW Malaysia. He has also worked as Head of Research at Kim Eng Securities in Kuala Lumpur, in fund management with Hill Samuel Bank, Singapore and as a buy-side analyst for Robert Fleming in London. Stephen received an MBA from Durham University Business School and a Bachelor of Science degree (Agriculture) from the University of Edinburgh.

Mr Hagger has been based in Kuala Lumpur since 1992.

Dr Arup Raha

Chief Economist, CIMB Group

Arup Raha is the Chief Economist of CIMB Group. Arup and the Economics team provide their analysis of the global economy to CIMB Group's clients in various businesses, from Equities to Treasury to Private Banking.

Arup's particular expertise is on Asia where he has close to 20 years of experience working as a professional economist in the financial services industry. He has served as Chief Asia Economist for global banks such as HSBC, Citi and UBS and also the Head of India Equity Research for JP Morgan. Prior to working in financial markets, Arup was an economist with The World Bank in Washington D.C.

Arup has a Bachelor of Arts (Honours) degree in Economics from St. Stephen's College, Delhi, a Masters from the Delhi School of Economics and a Doctor of Philosophy in Economics from Vanderbilt University in the United States.

CIMB Group is an investee company of Khazanah Nasional Berhad.

PK Basu

Head of Malaysia Research and Head of ASEAN Economics, Macquarie Capital Securities (Malaysia) Sdn Bhd

PK joined Macquarie in January 2015 as Head of Malaysia research and head of ASEAN economics. He has over 20 years experience in the industry, having started his career in 1990 at the Asia Service of WEFA (Wharton Econometric Forecasting Associates) in Philadelphia.

He has served as ASEAN economist at UBS Securities, Chief Economist for South-east Asia and India at Credit Suisse First Boston and Chief Economist and Co-Head of Research and Investment Strategy at Khazanah Nasional Berhad. PK was Chief Economist for Asia (ex-Japan) at Daiwa Securities between May 2007 and February 2012. Between April 2012 and July 2013, he was the Global Head of Research at Maybank Kim Eng. He has dual Master's degrees from UPenn.

Tan Sri Dato' Dr Lin See Yan

Economist and former banker

Dr Don Hanna

Managing Director and Head of Research, Roubini Global Economics

Mohamed Ridzuan Mohamed

Director, Khazanah Research & Investment Strategy, Khazanah Nasional Berhad

A former banker, Dr. Lin is a Harvard educated economist & a British Chartered Scientist. He continues to serve the public interest, including Member, Prime Minister's Economic Council Working Group and Member, Competition Appeal Tribunal, as well as Member of Ministry of Higher Education Committees on national education issues, and Economic Advisor, Associated Chinese Chambers of Commerce and Industry of Malaysia. In addition, he sits on the Boards of a number of publicly listed and private/ social enterprises in Malaysia, Singapore, Indonesia, Thailand and the Philippines, as well as of universities & foundations. Dr. Lim is President of Harvard Club Malaysia. He speaks, teaches, writes and consults on strategic and financial issues.

Dr. Lin is the author of Global Economy in Turbulent Times. A copy of the book is made available in the KMF goodie bag.

Dr Don Hanna is Managing Director, Head of Research, and runs Roubini's Asia Office. He previously served as MD of Fortress Investment Group, where he advised on global macro trends, with a particular focus on Asia. Before joining Fortress, Don worked for Citigroup Global Markets for nearly 10 years, ending his tenure there as Acting Chief Economist. He received a PhD in Economics from Harvard University and a BA, summa cum laude, in Economics and Spanish from the University of California at Berkeley. He is a Fulbright Scholar and a member of the Advisory Board of the Center for Applied Macroeconomic Analysis at Australia National University.

Ridzuan Mohamed is a Director in Khazanah Research & Investment Strategy division. He has more than ten years industry experience as a sell-side equities analyst, having covered the Malaysian utilities, transportation and telecommunications sectors for a number of investment banks including UBS, Merrill Lynch and RHB. Ridzuan is a Chartered Financial Analyst, and an economics graduate of the London School of Economics and Political Science. He currently sits on the board of the Malaysian Investor Relations Association (MIRA).

SESSION 2: FIRMS AND TRANSFORMATION

Learning to Fish: How do Firms Harness Creative Disruption?

Christoph Mueller

Group CEO,
Malaysia Airlines Berhad

Christoph Mueller was appointed Group Chief Executive Officer to Malaysia Airlines Berhad (MAB) on 1 September 2015. He brings with him over 25 years experience as a turnaround specialist in the aviation, logistic and tourism industry. Mueller holds an MBA from the University of Cologne and subsequently completed an Advanced Management Program at Harvard Business School.

Before joining MAB, Mueller was the Chief Executive Officer of Aer Lingus, which he joined in September 2009, turning the loss making company to profit in less than one year. Prior to that, he held the position of Executive Aviation Director at TUI Travel plc. Mueller also served as the Chief Financial Officer of DHL Worldwide from 2002 to 2004.

Christoph has held senior positions at Daimler Benz Aerospace, Lufthansa AG and the Sabena Group. Mueller was also President of IATA, the international Air Carrier Association and Chairman of the Advisory Board of Eurocontrol.

MAB is a subsidiary company of Khazanah Nasional Berhad.

David Frigstad

Chairman, Frost & Sullivan

David is the Chairman of Frost & Sullivan. He has devoted his career to helping companies generate, evaluate, and implement innovative growth strategies. Frost & Sullivan is focused on helping clients become visionary innovators in their industry. He has authored six books, and is currently working on the seventh. Traveling extensively he frequently keynotes at industry events, associations and company strategy meetings and facilitates growth workshops and think tanks on visionary innovation, megatrends, growth strategy and competitive strategy internationally. He currently is a member of the board of the Strategy and Competitive Intelligence Professionals (SCIP) association and is Chairman of the Board of the Frost & Sullivan Institute (FSI), a nonprofit organization dedicated to leveraging innovation to address global challenges.

Khairil Abdullah

CEO, Axiata Digital Services Sdn Bhd

Khairil is the Chief Executive Officer of Axiata Digital Services where he leads Axiata's investments and operations in digital businesses. He oversees Axiata's business units and joint ventures in e-Commerce, Digital Advertising, Mobile Money, Entertainment, IoT and Big Data Analytics. Prior to that, Khairil was the Group Chief Marketing and Operations Officer of Axiata Group, a role he assumed when he joined Axiata in 2012.

Khairil joined Axiata from Bain & Company where he had built a strong track record of helping his clients in the Telco and other industries achieve improvements in their strategic growth and operational performance. Khairil holds a BA, MA and MEng from the University of Cambridge, UK and an MBA from INSEAD, France.

Axiata Group is an investee company of Khazanah Nasional Berhad.

Richa Kar

Founder and CEO, Zivame

zivame.com

From the small town of Jamshedpur, in India, hails a lady who is changing the way Indian women feel about themselves. Meet Richa Kar, founder of Zivame, a place for women to embrace their bodies and build their confidence through lingerie.

Before launching Zivame, Richa has had a rich experience of 8 years, backed by a MBA from NMIMS & an engineering degree from BITS Pilani. Working across functions in Spencer's Retail & SAP she learnt the various aspects of retail business and gaining a very strong understanding of the consumer.

Her entrepreneurial journey began when she realized that lingerie in India is an underserved and uncomfortable experience. Richa saw the need to break this category open and realize its potential.

Zivame is an investee company of Khazanah Nasional Berhad.

Sumant Mandal

Co-Founder, March Capital Partners; Managing Director, Clearstone Venture Partners

MARCH CAPITAL PARTNERS

Sumant Mandal has 12-years of technology investment experience and has generated multiple meaningful exits in companies he has either incubated or been the first institutional investor.

In addition to co-founding March Capital Partners, Sumant co-founded two leading technology incubators - The Hive and The Fabric. There, Sumant has supported numerous projects in the sectors of Big Data, Cloud Computing, Advertising, Network Infrastructure, and Storage. In 2000, Sumant joined Clearstone Venture Partners where he went on to become a Managing Director in 2004. He represents Clearstone on the boards of The Rubicon Project, BillDesk, Games2win, Clearfly Networks, and Glossi.com.

Sumant received his MBA from the Kellogg Graduate School of Management at Northwestern University, and a B.S. in Electrical Engineering from Michigan State University.

Datuk Hisham Hamdan

Executive Director, Investments and Head of Khazanah Research & Investment Strategy, Khazanah Nasional Berhad

KHAZANAH NASIONAL

Datuk Hisham Hamdan joined Khazanah in April 2011. He was formerly with Sime Darby for over six years where he assumed several senior positions, covering strategy and business development, healthcare, energy & utilities and special projects. He also has 12 years of capital markets experience in equity research and investment banking. He started his career as a process engineer in the US.

He holds two degrees in Chemical Engineering and Industrial Management from Purdue University, in the US. He has also attended the Harvard Business School's Advanced Management Programme.

SESSION 3: GROWTH AND DEVELOPMENT

The Innovation Economy Won't be Built in a Day: What Should Policymakers and Players Do?

YB Encik Khairy Jamaluddin

Minister of Youth and Sports, Malaysia

Khairy Jamaluddin is Minister of Youth and Sports and a Member of Parliament representing the Rembau constituency in Negeri Sembilan. He is also Leader of UMNO Youth and the Chairman of Barisan Nasional Youth. Prior to entering politics, he worked as a journalist, policy aide and investment banker. Khairy was educated at the Universities of Oxford and London. The World Economic Forum in Davos selected him as a Young Global Leader in 2005 and he was made an Asia 21 Fellow by the Asia Society in 2006. Khairy was also elected as Visiting Fellow at the Oxford Centre for Islamic Studies in 2002. Currently, he serves as the Commander of the 508 AW Regiment in the Malaysian Territorial Army. He is married to Nori Abdullah and they have three sons, Jibreil “Cougar” Ali, Timor “Puma” Abdullah and Raif “Leo” Averroes.

Tan Sri Andrew Sheng

Chief Adviser,
China Banking Regulatory Commission;
Distinguished Fellow, Asia Global Institute;
Board Member, Khazanah Nasional Berhad

Tan Sri Andrew Sheng is Chief Adviser to the China Banking Regulatory Commission and a Board Member of Khazanah. He is also a Distinguished Fellow at the Asia Global Institute. His previous senior appointments include Chairman of the Securities and Futures Commission of Hong Kong, Deputy Chief Executive of Hong Kong Monetary Authority, and Chief Economist and Assistant Governor of Bank Negara Malaysia.

He is an Adjunct Professor at the Graduate School of Economics and Management, Tsinghua University and the University of Malaya. He is also a Pro-Chancellor of Universiti Tun Abdul Razak. A chartered accountant by training, he has a BSc. in Economics and an honorary doctorate from the University of Bristol.

Prof Tony Venables CBE

Professor of Economics,
University of Oxford

Tony Venables is Professor of Economics at Oxford University where he also directs the Oxford Centre for the Analysis of Resource Rich Economies and a research programme on urbanisation.

He is a Fellow of the Econometric Society, the Regional Science Association, and the British Academy. Former positions include chief economist at the UK Department for International Development, professor at the LSE, manager of the trade group in the World Bank, and advisor to the UK Treasury.

He has published extensively in the areas of international trade and spatial economics, and natural resources. Publications include *The Spatial Economy; Cities, Regions and International Trade*, with M. Fujita and P. Krugman and *Multinationals in the World Economy* with G. Barba Navaretti.

Dr Jomo Kwame Sundaram

Assistant Director-General and Coordinator for Economic and Social Development, Food and Agriculture Organisation, United Nations

Jomo Kwame Sundaram has been Assistant Director General and Coordinator for Economic and Social Development, Food and Agriculture Organisation of the United Nations since 2012. He was Assistant Secretary General for Economic Development in the UN Department of Economic and Social Affairs from 2005 until 2012, and Research Coordinator for the G24 Intergovernmental Group on International Monetary Affairs and Development.

Jomo was Professor at the University of Malaya until 2004 and Founder Chair of International Development Economics Associates. He has authored and edited over a hundred books and translated 12 volumes besides writing many academic papers and media articles. He has received several honours and awards for his work including the 2007 Wassily Leontief Prize for Advancing the Frontiers of Economic Thought.

Dato' Yasmin Mahmood

CEO, Multimedia Development Corporation (MDeC)

Since assuming the CEO position a year ago, Dato' Yasmin has helmed MDeC as a crucial pillar of the national economy. Under her stewardship, MDeC continues to drive Malaysia's Digital Economy forward with strong policies and innovative approaches.

She is an IT industry stalwart having in the past been Managing Director of Microsoft Malaysia and holding the dual-roles of Country Manager and Regional Corporate Director at Dell. Dato' Yasmin is also a fierce champion of female empowerment.

Ultimately she aims for MDeC to steer the digital economy to greater heights, increasing its contribution to GDP and ensuring Digital Malaysia brings pervasive impact for government, businesses and the rakyat throughout the country.

Dr Nungsari Ahmad Radhi

Managing Director, Prokhas Sdn Bhd

Dr. Nungsari Ahmad Radhi is the Managing Director of Prokhas, a Minister of Finance, Incorporated advisory company. He currently serves as the Principal Officer and Board Member of Pengurusan Danaharta Nasional Berhad (Danaharta), Syarikat Jaminan Pembiayaan Perniagaan Berhad (SJPP) and Syarikat Jaminan Kredit Perumahan Berhad (SJKP). He is also the Principal Officer of DanaInfra Nasional Berhad.

Prior to joining Prokhas, he was an Executive Director at Khazanah Nasional. In his career of almost 30 years, he has been an academic, a Member of Parliament, a consultant, a columnist, and a policy advocate. His professional interest is in microeconomic aspects of policy and strategy research. He is trained in economics and mathematics and holds a PhD from the Krannert School of Management, Purdue University, United States of America.

SESSION 4: PEOPLE AND LEADERSHIP

The *Yin* and *Yang* of Inclusive Innovation - Balancing Adventures and Ethics

Prof Hugh Herr

Associate Professor, MIT Media Lab; Founder and CTO, iWalk Inc

Hugh Herr is creating bionic limbs that emulate the function of natural limbs. In 2011, Time Magazine coined Dr. Herr the 'Leader of the Bionic Age' because of his revolutionary work in the emerging field of Biomechatronics - technology that marries human physiology with electromechanics. A double amputee himself, he is responsible for breakthrough advances in bionic limbs that provide greater mobility and new hope to those with physical disabilities.

He is currently Associate Professor of the Biomechatronics research group at the MIT Media Lab. He is the Founder and Chief Technology Officer of iWalk Inc., a company that commercializes the BiOM, first in a series of products that will emulate or even augment physiological function. Hugh's story has been told in the biography *Second Ascent, The Story of Hugh Herr*; a 2002 National Geographic film, *Ascent: The Story of Hugh Herr*; and episodes and articles featured in CNN, The Economist, Discover and Nature.

Mark Chang

Founder, Jobstreet Bhd

Mr. Mark Chang Mun Kee is founder of the JobStreet Bhd. He obtained his Bachelor of Science in Mechanical Engineering from the University of Texas, Austin, USA in 1988 and a Master of Science in Mechanical Engineering from the Massachusetts Institute of Technology, USA in 1990. Prior to founding MOL Online in 1995 and subsequently JobStreet.com in 1997, he was with Kendall International, a US healthcare company, for 5 years, starting as a process engineer in 1990. He left Kendall International in 1996 to establish JobStreet.com which expanded regionally. He currently sits on the Boards of Innity Corporation Berhad, Vitrox Corporation Berhad and 104 Corporation, Taiwan and MOL Global.

Jesus B. Atencio

President and CEO, 8990 Holdings Inc

Mr. JJ Atencio has thirty two years of professional involvement in various private and public sector institutions, twenty-two years of business experience in the Mass Housing Sector, with the last fifteen years as Chairman, President and CEO of various mass housing and subdivision development companies. At present, he is Private Sector Representative to the Housing Urban Development Coordinating Council (HUDCC). He was the 2001-2004 National Presidnet and Chairman of the Subdivision and Housing Developers Association (SHDA) – the largest national organization of property developers in the Philippines.

Malek Ali

Founder, BFM 89.9

BFM 89.9 The Business Station

Malek is the founder of BFM89.9, Malaysia's only business radio station. BFM 89.9 is a popular radio station among working professionals in Malaysia. BFM 89.9 is Malek's latest venture in a career theme of bringing new products to market, which included stints at Yahoo, JobStreet Corporation, Maxis, The Boston Consulting Group and law firm Allen & Overy.

Malek sits on the Asia-Pacific advisory board of Harvard Business School, where he earned his MBA. He is also a law graduate of Bristol University.

Tan Sri Prof Zakri Abdul Hamid

Science Adviser to the Prime Minister of Malaysia;
Chair, UN Intergovernmental Platform on Biodiversity and Ecosystem Services

Tan Sri Prof. Zakri is the Science Adviser to the Prime Minister of Malaysia and Chairman of the National Professors Council.

He is the Chair of the Intergovernmental Platform on Biodiversity and Ecosystem Services, member of the UN Secretary-General's Scientific Advisory Board and the Global Leadership Council of the Sustainable Development Solutions Network.

Zakri's interests lie in science diplomacy and science-policy nexus. He is the 2014 co-recipient of the Zayed International Prize for the Environment, 2014 ASEAN Meritorious Service Award and the 2015 Distinguished Visiting Scholar of the Academy of Sciences of South Africa. .

Three species have been named after Zakri: a beetle (Paleosepharia zakrii), a cicada (Pomponia zakrii) and a pitcher plant (Nepenthes zakriana).

Dato' Charon Mokhzani

Executive Director,
Khazanah Nasional Berhad;
Managing Director,
Khazanah Research Institute

KHAZANAH RESEARCH INSTITUTE

Dato' Charon joined Khazanah in November 2013 as an Executive Director in the Managing Director's Office. He is also the current Managing Director of the Khazanah Research Institute. Previously he was the Deputy Chief Executive Officer, Investment Banking of CIMB Group, and Chief Executive Officer of CIMB Investment Bank. Prior to that he was the Managing Partner of Messrs. Zaid Ibrahim & Co.

Dato' Charon read Philosophy, Politics and Economics at Balliol College, University of Oxford and Law at the School of Oriental and African Studies, University of London. He is a non-practising barrister of the Middle Temple and advocate and solicitor of the High Court of Malaya.

SPECIAL SESSION: ETHICS IN FINANCE

Getting Back on Track: How do we Return to Higher Ethical Values in Finance?

Gita Wirjawan

Chairman, Ancora Group;
Former Minister of Trade, Republic of Indonesia

Mr. Gita Wirjawan is currently a Chairman of Ancora Group. He was previously the Minister of Trade of the Republic of Indonesia from October 2011 until February 2014. Prior to this, he was the Chairman of Indonesia's Investment Coordinating Board (BKPM). Some of the key appointments he has held include Senior Advisor to JPMorgan for Southeast Asia; Chairman of Ancora Capital, a Jakarta-based private equity fund; a Commissioner of state-owned oil giant, Pertamina; and an Independent Board Director of Axiata Group Berhad.

Mr. Wirjawan is an active philanthropist, especially in the fields of education and sports. He is currently Chairman of the Indonesian Badminton Association. Through Ancora Music, he has also produced a range of albums that have been critically acclaimed. He is a member of the dean's leadership council for both the Harvard Kennedy School and the S. Rajaratnam School of International Studies at NTU.

Prof Abbas Mirakhor

First Holder of the INCEIF Chair of Islamic Finance

Prof Abbas Mirakhor is the First Holder of the INCEIF Chair of Islamic Finance since 2010. A former Executive Director of International Monetary Fund (IMF) and acknowledged worldwide as a specialist in Islamic Finance, he joins INCEIF following a distinguished career as an economist and academician with considerable contribution in the field of Islamic economics, finance and banking.

He is a graduate of the Kansas State University, USA, where he received his Bachelor, Master and PhD degrees in Economics. With the exception of a 2-year stint at the AzZahara University in Tehran, Iran, throughout his academic career, he has worked as a Professor of Economics at the University of Alabama, Alabama A&M University, and the Florida Institute of Technology. He spent 24 years with IMF, serving as the organisation's Executive Director and Dean of the Executive Board, retiring in 2008.

Prof Asim Khwaja

Professor of Public Policy,
Harvard Kennedy School

Asim Ijaz Khwaja is the Sumitomo-Foundation for Advanced Studies on International Development Professor of International Finance and Development at the Harvard Kennedy School, and Co-Director of Evidence for Policy Design (EPoD).

Asim's work has been published in leading economics journals, such as the AER and the QJE, and has received coverage in numerous media outlets such as the Economist, NY Times, Washington Post, International Herald Tribune, Al-Jazeera, BBC, and CNN. He was selected as a Carnegie Scholar in 2009 to pursue research on how religious institutions impact individual beliefs. Khwaja received BS degrees in economics and in mathematics with computer science from MIT and a PhD in economics from Harvard.

Tan Sri Andrew Sheng

Chief Adviser,
China Banking Regulatory Commission;
Distinguished Fellow, Asia Global Institute;
Board Member, Khazanah Nasional Berhad

ASIA GLOBAL INSTITUTE
THE UNIVERSITY OF HONG KONG

KHAZANAH NASIONAL

Tan Sri Andrew Sheng is Chief Adviser to the China Banking Regulatory Commission and a Board Member of Khazanah. He is also a Distinguished Fellow at the Asia Global Institute. His previous senior appointments include Chairman of the Securities and Futures Commission of Hong Kong, Deputy Chief Executive of Hong Kong Monetary Authority, and Chief Economist and Assistant Governor of Bank Negara Malaysia.

He is an Adjunct Professor at the Graduate School of Economics and Management, Tsinghua University and the University of Malaya. He is also a Pro-Chancellor of Universiti Tun Abdul Razak. A chartered accountant by training, he has a BSc. in Economics and an honorary doctorate from the University of Bristol.

Daud Vicary Abdullah

President & CEO, INCEIF

INCEIF
THE GLOBAL UNIVERSITY OF ISLAMIC FINAN

Daud has been in the financial services industry for over 41 years, with significant experience in Asia, Europe, Latin America and the Middle East. He was previously Acting CEO of Asian Finance Bank, an Islamic bank based in Malaysia, and was the first Managing Director of Hong Leong Islamic Bank. Currently, he is President and Chief Executive Officer of INCEIF – The Global University of Islamic Finance.

Prior to INCEIF, Daud was the Global Islamic Finance Leader with Deloitte. Daud holds an Economic and Social History Honours degree from the University of Bristol in England.

2005

FIRST KMF

The inaugural KMF in 2005 was held at Pulau Jerejak, Penang, and attended by the Khazanah senior executives. It was the first of Khazanah's business planning cycle which has evolved into what we know as KMF today.

2006

GLOBAL AND REGIONAL TRENDS AND IMPLICATIONS FOR MALAYSIA

Malaysia is now truly established as a global player amongst the world's nations, and this KMF explored the economic, technological and social trends which would be influencing it most significantly.

2007

MALAYSIA 2057

This was a very special KMF, coinciding with fifty years of Malaysia's independence. An ambitiuosly forward-looking event, this KMF speculated on how Malaysia would look and feel as a nation in fifty years' time. There was a truly eclectic mix of participants, representing Malaysia's rich and diverse heritage.

2008

SHIFTING SANDS: THREATS & OPPORTUNITIES

The global financial crisis was the beginning of a major shift, with subprime US mortages and other financial products radically altering the world's perception of what constitutes reliable financial assets. This shift also brought significant opportunities - such as Islamic Finance, in which Malaysia is a major global player.

2009

APOCALYPSE AVERTED? RECONFIGURING THE NEW NORMAL

The critical meltdown was averted, but there was no return to business-as-before - this KMF explored the shape of the new business landscape, and what would constitute 'normality' in the future.

2010

RECLAIMING THE COMMONS: COLLABORATING & COMPETING IN THE NEW ECONOMIC ORDER

The crises the world has been facing - the result of a combination of unbridled greed, regulatory failures, imbalances and marginalisation - have their origins in the fact that increased globalisation has resulted in a greater global commons. This KMF explored the ramifications of this interconnectedness.

2011

UNCERTAINTY AS NORMALITY: NAVIGATING THROUGH COMPLEX INTERCONNECTION

The global economy appeared to have entered a new era of constant uncertainty, with one world-shaking event after another. This KMF discussed whether stability was a thing of the past, and whether uncertainty was now normal.

2012

THE BIG SHIFT: TRAVERSING THE COMPLEXITIES OF A NEW WORLD

The theme of 2012's KMF was the shift in the centre-of-gravity of the global economy from West to the East - a shift which seems to be more apparent. While there may be indications of geographic-centricity to some emerging trends, given the connectedness of the world, the new world is global. The Forum also addressed the challenges facing humanity in resolving the great imbalances in opportunities, wealth and power that provide the impetus for societal conflicts throughout the world.

2013

GROWTH WITH INCLUSION IN AN AGE OF PARADOX: SAME GAME, NEW PLAYERS

KMF 2013 acknowledged the tension between value creation, growth and nations today and the need to find a balance between these competing demands to avoid getting into a no-win situation (paradox). Whilst recognising the need or growth to be inclusive, the Forum also discussed the role of innovation as means to change the game.

2014

SCALING THE EFFICIENCY FRONTIER: INSTITUTIONS, INNOVATION, INCLUSION

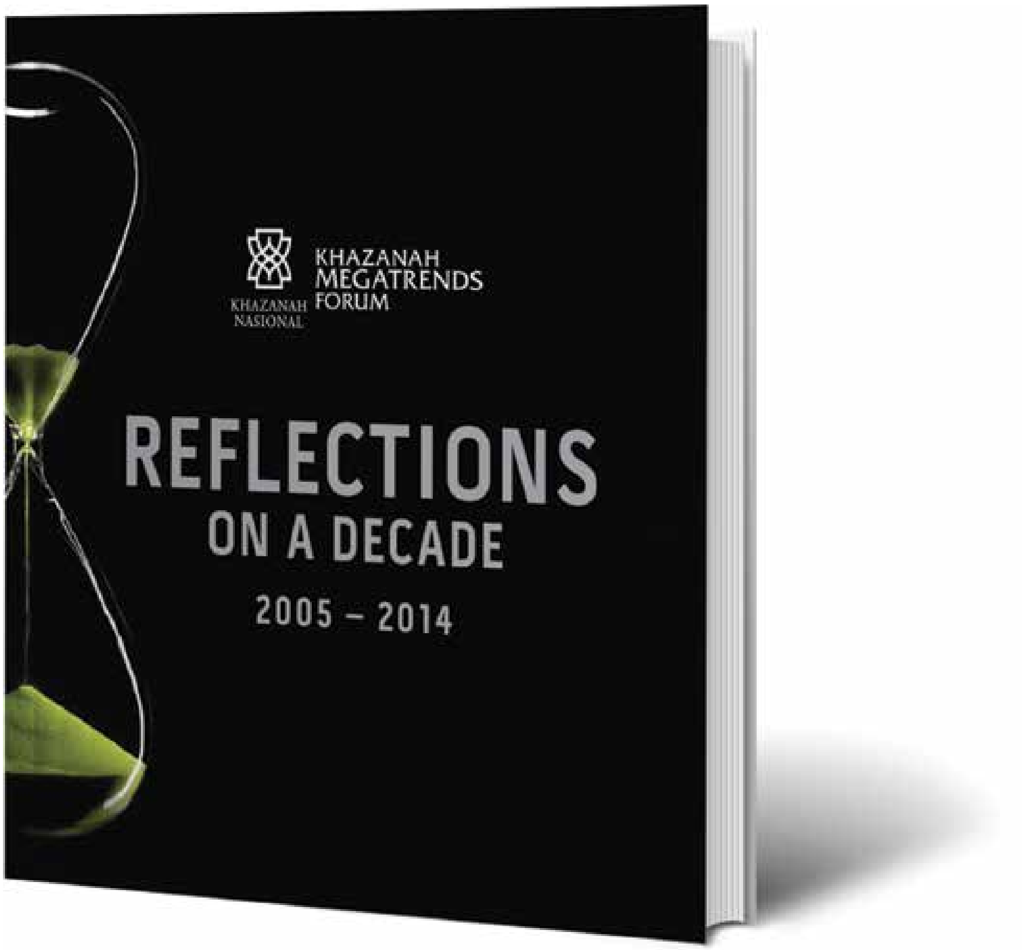
KMF 2014 focused on finding a pathway for sustainable economic growth. The theme reminds people that resources for growth are finite, and society needs to make social and economic trade-offs, balancing competing interests with the objective of making life better for everyone. Defining and managing this trade-off matters for Khazanah Nasional as in its role as Malaysia's Strategic Investment Fund, it strives to balance more focused commercial interests with a broader national social agenda.

COMMEMORATING A DECADE OF KMF


Shifting Sands:
Threats and
Opportunities
2008
2008
KHAZANAH
MEGATRENDS
FORUM 2010
Reclaiming the Commons:
Collaborating & Competing in the New Economic Order
Apocalypse
Averted?
2009
INCLUSIVENESS
2013
KHAZANAH
NASIONAL
2014
Luncheon Address:

KHAZANAH NASIONAL

KHAZANAH MEGATRENDS FORUM



Khazanah Megatrends Forum
A Decade in Review 2005 – 2014

The Khazanah Megatrends Forum began in 2005 as part of the inaugural annual Strategic Retreat for Khazanah Nasional Berhad. First held in the penal colony of Pulau Jerejak in Penang, the Forum has since been held in Kuala Lumpur since 2006. Held annually preceding Khazanah's strategy and business planning cycle, KMF has brought together experts and thought leaders across the globe to discuss the main mega trends, as well as to address topical matters of interest.

The Khazanah Megatrends Forum is now approaching its second decade of existence. As such, we take the opportunity to commemorate the first decade of the Khazanah Megatrends Forum from 2005 to 2014 by the new book, Khazanah Megatrends Forum: Reflection on a Decade 2005 – 2014.

Terima Kasih

Our heartfelt gratitude and appreciation to

Yang Amat Berhormat
Dato' Sri Mohd Najib bin Tun Abdul Razak,
Prime Minister of Malaysia and
Chairman of Khazanah Nasional Berhad

for honouring us with your presence at the Closing Session of Khazanah Megatrends Forum 2015.

From all of us at

KHAZANAH NASIONAL

KHAZANAH
RESEARCH
INSTITUTE

"When we have a debate over policy, it must be founded on data and rigorous analysis,... and it is this belief in data and analysis that is driving us here at the Khazanah Research Institute."

Khazanah Research Institute ("KRI"), sponsored by Khazanah Nasional Berhad, is a not-for-profit organisation and is incorporated as a company limited by guarantee. The objective of the Institute is to undertake analyses and research on the pressing issues of the nation and, based on that research, provide actionable policy recommendations that improve the well-being of the general population.

We do this by:

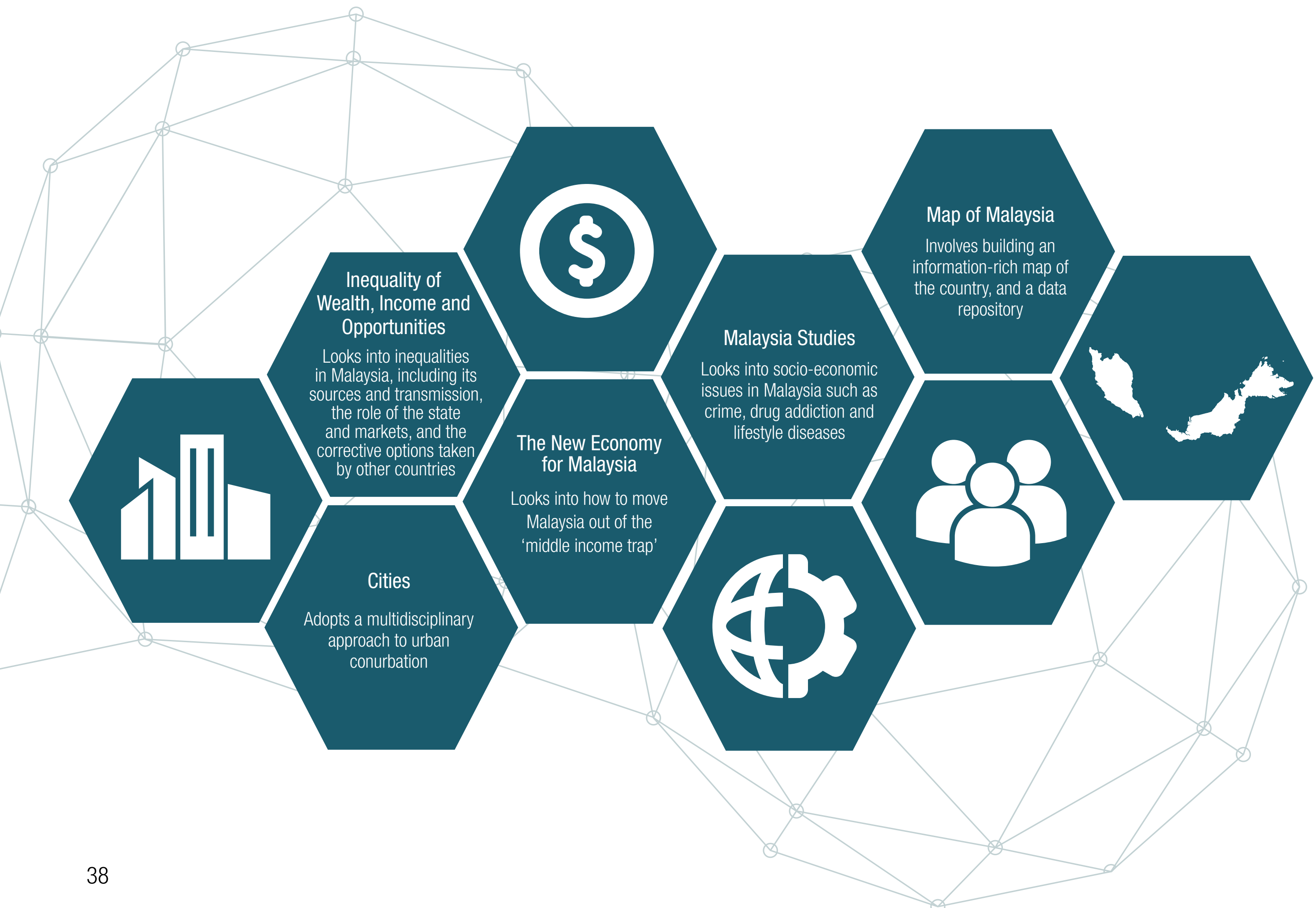
• Carrying out rigorous impartial research and analysis that is founded on facts and data;

• Convening workshops, round tables, conferences and talks for subject matter experts, policy makers, thought leaders and interested members of the public, as appropriate; and

• Being an advocate of our research findings and policy recommendations.

Dato' Charon Mokhzani,
Managing Director, Khazanah Research Institute

RESEARCH PROGRAMMES

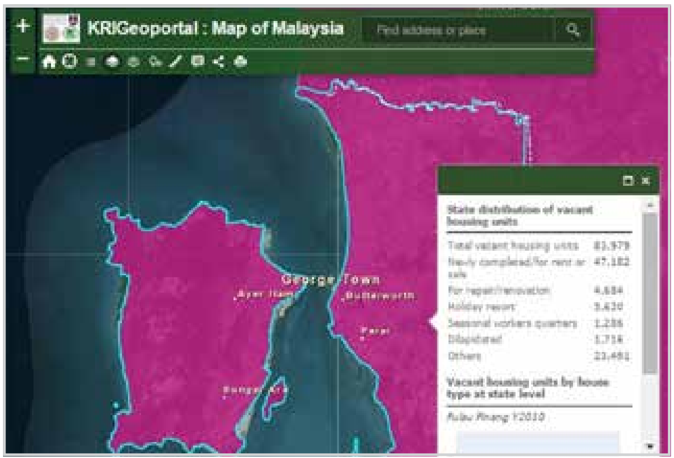


KRI GEOPORTAL

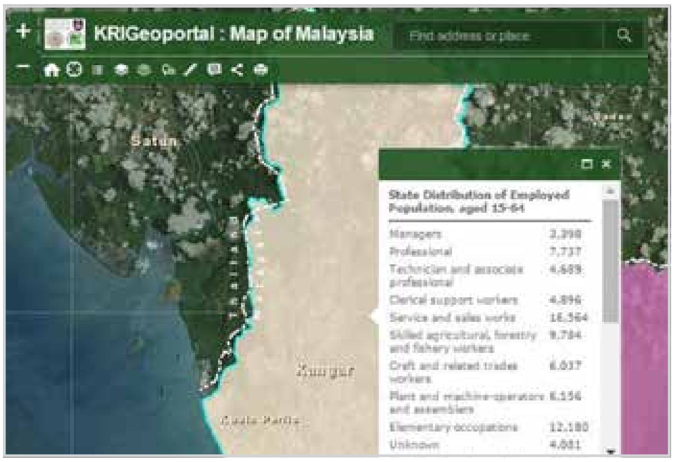
The KRIGeoportal is a collaboration between KRI, the Malaysian Town and Country Planning Department Peninsular Malaysia, Institute of Ethnic Studies (KITA)-UKM, and the Faculty of Architecture, Planning and Surveying, UiTM. This is KRI's data platform and a tool for monitoring changes and their impact over time.

KRI incorporates the data found from their research findings for the KRIGeoportal to be consistently updated for the public to view.

The publicly available data from the various data source banks are key for KRI to produce as such.



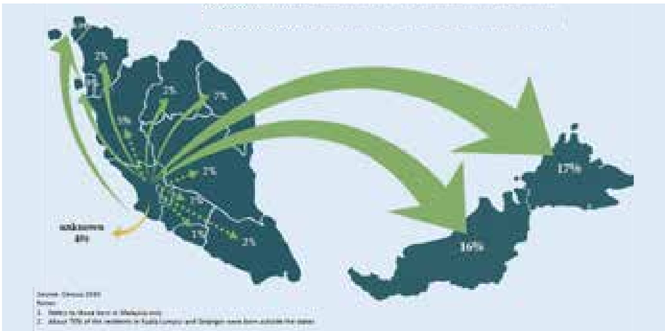
State Distribution of Housing Units in Georgetown, Pulau Pinang

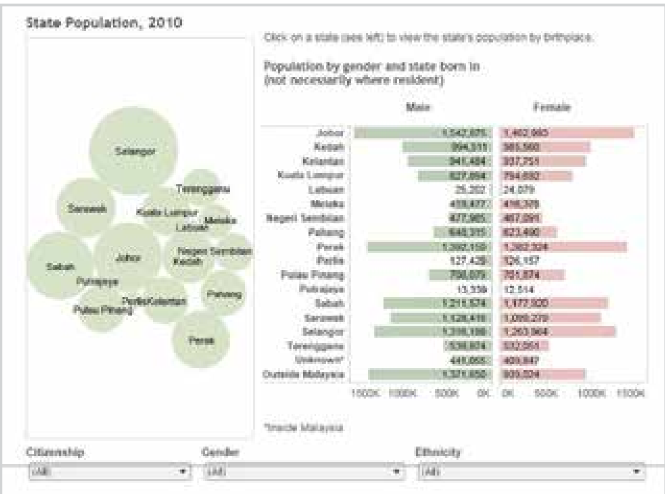


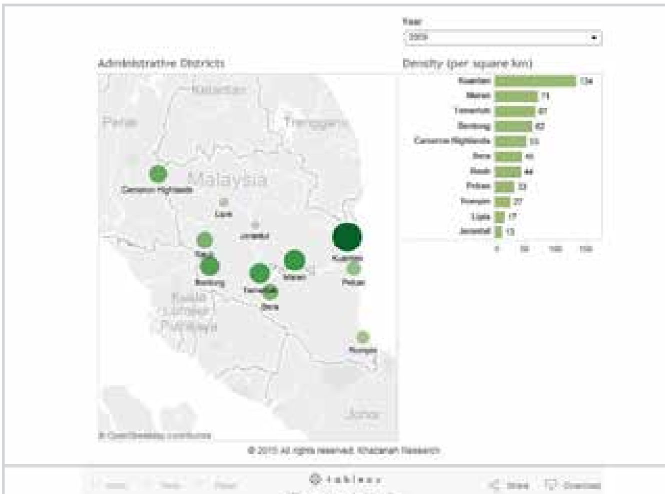
State Distribution of Employed Population, aged 15-64 in Kangar, Perlis

KRI MAPS & DATA

The KRI Maps & Data portal contains maps and interactive charts on indices such as global food prices, population and densities in cities across Malaysia, eating out prices, etc. The data underlying these charts and maps are easily downloadable from the website







DID YOU KNOW? In 2010, more than 50% of the population in Selangor and Kuala Lumpur were born outside these states? Visit us at **www.KRInstitute.org** to find out more

PUBLICATIONS & IMPACT

The State of Households

This report sets out some of the pressing issues of the nation that KRI is investigating and will provide policy recommendations on. It examines (1) the state of Malaysian households, i.e. the disparity and distribution of household incomes, household expenditure and the impact of rising food prices, housing affordability and household debt and subsidy reform and the use of cash transfers; (2) the Malaysian workforce, i.e. the composition of Malaysian workforce and the wage structure, the effect of migrant labour and the education attainment and skills level of the Malaysian workforce; and (3) trade and investment policies that could lead to higher wages and household incomes, as well as less inequality.

Making Housing Affordable

This report examines the issue of housing affordability in Malaysia, viewing it within the context of housing as an economic sector rather than simply as a social welfare concern. Housing interventions have focused primarily on demand, and in doing so, subsidizes a non-responsive supply sector. We examine housing affordability with the view of ensuring that supply is able to meet effective demand, thus improving the affordability of housing in general.

Join our mailing list to learn more about updates & latest publications on our research programmes at **www.KRInstitute.org**

YAYASAN HASANAH
A foundation of Khazanah Nasional

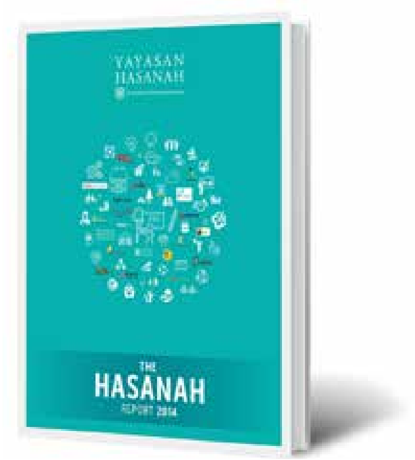
Yayasan Hasanah, the journey continues ...

Yayasan Hasanah (Hasanah) was incorporated in December 2013 as a sister entity to Khazanah to streamline and align its Corporate Responsibility work in a more strategic and sustainable manner; and as part of Khazanah's ongoing journey of institutionalisation, transformation and capacity building efforts in support of the national transformation agenda. Hasanah made its debut at KMF2014's closing ceremony, which many of you may remember with our Special Tribute, 'Finding Hope in Tragedy' in remembrance of the many affected by the tragedies in 2014 in Malaysia and around the world. This included MH370, MH17 and the acute bombings in Gaza in August 2014.

Our journey in the last year saw us pushing forward and strengthening the organisational incorporation of the Foundation. For example, we streamlined the grants management framework for the Foundation, which puts into place a better structure towards the assessment and awards of grants on a twice-yearly basis.

We also reviewed our pillar focus to reflect a longer-term approach to drive meaningful social impact. We looked at how to scale and replicate programmes that deliver transformative and catalytic interventions. This led us to look towards collaborative efforts in and across different programmes and partners, in order to deepen and expand impact through collective efforts, underpinned by a commitment to build the capacity of our partners to advance the work they do.

The Hasanah Report 2014



We launched The Hasanah Report 2014 on 24 June 2015. The report format reflects our ongoing shift towards becoming an impact-based Foundation. It outlines the impact collectively made by our civil society partner organisations (CSPOs) in each of the five (5) pillars, and across the three (3) horizontal areas.

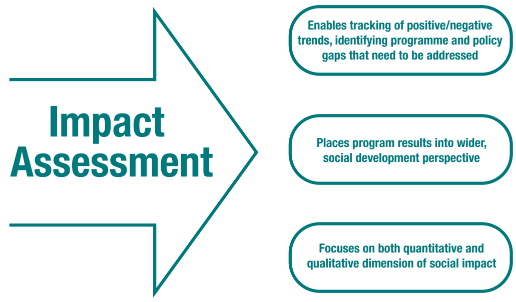
The take-away from the 2014 Report demonstrates how the various CSPOs, civil societies and agencies channel their programme outcomes through collective efforts and towards supporting the overall goals of the Foundation.

Impact-based assessment approach

Over recent years there has been a tremendous upsurge in demand for organisations - across civil society, businesses and donors - to provide more information about their social and environmental impact. However, the real secret of social impact is the ability to measure it and prove it. This requires sound evidence and shift from focusing on short term results at the output level to long term results at the impact level.

Hasanah aspires to be a foundation that strengthens the capacities of civil society in order for them to become acknowledged as credible and reliable stakeholders in relevant policy and decision making processes in Malaysia. Therefore Hasanah intends to make a long term commitment to empower the capacities of its partners in the area of impact assessment in order to enable them to shift from opinion based to result/impact based decision making, measure the impact of their work, illustrate a process of change, and contribute to the concept of collective impact.

Changes that Impact Assessment approach initiates



Impact assessment approach initiates the following changes:

- Focuses on both quantitative and qualitative dimension of social impact
- Places programme results into wider, social development perspective
- Enables tracking of positive/negative trends, identifying programme and policy gaps that need to be addressed

Hasanah has recently commenced this phase of its journey to introduce the concept of impact-based assessment to our CSPOs, and to guide them along this process.

Building True Value, Delivering Everyday Impact Through Our Partners

Hasanah's Partners Retreat

Hasanah organised a two-day retreat between 9–10 September 2015 with 33 representatives from our partner organisations. This marks the second collaboration workshop to deepen our relationship with partners through focus group discussions and further explore ways in which Hasanah can better support them. It was also a cross-sharing platform where Hasanah talked about its strategic roadmap and aspiration targets with partners, and the partners likewise articulated the roadmap for their respective organisations.

Another highlight of the retreat was the introduction of the impact assessment tool, an evidence-based procedure, to measure long term social impact, and in turn, help facilitate partner organisations in achieving their vision. Hasanah has commenced the roll-out of the impact-based assessment in September 2015.

The workshop was received positively by the partners, with assurance to Hasanah's commitment to helping them build a strong foundation by developing and strengthening their in-house capabilities, and growing cross-pillar partnerships.

"The content of the retreat provided a good platform for the partners and Hasanah team to be more open during sharing session. Hasanah's role modelling exemplifies its values."

- Dzameer Dzulkifli, TFM

What I enjoyed most was the interaction with the Hasanah team and other partners in an informal setting."

– Noraini Hashim, OrphanCARE

A firsthand introduction to the impact-based assessment tool

Inspiring and engaging partners through interactive sessions

Light moments during the ice breaking sessions

Building true value through strong partnerships

YAYASAN HASANAH

A foundation of Khazanah Nasional

Hasanah's Civil Society Partner Organisations (CSPOs)

Hasanah's Corporate Responsibility (CR) focus is streamlined to 5 pillars - education; community development (including humanitarian assistance); environment; arts, heritage & culture, and knowledge. We also invest in public spaces, capacity building of civil society and social enterprises.

Our CR efforts are delivered through our CSPOs. This ecosystem of local-partner champions supports our vision to sustain and strengthen capacity of civil society, community ownership and leadership and solutions designed to address local needs.

We welcome you to join us at the Yayasan Hasanah Corner at KMF2015, or log on to **www.yayasanhasanah.org** to discover how we are working with our partners to deliver everyday impact in the lives of Malaysians.

Education

Community Development

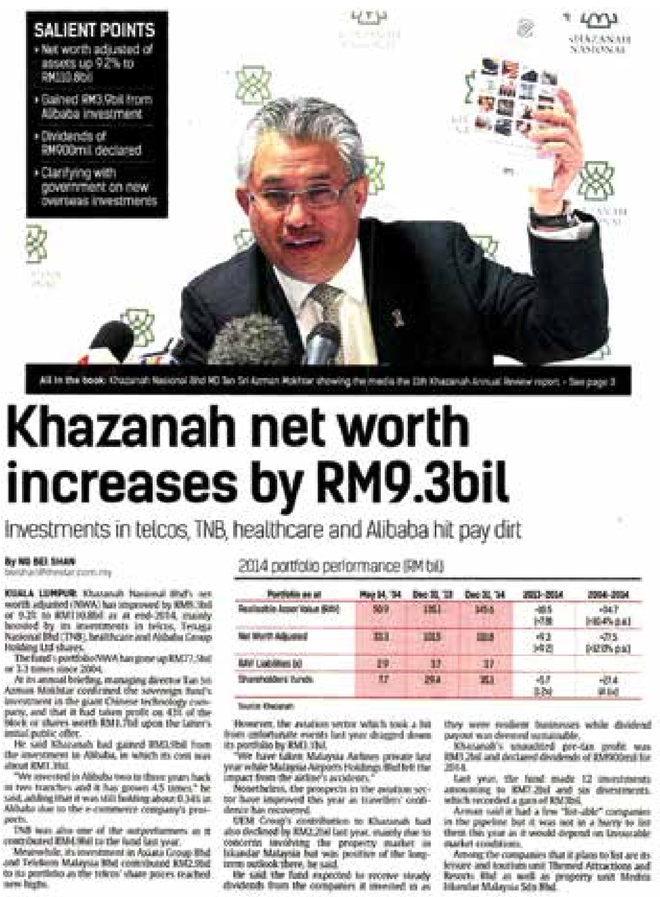
Environment

Arts, Heritage and Culture

Knowledge

Resilient performance

Khazanah's portfolio value as measured by its Net Worth Adjusted ("NWA") stood at RM110.8 billion as at 31 December 2014, increasing RM9.3 billion or 9.2% from RM101.5 billion as at 31 December 2013. Since May 2004 at the start of the Khazanah revamp, NWA has increased RM77.5 billion or 233% from RM33.3 billion. In 2014, Khazanah made a total of 12 investments totaling RM7.2 billion and six divestments with a gain on divestment of RM3.0 billion. Between 2004 and 2014, Khazanah made 121 investments worth RM65.3 billion and 67 divestments valued at RM42.8 billion, with overall gains on divestments of RM19.4 billion.



Responsible investing

Responsible Investing Khazanah successfully offered and priced a RM100 million seven-year Sustainable and Responsible Investment Sukuk to be issued via a Malaysian incorporated independent Special Purpose Vehicle, Ihsan Sukuk Bhd. This issuance was pursuant to Ihsan's RM1.0bn Sukuk Programme, the first programme approved under the Securities Commission Malaysia's Sustainable and Responsible Investment Sukuk framework. The inaugural issuance proceeds will be used to fund and improve accessibility of quality education in Malaysian Government schools through a Public-Private Partnership with the Ministry of Education.

Deepening our investments

Khazanah will continue to expand and deepen its medium and long-term balanced investment strategies, including where appropriate, in domestic and international investments, in an orderly manner as mandated and approved by the Khazanah Board of Directors. We will also periodically announce further initiatives and projects in strict accordance with our investment policies and strategies, and in support of the Government's economic measures.

Top GLCs' market cap hits RM386b

STRONG TRACK RECORD: Firms' total shareholder return grows 11pc per annum under transformation programme

MUHAMMED AHMAD HAMDAN AND AMIR HISYAM RASID
KUALA LUMPUR
[illegible]

MALAYSIA'S top government-linked companies (GLCs) recorded almost a threefold increase in market capitalisation to RM386 billion under a 10-year transformation programme.

Total shareholder return among the GLCs grew 11 per cent per annum from the start of the GLC Transformation (GLCT) programme on May 14 2004 until their "graduation" on July 28.

Prime Minister Datuk Seri Najib Razak said the GLCs, known as G20, had shown a strong track record over the period, catalysing nation-building and benefiting stakeholders.

"As profits grew, GLCs were able to play their distributive role much more significantly," Najib said at the opening of the GLC Open Day 2015 here, yesterday.

"GLCs have delivered large-scale infrastructure projects such as the Penang bridge, Kuala Lumpur International Airport 2, Kuala Lumpur Sentral and national high-speed broadband," he added.

The G20's net profit hit RM26.2 billion last year and grew at a compounded annual rate of 10.2 per cent from 2004 to last year.

The companies made RM133.9 billion worth of domestic investments in the same period and contributed RM108.3 billion in dividends and RM63.5 billion in taxes.

The G20 companies are controlled by five government-linked investment companies (GLICs), namely the Employees Provident Fund, Khazanah Nasional Bhd, Lembaga Tabung Angkatan Tentera, Tabung Haji and Permodalan Nasional Bhd.

The G20's original list comprised 20 GLCs before it was trimmed to 17 due to various mergers, demergers and other corporate exercises over the years.

The companies include CIMB Group Holdings Bhd, Axiata Group Bhd, Malaysian Airlines System Bhd, Malaysia Airports Holdings Bhd, Malayan Banking Bhd, Telekom Malaysia Bhd, Tenaga Nasional Bhd, UEM Group Bhd, UMW Holdings Bhd and Sime Darby Bhd.

*Prime Minister **Datuk Seri Najib Razak** with Second Finance Minister **Datuk Seri Ahmad Husni Hanadzlah** (centre) and Khazanah deputy chairman and director **Tan Sri Nor Mohamed Yakcop** (right) at the GLC Open Day exhibition in Kuala Lumpur yesterday.* **Pic by Khairull Azry Bidin**

The rest are Malaysia Building Society Bhd, Chemical Company of Malaysia Bhd, BIMB Holdings Bhd, TH Plantations Bhd, Affin Holdings Bhd, Malaysian Resources Corp Bhd and Boustead Holdings Bhd.

Najib said the GLICs and G20 club would be established by January next year to spearhead Malaysia's efforts in achieving a high-income nation status.

"This club will have an important role in spearheading all our efforts to achieve a high-income nation status, guided by three underlying principles of the GLCT programme," he added.

Meanwhile, Khazanah managing director Tan Sri Azman Mokhtar noted that GLCs were currently operating in a more challenging environment as opposed to 10 years ago.

He said there was a confluence of mega trends impacting economies and businesses such as the uncertain and volatile global and domestic socio-economic environment and ever-rising performance bar and standards.

"Heightened competition, possible excessive trade liberalisation such as through the Trans-Pacific Partnership, and sustainability and complexities of operating across geographies presented a different and more intense set of challenges for the GLCs.

"In view of all this, GLCs must avoid the mortal mistake of complacency and hubris.

"The GLCs, by and large, can look forward to taking on these challenges from a position of relative strength," said Azman.

Khazanah to set up London office

KUALA LUMPUR: Khazanah Nasional Bhd's wholly-owned Khazanah Europe Investments Ltd will set up an office in London to support the group's investments in Europe.

The London office will be headed by executive director Javier Santiso and will be operational by the third quarter of this year.

"The establishment is envisaged to help deepen Khazanah's exposure in developed markets and will enable Khazanah to better evaluate opportunities in technology-enabled sectors in Europe," it said in a statement yesterday.

The office would also complement the acceleration of Malaysia's innovation agenda and act as a bridge to strengthen collaborations between Malaysia and European countries, said Khazanah managing director Tan Sri Azman Mokhtar.

Khazanah has regional offices in Beijing, Mumbai, San Francisco and Istanbul.

"Europe represents another strong hub for technology firms and start-up ventures and is home to many leading universities with state-of-the-art research facilities."

Khazanah's expansion into Europe is part of its larger strategy to become more global.

As of 30 June, Khazanah's overseas investments represent about 16.5 per cent (by domicile of investee companies) of its realisable asset value of RM144.1 billion.

*British Prime Minister **David Cameron** (centre) with Khazanah Nasional Bhd managing director **Tan Sri Azman Mokhtar** (second from left) in Kuala Lumpur yesterday. Cameron was in Malaysia for a one-day working visit.* **Pic by Aizuddin Saad**

Khazanah's Avicennia targets emerging markets

By CHERYL POO
cherylpoo@thestar.com.my

KUALA LUMPUR: Khazanah Nasional Bhd's subsidiary, Avicennia Capital Sdn Bhd, aims to invest in emerging markets in South-East Asia.

The Malaysia-based holding company is looking to grow its business in the country, Indonesia, the Philippines, Singapore and Thailand.

"Our primary thrust is on life and health insurance, on top of general insurance," Avicennia chief executive officer Alexander Ankel, who is a 30-year industry veteran, told *StarBiz*.

"We're open to the full menu of insurance services in Malaysia. In other countries, however, our focus will be on life, pension, health and travel insurance."

He said Avicennia aimed to explore building best practices around takaful insurance in Malaysia, as well as developing it in Turkey (where it is called Participating Insurance), as there have been signs of interest.

"We see from their banks that they want to start consumer loans and savings products built around the Islamic financing principle," Ankel said.

"We are looking at South-East Asia and Turkey as investment targets, as we have a solid relationship with Turkey."

As of last April, Khazanah's investments in Turkey amounted to more than US$2bil (RM6.5bil).

"Our recent investment in Acibadem Sa lık ve Hayat Sigorta Acıbadem Sigorta is emerging as one of Avicennia's pillars. Turkey's close proximity to Europe also promises growth potential supported by the Government's legislation," Ankel said.

The start-up had, in November 2013, completed the US$252mil (RM810mil) acquisition of a 90% stake in Acıbadem Sigorta, a major health and life insurer in Turkey, which holds the second-largest health insurance market share in the industry.

The other two companies under Avicennia's portfolio are CIMB's Sun Life Malaysia Assurance Bhd and Sun Life Malaysia Takaful Bhd, which were acquired in April 2013.

"The prospects for us in acquiring these companies would be to have a balanced global portfolio and access to markets with supportive demographic numbers, while leveraging their risk and utility scales as with insurance companies. Irrespective of who buys into whom, it helps the company to grow and gives it access to new distribution," Ankel said.

Avicennia plans to invest in companies that have reached – or are about to reach – critical mass in terms of skill sets combined with relevant distribution capabilities, specifically banking, that cater for sustainable growth. "We are satisfied with our engagements in the existing subsidiaries and shareholding agreements, as in the case of Sun Life."

Corporate restructuring

Last year, Khazanah announced a 12-point enabling plan for returning Malaysian Airline System Berhad ("MAS") to sustained profitability and revive Malaysians national flag-carrier. The plan involves a comprehensive overhaul of the airline, including a specific 12-point package of measures whose combined delivery will enable MAS to achieve sustained profitability within three years of delisting, by the end of 2017. The success of the restructuring plan will require a new "national compact for Malaysia's national carrier, with a range of groups within and beyond the airline having a specific and crucial part to play – including MAS leadership, employees, employees, partners and suppliers, Khazanah and the Government.

Complete overhaul

New CEO to create more than 10 subsidiaries, each will be will be given KPIs to monitor cost and deliverables

Proactive measures to support the economy

Khazanah will accelerate and increase domestic investments in several key sectors, selected on the basis of those that provide higher domestic economic multipliers, boost job creation, support local content, increase prospects for foreign exchange receipts, and enhance public goods and inclusiveness for all Malaysians. These include the leisure and tourism, healthcare and health tourism, export-oriented creative industries, innovation and technology and Business Process Outsourcing ("BPO") sectors. The projects, to be delivered by Khazanah through relevant investee companies and our development partners, have already been identified, have received or are in advanced stages of receiving the necessary approvals, and are already in various stages of implementation or are ready to be implemented imminently.

Khazanah to invest RM6.77bil in key sectors

PETALING JAYA: The Government's strategic investment arm Khazanah Nasional Bhd will be investing RM6.77bil to support the economic measures announced by Prime Minister Datuk Seri Tun Najib Razak.

It said in a statement that the investment would be channelled towards key sectors such as leisure and tourism, healthcare and health tourism, export-oriented creative industries, innovation and technology and business process outsourcing (BPO).

A significant portion of the investment, or RM4.5bil, will be set aside as development cost for Desaru Coast Destination Resort, an integrated leisure and tourism resort in Johor, between now and 2022.

Khazanah said a new Tourism Venture Fund of RM50mil will also be set up for qualified tourism entrepreneurs in the sub-sectors of eco-tourism and cultural/heritage tourism.

A total of RM670mil will be allocated for new hospitals and extension of existing hospitals under IHH Healthcare Bhd between 2015 and 2017 in Medini, Iskandar; Kuala Lumpur, Klang, Malacca, and Kota Kinabalu.

Khazanah also said there would be a new in-patient rehabilitation hospital business with investment totaling RM100mil over the next two years, together with a foreign technical operator and equity partner to bring in

The projects are a not-for-profit contribution to public spaces and are expected to be completed between 2018 and 2020.

Khazanah

Between 2016 and 2020, an estimated development cost of RM1.1bil will be set aside for Dataran Muzium and Tugu Park, with Khazanah funding approximately RM730mil of the cost.

"The projects are a not-for-profit contribution to public spaces and are expected to be completed between 2018 and 2020," it said.

Meanwhile, in the creative industries, Khazanah said Sonneratia Capital would be set up, a RM50mil co-investments fund to finance production of local content for the export markets.

"Sonneratia Capital expects to see the release of the films in various regional markets from the end of 2015.

100% subsidiary of Khazanah, will acceler an investment of RM90mil to attract a tar ed RM2.2bil of additional foreign investm by 2020 in the BPO sector."

Khazanah also said there would be an ad tional RM115mil allocated for the dome innovation and technology sector across s eral initiatives, including the creation of ph ical innovation and accelerator space; star bootcamps; angel matching co-investment early-stage companies; and seed-stage v ture capital funding for the information te nology IT and non-IT sectors, respectively.

In line with the Government's call to incre the Skim Latihan 1Malaysia programme a cation from 10,000 to 15,000 participants 2015, Khazanah said it is committed to m than double its existing commitment fr 1,330 to 3,800 participants, at an estima total cost of RM95mil per annum.

Khazanah said the various projects a initiatives were over and above its exist commitments and investments, through various subsidiaries, major investee com nies and investment programs, includ those under major investee companies s as Tenaga Nasional Bhd, Telekom Malay Bhd, CIMB Bhd, Axiata Bhd, UEM Group B Malaysia Airports Holdings Bhd, Malay Airlines Bhd, ValueCap Bhd and Iskan

Cost, competition a major consideration in pricing

> FROM PREVIOUS PAGE

it because what basically makes an airline attractive is good prices for our customers," Mueller says.

Cost is a major consideration in pricing and so is competition.

"The low-cost carriers are clearly in the lead but even they are offering prices below their cost levels. That's the reason they are making a loss," Mueller says.

The industry to him is at the inflexion point, and this is something which happened to the US airline industry 25 years ago and in Europe about 15 years.

It is happening here now, and the low jet fuel prices are fuelling airlines to stimulate markets but that could be at the expanse of yields.

"People (the airlines) will massacre themselves and it's going to get tougher. It is good news for the travelling public as prices will go down but it will affect profitability," he adds.

Mohshin of Maybank says that 2015 is wonderful year for some airlines. "Carriers in Taiwan, the Philippines and, to a lesser extent, Japan are smoking cigars everyday. Things are good in those countries.

"The second tier are still having fun, such as the China-based carriers. Thai carriers are getting a new lease of life, and of course the South Korean airlines and Australian and New Zealand are more optimistic. Their management is in good mood that things are improving."

At the bottom, the results are not to the liking of those carriers which includes MAS, Garuda and even Singapore Airlines.

Lower oil prices are helping airlines, especially the LCCs, and despite intense competition, airlines are expected to make more money this year.

The International Air Transport Association predicts global airline industry to report a record US$25bil in profit this year, up from US$19.9bil profit last year.

The Association of Asia Pacific Airlines says the region's carriers achieved aggregated operating revenues of US$176.6bil for 2014, up from US$173.4bil in 2013.

Over capacity is a big issue in the region and Mueller has said the new MAS will be smaller. Its competitors are waiting to see just how small it would be and what routes will it axe.

One worry is that MAS may cut all its European routes. Flights to Frankfurt stopped on May 25 and now MAS is left with London, Paris and Amsterdam in its network.

Khazanah Nasional Bhd, MAS parent, wants it to be a regional airline but experts feel that is a myopic view for a premier carrier given a new lease of life.

"Staying regional limits its range. If it really wants to be a serious premium carrier, then it should get back to the US and Africa and expand in Europe, as China and Australian markets are already very competitive. India is a market it should put more flights into," says an industry source.

Mueller says MAS' costs needs to come down in order for it to price its fares more attractively.

Another analyst adds that if it becomes a true blue premium carrier, then it will be up against the likes of Singapore Airlines, Cathay Pacific, Emirates, Etihad and even Qantas, because for a long time it has been behaving like a LCC.

Those players have money to splash and they change their product offerings and designs to meet changing market trends.

Mueller: The low-cost carriers are clearly in the lead but even they are offering prices below their cost levels. That's the reason they are making a loss.'

"Is MAS up to that changes when it cannot even decide what type of new aircraft it needs to compete in the future?" asks one source.

"It needs more money than what Khazanah has allocated and unless it starts generating money, it cannot go on spending against the competition."

Mueller needs to also address the culture within the airline to ensure the quality of services are raised.

Ancient ways

Reducing the number of headcount at MAS since the new airline will be smaller is just one of the many things being done. Then there is the 3,779 contracts that are being renegotiated, the fleet requirements, the livery, branding, the in-flight entertainment systems, menu, the uniforms and the list just goes on.

On Monday, the termination letters for the 20,000 MAS employees will be out. Of that, only 12,000 to 14,000 may be re-employed as the new airline will be smaller than the existing airline. "The reduction in capacity is such that we simply don't have enough work for everybody," Mueller says.

The other problem is that MAS has not kept up with times, at least when it comes to the use of technology.

"Some of the processors I have identified in MAS is not even current generation. They are last before last generation," Mueller says.

To change that, he has hired a technology officer to map the technology path for MAS and looking at touch screen and QR code for the future, so that a passenger just needs a barcode on a handheld device to get from the car park, airport, lounge and into the airplane.

"These are not dreams. It is basically how I travel around the world with other airlines than MAS. That is a long march but that is our aspiration level. More on that on Monday," he says.

Those changes will take up to three years to implement.

Khazanah says can turn MAS around

Tan Sri Azman Mokhtar presenting the Khazanah-Wolfson Press Fellowship to Rozanna Abdul Latiff. Pic by Asyraf Hamzah

Boosting human capital

The Khazanah-Wolfson Press Fellowship Programme was established last year in a joint venture with Wolfson College, University of Cambridge, to further develop journalism in Malaysia. Since 2012, Khazanah sponsored two Malaysian journalists and a representative from the government investment arm each year to take part in the Wolfson Press Fellowship programme.

NST journalist gets fellowship award

KUALA LUMPUR: Khazanah Nasional Bhd, the country's sovereign wealth fund, remains committed to building human capital.

"One of our pillars is human capital development, which is mainly related to our work in Yayasan Khazanah," Khazanah managing director Tan Sri Azman Mokhtar said at the Khazanah-Wolfson Press Fellowship presentation ceremony here yesterday.

The programme, which sponsors two journalists each year to University of Cambridge, is a keystone of Khazanah's continuous efforts in human capital development.

"It is a short stint for three months. We hope to continue this next year," Azman said.

One of this year's recipients, Rozanna Abdul Latiff of *New Straits Times*, will focus on media regulation in Malaysia during her fellowship programme in the United Kingdom.

The sponsorship started in 2013, and so far, 33 Malaysians have attended the fellowship since 1987.

THE CREATIVE STATE

By Mariana Mazzucato, Project Syndicate, April 16, 2015

LONDON – The conventional view in mainstream economics today is that governments have little capacity to spark innovation. The state should play as limited a role in the economy as possible, the thinking goes, intervening only in cases of "market failure." This is far from the truth.

In fact, governments can and do play a critical role in spurring innovation – actively creating new markets, instead of just fixing them. To be sure, advocates of a limited economic role for government believe that market failure justifies some funding of infrastructure and basic science. But such limited intervention can hardly explain the billions of public-sector dollars that have flowed toward downstream applied research, even providing early-stage financing for companies. Indeed, in some of the world's most famous innovation hubs, the state has played a key "entrepreneurial" role, envisioning and financing the creation of entire new fields, from information technology to biotech, nanotech, and green tech.

In Silicon Valley, for example, the government has acted as a strategic investor through a decentralized network of public institutions: The Defense Advanced Research Projects Agency, NASA, the Small Business Innovation Research program (SBIR), and the National Science Foundation.

The sums involved can be staggering, and not just in IT; large amounts of funding have also been channeled to energy and life sciences. In 2011, for instance, the US National Institutes of Health (NIH) invested $31 billion in biomedical research. Marcia Angell, a professor at Harvard Medical School, has shown that this financing played a crucial role in the development of some of the most revolutionary new drugs in recent decades. Similarly, for some of the most innovative American companies, financing from the SBIR has proved to be more important than private venture capital.

Indeed, in some of the world's most famous innovation hubs, the state has played a key "entrepreneurial" role, envisioning and financing the creation of entire new fields, from information technology to biotech, nanotech, and green tech.

Examples outside the US include Israel, where the public venture-capital fund Yozma has provided early-stage funding to some of the country's most dynamic companies, and Finland, where Sitra, the public innovation fund, supplied early financing for Nokia. In China, the state-owned development bank is offering billions of dollars in loans to some of the country's most innovative companies, including Huawei and Yingli Solar.

These types of public investments are critical in creating and shaping new markets. Indeed, government investment played a central role in developing nearly all of the technologies that make the iPhone a smart phone: the Internet, GPS, touchscreens, and the advances in voice recognition underlying Siri. Similarly, in many countries, it is the public sector that is leading the way in making green technology possible.

Recognizing the importance of government investment in promoting innovation and growth implies the need to rethink the conventional wisdom about state intervention. Instead of focusing on picking individual technologies or firms, public organizations should act like investors, betting on a diversified "portfolio" of choices.

Like any other investor, the state will not always succeed. In fact, failure is more likely, because government agencies often invest in the areas of highest uncertainty, where private capital is reluctant to enter. This means that public organizations must be capable of taking chances and learning from trial and error.

If failure is an unavoidable part of the innovation game, and if government is crucial for innovation, society must be more tolerant of "government failure." But the reality is that when government fails, there is public outcry – and silence when it succeeds.

For example, the bankruptcy of the US solar energy firm Solyndra, which received a $500 million government-guaranteed loan, triggered partisan protests. Yet few have paused to consider that the government provided nearly the same amount to Tesla to help it develop the Tesla S car, a product that is considered an archetype of Silicon Valley innovation.

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What, then, might make the public more accepting of government failure?

Private venture capitalists cover their losses from failed investments with their profits from those that succeed; but government programs are rarely set up to generate significant returns. While some argue that the government's return comes through taxes, the current tax system is not working, owing not only to loopholes, but also to rate reductions. When NASA was founded, the top marginal tax rate was over 90%. And capital gains tax has fallen by more than 50% since the 1980s.

One thing is clear: the current approach suffers from serious shortcomings, largely because it socializes the risks and privatizes the rewards. This is hurting not only future innovation opportunities, but also the government's ability to communicate its role to the public.

In order to build support for public investment in higher-risk innovation, perhaps taxpayers should receive a more direct return, by channeling profits into a public innovation fund to finance the next wave of technologies. When investments are in upstream basic research, the spillover effect across industries and sectors is sometimes enough of a social reward. But other cases might require creating alternative incentives.

For example, some of the profits from the government's investment in Tesla could have been recovered through shares (or royalties), and used to cover the losses from its investment in Solyndra. Repayment of public loans to business could be made contingent on income, as student loans often are. And the prices of drugs that are developed largely with NIH funding could be capped, so that the taxpayer does not pay twice.

One thing is clear: the current approach suffers from serious shortcomings, largely because it socializes the risks and privatizes the rewards. This is hurting not only future innovation opportunities, but also the government's ability to communicate its role to the public. Acknowledging the role that the state has played – and should continue to play – in shaping innovation enables us to begin debating the most important question: What are the new visionary public investments needed to drive future economic growth?

MANAGING THE AGE OF DISRUPTION

By Richard Dobbs, James Manyika and Jonathan Woetzel, Project Syndicate, June 5, 2015

NEW YORK – Bold predictions based on intuition are rarely a good idea. Margaret Thatcher, as Education Secretary in 1973, famously asserted that the United Kingdom would not have a woman prime minister in her lifetime. IBM's president, Thomas J. Watson, declared in 1943 that there was "a world market for perhaps five computers." And, when movies with sound made their debut in 1927, Warner Brothers' Harry Warner asked, "Who the hell wants to hear actors talk?"

At a time when four powerful forces are disrupting the global economy, upending most of our assumptions, such pronouncements on the future, shaped by intuitions based on the past, are even more likely to be wrong. Each of these four "great disruptions" is transformational on its own, and all are amplifying the effects of the others, producing fundamental and unpredictable changes on a scale the world has never seen – and that will prove our intuitions wrong.

The first great disruption is the shift of economic activity to emerging-market cities. As recently as 2000, 95% of the Fortune Global 500 was headquartered in developed economies. By 2025, nearly half of the Fortune Global 500 companies will be based in emerging economies, with China home to more of them than the United States or Europe.

The first great disruption is the shift of economic activity to emerging-market cities...

Cities are at the vanguard of this shift. Nearly half of global GDP growth from 2010 to 2025 will come from 440 emerging-market cities, many of which Western executives may not even know exist. They are places like Tianjin, a city southeast of Beijing with a GDP that is practically on par with Stockholm's today – and could equal all of Sweden's by 2025.

The second great disruption is the acceleration of technological change. While technology has always been transformative, its impact is now ubiquitous, with digital and mobile technologies being adopted at an unprecedented rate. It took more than 50 years after the telephone was invented for half of American homes to have one, but only 20 years for cellphones to spread from less than 3% of the world's population to more than two-thirds. Facebook had six million users in 2006; today, it has 1.4 billion.

The mobile Internet offers the promise of economic progress for billions of emerging-economy citizens at a speed that would otherwise be unimaginable. And it gives entrepreneurial upstarts a greater chance of competing with established firms. But technological change also carries risks, especially for workers who lose their jobs to automation or lack the skills to work in higher-tech fields.

The second great disruption is the acceleration of technological change. While technology has always been transformative, its impact is now ubiquitous, with digital and mobile technologies being adopted at an unprecedented rate.

The third disruption is demographic. For the first time in centuries, our population could plateau in most of the world. Indeed, population aging, which has been evident in the developed world for some time, is now spreading to China and soon will reach Latin America.

Thirty years ago, only a few countries, home to a small share of the global population, had fertility rates substantially below the replacement rate of 2.1 children per woman. In 2013, about 60% of the world's population lived in countries with sub-replacement fertility rates. As the elderly increasingly outnumber working-age people, pressure is building on the labor force, and tax revenues, needed to service government debt and fund public services and pension systems, are diminishing.

The final disruption is the world's increasing interconnectedness, with goods, capital, people, and information flowing ever more easily across borders. Not long ago, international links existed primarily among major trading hubs in Europe and North America; now, the web is intricate and sprawling. Capital flows among emerging economies have doubled in just ten years, and more than one billion people crossed borders in 2009, over five times the figure in 1980.

The resulting challenges – a host of new and unexpected competitors, volatility stemming from faraway places, and the disappearance of local jobs – are already overwhelming workers and companies. Of course, this interconnectedness also offers important opportunities; but an implicit bias toward the familiar is impeding the ability of workers, firms, and even governments to take full advantage of them.

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This is especially true for companies. According to McKinsey research, from 1990 to 2005, US companies almost always allocated resources on the basis of past, rather than future, opportunities. Firms that succumb to such inertia will probably sink, rather than swim, in the new global economy.

Some firms, however, will adapt, taking advantage of unprecedented opportunities to remain agile. Instead of, say, building a new headquarters, renting a storefront, or purchasing a restaurant – traditional requirements that demanded large amounts of up-front capital – they can open a satellite sales office, create an online store, or launch a food truck. Flexibility and responsiveness will enable such firms to thrive.

The pace and scale of the current economic transformation is undoubtedly daunting. But there is plenty of reason for optimism. Inequality may be on the rise within countries, but it has dropped dramatically among them. Nearly a billion people were lifted out of extreme poverty from 1990 to 2010; another three billion will join the global middle class in the next two decades.

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In 1930, at the height of the Great Depression, John Maynard Keynes declared that the standard of living in "progressive economies" would increase 4-8 times over the subsequent 100 years. His prediction, which was regarded as hopelessly Pollyannaish at the time, has turned out to be correct, with the improvement likely to be at the top of his projected range.

Keynes, unlike many of his contemporaries, recognized the forces at work in the economy, adjusted his thinking, and, crucially, was not afraid to be optimistic. We must do the same.

THE SPECIALISATION MYTH

By Ricardo Hausmann, Project Syndicate, December 30, 2013

CAMBRIDGE – Some ideas are intuitive. Others sound so obvious after they are expressed that it is hard to deny their truth. They are powerful, because they have many non-obvious implications. They put one in a different frame of mind when looking at the world and deciding how to act on it.

One such idea is the notion that cities, regions, and countries should specialize. Because they cannot be good at everything, they must concentrate on what they are best at – that is, on their comparative advantage. They should make a few things very well and exchange them for other goods that are made better elsewhere, thus exploiting the gains from trade.

But, while some ideas are intuitive or obvious, they can also be wrong and dangerous. As is often the case, it is not what you don't know, but what you mistakenly think you know, that hurts you. And the idea that cities and countries actually do specialize, and that therefore they should specialize, is one of those very wrong and dangerous ideas.

When an idea is both intuitively true and actually false, it is often because it is true on one level but not on the level at which it is being applied. Yes, people do specialize, and they should specialize, too. Everyone benefits from each of us becoming good at different things and exchanging our knowhow with others. It is not efficient for a dentist and a lawyer, for example, to be the same person.

But specialization at the individual level actually leads to diversification at a higher level. It is precisely because individuals and firms specialize that cities and countries diversify.

Consider a rural medical facility and a major city hospital. The former probably has a single general practitioner who is able to provide a limited suite of services. In the latter, doctors specialize in different areas (oncology, cardiology, neurology, and so on), which enables the hospital to offer a more diverse set of interventions. Specialization of doctors leads to diversification of hospital services.

… specialization at the individual level actually leads to diversification at a higher level.

The scale at which specialization of individuals leads to diversification is the city. Larger cities are more diversified than smaller cities. Among cities with similar populations – say, Salvador and Curitiba in Brazil, or Guadalajara and Monterrey in Mexico – more diversified cities are richer than less diversified cities. They tend to grow faster and become even more diversified, not only because they have a larger internal market, but also because they are more diversified in terms of what they can sell to other cities and countries.

The challenge is not to pick a few winners among the existing industries, but rather to facilitate the emergence of more winners by broadening the business ecosystem and enabling it to nurture new activities.

What is true at the level of cities is even more applicable at the level of states and countries. The Netherlands, Chile, and Cameroon have a similar population size, but the Netherlands is twice as rich as Chile, which is 10 times richer than Cameroon. Looking at their exports shows that the Netherlands is three times more diversified than Chile, which is three times more diversified than Cameroon.

As my colleagues and I recently argued, one way to understand this is to think of industries as stitching together complementary bits of knowhow, just as words are made by putting together letters. With a greater diversity of letters, the variety of words that can be made increases, as does their length. Likewise, the more bits of knowhow that are available, the more industries can be supported and the greater their complexity can be.

Cities are the places where people that have specialized in different areas congregate, allowing industries to combine their know how. Rich cities are characterized by a more diverse set of skills that support a more diverse and complex set of industries – and thus provide more job opportunities to the different specialists.

In the process of development, cities, states, and countries do not specialize; they diversify. They evolve from supporting a few simple industries to sustaining an increasingly diverse set of more complex industries. Achieving this implies solving important coordination problems, because an industry that is new to a city will not find workers with industry experience or specialized suppliers. But policymakers can do a lot to solve these coordination problems.

This is why the idea that cities, states, or countries should specialize in their current areas of comparative advantage is so dangerous. Focusing on the limited activities at which they currently excel would merely reduce the variety of capabilities – or "letters" – that they have. The challenge is not to pick a few winners among the existing industries, but rather to facilitate the emergence of more winners by broadening the business ecosystem and enabling it to nurture new activities.

Their task is to identify productivity-enhancing interventions that can harness economies of agglomeration by adding new activities and productive capabilities, making the whole bigger than the sum of the parts.

This is all the more important today, because the globalization of value chains is delocalizing supplier-customer relations. Cities and countries would be ill-advised to focus on a few "clusters" and consolidate the value chains in their location, as is so often recommended. Instead, they should worry about being a node in many different value chains, which requires finding other industries that can use their existing capabilities if they were somehow expanded and adjusted to new needs.

Competition inevitably tends to winnow out the less efficient firms and industries. It is not the policymakers' role to hasten their death. Their task is to identify productivity-enhancing interventions that can harness economies of agglomeration by adding new activities and productive capabilities, making the whole bigger than the sum of the parts.

DROIDONOMICS

IPO BOOMS, ECONOMIC DISLOCATION, AND FUNDAMENTALLY ALTERED FED POLICY: WELCOME TO THE ROBOTICS REVOLUTION

By Randy Bateman, CFA Institute Magazine, September/October 2015

Trends in information technology, artificial intelligence, and robotics will combine to have a revolutionary economic impact, and changes will hit home sooner than many would like to believe. Investment professionals need look no further than the rise of robo-advisers for confirmation that no industry or sector can be considered safe from the coming robotics-driven transformation. But to comprehend the broader significance for investors and policymakers, the starting point is understanding the implications for Federal Reserve policy.

With the passage of the Federal Reserve Act of 1913 and the subsequent creation of the Federal Open Market Committee, the Federal Reserve Board was chartered to develop and maintain monetary policies for two purposes: to promote the pursuit of maximum employment and to restrain both inflation and interest rates. Control over the money supply has been the Fed's primary tool in achieving these goals, and with minor exceptions, the Fed has been successful despite depressions, recessions, international conflicts, marketcrises, and other economic maladies over the decades. Since the Fed's dual mandate includes employment, however, the task may become much more difficult in the coming years because the meaning of the term "maximum employment" is likely to change.

Challenges for Economic Forecasting

NAIRU is the acronym for the non-accelerating inflation rate of unemployment. Conversely, "full employment" refers to periods when there is no cyclical or deficient-demand-led unemployment. Both are fancy terms for how many eligible people are actually drawing a paycheck at any point in time. In fact, a perceptional change in the "acceptable" level of unemployment has already begun. In the 1960s, full employment was estimated to be around 4%. For 1988 - 1997, the OECD estimated that full employment for the US was 5.8%; from 2010 to 2013, it rose to 6.1%.

These changes are the result of many factors, including changing demographics, underemployment, labor force growth rates, the "hidden" economy, participation rate changes, immigration, and the increase in labor productivity. The uncertain employment picture will be complicated by the growing sophistication of robotics and the labor substitution that robotics may present. Moreover, this economic transformation will have immense implications for Fed policy and monetary actions in the near future.

An old economics rule of thumb says the intrinsic rate of GDP growth can be predicted by taking the expansion of the labor force together with increases in productivity. Obviously, contemporaneous factors will undoubtedly influence seasonal and cyclical growth figures, but historically, the equation has proven fairly accurate over the long term. This forecasting technique could be in jeopardy if robotic automation leads to significant substitution for human labor. In the US, where the youngest members of the baby boom generation (70 million) have reached age 55, labor statistics are already becoming a major economic concern.

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As businesses continue to expand profit margins by adding to capital, the productivity portion of the equation will certainly increase - but this shift will come at the expense of the labor portion. Keep in mind that, unlike the human labor force, robots don't spend money, seldom wish to take vacations, never need a Starbucks latte to get started in the morning, don't need to buy homes and automobiles, and eat nothing but electricity. Therefore, any significant expansion of robotics into the service sector could carry GDP implications that transcend the mere improvement of productivity statistics.

Impact on the Service Industry

In the late 1960s, manufacturing accounted for approximately one-third of the US work force. In the 1970s, however, a series of catalysts (including environmental regulations, labor costs, the development of a global economy, inflation, and interest rates) forced manufacturers to look offshore to more effectively control production costs. Entire industries virtually disappeared from US soil because manufacturers either couldn't compete with foreign suppliers or moved operations to locales with cheap labor and fewer restrictions. The impact was so significant that by 2005 the proportion of US labor devoted to manufacturing fell to near-single digits. Much of the loss of production labor was reallocated to the service sector and had little impact on GDP statistics. Interestingly, the US is experiencing something of a rebirth in domestic manufacturing, but this trend depends on the use of clean, efficient robotics to be competitive internationally.

There is a fear that the growing sophistication of robotics and robot-like devices will make significant inroads into the service industry. Already, robots are doing various types of domestic work, including vacuuming, security, pool maintenance, and outdoor maintenance. The US Navy is using unmanned patrol vessels to protect fleet components. Drones are rapidly replacing piloted aircraft. Tesla and Google are both racing to provide driverless automobiles. The da Vinci endoscopic robot has become a commercial success for its inventor, Intuitive Surgical. A hamburger-cooking robot is lying in wait for a rise in the minimum wage, and some checkout staff in stores are being replaced by automated self-checkout machines.

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Japanese Prime Minister Shinzō Abe recently noted that he expects Japan's robotics market to triple by 2020 and believes that health care robotics will overtake industrial-use robotics within 10 years. Because robots can operate with greater precision, accuracy, predictability, and safety than humans - and without the physical and emotional limits or complications of human labor - the growth of service-based robotic applications will rapidly intensify.

Revolution and Disruption

Throughout history, periods of significant technological advances (such as the agricultural revolution, the industrial revolution, and the internet revolution) have led to short-term labor dislocations. Fears of machines making human labor obsolete have always been misplaced. In fact, the International Federation of Robotics (IFR) has reams of statistics indicating that the robotics industry will continue to contribute incremental jobs to the economy. The IFR's expectations may be true regarding manufacturing and industrial applications; however, the rapid movement of robotics into service applications may change those perceptions. Over the short term, there will be a growing need for engineers, computer programmers, and scientists who can provide the "creative" structure and protocol in the early stages of robotics development.

This phase is analogous to the early days of the dot-com era and is likely to lead to the same sort of investor excitement and IPO flurry as in those heady days of the late 1990s. Even so, with the geometric leaps that have been occurring in computer processing and biomechanical sophistication, numerous menial and professional careers are likely to be supplanted by robotics. Most professional service careers are involved in some way with problem solving and solution satisfying. Given the advantages of robots equipped with artificial intelligence and database recollection that can encompass every conceivable computation presented by any problem, machine labor can outperform human workers in problem solving. An article in Forbes by Mark P. Mills ("In The Future, Will Only Robots Celebrate Labor Day?," 25 August 2014) focused on lawyers, pharmacists, health care professionals, and other "knowledge worker" careers that are in jeopardy. With the added sophistication that will emerge from this new branch of science, the potential for robotic incursions into virtually every occupation is strong.

The Fed and an Economic Pandora's Box

To come full circle with this analysis, how will the "robotics revolution" affect the Federal Reserve and its functional duties in the next 10 years and beyond? Recently, the US economy has been improving on the labor front as monetary policy has stimulated job growth and economic activity. But economists and investors are increasingly raising concerns about a social and economic conundrum: the persistently high underemployment rate and the low labor force participation rate. In the aftermath of the 2008 recession, the underemployment rate jumped from a trend line of approximately 9% - 17% to the current steady rate of 11.5%. The labor force participation rate is 62.8%, down from a longer-term rate of 66%. Both statistics are likely a result of permanent job replacement, possibly from capital investment (i.e., robotic) sources. As the economy continues to expand and the labor force is depleted as a function of demographics, any labor shortages may accelerate and promote the acceptance of robotics as a solution.

This opening of an economic Pandora's box will have pronounced and profound implications for policymakers. Lower-echelon jobs will be eliminated, and job creation for skilled technical employment will be accelerated. Consequently, society's haves and havenots will become more divided. Traditional white-collar jobs may also be in jeopardy. This change could skew the perceptions of people who are secularly unemployed and could have implications for tax rates and social-cost transfer payments. The Fed may need to redefine "labor force" as a "functional force," with capital investment completely supplanting some sections of the employment base.

Because our economy depends so heavily on consumer spending, which is highly dependent on employment, the robotics revolution will pose certain challenges for the future economy The potential significance of the threat can already be seen. For example, over the past year, one of the most closely watched economic statistics has been the weekly jobless report simply because of its reflection of consumer health. Given the strong potential for service-sector labor replacement, the implications for consumer behavior will need to be reexamined.

Consequently, society's haves and have nots will become more divided. Traditional white-collar jobs may also be in jeopardy. This change could skew the perceptions of people who are secularly unemployed and could have implications for tax rates and social-cost transfer payments. The Fed may need to redefine "labor force" as a "functional force," with capital investment completely supplanting some sections of the employment base.

If a robotics revolution means that both demand and production costs will decline, the Fed will likely not have a problem maintaining its inflation-control responsibilities. But the implications for the Fed's mandate to pursue maximum employment would be more serious. If the concept of "full employment" has to be adjusted to reflect the secular change in the economy and the work force, the Fed's monetary policy mandates may have to be redirected to accommodate this secular shift. Other policy areas would face profound challenges, including (but not limited to) the solvency of Social Security, the change in GDP growth driven by consumer behavior (as already discussed), the shifting of GDP components away from consumers and toward corporations, and a complete transformation of the income tax code.

In terms of forecasting, another difficulty is determining at what point robotics ceases to be a contributor to employment and starts to diminish the labor force significantly. Technological advances have become so geometrically expansionary that time horizons can be radically constricted. Consider the fact that the technology associated with the fracking boom has allowed the US to supersede the oil production of Saudi Arabia in the span of a few years.

The Outlook for Investors and Policymakers

Although my crystal ball is a bit cloudy, and wiser economists may come to different conclusions, I expect the robotics revolution to have a major impact in 15 key areas:

1. The impact of the robotics revolution on the economy will generate even greater excitement and investment opportunities than did the internet/dot-com era in terms of IPOs, cottage industries, and creative thought.

2. The accuracy of decision making in every line of business and profession will expand geometrically.

3. Injuries and deaths in dangerous occupations will decline or be virtually eliminated.

4. The property and casualty insurance industry will be dramatically altered as auto claims and lawsuits diminish.

5. Inflation will be relatively low, with a possibility of deflation.

6. With robots performing many household tasks, people will have more time for entertainment and leisure pursuits.

7. Corporate profit margins will advance; however, a secondary revenue trade-off may occur as consumer spending is restricted by rising unemployment.

8. Corporate tax revenues will have to be increased to offset the revenue lost from declining personal income taxes in order to fund the government. In fact, corporations will play an increasingly important role as a source of tax revenue and political influence.

9. “Labor” unions will resist the robotics revolution and may eventually be replaced by “social” unions whose goal is to support permanently unemployed masses.

10. Social Security will have to draw from corporate sources to maintain its solvency as the number of laborers supporting the retired population shrinks.

11. Robots in the armed forces, which will have neither a conscience nor compassion, will have to be strictly controlled in order to avoid military coups or the rampage of a rogue third party.

12. China and other nations that have relied on the advantage of cheap labor to export goods to wealthier nations will no longer have that advantage; thus, the emerging economies’ current demographic advantage in the global economy will likely turn into a demographic disaster.

13. The advent and expansion of 3D printing will facilitate the robotics movement and may allow robots to clone or repair themselves.

14. Both fiscal and monetary economic policies will have to be redesigned to accommodate an environment that presents vastly altered sources of governmental revenue, social disruptions, and international trade.

15. An equilibrium point will need to be established whereby the demand for robotic production and services will match the ability of an altered consumer force to finance such purchases.

The history of dire economic predictions is instructive. In the 18th century, Thomas Robert Malthus famously failed to foresee the agricultural revolution and said that the world would starve. In the 19th century, William Stanley Jevons calculated that England would run out of coal and the population would freeze. The lesson is clear: Speculations about future events and evolutions are just that - speculations.

If a robotics revolution means that both demand and production costs will decline, the Fed will likely not have a problem maintaining its inflation-control responsibilities. But the implications for the Fed’s mandate to pursue maximum employment would be more serious.

The era of robotics will undoubtedly have significant and unforeseeable consequences for every individual on the planet, including investment professionals. Investors know that it is never good to be too early or too late regarding an investment theme; timing is everything in our business. However, it can’t be too soon to begin thinking about the implications for investment prospects, the decision-making process, portfolio management, fiscal and monetary policy, and more. Already, some day-trading brokerage firms are touting “robotic” analysis and execution. Certainly, changes driven by robotics will have an impact on our whole industry, for better or worse. But the changes will come with significant investment opportunities that may exceed those of the dot-com era and the current social media phenomenon. Who knows what robotic innovation may be incubating even now in some teenager’s basement that will provide investors with a new Facebook, Google, or eBay?

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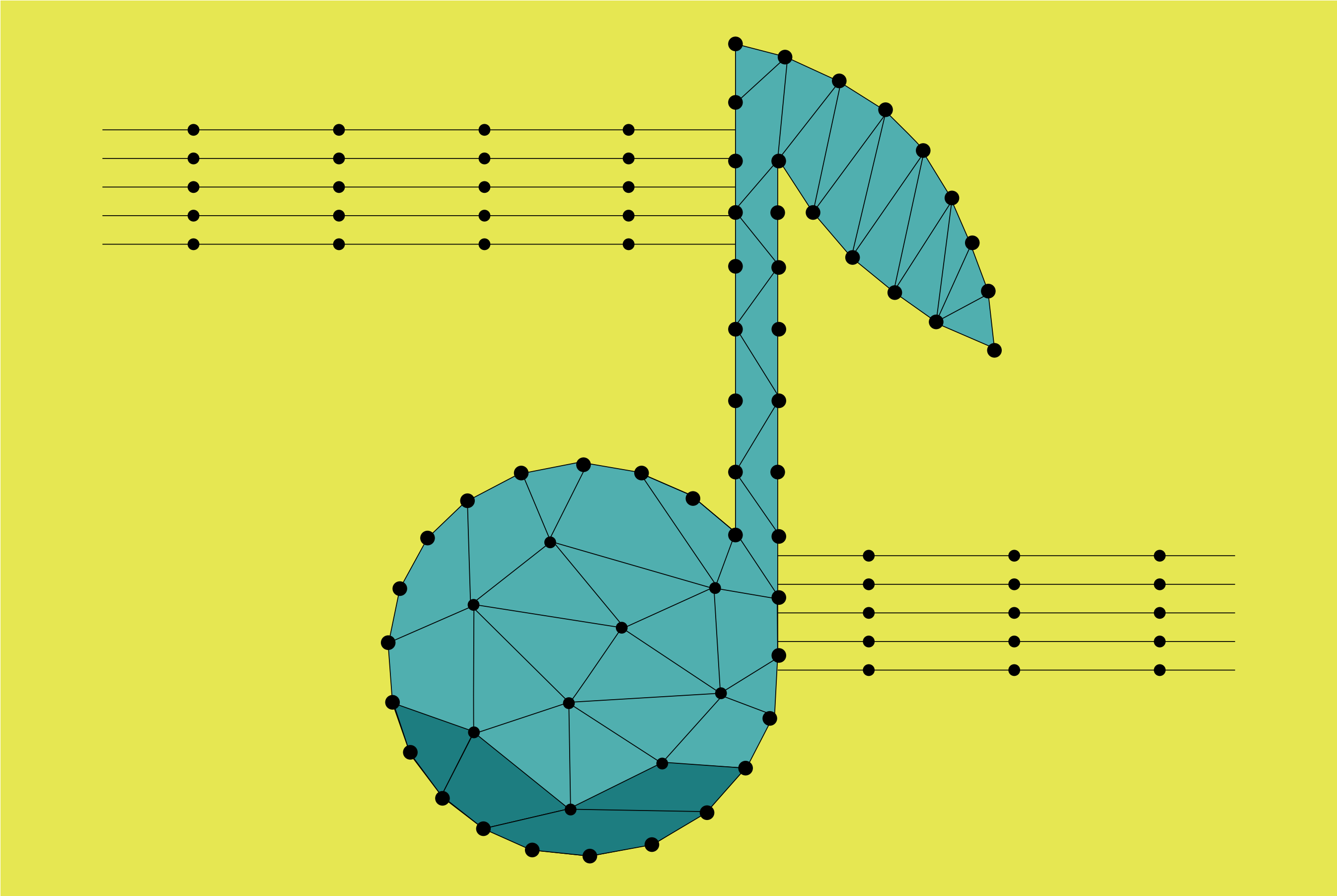

OF LOVE SONGS AND A DOMESTICATING ECONOMY

By Nungsari A Radhi, The Edge Malaysia, December 23, 2014

I did not know that many of the individuals who have colored the musical scene in the pre-Merdeka period were born in the 1920s. Big names – P Ramlee, Alfonso Soliano and Jimmy Boyle, to name a few, were all born in the same decade! Of course, most people around today will not know any of these names except for P Ramlee, perhaps. We were not taught about our musical legacy at school.

I learned about these from Saidah Rastam's recently published book, "Rosalie and other love songs". It is a remarkable book – it is not just a story of the national anthem, it is the story of the musical heritage that independent Malaya inherited in 1957; of the personalities, their music, their lives and the period they lived in. It is a slice of our national history and what a refreshing telling of that part of our history. The Negara Ku has an interesting story behind it. There was a famous French melody called la Rosalie composed by Pierre-Jean de Beranger, a bangsawan song called Terang Bulan and the Perak state anthem. These explain the book's title and the intrigue surrounding what eventually became the national anthem.

Saidah told the story with intellectual honesty, driven by her passion for the subject, music. Music itself is passionate and is about passion, emotion of some sort at the very least. I like the quote taken from Ray Charles, the blues singer, who said that "I was born with music inside me." What the world throws at you and the circumstances you find yourself in are secondary to the music inside of you. Beyond the glitter and bright lights, there is a certain anguish and sorrow associated with the musical life. The story Saidah told is also a sad story in some ways – of how we failed to appreciate our past. How we lost the passion to do things. The book told the story of how Tunku Abdul Rahman commissioned a competition for the national anthem before Merdeka that attracted over 150 entries from all over the world. He was not happy with any of them. Unfortunately, all records and submissions about that contest were lost. There were also the stories of lost old musical scores, notes and recordings. So, while you can go to the BBC website and listen to broadcasts and songs during the world wars, the RTM website contains no such archives.

The contrast I felt reading the book is between the passion of the musicians of the story and the dispassionate neglect of our rich musical tradition by those who became custodians of their works later on. This contrast says a lot. The lack of passion, of idealism perhaps, is very worrying. Sustained interest and repeated efforts are needed to build a tradition, a convention of doing things, of excellence. Without traditions, we do not develop and grow our collective memory, our institutional memory which is required if we are to innovate and create new solutions as products in the marketplace - a Malaysian way of doing things, of the entrepreneurship that drives innovation, of doing new things.

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One of the worrying trends about the Malaysian economy is how it is domesticating - the sources of growth are becoming domestic. We can see how the contribution of net export growth to total GDP growth has declined. Indeed, net exports as a proportion of total aggregate demand has also been declining. If not for the global commodity boom that burst recently, Malaysia's trade picture would be bleaker earlier. Now that commodity prices have tumbled, we are looking at the prospects of a trade deficit that can easily wipe out the thin current account surplus. A big part for why the economy lacks the resilience to external price shocks is that we have not diversified our economic base. What that means is that our firms have not been able to create new products and build linkages with our existing structures. We have been exporting crude and palm oil, and largely the same electrical components for decades.

The tragedy of Cameron Highlands is in the same vein as songs of yesteryear – of not appreciating a national treasure, a public commons. Corruption and pervasive failures of all kinds of institutions contributed to the pillage of the highlands, destroying its rivers and slopes. The greed of the perpetrators and the corrupt resulted in a destruction that was witnessed by apathy and perhaps a sense of futility amongst the public. Such repetition and acceptance of bad behavior will form a norm – instead of a tradition of expecting excellence, one of accepting transgressions.

One senses that the overall water level - the benchmarks of things - is a bit too low. It has gone down instead of increasing over time. You could hear it in the words uttered by people in positions of authority, see it in the ways people break the law brazenly, glancing through the content of newspapers and magazines, and experiencing the services at counters and tables. So, unless we raise the level of things, this slide downhill will continue. Not only will we be unable to innovate and create new businesses that can be globally competitive, we will also gradually lose competitiveness in ones we are presently competitive in. As that happens, the economy will become domesticated as we become increasingly dependent on ourselves on both ends of the market, the makings of a closed economy that can only earn foreign exchange from the exports of commodities or inbound tourism. But we were there before. It is supposed to get better.

Economic outcomes are the results of social norms and values. One cannot seek economic outcomes without a serious diagnosis of what are really driving people's decisions as customers, investors, manager and business owners - what they value how they trade-off options. The same social values and norms color the political marketplace and affect how decisions are made there. Bad societal values make for bad economics. We need to look at these foundational values if we are to transform the economy to the next level. At our present level and nature of social norms and institutions, we run the risk of regressing as indeed, in some sense, we have gotten worse, not better.

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We will not get better if we do not live by ideals that fire up some passion to achieve excellence in the things we do. And that we preserve the passions and lessons from our past and build a collective memory and a tradition of doing things well to leave behind. Individuals but more importantly, institutions must subscribe to some absolute ideals in performing their functions, and these ideals must be jealously guarded and protected. People entrusted to lead institutions must understand this and not succumbed to expediency, relativism and plain laziness. Else, they destroy the institutions and the very society they claim to serve.

However, the book is also hopeful. The tempestuous emotions of love songs must be subdued and tempered! I am thus reminded of Emily Dickinson's - " 'Hope' is the thing with feathers - That perches in the soul - And sings the tune without the words - And never stops - at all" I am hopeful the new year will be a better year. I am an eternal optimist.

THE CAPITALIST'S DILEMMA

By Clayton M. Christensen and Derek van Bever

Like an old machine emitting a new and troubling sound that even the best mechanics can't diagnose, the world economy continues its halting recovery from the 2008 recession. Look at what's happening in the United States: Even today, 60 months after the scorekeepers declared the recession to be over, its economy is still grinding along, producing low growth and disappointing job numbers.

One phenomenon we've observed is that, despite historically low interest rates, corporations are sitting on massive amounts of cash and failing to invest in innovations that might foster growth. That got us thinking: What is causing that behavior? Are great opportunities in short supply, or are executives failing to recognize them? And how is this behavior pattern linked to overall economic sluggishness? What is holding growth back?

Most theories of growth are developed at the macroeconomic level - at 30,000 feet. That perspective is good for spotting correlations between innovation and growth. To understand what causes growth, however, you have to crawl inside companies - and inside the minds of the people who invest in and manage them. This article (which builds on a New York Times piece Clay wrote in late 2012) is an attempt to form a theory from the ground up, by looking at company experience.

About a year ago we invited the students and alumni of our Harvard Business School course "Building and Sustaining a Successful Enterprise" - who represent a cross-section of the corporate, entrepreneurial, and financial services sectors worldwide - to join us in this effort. (See "A New Approach to Research.") Early on, we explored a wide range of reasons for the sputtering recovery, including political and economic uncertainty, the low rate of bank lending, a decline in publicly supported research in the United States, and the demise of innovation platforms like Bell Labs. (In a companion piece in this issue, our colleague Gautam Mukunda contends that the finance sector's growing power is a major factor.)

...despite historically low interest rates, corporations are sitting on massive amounts of cash and failing to invest in innovations that might foster growth...

Fairly quickly, though, the discussion focused in on what had first attracted our attention: the choices companies make when they invest in innovation. Unlike some complicated macroeconomic factors, these choices are well within managers' control.

We're happy to report that we think we've figured out why managers are sitting on their hands, afraid to pursue what they see as risky innovations. We believe that such investments, viewed properly, would offer the surest path to profitable economic and job growth. In this article we advance some prescriptions that could become the basis of an agenda for meaningful progress in this area.

In our view the crux of the problem is that investments in different types of innovation affect economies (and companies) in very different ways - but are evaluated using the same (flawed) metrics. Specifically, financial markets - and companies themselves - use assessment metrics that make innovations that eliminate jobs more attractive than those that create jobs. We'll argue that the reliance on those metrics is based on the outdated assumption that capital is, in George Gilder's language, a "scarce resource" that should be conserved at all costs. But, as we will explain further, capital is no longer in short supply - witness the $1.6 trillion in cash on corporate balance sheets - and, if companies want to maximize returns on it, they must stop behaving as if it were. We would contend that the ability to attract talent, and the processes and resolve to deploy it against growth opportunities, are far harder to come by than cash. The tools businesses use to judge investments and their understanding of what is scarce and costly need to catch up with that new reality.

Before we get to the solutions, let's look more closely at the different types of innovation.

Three Kinds of Innovation

The seminal concepts of disruptive and sustaining innovations were developed by Clay as he was studying competition among companies. They relate to the process by which innovations become dominant in established markets and new entrants challenge incumbents. The focus of this article, however, is the outcome of innovations - their impact on growth. This shift requires us to categorize innovation in a slightly different way:

Performance-improving innovations replace old products with new and better models. They generally create few jobs because they're substitutive: When customers buy the new product, they usually don't buy the old product. When Toyota sells a Prius, the customer rarely buys a Camry too. Clay's book The Innovator's Solution characterized these as sustaining innovations, noting that the resource allocation processes of all successful incumbent firms are tuned to produce them repeatedly and consistently.

Performance-improving innovations replace old products with new and better models.

Efficiency innovations help companies make and sell mature, established products or services to the same customers at lower prices. Some of these innovations are what we have elsewhere called low-end disruptions, and they involve the creation of a new business model. Walmart was a low-end disrupter in retailing, for example, and Geico in insurance. Other innovations, such as Toyota's just-in-time production system, are process improvements. Efficiency innovations play two important roles. First, they raise productivity, which is essential for maintaining competitiveness but has the painful side effect of eliminating jobs. Second, they free up capital for more-productive uses. Toyota's production system, for example, allowed the automaker to operate with two months' - rather than two years' - worth of inventory on hand, which freed up massive amounts of cash.

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Market-creating innovations, our third category, transform complicated or costly products so radically that they create a newclass of consumers, or a new market. Look at what has happened with computers: The mainframe computer cost hundreds of thousands of dollars and was available to a very small group. Then the personal computer brought the price down to $2,000, which made it available to millions of people in the developed world. In turn, the smartphone made a $200 computer available to billions of people throughout the world. We see this pattern so frequently that we're tempted to offer it as an axiom: If only the skilled and the rich have access to a product or a service, then you can reasonably assume the existence of a market-creating opportunity.

Market-creating innovations have two critical ingredients. One is an enabling technology that drives down costs as volume grows. The other is a new business model allowing the innovator to reach people who have not been customers (often because they couldn't afford the original product). Think of it like this: An efficiency innovation pointed in the right direction - toward turning nonconsumption into consumption - becomes a market-creating innovation. Ford's Model T, for example, brought automobile ownership within reach for most Americans, because of both its simple design and the revolutionary assembly line that brought scale to the enterprise. In the same way, Texas Instruments and Hewlett-Packard used solid-state technology to bring low-cost calculators to millions of students and engineers worldwide.

Companies that develop market-creating innovations usually generate new jobs internally. When more people can buy their products, they need more employees to build, distribute, sell, and support them. A great deal of related employment growth, though, occurs in the innovating companies' supply chains or in partners whose own innovations help build a new platform. A classic example is the Bessemer Converter, patented in 1856, which made it possible to manufacture steel inexpensively for the first time. Andrew Carnegie used its revolutionary cost-reduction potential to build the Thomson Steel Works, but the railroad companies used the cheaper steel to create a new industry. U.S. steel employment quadrupled in the last quarter of the 19th century, reaching 180,000 by 1900, and railroad employment reached 1.8 million a scant two decades later.

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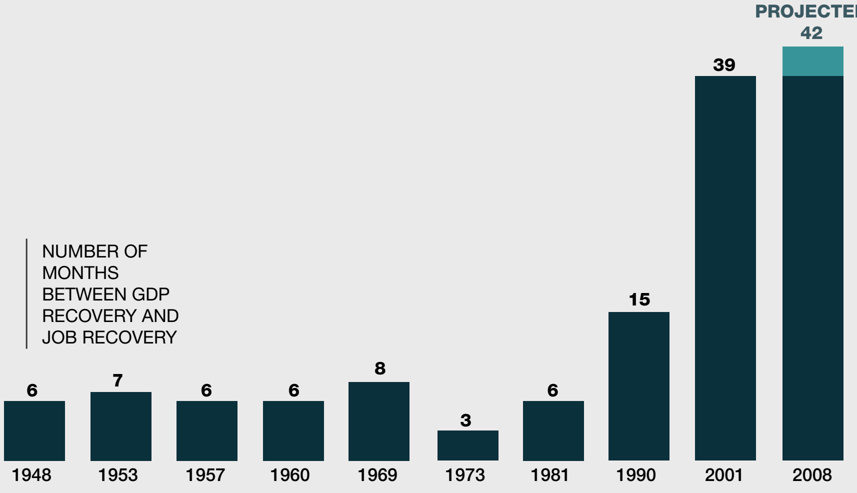
The combination of a technology that drives down costs with the ambition to eradicate nonconsumption - to serve new customers who want to get something done - can have a revolutionary effect. A decade ago, Apple's managers were on the lookout for a device that could enable convenient, affordable storage of a consumer's music library, with anytime, anywhere access. They saw in Toshiba's development of a 1.8-inch hard drive the opportunity to fulfill this job, which triggered the development of the iPod/iTunes business model. And if companies such as Corning and Global Crossing hadn't innovated to create and lay ample low-cost dark fiber capacity, Google, Amazon, and Facebook wouldn't exist as we know them today.

Market-creating innovations need capital to grow - sometimes a lot of capital. But they also create a lot of jobs, even though job generation is not an intended effect but a happy consequence. Efficiency innovations are at work 24/7 in every industry; that very same efficiency, if targeted toward making a product or a service more affordable and accessible, can create net new jobs, not eliminate them.

The mix of these types of innovation - performance-improving, efficiency, and market-creating - has a major impact on the job growth of nations, industries, and companies. The dials on the three types of innovation are sensitive, but if the capital that efficiency innovations liberate is invested in market-creating innovations at scale, the economy works quite well. However, that's a big "if," as we shall see.

Jobless Recoveries

In the recessions the United States has a experiencedend since 1948, the rebound in employment has typically lagged the rebound in GDP by about six months. Since 1990, though, the lag has been increasing dramatically. But with the latest recession, 39 months after GDP had returned to normal, employment still hadn't caught up, and it was expected to lag for another two to three months.



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The Orthodoxy of New Finance

So, to come back to our central question (phrased in a new way): Why do companies invest primarily in efficiency innovations, which eliminate jobs, rather than market-creating innovations, which generate them? A big part of the answer lies in an unexamined economic assumption. The assumption - which has risen almost to the level of a religion - is that corporate performance should be focused on, and measured by, how efficiently capital is used. This belief has an extraordinary impact on how both investors and managers assess opportunities. And it's at the root of what we call the capitalist's dilemma.

Let's back up to see where this assumption came from. A fundamental tenet of economics is that some of the inputs required to make a product or service are abundant and cheap—like sand. We don't need to account for such inputs and can waste them, if need be. Others are scarce and costly and must be husbanded carefully. Historically, capital was scarce and costly. So investors and managers alike were taught to maximize the revenue and profit per dollar of capital deployed.

While it's still true that scarce resources need to be managed closely, it's no longer true that capital is scarce. A recent Bain & Company analysis captures this point nicely, concluding that we have entered a new environment of "capital superabundance." Bain estimates that total financial assets are today almost 10 times the value of the global output of all goods and services, and that the development of financial sectors in emerging economies will cause global capital to grow another 50% by 2020. We are awash in capital.

Because they were taught to believe that the efficiency of capital was a virtue, financiers began measuring profitability not as dollars, yen, or yuan, but as ratios like RONA (return on net assets), ROIC (return on invested capital), and IRR (internal rate of return). These ratios are simply fractions, comprising a numerator and a denominator, but they gave investors and managers twice the number of levers to pull to improve their measured performance. To drive RONA or ROIC up, they could generate more profit to add to the numerator, of course. But if that seemed daunting, they could focus on reducing the denominator - outsourcing more, wiping more assets off the balance sheet. Either way, the ratio would improve. Similarly, they could increase IRR either by generating more profit to grow the numerator or by reducing the denominator—which is essentially the time required to get the return. If they invested only in projects that paid off quickly, then IRR would go up.

All of this makes market-creating innovations appear less attractive as investments. Typically, they bear fruit only after five to 10 years; in contrast, efficiency innovations typically pay off within a year or two.

Do We Need a Revolution?

The orthodoxies governing finance are so entrenched that we almost need a modern-day Martin Luther to articulate the need for change. Here's what reform might address:

Thesis 1: We need new ways to assess investments in innovation.

Our success metrics determine what we can and cannot invest in. We have allowed a minority to dictate those metrics to the majority. Over and over, the higher value placed on return on net assets, internal rate of return, and earnings per share over other metrics has led to innovations that squeeze costs and noncash assets. As a result, investing to create growth and jobs is a third-best option, behind efficiency innovations (first) and doing nothing (second).

Thesis 2: We should no longer husband capital. It is abundant and cheap. We should use it, not hoard it.

What managers see inside their company's resource allocation processes likely does not reflect the new reality in the economy and in the capital markets. Hurdle rates aren't handed down by a deity; they can (and should) be changed as the cost of capital changes.

Thesis 3: We need new tools for managing the resources that are scarce and costly.

How would we measure the success of investments in making good people better, for example, or in our ability to attract and retain talent? What if we prioritized time as a scarce resource?

What's worse, growing market-creating innovations to scale uses capital, which must often be put onto the balance sheet. Efficiency innovations take capital off the balance sheet, however. To top it off, efficiency innovations almost always seem to entail less risk than market-creating ones, because a market for them already exists. Any way you look at it, if you measure investments using these ratios, efficiency innovations always appear to be a better deal.

What Has Become of the Long-Term Investor?

One might expect that, even if this approach to measurement appealed to short-term investors, we'd see countervailing pressure from institutional investors, who are ostensibly focused on long-term value creation. Take pension funds, the largest category of investor globally, representing more than $30 trillion in assets, almost $20 trillion of that just in U.S. pension funds. In theory, no investor is better positioned to model "patient capital" behavior. However, for the most part pension funds don't demonstrate patience: In fact, they have led the pack in the search for high short-term returns. One of the most spirited exchanges among our alumni centered on that apparently self-defeating behavior and what, if anything, might be done about it. It turns out that because of a variety of factors - depressed returns, substantial unfunded commitments, and longer life expectancies—the funds aren't growing fast enough to meet their obligations. So they look for quick payoffs and demand that the companies they invest in, and the managers they invest with, meet high hurdle rates. A failure to adjust expectations - and hurdle rates - will keep pension funds on the sidelines in coming years, making a bad situation even worse.

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Venture capitalists might also be expected to look past ratio-centric metrics, since market creation appears to be their focus. And many VCs do. But many others invest mostly in companies that are developing performance-improving and efficiency innovations and can be sold within a couple of years to a large industry incumbent. Several of our alumni noted this bias in their interactions with VCs, many of whom are drawn to business plans that target well-defined markets, just as corporate executives are.

What about the low cost of capital? Shouldn't that create incentives for corporate managers - and outside investors - to invest their cash in ambitious market-creating innovations? Technically, it is true that the cost of capital is low - indeed, the Fed's interest rate for lending to banks is near zero. But neither companies nor investors experience it like that. Entrepreneurs claim in their business plans that investors will make their money back five times over. Venture capitalists ask for even higher returns. Internal corporate business plans routinely promise returns from 20% to 25% - because that is the historical corporate cost of equity capital. Investors and managers were all taught that calculations of the present value of potential investments should be based on that corporate cost, adjusted for differences in risk. From the perspective of the individuals seeking funding, the quoted list price of capital before making the investment is anything but zero.

What individuals don't observe, however, is that the actual return investors of the capital receive after it has been deployed is, on average, approaching zero. Today every attractive opportunity is being eyed by many more investors—and also being pursued by many more companies—than was the case in the past. All the competition drives the price of the deals so high that the returns to investors are dramatically compromised. For nearly a decade, the actual returns of all VC-backed investments, which were promised to be at least 25%, have totaled up to zero every year. Professor William Sahlman named this paradox "capital market myopia."

Year after year, public U.S. corporations announce plans to invest in new growth markets. And yet if you dig into their research and development budgets, you'll find that very little of that money targets market-creating innovations. Some is being spent on performance-improving innovations, but the lion's share is allocated to efficiency innovations. And more than the executives of these enterprises imagine. One of our alumni noted the recent ascendance of the metric "return on research capital" (RORC). This measure, current year profit over prior year research expenditure, justifies only the most tightly scoped performance-improving or efficiency innovations.

This, then, is the capitalist's dilemma: Doing the right thing for long-term prosperity is the wrong thing for most investors, according to the tools used to guide investments.

Our alumni expressed deep frustration over the way that the resource allocation process is biased against profitable, high-growth opportunities in new markets and favors predictable investments focused on current customers. This leads to a paradox: Competing for a point of share in an established market appears to be easy, even in the face of fierce competition. Investing to create a new market appears to be hard, even in the absence of headwinds and with the prospect of a much more sizable, and profitable, opportunity. One recent alumnus, a product manager at a highly respected Fortune100 manufacturer, noted, "We've lost the concept of having a portfolio of businesses. Out of every business we expect incremental improvement on these key financial metrics." He thought this produced a crowded, efficiency-focused, near-term agenda. "If I try to advocate for a different approach, the response will be, 'Sounds like an interesting idea - let's talk about it at the end of the fiscal year,'" he told us.

The result of all these interrelated failures is that the institutions meant to lubricate capitalism no longer do so.Banks, in particular, seem beset by boredom, unenthusiastic about actually making commercial loans, as many small and medium-size businesses will attest. This reluctance to lend is likely to erode banks' franchise permanently, as scores of alternative lending entities are being created to fill the void. The Federal Reserve, whose primary tool for stimulating the economy is increasing the supply of money and keeping interest rates low, doesn't work because

When the World Is Awash in Capital

Intel is the only significant U.S. semiconductor company that still makes its own chips. If you measure profitability using return on assets, the other companies are much more profitable, for a simple reason: Outsourcing fabrication to contractors like Taiwan Semiconductor Manufacturing Company (TSMC) reduces the denominator in that ratio.

In 2009 Clay Christensen interviewed Morris Chang, founder of TSMC, about this phenomenon. Chang had been second-in-command at one of the most powerful semiconductor companies in America, Texas Instruments, before he returned to his native Taiwan and founded TSMC. At the time of this interview, TSMC was making more than half of all semiconductor circuits in the world.

Clay said to Chang, "Every time a new customer outsources to you, he peels assets off of his balance sheet, and in one way or another puts those assets on your balance sheet. You both can't be making the right decision."

"Yes, if you measure different things, both can be right," Chang replied. "The Americans like ratios, like RONA, EVA, ROCE, and so on. Driving assets off the balance sheets drives the ratios up. I keep looking. But so far I have not found a single bank that accepts deposits denominated in ratios. Banks only take currency.

"There is capital everywhere," Chang continued. "And it is cheap. So why are the Americans so afraid of using capital?"

interest is no longer a significant factor in businesses' cost structure.

This, then, is the capitalist's dilemma: Doing the right thing for long-term prosperity is the wrong thing for most investors, according to the tools used to guide investments. In our attempts to maximize returns to capital, we reduce returns to capital. Capitalists seem uninterested in capitalism - in supporting the development of market-creating innovations. Left unaddressed, the capitalist's dilemma might usher in an era of "post-capitalism." Adam Smith's "invisible hand" is meant to work behind the scenes, efficiently allocating capital and labor to sectors in which prices and returns are rising, and taking resources away from those in which they're falling. But if the cost of capital is insignificant, it emits only the faintest of signals to the invisible hand about where and when capital should flow.

> **Capitalists seem uninterested in capitalism – in supporting the development of market-creating innovations.**

Renewing the System

Although the reasons for the collective reluctance to invest in market-creating innovations are straightforward, they defy simple answers. Nonetheless, in the following paragraphs we'll propose four solutions worth exploring.

Repurposing capital.

In contrast to the providers of capital, capital itself is highly malleable, in that certain policies can "convince" capital that it "wants" to do things differently. Today much of capital is what we might call migratory. It lacks a home. When invested, migratory capital wants to exit as quickly as possible and to take out as much additional capital as possible before it does. A second type of capital is timid. It is risk-averse. Much of timid capital resides as cash and equivalents on companies' balance sheets, where making no investment is better than making an investment that might fail. Another type is enterprise capital. Once injected into a company, enterprise capital likes to stay there. Resolving the capitalist's dilemma entails "persuading" migratory and timid capital to become enterprise capital.

One way to repurpose capital is through tax policy. Our alumni had a spirited exchange on the wisdom of imposing a Tobin tax on financial transactions to reduce high-frequency trading, which would increase illiquidity and therefore (it is thought) investment in innovation. Such a tax would be anything but simple to devise and enforce, but a growing body of academic and empirical evidence suggests it could be effective at repurposing capital by lengthening shareholder tenure.

A company-level approach would be to reward shareholders for loyalty. Our alumni suggested several ways to accomplish this. One is to align shareholder influence with shareholding period, allowing voting power to vest over time the way employee stock options do. The alumnus who suggested this gave the following rationale: Why should investors who are mere tourists, holding stock for weeks or months, be given the same full voting power as long-term owners? Another method involves extra-share or extra-dividend mechanisms known as L-shares. The most popular L-share scheme in current use is a call warrant that's exercisable at a fixed time horizon and price if the share is held for the entire loyalty period.

These and other proposals to create loyalty shares and bonuses, and royalty shares that facilitate investment in targeted, long-term market development projects, are still a novelty and are subject to all manner of gaming, but they are coming up more often in board conversations and in corporate prospectuses.

Rebalancing business schools.

Much as it pains us to say it, a lot of the blame for the capitalist's dilemma rests with our great schools of business, including our own. In mapping the terrain of business and management, we have routinely separated disciplines that can only properly be understood in terms of their interactions with one another, and we've advanced success metrics that are at best superficial and at worst harmful.

Finance is taught independently in most business schools. Strategy is taught independently, too—as if strategy could be conceived and implemented without finance. The reality is that finance will eat strategy for breakfast any day—financial logic will overwhelm strategic imperatives—unless we can develop approaches and models that allow each discipline to bring its best attributes to cooperative investment decision making. As long as we continue this siloed approach to the MBA curriculum and experience, our leading business schools run the risk of falling farther and farther behind the needs of sectors our graduates aspire to lead.

The intricate workings of the resource allocation process often are not studied at all in business schools. As a result, MBAs graduate with little sense of how decisions in one part of the enterprise relate to or reflect priorities in other parts. One of our alumni noted, "The only way we learned what projects to invest in was in FIN I [the introductory finance course at HBS].” A whole host of questions goes unasked—and unanswered: How do I identify conditions that signal opportunity for long-term, growth-creating investment? What proxies for estimated future cash flows can I use in evaluating an investment that is pointed toward a new market? How do we identify and build innovations that will help noncustomers perform jobs they need to get done? When are the traditional metrics of IRR and NPV most appropriate, and when are they likely to lead us astray? Since the functions of the enterprise are interdependent, we should mirror this in our teaching.

Realigning strategy and resource allocation.

The alumni debated a number of potential solutions to the resource allocation processes’ bias against market-creating opportunities. The solutions all were founded on the insight that setting the risk-adjusted cost of capital in the valuation of opportunities is a choice. If we are realistic about the true cost of capital, investing in the long term becomes easier.

The alumni also expressed broad support for bringing transparency to R&D spending through the creation of an “innovation scorecard” that categorized spending by the taxonomy we’re developing here. The intent was to give leaders an internal tool for analyzing the innovation pipeline and the prospects for growth it contains.

Emancipating management.

Many managers yearn to focus on the long term but don’t think it’s an option. Because investors’ median holding period for shares is now about 10 months, executives feel pressure to maximize short-term returns. Many worry that if they don’t meet the numbers, they will be replaced by someone who will. The job of a manager is thus reduced to sourcing, assembling, and shipping the numbers that deliver short-term gains.

While it’s true that most companies, private and public, have shareholders who invest with an eye to the short term, they also have those who are focused on the long term—citizens, not tourists, to use the metaphor introduced earlier. The expectations of the two types of investors have diverged. Efforts to satisfy one group will conflict with the demands of the other. Because no policy can maximize returns for all shareholders, the only viable approach is to manage the company to maximize the value of the enterprise in the long run. It’s the job of managers and academics alike to develop the tools to support this endeavor. They can make a good start by treating spreadsheets as a useful tool that complements strategic decision making but is not a substitute for it. (See “Spreadsheets: The Fast Food of Strategic Decision Making.”)

Many managers yearn to focus on the long term but don’t think it’s an option.

The problem, of course, is not with our tools but with ourselves. As one alumnus noted in a very funny post, our ratios and tools tell us exactly what they claim to tell us: Return on assets is ... the return on assets; DCF is ... the discounted cash flows. The problem is in how the ratios are understood and applied. We have regressed from the decades when Drucker and Levitt urged us not to define the boundaries of our businesses by products or SIC codes but to remember that the point of a business is to create a customer.

Dilemmas and paradoxes stymie capable people when they don’t understand what surrounds them and why. That’s the reason the innovator’s dilemma historically has paralyzed so many smart managers. Managers who take the time to understand the innovator’s dilemma, however, have been able to respond effectively when faced with disruption. Now it appears that we face a capitalist’s dilemma. We hope that this attempt to frame the problem will inspire many of you to work with us to devise solutions to this dilemma, not just for the individual good that might result but for the long-term prosperity of us all.

Spreadsheets: The Fast Food of Strategic Decision Making

Just as abundant, cheap fast food helped create an epidemic in obesity and diabetes, the popularity of spreadsheets has given rise to an unhealthy dependence on metrics like return on invested capital and internal rate of return.

Before 1978, when the spreadsheet was invented by a student at Harvard Business School, such metrics existed, but calculating them was cumbersome, since pro forma financials were done by hand with simple four-function calculators. These metrics were judiciously used as inputs, but investment decisions were rarely based on them.

The spreadsheet made it simple for analysts to build financial models of companies, allowing them to study how different inputs and assumptions affected the metrics of value. Armed with this tool, a 26-year-old Wall Street analyst could then sit across the desk from a CEO and tell her how to run her company. Not only that, the analyst could explain that “the market” would punish the CEO if she did not follow the orthodoxies of new finance, too. The rules of this game, by the way, were devised by the analysts themselves, tilting the playing field against the CEO and in favor of the analysts’ spreadsheets—which were preprogrammed to predict when the CEO wouldn’t meet an anticipated number and to set up a short sale or custom-made derivative.

Scott Cook, the founder and executive chairman of Intuit (an HBS alumnus who knows our course well), shared his views on what he sees as the tyranny of financial metrics. He has observed that a focus on financial outcomes too early in the innovation process produces “a withering of ambition.” He argues that financial metrics lack predictive power. “Every one of our tragic and costly new business failures had a succession of great-looking financial spreadsheets,” he says. Now new-product teams at Intuit do not submit a financial spreadsheet to begin work and testing; rather, he notes, they focus on “where we can change lives most profoundly.”

In a very real sense, too many executives have outsourced the job of managerial judgment and decision making to this convenient—but ultimately unnutritious—tool. One simple way to put it in its proper place is to resolve never to begin or end an investment conversation with reference to a spreadsheet.

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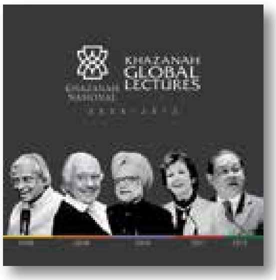
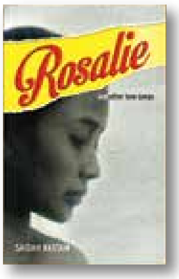
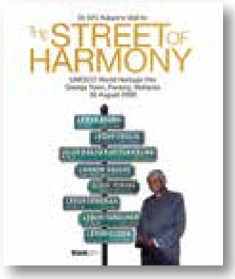
Khazanah publishes a number of books each year,
each pertinent to Malaysia business, education or culture.



Khazanah Global Lectures 2008-2012 (2014)

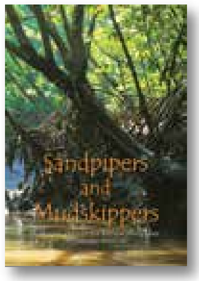


Rosalie and other love songs (2014)



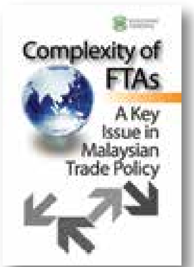
The Street of Harmony (2013)

Can Malaysia Achieve Innovation - Led Growth? (2013)



Sandpipers And Mudskippers (2012)

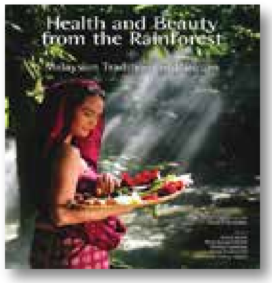
Readings on Development: Malaysia 2057 (2009)



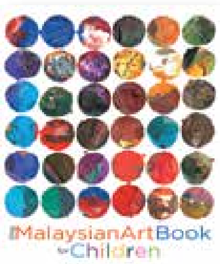
Complexity of FTAs: A Key Issue in Malaysian Trade Policy (2010)

Khazanah Merdeka Series: A Year in Pictures 2007/2008 (2009)

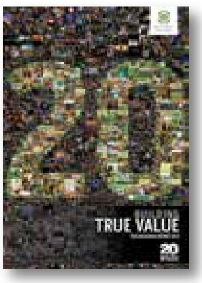
Cities, People & The Economy: A Study on Positioning Penang (2010)



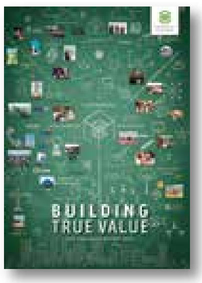
Health and Beauty from the Rainforest (2009)



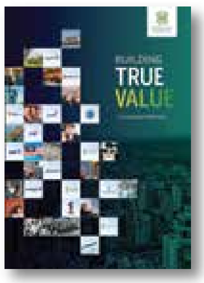
The Malaysian Art Book for Children (2011)



The Khazanah Report 2014

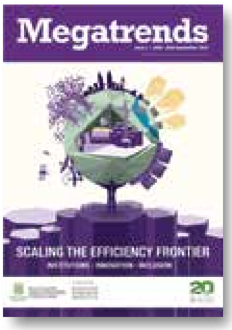


The Khazanah Report 2013



The Khazanah Report 2012

Past KMF Publications



2014

2013

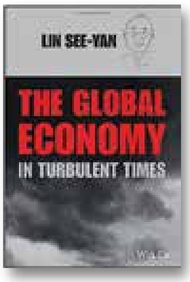
2012

2011

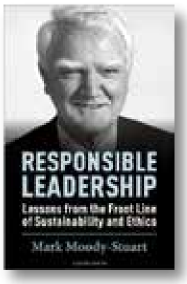
Complimentary Publications at KMF2015

Limited copies available.

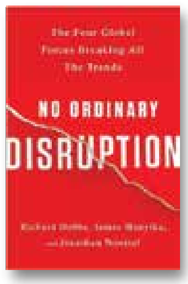
The Frugal Innovator
Charles Leadbeater



The Global Economy in Turbulent Times
Lin See Yan

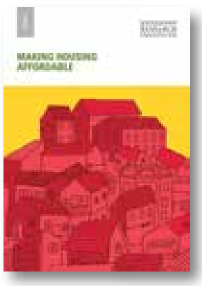


Responsible Leadership
Mark Moody-Stuart

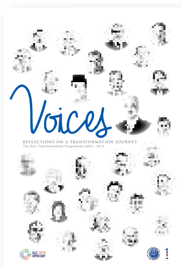


No Ordinary Disruption
Richard Dobbs
James Manyika
Jonathan Woetzel

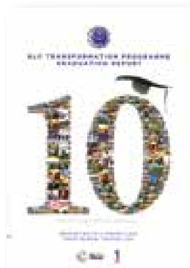
The State of Households
Khazanah Research Institute



Making Housing Affordable
Khazanah Research Institute



Voices: Reflections on a Transformation Journey
PCG Secretariat



GLC Transformation Programme Graduation Report
PCG Secretariat

Day One Programme
Monday, 5th October 2015

Grand Ballroom, Mandarin Oriental Kuala Lumpur

8:00am	**Registration**
9:00am	**Welcome Remarks & Introduction to KMF2015** by Tan Sri Dato' Azman Hj Mokhtar, *Managing Director, Khazanah Nasional Berhad*
9:10 - 9:30am	**Opening Address** by Tan Sri Dato' Seri Utama Nor Mohamed Yakcop, *Deputy Chairman, Khazanah Nasional Berhad and Chairman, Khazanah Research Institute*
9:30 - 10:15am	**SPECIAL ADDRESS** Charles Leadbeater, Author and independent strategic advisor **Introducer:** Jiv Sammanthan, *Executive Director and Head of Managing Director's Office, Khazanah Nasional Berhad*
10:15 - 10:30am	**Break**
10:30am - 12:00pm	**SESSION 1** **MACRO AND MARKETS: 'From Mountain High to River Deep - Will Emerging Markets Become 'Submerging' Markets?'** • Dr Arup Raha, *Chief Economist, CIMB Group* • Dr Don Hanna, *Managing Director and Head of Research, Roubini Global Economics* • Tan Sri Dato' Dr Lin See Yan, *Economist and former banker* • PK Basu, *Head of Malaysia Research and Head of ASEAN Economics, Macquarie Capital Securities (Malaysia) Sdn Bhd* • Sharifatu Laila Syed Ali, *Group CEO, ValueCAP* • Stephen Hagger, *Managing Director and Head of Equities, Credit Suisse Securities (Malaysia) Sdn Bhd* • **Chairperson:** Mohamed Ridzuan Mohamed, *Director, Khazanah Research & Investment Strategy, Khazanah Nasional Berhad*
12:00 - 12:45pm	**SPECIAL ADDRESS: 'Democratizing Higher Education'** • Sebastian Thrun, *Founder and CEO, Udacity; and Founder, Google [x]* • **Introducer:** Javier Santiso, *Executive Director, Khazanah Europe Investment Limited*
12:45 - 2:00pm	**LUNCHEON ADDRESS** • Dato' Sri Nazir Tun Abdul Razak, *Chairman, CIMB Group; and Board Member, Khazanah Nasional Berhad* • **Introducer:** Mohamed Nasri Sallehuddin, *Executive Director, Corporate & Support Services, Company Secretary and Head of Legal, Khazanah Nasional Berhad*
2:00 - 2:15pm	**Break**
2:15 - 3:45pm	**SESSION 2** **FIRMS AND TRANSFORMATION: 'Learning to Fish: How do Firms Harness Creative Disruption?'** • Christoph Mueller, *Group CEO, Malaysia Airlines Berhad* • David Frigstad, *Chairman, Frost & Sullivan* • Mohd Khairil Abdullah, *CEO, Axiata Digital Services Sdn Bhd* • Richa Kar, *Founder and CEO, Zivame* • Sumant Mandal, *Co-Founder, March Capital Partners; and Managing Director, Clearstone Venture Partners* • **Chairperson:** Datuk Hisham Hamdan, *Executive Director, Investments and Head of Khazanah Research & Investment Strategy, Khazanah Nasional Berhad*
3:45 - 4:30pm	**SPECIAL ADDRESS: 'Star Trek: Where No Man Has Gone Before'** • Datuk Marjorie Yang, *Chairman, Esquel Group* • **Introducer:** Omar Siddiq Amin Noer Rashid, *Executive Director, Investments, Khazanah Nasional Berhad*
4:30 - 4:45pm	**Break**
4:45 - 6:00pm	**SPECIAL SESSION** **ETHICS IN FINANCE: 'Getting Back on Track - How do we Return to Higher Ethical Values in Finance?'** • Prof Abbas Mirakhor, *First Holder of the INCEIF Chair of Islamic Finance* • Tan Sri Andrew Sheng, *Chief Adviser, China Banking Regulatory Commission; Distinguished Fellow, Asia Global Institute; and Board Member, Khazanah Nasional Berhad* • Prof Asim Khwaja, *Professor of Public Policy, Harvard Kennedy School* • Gita Wirjawan, *Chairman, Ancora Group; and former Minister of Trade, Republic of Indonesia* • **Chairperson:** Daud Vicary Abdullah, *President & CEO, INCEIF*
6:00pm	**End of Day One**
6:00 - 7:30pm	**Refreshments**
7:30 - 10:00pm	**SPECIAL EVENT: Shuttlecocks, Cinema & Artistic Disruptions**

Day Two Programme

Tuesday, 6th October 2015

Grand Ballroom, Mandarin Oriental Kuala Lumpur

9:00 - 9:45am

SPECIAL ADDRESS: 'Innovation and Cities'

- Prof Tony Venables CBE, *Professor of Economics, University of Oxford*
- **Commentator**: Hamdan Abdul Majeed, *Director, Investments, Khazanah Nasional Berhad*
- **Moderator:** Tengku Dato' Sri Azmil Zahruddin, *Executive Director, Investments, Khazanah Nasional Berhad*

9:45 - 10:30am

SPECIAL ADDRESS: 'No Ordinary Disruption: The Four Global Forces that are Breaking All the Trends'

- Jonathan Woetzel, Director, *McKinsey & Company, Shanghai*
- **Introducer:** Chinta Bhagat, *Executive Director, Investments and Head of India Office, Khazanah Nasional Berhad*

10:30 - 10:45am

Break

10:45am - 12:15pm

SESSION 3
GROWTH AND DEVELOPMENT: 'The Innovation Economy Won't be Built in a Day - What Should Policymakers and Players Do?'

- YB Encik Khairy Jamaluddin, *Minister of Youth and Sports, Malaysia*
- Tan Sri Andrew Sheng, *Chief Adviser, China Banking Regulatory Commission; Distinguished Fellow, Asia Global Institute; and Board Member, Khazanah Nasional Berhad*
- Dr Jomo Kwame Sundaram, *Assistant Director-General and Coordinator for Economic and Social Development, Food and Agriculture Organisation, United Nations*
- Prof Tony Venables CBE, *Professor of Economics, University of Oxford*
- Dato' Yasmin Mahmood, *CEO, Multimedia Development Corporation (MDeC)*
- **Chairperson:** Dr Nungsari Ahmad Radhi, *Managing Director, Prokhas Sdn Bhd*

12:15 - 1:00pm

SPECIAL ADDRESS

- Prof Hugh Herr, *Associate Professor, MIT Media Lab; and Founder and CTO, iWalk Inc*
- **Introducer:** Prof Adrian David Cheok, *Director, Imagineering Institute; and Professor of Pervasive Computing, City University London*

1:00 - 2:15pm

LUNCHEON ADDRESS: 'Responsible Business - What Is It and How Do We Ensure It?'

- Sir Mark Moody-Stuart, *Chairman, Hermes Equity Ownership Services; and former Chairman, Anglo American plc and Royal Dutch Shell Group*
- **Introducer:** Mohd Izani Ashari, *Executive Director, Managing Director's Office, Khazanah Nasional Berhad*

2:15 - 2:30pm

Break

2:30 - 3:15pm

SPECIAL ADDRESS

- Jonathan Cavendish, *TV and film producer; and Co-Founder, The Imaginarium Studios*
- **Introducer:** Dominic Silva, *Executive Director and Head of Investments, Khazanah Nasional Berhad*

3:15 - 4:45pm

SESSION 4
PEOPLE AND LEADERSHIP: 'The Yin and Yang of Inclusive Innovation - Balancing Adventure with Ethics'

- Prof Hugh Herr, *Associate Professor, MIT Media Lab; and Founder and CTO, iWalk Inc*
- Jesus B. Atencio, *President and CEO, 8990 Holdings Inc*
- Malek Ali, Founder, *BFM 89.9*
- Mark Chang, Founder, *Jobstreet Bhd*
- Tan Sri Prof Zakri Abdul Hamid, *Science Adviser to the Prime Minister of Malaysia; and Chair, UN Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)*
- **Chairperson:** Dato' Charon Mokhzani, *Executive Director, Khazanah Nasional Berhad and Managing Director, Khazanah Research Institute*

4:45 - 5:00pm

Break

5:00 - 5:15pm

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

5:15 - 5:45pm

Closing Address by YAB Dato' Sri Mohd Najib Tun Abdul Razak, *Prime Minister of Malaysia*

5:45pm

End of Day Two

from
farm to shelf
WITHIN
48
HOURS
No Preservatives
No Colouring
F&B PARTNER
KMF 2015
Farm Fresh®
Junior
cultured milk
Susu Kultur
less sugar
Natural Milk
Yogurt
fresh yogurt drink
it's Low Fat
SKINNY LOW FAT
everything about fresh Milk
PROBIOTIQ
90 Billion CFU Live Cultures
Premium
CHOCOLATE
Milk
Cafe latte
DOUBLE ESPRESSO
pasteurized
heavy
whipping
Cream
EYES WIDE OPEN
By The Holstein Milk Company Sdn Bhd
ÆON BIG
ISETAN
Cold Storage
TESCO hypermarket
MYDIN
Giant
SOGO
VILLAGE GROCER
HERO
Jaya GROCER
Find us on: Farm Fresh, Dairy Produce

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