

MEGATRENDS

The Official Khazanah Megatrends Forum Magazine | Issue 07/2017/1 | 2nd - 3rd October 2017

Cerebrum **X** Algorithm

**BUILDING TRUE VALUE
IN A POST-TRUTH WORLD**

Fearless Design

Perspectives in Form, Function and the Future

Monday, 2nd October 2017

Exhibition Hall 5, lobby level, KL Convention Centre

7.00pm Dinner | 8.30pm Event begins | 10.00pm Event ends

Image by Hufton+Crow



**Amanda
Levete**

Stirling Prize-winning architect, whose firm designed Lisbon's MAAT Museum and an extension at London's V&A Museum



**Lynette
Wallworth**

Emmy-nominated filmmaker and interactive installation artist



**Izmir
Yamin**

Rocket Scientist, Google Lunar XPRIZE finalist, and World Technology Award nominee

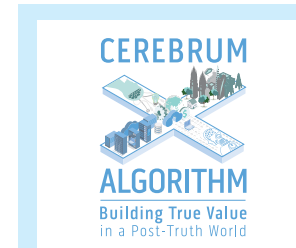


**Ben
Evans**

Director, London Design Festival; Executive Director, London Design Biennale

www.kmf.com.my

- 4 Foreword by the Managing Director
- 6 About Khazanah Megatrends Forum
- 7 Message from Chairs of Organising Committee
- 8 Concept Paper
- 16 Keynote Addresses
- 22 Panels
- 32 Presentations
- 35 KMF2017 App
- 36 Past KMFs
- 38 Articles
 - The Mind in the Machine:
Demis Hassabis on Artificial Intelligence
 - Why Facts Don't Change Our Minds
 - The Real Threat of Artificial Intelligence
 - The Next Big Winners in Tech will be
The Companies that Choose Heart over Head
 - The Rise of AI Makes Emotional Intelligence
More Important
 - AI and The City
- 56 Khazanah Research Institute
- 60 Yayasan Hasanah
- 64 Khazanah in the News
- 70 Book Launches
- 77 KMF2017 Special Giveaways
- 80 Programme



8 Concept Paper
Geography as Destiny?
- Reaping the Dividends of
Good Stewardship: The
Political Economy of Location,
Environment, Demographics



**38 The Mind in the Machine:
Demis Hassabis on
Artificial Intelligence**
The co-founder of
DeepMind explains how AI
will help us make
unimaginable leaps in
understanding the world



**42 Why Facts Don't Change
Our Minds**
New discoveries about the
human mind show the
limitations of reason



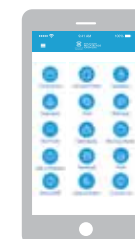
**48 The Real Threat of
Artificial Intelligence**
Beijing - What worries you
about the coming world of
Artificial Intelligence?



**50 The Next Big Winners in
Tech will be the
Companies that Choose
Heart over Head**



**52 The Rise of AI Makes
Emotional Intelligence
More Important**



KMF2017 APP

To enhance your KMF2017 experience, don't forget to download the KMF2017 mobile app. Scan the QR Code to download or go to goo.gl/SN6Yvt on your web browser.

For more information, please go to page 35.





Foreword by the Managing Director

X represent conflict? What of cooperation? Or maybe total capitulation of Cerebrum to the Algorithm? Is AI an existential threat to humanity? Is it a benefit and an enabler – which will help humans to perform better at what we want to do? Is it an economic threat to some – eliminating jobs for many, enriching the few, and further exacerbating *inequality*?

Next, we turn to *amal baik* or right actions. This is captured by the second part: ‘Building True Value in a Post-Truth World.’ In 2016, the Oxford Dictionary’s word of the year was ‘post-truth’. The term ‘post-truth’ describes a scenario in which the value of fact or truth is diminished, superseded even, by the power of waves of emotion and identity narratives. Some may see ‘post-truth’ politics as a prominent issue only in the recent United States presidential elections and the Brexit vote, but ‘post-truth’ politics can be seen all around the globe. In such a world, what is the role of the truth? And if we are to Build True Value (Khazanah’s motto), how do we do so in a post-truth world?

By ‘Build True Value’, I mean beyond just financial returns (in the case of corporates) or national income (in the case of countries). True Value encapsulates the total impact or returns that a given company creates from financial, strategic and societal perspectives. For instance, a timber company may generate huge profits for its shareholders – but if it undertakes unsustainable logging, it may end up decimating entire forests and creating an overall negative value for *all* stakeholders. Therefore, particularly in a post-truth world, we must go even further to Build True Value, taking into consideration financial, strategic, and societal returns. If I may sum up the mantra of Building True Value, it goes as follows – Building True Value is to do the *right things* (mandate), *right* (execution), *in the right way* (governance). This, to me, is what Khazanah strives to do and what we should attempt to action after generating useful knowledge.

Towards that end, we have once again assembled a truly incredible line-up of speakers to tackle the theme from all angles. Of course, we retain our Core Sessions on Macro & Markets, Firms & Transformation, Growth & Development, and People & Leadership. To add to those perspectives, we have also invited speakers to discuss from the angles of Neuroscience, Technology, Sociology, Story-telling, Philosophy. A special panel session on ASEAN and the impact of *One Belt, One Road* (OBOR), recently renamed the *Belt and Road Initiative* (BRI), will cover the geo-political and regional angle – very timely, given that this is the 50th year anniversary of ASEAN’s conception.

First and foremost, let me welcome you to the thirteenth edition of the Khazanah Megatrends Forum. This event pulls together a group of diverse, highly in-demand speakers who are thought leaders in their respective fields from all over the world. In addition, KMF is also now attended by a near one thousand-strong audience consisting of Malaysian and foreign corporate leaders, policy makers, academicians, as well as NGO and civil society practitioners.

An important part of Khazanah’s mandate is to build knowledge capital for the nation and KMF is a key part that agenda. Much work goes into the curation of KMF, in the belief and expectation that KMF is no longer just a strategic planning exercise (as it began in 2005), but an important knowledge forum for corporate Malaysia and its partners. As I posited in the KMF 10 Year Anniversary Book, the essence of KMF can be captured by the following words, in Malay – *Amal baik, ilmu berguna* or ‘right actions, useful knowledge’. Any knowledge that we discuss, deliberate, debate, or dissect must be useful. Otherwise, we are just wasting our time. However, any useful knowledge must also be actionable in the right way; otherwise, we would just be discussing pie-in-the-sky ideas.

The theme this year is ‘Cerebrum X Algorithm: Building True Value in a Post-Truth World.’ The ‘knowledge’ that we are looking to explore is the relationship between Artificial Intelligence (the ‘Algorithm’) and Human Intelligence (the ‘Cerebrum’). So, what really is X? Is the relationship between Algorithm and Cerebrum necessarily antagonistic? Does

you once again.

The full KMF experience extends beyond the Ballroom. In the lobby, we will be distributing books written by KMF Speakers: *The Driver in the Driverless Car* by Vivek Wadhwa; *Soccernomics* by Simon Kuper; *The Problem Solvers* by Charles Leadbeater. We are very pleased to introduce local beverage suppliers: Desa Pandan Coconut Shake, a small family business from Negeri Sembilan that brought their famous Coconut Shake recipe to Kuala Lumpur in 2015; and Aitch Coffee Roasters, founded by a group of young professionals in 2014, whom we are pleased to have again this year.

You will find exhibits depicting aspects of Artificial Intelligence. The Imagineering Institute is providing you with an opportunity to meet and converse with Donald Trump, Aristotle and Michael Jackson – based on what these individuals have tweeted, written and sung. We are grateful to IBM for their Watson exhibit, which demonstrates visual recognition, conversation and identification of emotion from the tone of writing. The Fractal Analytics exhibit will showcase the power of AI through two demonstrations: the first one learns the painting styles of great masters and renders these live in a video stream of people at the event, showing how they would appear if a Rembrandt or a Picasso would have painted them; the second one shows the power of AI in image analytics by auto-recognising objects from user chosen videos/ pictures. Blippar’s exhibit will give attendees experience of augmented reality and AI-driven visual recognition (computer vision) using real examples.

I am truly excited about the theme and I look forward to what promises to be an insightful, meaningful and inspiring KMF. On behalf of Khazanah and our co-host the Khazanah Research Institute, I would like to thank the many who have worked so hard to create KMF2017. Next, I would also like to record my most sincere appreciation to Yang Berhormat Datuk Seri Johari Abdul Ghani for graciously agreeing to launch the books and KNEO and to deliver the Closing Address for KMF 2017. Finally, above all, let me also take this opportunity to thank all of you for being here. You are busy people, but KMF would be nothing without your continuing support and engagement.

I do hope that you enjoy all aspects of KMF2017, and find it thought-provoking, useful and actionable.

Thank you.

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

Our line-up of speakers includes many new faces and, as per KMF tradition, a few old favourites. In total, we have 40 speakers from 14 countries, plus Chairpersons and Introducers. As I mentioned, we will tackle the ‘X’ of Cerebrum X Algorithm from all angles; we are going to explore what it means to be human and what will differentiate us from the Machines. Are we heading for the dark, possibly post-apocalyptic landscape of the science fiction movies? Or perhaps we will enjoy a new era of prosperity, abundance and leisure – where human dignity and quality of life is elevated? From there, we will ask the even more important questions: so what do we do? And how do we do it right? And in the right way?

As is now an established tradition, we will enjoy the Monday evening Special Event, this year entitled: ‘*Fearless Design – Perspectives on Form and Function.*’ Curated for the fifth year running by Datin Saidah Rastam, this year’s Special Event will give us the pleasure of considering *Design* from the perspectives of architecture, film-making and space travel – with an eye on what the future may bring. It promises to be a very unique and eye-opening experience. Lynette Wallworth, one of the presenters, is actually nominated for an Emmy Award for her wonderful Virtual Reality film, ‘*Collisions.*’ If you didn’t see it last year, there is another opportunity to do so this year in the lobby. In fact, Lynette will be heading to New York City for the Emmy Awards ceremony on Thursday night after KMF. We wish Lynette the best of luck.

No KMF is complete without a book launch, and this year we have three books to present. Our old friend, Alvin Ung, is bringing us his latest book: ‘*Together: Finding Purpose at the Crossroads of Me+We.*’ ThinkCity is launching ‘*Rejuvenating the City Together.*’ Our partner organisation for KMF, the Khazanah Research Institute, is presenting: ‘*Building Social Capital: the George Town Experiment.*’ A copy of each of these will be made available to KMF attendees at the launch event. Last, but definitely not least, my team here at Khazanah has tirelessly worked on a project that is aimed at promoting entrepreneurship and innovation in Malaysia. I would like to welcome all of you here today to grace us with your presence at the launch of the Khazanah Nasional Entrepreneurship Outreach Programme (“KNEO”) on Day 2 of KMF2017.

Last year, we launched the KMF Mobile App, and this year it has been further developed to augment your KMF experience. Please ensure that you have downloaded it and registered yourself, as all voting will now be done through the App. Further information on KMF can be found in this magazine, which includes the Concept Paper. Please do take the time to read it, as it will greatly enrich your experience of the discussions. The Primer, also to be found in your Forum bag, summarises and expands on the theme through data and graphics. As usual, we will be distributing summaries of sessions in the KMF Day 2 and Day 3 Magazines. For those of you who prefer pictorial representations, the Doodler summaries will be available for



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 mega trends, as well as to address topical matters of interest.

The Forum enters its 13th annual installment in 2017. 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.



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 & tourism, and property, amongst others.

Our listed portfolio includes Axiata Group Berhad, CIMB Group Holdings 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 commenced operations a year later. Khazanah is owned by the Minister of Finance Incorporated, except for one share held by the Federal Land Commissioner.

The Forum discussion covers four main perspectives:

- Macro and Markets
- Firms and Transformation
- Growth and Development
- People and Leadership

Participation in the Khazanah Megatrends Forum is by invitation only.

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 calling us all to reflect deeply and take action on a key human trait— our intelligence – and how this relates to major developments in our external environment. For the most part, long-term economic growth has not quite recovered since the Global Financial Crisis (GFC). Corporates are also facing low productivity of capital, evidenced by declining ROICs and ROEs. We tackled this topic in KMF2014, where we posited for a shift from input-led to innovation-led productivity growth, reinforced by KMF2015's call to harness Creative Disruption by unlocking the power of inclusive innovation.

This deflated growth environment led governments to inject massive waves of capital, such as the Fed's QE measures, bringing about inflation in equity valuations. Index funds thrived as markets rode this Credit Supercycle, but funds that undertook active management generally underperformed the index. This scenario raised a Catch 22 situation. *If firms are in need of a collective ecosystem of activist shareholders, portfolio investors and private equity players who act as 'sharks' to corporate performance, but passive investing generated higher returns, what would this mean for corporate governance?*



Google.com first appeared on the internet twenty years ago. Ten years ago, the iPhone was introduced. If both are Malaysians, they are not even old enough to vote. And yet, they – together with the technology they embody – have fundamentally redefined businesses and societies, and continue to shape how we work, learn, live and love. Most of us today cannot imagine a life without the modern internet and our smart devices.

This year's Forum invites us to explore further ahead with a premise - artificial intelligence (AI) as a technology whose time has come. On how it could be as consequential in powering our future, as electricity did in our past and ICT, our present. The application of AI is unlikely to be narrow, nor its progress slow. It has the potential to drastically alter all facets of our lives through its impacts on pre-existing economic and social structures, in a future that could be much closer than we think.

Against this backdrop, we should empathise with CEOs. Not only do they have to deal with the issues highlighted earlier, they also have to solve the complex problem of what KMF2016 called, 'The Corporate Impossibility Trinity' – generating financial, strategic and societal returns simultaneously. Higher economic complexity, which is highly correlated with higher collective knowhow, may be good for national development, but may be detrimental to the firm. Corporate complexity requires CEOs to both 'exploit' internal capabilities to generate returns and to 'explore' future growth paths and therefore be ambidextrous, which is extremely tough to do. It may also be exacerbated by contradicting demands from shareholders and board members for higher dividends and higher earnings all at once, which is extremely rare without exponential returns gains. Managing all this complexity is tremendously difficult, if not impossible. So, what should firms do?

Perhaps one solution is Artificial Intelligence (AI). For instance, AI can be useful in overcoming human cognitive biases that can negatively impact corporate decision-making or in suggesting measures to re-ignite growth that are free from attachment to incompatible business models. However, AI is not without its drawbacks. Algorithm-based traders which replace active shareholders can worsen the problem of 'absentee landlords' by reinforcing passive management. Moreover, there are just things that AI cannot do. The clearest example is in being human – in having empathy, compassion and humility. In a world of rising intelligence, perhaps the strongest force of all may still be Emotional Intelligence.

With that, I welcome you to KMF2017. Let the discussions begin.

Datuk Hisham Hamdan

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

Technological advancement is the core of economic progress. But it is worthwhile to remember that the effects of new technology are never certain and its impacts are always uneven. Even when it is a net positive for us collectively, segments of the population will still be adversely affected and left behind. Throughout history, periods of rapid technological change have always been accompanied by heightened cultural anxieties and social discontents. This time is no different.

So how do we make sure that new opportunities are harnessed and risks minimised for everyone in Malaysia? Do AI and accompanying new technologies offer our economy the means to grow robustly but sustainably and inclusively? Further ahead, how do we prepare our children for a world that does not exist yet? Conservatively, more than half of all Malaysian children at school today will eventually be employed in jobs that do not exist yet.

These are some of the pressing issues that we at Khazanah Research Institute are looking into currently. These are also the issues that I invite you to join us to explore in the next two days.

On behalf of the Khazanah Research Institute, welcome to Khazanah Megatrends Forum 2017.

Dato' Charon Mokhzani

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



Of World War 2 and the Enigma Code: Origins of Artificial Intelligence

On the 4th of September 1939, a day after the United Kingdom declared war on Germany, Alan Turing reported to Bletchley Park, the wartime station of the British code-breaking organisation. Among his chief tasks was to decrypt coded messages generated by the German military's cipher machine, the Enigma. Turing was chosen because of his expertise in logical and mathematical cryptology as well as his conception of a "universal computing machine", capable of performing any computation as long as it was representable as an algorithm.

This "universal computing machine", or the Turing machine, was a critical factor in the design and construction of the 'bombe,' a machine that would help break the Enigma codes. Pitting machine against machine, Turing's 'bombe,' nicknamed Victory, broke the Enigma code used by German U-Boats to prey on the North Atlantic merchant convoys that were loaded with essential war-time supplies for Britain. Conservative estimates roughly quantify that if the U-Boat Enigma had not been broken, World War 2 may have continued for another 2-3 years, costing another 14-21 million lives.

The Turing machine was arguably the first contribution of Artificial Intelligence ("AI"), or, in the lingo of this essay, the "Algorithm", to the human race. To be clear, AI is a particular subset of machine

Where machines such as steam engines and telephones attempt to replicate human brawn activities, AI attempts to replicate human brain activities or Human Intelligence ("HI"), the "Cerebrum".

technology, defined roughly as the simulation of human intelligence processes by machines. Where machines such as steam engines and telephones attempt to replicate human brawn activities, AI attempts to replicate human brain activities or Human Intelligence ("HI"), the "Cerebrum".

For the bulk of the twentieth century, the evolution of AI and computing was slow but steady. In 1961, the first industrial robot, Unimate, began work on the General Motors Assembly Line; the 1960s also saw the world's first IBM supercomputer machine, used in the American space programme to put a man on the moon. In 1973, Sir James Lighthill, a British mathematician, published the Lighthill Report which gave a largely negative verdict of AI's future, leading to funding cuts in AI research. AI was, in the 1960s to the 1980s, largely the domain of science fiction with writers such as Isaac Asimov, Arthur C. Clarke and Robert Heinlein.

Data and Power: The Rise and Rise of Artificial Intelligence

This all changed in the 1990s with major advances in all areas of AI, especially machine learning, data mining, and natural language processing. A major breakthrough occurred in 1997, when IBM's Deep Blue machine beat Garry Kasparov, the world's foremost chess player. This triumph of machine over man has progressed with IBM's Watson defeating human champions in Jeopardy in 2001, Google's DeepMind defeating the Go world Champion Lee Sedol in 2016 and, this year, Carnegie Mellon University's Libratus defeating humans in Poker, a game of incomplete information and bluffing. The rise of AI has been especially driven by the increased access to and storage capacity of massive amounts of data as well as the development of computing power via GPU chips and, more recently, Tensor Processing Unit chips created by Google.

This proliferation of data and exponential increase in computing power has seen the rise of a particular type of AI called "Deep Learning ("DL")", a subset of Machine Learning ("ML"). If AI is any sort of intelligence exhibited by machines, ML is where a machine is trained, using large amounts of data and algorithms, to *learn* how to perform a given task. Then, there is DL, where machines are conceived to replicate the human brain via the creation of artificial 'neural networks,' enabling machines to

learn from themselves, unsupervised, based on data that is unstructured or unlabeled (images, sound, video, text).

In essence, DL software tries to mimic the activity in the human Cerebrum, the wrinkly 80 percent of the brain where conscious thought takes place but, it should be made clear, DL still has a long way to go. Nonetheless, DL applications are emerging rapidly. A DL system that was shown 10 million images from YouTube videos proved almost twice as good as any previous image recognition effort at identifying objects. Massachusetts General Hospital's new clinical data science center will use NVIDIA's DL supercomputer to compare a patient's tests and history with data from a vast population of other patients to improve detection, diagnosis, treatment, and management of disease. DL is also the AI subset upon which driverless cars, currently developed by Alphabet and Uber, among others, are based.

DL applications will only expand in the future as computing power increases and even more data becomes accessible. Mergers and acquisitions (M&A) activities in AI have been steadily increasing in the past five years. The world's technology behemoths, such as Google, Apple and Facebook, have increased their AI startup acquisitions over the past five years; Google acquired 11 startups, Apple acquired 7, and Facebook acquired 5. The Chinese firm, Baidu, has also doubled down on its DL investments. Indeed, Enterprise AI – even in DL products – has started to be applied in large industries such as the financial services and aviation industries. The corporate world is taking notice of AI's rise.

Cerebrum, Algorithm and a Post Truth World

If there were two events that particularly defined the year 2016, it would be, firstly, in June, the United Kingdom's "Brexit" vote and, secondly, in November, Donald Trump's victory in the United States

Presidential elections. In both cases, the outcomes were, for many, wholly unexpected. Along the campaign trail leading up to both events, Donald Trump and the politicians supporting Brexit were found guilty of portraying misleading facts and figures and, in some cases, total falsehoods, as demonstrated by fact-checking websites. This notion of rhetoric overpowering facts became a major global issue; indeed, the Oxford Dictionaries' 2016 Word of the Year was 'Post-Truth.'

'Post-truth' politics can essentially be defined as a political culture in which objective facts are less influential in shaping public opinion – and firing up voters – than appeals to emotion and personal belief.

'Post-truth' politics can essentially be defined as a political culture in which objective facts are less influential in shaping public opinion – and firing up voters – than appeals to emotion and personal belief. Facts and figures are therefore ignored and discarded in favour of rhetoric that engages with a voter's emotions or sense of self. For posterity, a 'post-truth' culture is not the same as a culture of falsehood; the difference is that the accuracy of statements becomes secondary, regardless of whether those statements are true. Furthermore, it is not just in the United States and the United Kingdom that signs of a post-truth world are evident. An article in the Economist in September 2016 also identified post-truth politics in Austria, Germany, Poland, Russia, and Turkey¹. To be clear, the post truth world has existed far longer than this, and has dominated politics in many countries and even historical empires. The difference now is that more mature democracies have succumbed to it, despite having a vibrant and free press.

On the one hand, an argument can be made that a post-truth world is entirely a 'Cerebrum' or human error – if humans choose to embrace emotional rhetoric rather than rational fact, how can there be other culprits in bringing about a post-truth world? Alternatively, if we believe that humans can be socially conditioned, then we should be open to the notion that Algorithm could potentially socially engineer our environment.

A clear example is the case of the Brexit Leave campaign which paid 3.5 million Pounds to a Canadian company called Aggregate IQ that specialises in targeted Facebook advertising and profiling via Big Data analytics and Machine Learning, believing that individuals' Facebook activities are a much truer representation of their political leanings compared to their answers to polling questions. Indeed, Vote Leave's director, Dominic Cummings has said that, "The Vote Leave campaign owes a great deal of its success to the work of AggregateIQ. We couldn't have done it without them."²

As such, social media may exacerbate the post-truth situation. Facebook, with its global community of 2.0 billion members³ is a good example of an Algorithm that is capable of socially engineering human interactions. The Facebook News Feed is a learning algorithm that optimises and personalises what the user sees on Facebook based on user activity. For instance, if a user has 'Liked' a lot of posts on Liverpool Football Club, then more news of Liverpool will be displayed on the user's News Feed. Now, substitute Liverpool Football Club with 'socialism', 'religion' or even 'cats', and the outlines of a phenomenon called the 'echo chamber' starts to form. Thus, while social media may be integrating the world, is it also segmenting the world based on shared preferences, thereby deepening what Oxford sociologist Harvey Whitehouse calls "identity fusion"? After all, evolutionary anthropology has shown that humans have always been tribal; this behavior is not new. However, the reach of technology and social media

has allowed this sense of tribalism, or nativity, to be harnessed more effectively for one's purposes.

Manipulating this sense of tribal identity fusion was an important factor in the United States presidential elections – a key manifestation of Cerebrum's rebellion against Algorithm. One of the main driving forces of President Trump's victory was his ability to capture voter sentiment in America's Rust Belt who, for many years, had seen significant economic deterioration due to massive job losses. On the campaign trail, Donald Trump sold the message that foreign trade, particularly to China, had been the cause of these job losses. There is some truth to that statement; according to economists Daron Acemoglu and David Autor of MIT, globalisation – particularly trade with China – led to the rapid loss of 2 to 2.4 million net jobs⁴.

However, the same David Autor also argued that, over time, automation would have eliminated those jobs anyway, saying that, “Some of it is globalisation, but a lot of it is we require many fewer workers to do the same amount of work⁵”. In America's steel industry, economists Allan Collard-Wexler of Duke and Jan De Loecker of Princeton found that 75% of the work force – or 400,000 people – lost their jobs, yet its shipments did not decline due to a new technology called the ‘minimill’⁶. Thus, this heightened sense of communal identity led voters to embrace nativity and therefore, Trump's campaign pledges, despite the fact that automation was a far stronger contributor to job loss than globalisation.

Technology and Developing Nations – Is There Such a Thing as Too Much Innovation?

As AI becomes even more sophisticated, we can expect more adverse impacts on jobs. A Boston Consulting Group report forecasts that the robot population is set to increase four times from current levels by 2025⁷. Coupling this with a study by economists Daron Acemoglu

and Pascual Restrepo, who argue that every one unit increase in the ratio of robots to workers would decrease jobs by 0.26% and wage growth by 0.37%, we could be staring at approximately 2% decrease in total jobs, with a 3% decrease in wages⁸. According to a report from the Oxford Martin School, the OECD estimates that approximately 57% of jobs are susceptible to automation across the world⁹. Using the methodology from the Oxford Martin study, the Khazanah Research Institute (“KRI”) calculated the probability of jobs being displaced by technology in Malaysia over the next two decades¹⁰. The authors find that an astounding 54% of all jobs in Malaysia could be at high risk of technological displacement. At a more granular level, more than 70% and 80% of all semi-skilled and low-skilled jobs respectively are at high risk, with 40% of skilled jobs at medium risk.

Looking at the type of jobs that are at risk, a McKinsey report finds that the occupations that are most susceptible to being replaced by AI are those in predictable physical work, data processing and data collection¹¹. On the other hand, management jobs, expertise application jobs, stakeholder relation jobs and unpredictable physical work are likely to stay, aided by AI. While this may give comfort to some, it is important to recognise that it is not just the low-skilled jobs that will get replaced, particularly against the backdrop of ever expanding Deep Learning. From the Oxford Martin study, among the top 10 jobs most at risk of being replaced by automation include Mathematical Technicians, Tax Preparers, and Insurance Underwriters.

This potential displacement of jobs will create seismic shifts in economies worldwide, particularly in developing economies like Malaysia. As a nation attempting to escape the middle-income trap, Malaysia has, rightfully, set its sights on driving economic development via innovation and building a knowledge economy. Malaysia has very successfully transitioned from an agriculture-based

economy to a manufacturing-based economy to a services-based economy today. Moreover, Malaysia ranks 23rd most in the world on Ricardo Hausmann's Economic Complexity Index, indicating the production of a variety of highly complex products. It stands to reason that the Malaysian economy is hardly a stagnant economy, able to adapt and transition over time from the yesteryear days of rubber and tin to electrical and electronics exports today.

**On the one hand,
it is clear that any
progress towards 2050
would necessarily require
embracing technological
advancements but,
on the other hand,
what if those very
technological
advancements that
drive productivity also
displace millions of
Malaysians from
their jobs?**

However, as the government sets out on its new Transformasi Nasional 2050 (“TN50”) initiative – an initiative to plan for the future of Malaysia in the period 2020 to 2050 encompassing five key areas, namely, Work and Value Creation, Lifestyle, Society, Living and Well-Being, and Governance – the promise and threat of innovation may prove to be the ultimate double-edged sword. On the one hand, it is clear that any progress towards 2050 would necessarily require embracing technological advancements but, on the other hand, what if those very technological advancements that drive productivity also displace millions of Malaysians from their jobs? As a developing economy, can the Malaysian economy afford a scenario where millions of Malaysians are made redundant, without yet having the necessary private and public financing to sustain even basic livelihoods for all?

Of course, one could argue that a potential long-term solution to ensure the ever-readiness of Malaysians to handle technological disruption is a high quality education system. The Malaysian Education Blueprint has set some lofty goals for Malaysia, but how futureproof are they? Furthermore, even if Malaysia manages to instill a high quality education system by the year 2050, what of all the intervening years in between? As KRI has argued, 54% of all jobs in Malaysia are at risk over the next two decades, of which the bulk of the risk is borne by semi-skilled and low-skilled workers who would not have the purchasing power to survive long periods of unemployment. These people cannot simply be put on hold waiting for the country builds a high quality education system.

This potential problem of ‘too much innovation, too soon’ does not apply just to Malaysia but also the political and economic geography in which it resides. Of the 10 ASEAN nations, only Singapore is a high-income nation, while the rest of the nine ASEAN nations face similar challenges given their statuses as developing nations, albeit at different stages of development. Now 50 years old, ASEAN is primed to play a greater global economic role with its rising population, rising income and wealth, and rising economic influence. However, if a large chunk of ASEAN nations face massive increases in structural unemployment, how will the ASEAN nations develop over the next 50 years and beyond? Even the need to attract Foreign Direct Investment could be a double-edged sword – the One Belt One Road (“OBOR”) initiative by China may disburse Chinese investments throughout ASEAN, but what are the potential political, economic and social costs? Beyond OBOR, what of global firms – who now have strong ‘soft’ economic power¹² – who wish to set up outposts in these countries? To what extent should countries bend over backwards to accommodate these mega

firms that promise to bring investment and jobs into the ASEAN nations but may also hold too much economic clout? These are tremendously exciting but challenging times for developing nations.

Where Next for the Cerebrum? Doing the Right Things, Right, in the Right Way

A March 2017 Vanity Fair article describes Ray Kurzweil, a director of engineering at Google, as a futurist who has predicted that humanity is only 28 years away from a “Singularity” – the moment when super Artificial Intelligence will far exceed Human Intelligence, and HI will merge with AI to create hybrid beings of the future¹³ that exhibit ‘Super-Intelligence,’ defined by Oxford philosopher Nick Bostrom as, “an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills”. In Bostrom's categorisation, ‘Super-Intelligence’ is achieved via sentient Artificial Intelligence, but the point raised by Kurzweil is perhaps more apt – what if we could use Human Intelligence to optimally harness Artificial Intelligence (not necessarily literally melding the two) creating a new form of ‘Super-Intelligence’ that could be a key step in providing the breakthrough to some of the world's most challenging problems?

To be clear, not every scientist or technologist is as enamored of AI as Kurzweil. For instance, Stephen Hawking, Bill Gates, Henry Kissinger, and Elon Musk are those who are genuinely concerned about a future where AI spells the end of the human race. As Elon Musk puts it, AI is likely humanity's “biggest existential threat” and that AI scientists could possibly produce “a fleet of artificial intelligence-enhanced robots capable of destroying mankind.” Mark Zuckerberg, the Facebook CEO, is less concerned, stating, “Some people fear-monger about how AI is a huge danger, but that seems far-fetched to me and much less

likely than disasters due to widespread disease, violence, etc.” Zuckerberg has a point; there is a case to be made that all technology, even AI, is endogenous, created by humans to improve their quality of life and reduce their labour and, at a broader level, simply a reaction to shifting demographics.

Therefore, even if the existential threats to humanity are potentially over-stated, there are still some very real consequences to Artificial Intelligence. As such, the theme of this year's Khazanah Megatrends Forum, “Cerebrum X Algorithm: Building True Value in a Post-Truth World” is one which acknowledges the wide variety of unknowns related to the future of AI and HI. The ‘X’ in the theme is not necessarily one of opposition, nor of integration, but merely an acknowledgment that Cerebrum and Algorithm can be both beneficial or destructive, depending on how we treat the technology. The ‘X’ is an invitation to consider how we can get both AI and HI to build on one another, creating, perhaps a form of ‘Super-Intelligence’ that can drive markets, firms, nations and society forward.

Building True Value is best described by the motto, “Doing the Right Things, Right, in the Right Way.” “Doing the Right Things” means choosing the appropriate mandate and objective; ‘Right’ means executing it in the most efficient manner; “in the Right Way” means doing things with the proper ethical and governance considerations.

Whether or not AI can be harnessed to build a better world, or, as per Khazanah's mission, to Build True Value depends heavily on how we define the

role of AI vis-à-vis HI. Khazanah defines True Value as the total measure of a given company, going beyond the market value of the company, thereby incorporating the economic value of the company and its societal impact. As an illustration, True Value measures whether a given company is value generating or value destroying from the standpoint of external and stakeholder factors such as the environment, staff and industrial harmony, economic multipliers such as job creation, technology and knowledge formation, development of a supplier base, and corporate responsibility. Building True Value is best described by the motto, “Doing the Right Things, Right, in the Right Way.” ‘Doing the Right Things’ means choosing the appropriate mandate and objective; ‘Right’ means executing it in the most efficient manner; “in the Right Way” means doing things with the proper ethical and governance considerations.

Applying this to HI and AI and how it relates to Building True Value, a good starting point is to ask what advantages does HI have over AI? From an efficiency standpoint – doing things Right – there is little contest. Given the immense computing power that AI possesses, AI would certainly outperform humans in any task requiring learning and data – whether it is disease diagnoses, financial analyses of companies, processing legal documents, or driving vehicles. This is not to say that humans do not have a say in doing things Right. The entire scope of Design is essentially a confluence between what machines can do and what humans are – giving form to function in a way that no machine can do. It is clear that AI would trump HI in efficiency; the question is whether HI can Design AI in such a way that the best of Cerebrum X Algorithm would emerge.

While AI has a massive edge to HI in relation to doing things Right, humans have a much greater role in deciding which tasks are worthy of doing – “Doing

the Right Things.” For instance, nuclear technology could either be used to power electricity or to create the atomic bomb. The “why” of any technology is still down to human agency. Choosing the right things for AI to do, is still very much within the realm of Human Intelligence. For instance, with regards to Building True Value and Doing the Right Thing, choosing what mandates to fulfill has led Khazanah to develop Project Chronos, which is a method of evaluating the True Value of a company, comprising the financial, strategic and societal value of the company. Similarly, in the realm of investing, one may invest solely for financial returns, but going beyond requires that the invested capital generate returns that contribute to society and have economic and social spillover. These may be in the form of starting entire new ecosystems such as Khazanah’s Catalytic Investments, undertaking Impact Investments such as in the Sustainable Development sector, or in developing new socially responsible financial instruments such as sukuk that are tied to the success of a social goal.

Finally, suppose we task an AI to solve a problem: for instance, optimising a nation’s GDP per capita for a given year. An AI robot would be indifferent between increasing the numerator – growing GDP – or decreasing the denominator – killing as many people as possible. This is an extreme example, but it is useful to illustrate the fact that AI is inherently amoral. After all, as Eliezer Yudkowsky, co-founder of the Machine Intelligence Research Institute, puts it, “The AI does not hate you, nor does it love you, but you are made out of atoms which it can use for something else”. The Oxford philosopher Nick Bostrom further illustrates this point, writing that, “We tell [AI] to solve a mathematical problem, and it complies by turning all the matter in the solar system into a giant calculating device, in the process killing the person who asked the question.”

As AI expands, we should not necessarily rage against the machine: we should work, as best, with Algorithms and ensuring that our Cerebrums are optimally positioned to choose the right mandates and the right ethics. Ultimately, it is only via harnessing the best of both Cerebrum and Algorithm that we can potentially build a new form of Super-Intelligence.

The good news is that there is a solution – Human Intelligence. The ethics and morals with which an objective is fulfilled, or, doing things “in the Right Way,” will still be determined by humans. This is especially important in a Post-Truth world, where an AI makes decisions without due consideration for the truth; only the Cerebrum, or HI, can rise above Post-Truth culture and distinguish between what is true and what is not. To be clear, the Algorithm’s ethical amorality is ever-present in AI discussions. Google recognises this, establishing an AI ethics board with its DeepMind acquisition. A more contemporary hotly-debated case is that of driverless cars – if the car goes out of control, how should its AI respond? Does it kill the passenger in the car to save others on the street? Or does it owe its passenger the right to safety and therefore kill others on the street to save the passenger?

Thus, if we consider the relative strengths of AI and HI, it becomes clear that in performing a given task, AI triumphs in execution efficiency, doing things Right albeit with the human twist of Design. The roles that humans must play alongside machines are, firstly, to choose the Right Things to Do – do we use AI to advance growth and development or do we use AI to exploit economic rents – and,

secondly, to ensure that tasks are done in the Right Way. Therefore, in many ways, the issue is not of Algorithm versus Cerebrum, AI versus HI, man versus machine. These are false dichotomies. Rather, in recognising that there are roles for the Cerebrum and there are roles for the Algorithm, in the coming years and in a Post-Truth world, as AI expands, we should not necessarily rage against the machine: we should work, as best, with Algorithms and ensuring that our Cerebrums are optimally positioned to choose the right mandates and the right ethics. Ultimately, it is only via harnessing the best of both Cerebrum and Algorithm that we can potentially build a new form of Super-Intelligence.

The Panels

In 13 years past, since the inception of the KMF, themes have been discussed ranging from a shifting global economic climate to a reclamation of the global ‘commons’; from a new context where uncertainty is normality to the need to generate growth with inclusion in an age of paradox, and most recently, whether or not good stewardship based on the political economy of location, environment, and demographics can overcome geography as destiny. 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 upholding KMF traditions, panel discussions on “Cerebrum X Algorithm – Building True Value in a Post Truth World” will continue to be organised along four perspectives: how various markets globally are affected; what the theme means to firms, and society at large; what are the imperatives of leadership. In addition, the KMF will delve deeper into the theme via special panel sessions on Innovation as well as Ethics. The programme and theme will be further enhanced and rounded out by the various Special Addresses and Luncheon Addresses.

Core Session 1: Macro and Markets – The Search for Alpha: Can Algorithm Trump Cerebrum?

On a macro basis, global growth seems set to remain strong over the next 12 months. The US economy has shown a spate of positive data, and the Federal Reserve is poised to raise rates once more in December. The Chinese economy looks set to moderate, with overall business activity remaining buoyant. The Eurozone muddles along despite the packed election calendar, having just escaped a Le Pen victory in France. Emerging markets have performed especially well, driven largely by technology stocks in EM Asia. 2017 earnings forecasts for Asia ex-Japan have been continually revised upwards, and company profits have beaten expectations across the board. In the USA, the Dow Jones and the S&P500 have repeatedly made record highs this year. However, some market commentators contend that the market optimism, especially in the DMs of the US and Eurozone, is due to the still-elevated levels of central bank balance sheets. Ultra-loose monetary policy has therefore led to investors flocking to EM assets. This is part of a search for yield that has also led to a sustained bull market in bonds the past decade that some say is over.

Enter algorithms and AI: As interest rates and investment returns have fallen post-GFC, investors are less willing to pay for active human managers to generate alpha. The past three years have seen investors largely move funds from active management to Algorithm-driven passive management, which provide lower-cost exposure to the markets by tracking an index. In 2016 alone, passive funds grew their assets 4.5 times faster than active ones. Robo-advisors, which are low-cost automated online investment services, such as Nutmeg, Betterment, and Wealthfront, have proliferated recently. A questionnaire determines what a customer’s investment goals and risk appetite are, and then recommends a

portfolio of low-cost funds to achieve these targets. More hedge funds employ algorithms now. Technology arguably has the advantage: algorithms stay constantly alert, especially as more and more data becomes digital and available online.

Against this backdrop, we consider the following questions:

- What is the outlook for global equity and bond markets? Will the US dollar get stronger, or have we already reached the top? Have emerging markets decoupled from commodities? Can the twin engines of the US and China continue growing apace?
- If data analysis and pattern recognition are truly the domains of the Algorithm, what is the role of the Cerebrum in generating alpha in financial market investments? Are 99% of stock analysts and fund managers in imminent danger of being replaced by AI and Algorithms?
- The Algorithm works best in efficient markets. Yet, even in inefficient markets, typically found in developing economies, can the Cerebrum still triumph over the market, especially given the fact that the Cerebrum is subject to a multitude of cognitive biases?

Core Session 2: Firms and Transformation – A World Awash With Data: What is the Role of the Algorithm in Enhancing Corporate Performance?

Incumbents are at greater risk from disruption than ever before. Corporate lifespans are shortening, with the lifespan of an average S&P 500 company reducing from 60 years to just 18 years over the past half century. From the perspective of the business unit, the path forward is clear – disrupt or be disrupted. To disrupt requires firms to invest substantially in new technologies, and in this case, Artificial Intelligence. Indeed, corporate M&A

activities in AI have steadily increased over the last five years. The advantages that AI offers company are plenty. For instance, AI has helped companies generate higher output productivity, improve operational efficiency, optimise procurement practices with suppliers, and enhance customer experience. The investments are starting to pay off; Kiva, the robotics company Amazon bought for \$775 million in 2012 has been reported to generate returns on investment of 50% for its new owner.

From the holding level perspective, the benefits of AI are also becoming more prevalent, as evidenced by the growth of robo-advisors. Given its far superior computing power and the availability of massive datasets, AI can scour the globe for the optimal portfolio mix, seeking the best risk-adjusted return and therefore, building portfolios with ever declining Sharpe ratios. Processing news flow in an ultra quick manners also allows for active buying and selling activity. Finally, another way in which AI can influence the corporate domain, is in decision-making. Given the entire array of human cognitive biases, it is easy to make colossal mistakes while at the helm of a major corporation, entailing a great destruction of not just shareholder, but also *stakeholder* value. It is within this context then that AI has a potentially massive role to play in corporate decision-making, tempering human cognitive biases, or perhaps even replacing human decision-makers. Even in terms of optimising a given mandate, perhaps the Algorithm can do a better job at simultaneously optimising the multiple regression of generating financial, strategic and societal returns, thereby Building True Value for the firm and for society. Against this backdrop, several pertinent questions arise:

- Are companies really doing enough to invest in AI or are they simply paying lip service?¹⁴ Furthermore, even if firms do invest in AI, value created may not be value captured. The ease of diffusion of today's

technologies means that the bulk of the returns on AI may accrue to a firm's suppliers, its customers, or maybe even its new competitors, some of which are daring start-ups. How do companies ensure they capture the value they create?

- The rise of robo-advisers may generate higher risk-adjusted returns overall, but they are also likely to lead to less active management which may have serious implications on corporate governance and on shareholder activism. How do firms continue to engage in active management or is this potentially the end of the activist shareholder?
- If AI has the ability to overcome human flaws (e.g. cognitive biases) and improve the decision-making process, could they replace humans as lead decision makers in the future? How can HI and AI best work together to create better firms, better outcomes, and True Value?

Core Session 3: Growth and Development – Artificial Intelligence: Enhancing Growth X Exacerbating Inequality?

Jobs are at risk. As posited earlier, it is not just the blue collar jobs that are at risk from automation, but also the white collar high-skilled jobs because of Deep Learning AI. To stem the tide of automation, Bill Gates, the founder of Microsoft, has suggested that robots who steal the jobs of humans should pay income taxes. Further, Yale economist Robert Shiller argued that, "A moderate tax on robots, even a temporary tax that merely slows the adoption of disruptive technology, seems a natural component of a policy." An increasingly popular suggestion to prevent a total social breakdown from job displacement by automation is to introduce a Universal Basic Income ("UBI"), a form of social security in which all citizens or residents of a country regularly receive an unconditional sum of money. However, even if a UBI were to take the place of a

decent wage, jobs serve a greater purpose than just a means of income. People find dignity and fulfilment in work, making them feel like a valuable member of society. Thus, automation may not just take away a means to income, but also a means to a sense of fulfilment and purpose in society.

Another looming issue on the horizon is inequality. In economic theory, the standard production inputs are threefold – capital, labour, and land. In the world of Deep Learning AI, if robots are to replace labour (since robots do not need lunch breaks, bathroom breaks, annual leave, medical leave and so on), and if only those with sufficient capital can afford robots, then the standard production function will see total domination by owners of capital. If returns from production go to the owners of production inputs, then all returns – or at least, an increasing proportion of returns – are likely to pass into the hands, or rather pockets, of the owners of capital. The implication of this is an even wider chasm in both income and wealth inequality between owners of capital and owners of labour. As such, we ask:-

- If a robot tax and/or Universal Basic Income is the answer to increasing AI displacement of jobs, what will be the consequence on economic growth and development? What is the true societal price of employment?
- The threat of greater inequality, particularly wealth inequality, looms large. If indeed capital owners will take greater control of production, via automation, then what policies must be in place to mitigate further inequality? What is the role of regulation?
- Economic growth and development happens, in large part, because of innovation and creativity. If humans are totally displaced from jobs, and are dis-incentivised to work because of initiatives such as the UBI, what does that imply for innovative growth and development?

Core Session 4: People and Leadership – X Marks the Spot: What is the 'X' in 'Cerebrum X Algorithm'?

The rise of AI has led to many debates, perhaps the most important of which pertain to the future of humanity. AI and algorithms are making more and more incursions into fields that were previously considered the sole preserve of humans. Examples include cultural domains, such as music composing. For instance, the Deep Learning machine DeepBach generated harmonies based on *cantatas* originally composed by Johann Sebastian Bach. The DeepBach team then asked more than 1,600 people, a quarter of whom were professional musicians or music students, to listen to two distinct harmonies of the same melody. More than half of the listeners attributed DeepBach-generated harmonies to Bach.

In Japan, an AI-written novel, entitled, "The Day A Computer Writes a Novel" made it past the first round of screening for a national literary prize.

Stories and music, among other things, have been historically human endeavours capable of generating deep emotion. If an AI can outperform humans in the most fundamentally human endeavours, what then is the role of humans in society? What does it therefore mean to be human? Switching to the perspective of leadership, among the most important role of a leader is to inspire others. Can we imagine a situation in which a machine will ever become an inspirational leader, along the lines of an Indira Gandhi or a Martin Luther King Jr. or a Tunku Abdul Rahman? Against this rapidly shifting landscape for people and society, we consider:

- What does the 'X' in 'Cerebrum X Algorithm' represent?
- What does it mean to be human in an age of ever-expanding Artificial Intelligence? What is it about humans that make us human? Can an AI robot ever be a true leader?
- Along those lines, what type of education can help focus humans on being humanistic? Is a shift required from a skills-based and workplace-preparation education to one of humanism?

Principal Authors:
Aidan Chan and Nick Khaw

Endnotes

1. "Yes, I'd Lie to You." The Economist, September 10th 2016, <http://www.economist.com/news/briefing/21706498-dishonesty-politics-nothing-new-manner-which-some-politicians-now-lie-and>
2. Foster, P., & Evans, M. "Exclusive: How a Tiny Canadian IT Company Helped Swing the Brexit Vote for Leave." The Telegraph, (24 February 2017), <http://www.telegraph.co.uk/news/2017/02/24/exclusive-tiny-canadian-company-helped-swing-brexit-vote-leave/>
3. As at August 2017
4. Acemoglu, D., Autor, D., Dorn, D. & Hanson, G.H. (2016). "Import Competition and the Great US Employment Sage of the 2000s." Journal of Labour Economics, 34(S1), pp. 141-198
5. Autor, D., Dorn, D., & Hanson G.H. (2016). "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade." Annual Review of Economics, Vol. 8(2016), pp. 205-240
6. Collard-Wexler, A., & De Loecker, J. (2015). "Reallocation and Technology: Evidence from the US Steel Industry." American Economic Review, 105(1), pp. 131-171
7. Sirkin, H. L., Zinser, M. & Rose, J. "The Robotics Revolution: The Next Great Leap in Manufacturing." BCG Perspectives, 23 September 2015. <https://www.bcgperspectives.com/content/articles/lean-manufacturing-innovation-robotics-revolution-next-great-leap-manufacturing/>
8. Acemoglu, D., & Restrepo, P. (2017). "Robots and Jobs: Evidence from US Labor Markets." NBER Working Paper No. 23285.
9. Frey, C.B., & Osborne, M.A. (2013). "The Future of Employment: How Susceptible are Jobs to Computerisation?" Technological Forecasting and Social Change, 114.
10. Ng, Allen. "The Times They Are A-Changin': Technology, Employment and the Malaysian Economy." KRI Discussion Papers, 28 April 2017. http://www.krinstitute.org/Discussion_Papers-@-The_Times_They_Are_A-Changin%E2%80%99-;_Technology,_Employment,_and_the_Malaysian_Economy.aspx
11. Chui, M., Manyika, J., & Miremadi, M. (2016). "Where Machines Could Replace Humans and Where They Can't (Yet)." McKinsey Quarterly, July 2016.
12. Google's 2016 Revenues would have ranked 102nd in the world in terms of global nominal GDP, more than over one hundred countries.
13. Dowd, M. "Elon Musk's Billion-Dollar Crusade to Stop the A.I. Apocalypse." Vanity Fair, April 2017, <http://www.vanityfair.com/news/2017/03/elon-musk-billion-dollar-crusade-to-stop-ai-space-x>
14. A recent McKinsey research article, "Artificial Intelligence: The Next Digital Frontier?"¹⁵ finds that only 20% of companies in a sample of 3,000 businesses across 10 countries are serious adopters of AI.
15. Bughin, J., Hazan, E., Ramaswamy, S., Chui, M., Allas, T., Dahlstrom, P., Henke, N., and Trench, M. (2017). "Artificial Intelligence: The Next Digital Frontier?" McKinsey Global Institute Discussion Paper, June 2017.

WELCOME REMARKS & INTRODUCTION TO KMF2017



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



Tan Sri Dato' Azman Hj Mokhtar is the Managing Director of Khazanah since 1st 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.

CLOSING ADDRESS



YB Datuk Seri Johari Abdul Ghani
Minister of Finance II, Malaysia; and
Board Member, Khazanah Nasional Berhad



Datuk Seri Johari Abdul Ghani was appointed Minister of Finance II on 27th June 2016. Prior to that, he was Deputy Minister of Finance. He has been active in politics for 27 years since 1988 and is the current Member of Parliament for Titiwangsa.

He currently sits on the board of Khazanah Nasional Berhad and is also the Chairman of Yayasan Bena Nusa which was established to help to reduce urban poverty and improve education for children from urban poor. He started his career at Peat Marwick & Co. (now known as KPMG) as an auditor. He later went on to hold senior positions in several listed companies in Malaysia.

He is a Chartered Accountant under the Chartered Association of Certified Accountants. In 1993, he was bestowed a Fellowship of the Chartered Association of Certified Accountants.

DAY 1 LUNCHEON ADDRESS



Joseph C. Tsai
Executive Vice Chairman,
Alibaba Group



Joseph C. Tsai joined Alibaba Group in 1999 as one of the eighteen founders of Alibaba. He served as chief financial officer of the company until May 2013 and currently is executive vice chairman of the company. Joe oversees Alibaba's strategic acquisitions and investments. He has been a board member of the company since its inception, and is a founding member of the Alibaba Partnership.

From 1995 to 1999, Joe was a private equity investor based in Hong Kong with Investor AB, the main investment vehicle of Sweden's Wallenberg family. Prior to that, he was general counsel of Rosecliff, Inc., a New York management buyout firm and was a tax associate with the New York-based law firm Sullivan & Cromwell LLP.

Joe is qualified lawyer in the State of New York. He received his bachelor's degree in Economics and East Asian Studies from Yale College and a juris doctor from Yale Law School.

Alibaba Group is an investee company of Khazanah Nasional Berhad.



Datuk Ben Chan
Executive Director and Co-Head of Investments,
Khazanah Nasional Berhad



Ben Chan joined Khazanah in 2005 as Director of Investments and was appointed Executive Director of Investments in 2008. He has previously served as Director of Research with several investment houses, covering the Malaysia and Singapore markets. He was the Head of China Research with Cazenove & Co and ING Barings in Hong Kong between 1992 and 1996.

Ben is a Chartered Accountant and holds a Bachelor of Commerce from the University of New South Wales.

DAY 2 LUNCHEON ADDRESS



Kent J. Thiry
Chairman and CEO, DaVita Inc



Kent Thiry is chairman and CEO of DaVita, a FORTUNE 200 company. The company operates in 12 countries globally, delivering clinically differentiated healthcare to ~2 million patients.

DaVita and Thiry have been the subject of multiple case studies taught at the Harvard Business School and Stanford Graduate School of Business. He is regularly invited to speak on leadership and culture at top schools and companies.

Prior to joining DaVita, Thiry served in several senior executive roles, including chairman and CEO of Vivra Specialty Partners, a specialty healthcare company; and partner at Bain & Company.

Thiry earned his B.A. in political science, with distinction, from Stanford University in 1978. He earned his M.B.A., with honors, from Harvard Business School in 1983.

DaVita Inc is an investee company of Khazanah Nasional Berhad.

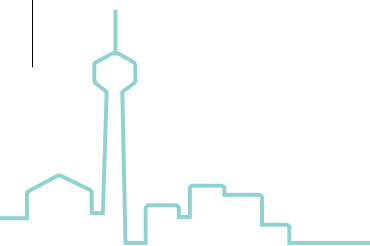


Chinta Bhagat
Executive Director, Khazanah India
Advisors Private Limited



Chinta joined Khazanah in 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 1 SPECIAL ADDRESSES



Vivek Wadhwa
Distinguished Fellow and Adjunct Professor, Carnegie Mellon University



Serena Tan Mei Shwen
Executive Director, Investments, Khazanah Nasional Berhad



Dr Ngozi Okonjo-Iweala
Chair, Global Alliance for Vaccines and Immunisation (GAVI); and former Finance Minister, Federal Republic of Nigeria



Prof Jomo Kwame Sundaram
Third Holder of the Tun Hussein Onn Chair in International Studies, Institute of Strategic and International Studies (ISIS) Malaysia; and Visiting Senior Fellow, Khazanah Research Institute



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



Dr Carl Benedikt Frey
Co-Director and Oxford Martin Citi Fellow, Oxford Martin Programme on Technology and Employment, University of Oxford



Johan Mahmood Merican
Deputy Director General (Human Capital), Economic Planning Unit, Prime Minister's Department, Malaysia



Vivek Wadhwa is a Distinguished Fellow at Carnegie Mellon University's College of Engineering. He is a globally syndicated columnist for The Washington Post and author of The Driver in the Driverless Car: How Our Technology Choices Will Create the Future; The Immigrant Exodus: Why America Is Losing the Global Race to Capture Entrepreneurial Talent; and Innovating Women: The Changing Face of Technology.

Wadhwa has held appointments at Duke University, Stanford Law School, Harvard Law School, and Emory University and is a faculty member at Singularity University. He is based in Silicon Valley and researches exponentially advancing technologies that are soon going to change our world.

In 2012, the U.S. Government awarded Wadhwa distinguished recognition as an "Outstanding American by Choice", for his "commitment to this country and to the common civic values that unite us as Americans".

Serena Tan joined Khazanah as Vice President, Investments in February 2005 and was appointed as Executive Director in 2017 specialising in Financial Services (Banking, Insurance and Fintech). Prior to Khazanah, she was with Boston Consulting Group and McKinsey & Co. She served for three years with Lippo Bank in Indonesia, and two years with a Financial Services Fund in Singapore under secondment from Khazanah.

She holds a Bachelor of Commerce degree in Accounting and Finance from Macquarie University, Australia, and a Master's in Business Administration under the MIT Sloan Fellows programme at the Massachusetts Institute of Technology.

Dr. Ngozi Okonjo-Iweala is Chair of the Global Alliance for Vaccines and Immunisation. She is the former Finance Minister and Foreign Minister of Nigeria, the first woman to hold both positions. She spent a 25-year career at the World Bank as a development economist, rising to the No. 2 position of Managing Director.

Dr. Okonjo-Iweala has been ranked by Fortune as one of the 50 Greatest World Leaders in 2015, by Forbes as one of the Top 100 Most Powerful Women in the World consecutively for four years, by Time as one of the Top 100 Most Influential People in the World in 2014.

Dr. Okonjo-Iweala graduated from Harvard and holds a PhD in Regional Economics and Development from MIT.

Jomo Kwame Sundaram holds the Tun Hussein Onn Chair in International Studies at the Institute of Strategic and International Studies, Malaysia. He is also Visiting Senior Fellow at Khazanah Research Institute and Visiting Fellow at the Initiative for Policy Dialogue, Columbia University.

He was Professor at the University of Malaya (1986-2004), Founder-Chair of International Development Economics Associates (IDEAs), UN Assistant Secretary General for Economic Development (2005-2012), Research Coordinator for the G24 Intergovernmental Group on International Monetary Affairs and Development (2006-2012), and Assistant Director General for Economic and Social Development, Food and Agriculture Organization (FAO) of the United Nations (2012-2015). He received the 2007 Wassily Leontief Prize for Advancing the Frontiers of Economic Thought.

Tan Sri Dato' Azman Hj Mokhtar is the Managing Director of Khazanah since 1st 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.

Carl Benedikt is Oxford Martin Citi Fellow where he directs the programme on Technology and Employment at the Oxford Martin School, University of Oxford. He is also Economics Associate of Nuffield College, and Senior Fellow of the Programme on Employment, Equity and Growth at the Institute for New Economic Thinking, both University of Oxford. He remains a Senior Fellow of the Department of Economic History at Lund University, and a board member of Futurion AB.

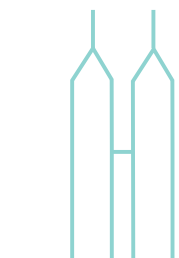
He is one of the most widely cited scholars in the field of workforce automation and industrial renewal, researching the transition of industrial nations to digital economies, and associated challenges for corporations and governments.

He has served as an advisor and consultant to the OECD, the European Commission, the United Nations, and several Fortune 500 companies. In 2016, he was named the 2nd most influential young opinion leader by the Swedish business magazine Veckans Affärer.

Johan Mahmood Merican was appointed Deputy Director General (Human Capital) of the Economic Planning Unit (EPU) in June 2016. At EPU, Johan also heads the Civil Service Delivery Unit (CSDU) and the National Transformation 2050 (TN50) unit.

Prior to EPU, Johan was CEO of Talent Corporation Malaysia Berhad (TalentCorp), a Government agency established in 2011 to meet the talent needs of Malaysia's Economic Transformation Programme. Between 2004 and 2010, Johan served as Principal Private Secretary to the Minister in the Ministry of Finance and EPU. Before joining the Government, he spent 10 years in corporate finance and accountancy roles in the private sector.

Trained as a chartered accountant, Johan also holds a degree in Economics from the University of Cambridge.



DAY 2 SPECIAL ADDRESSES



Jimmy Wales
 Founder, Wikipedia;
 Co-Founder, Wikia; and
 Founder, WikiTRIBUNE

Wiki**TRIBUNE**

Internet and technology entrepreneur Jimmy Wales, is founder of the online non-profit encyclopaedia Wikipedia and co-founder of the privately owned Wikia, Inc. including its entertainment media brand, Fandom powered by Wikia.

Wales serves on the board of trustees of the Wikimedia Foundation, the non-profit charitable organisation he established to operate Wikipedia. In April 2017, Jimmy launched WikiTribune - a news website involving professional journalists working alongside volunteers to curate fact checked and reliable articles.

In 2006, Jimmy was named in Time magazine's '100 Most Influential People in the World' for his role in creating Wikipedia.



Javier Santiso
 Executive Director, Khazanah Europe Investment Limited



Javier joined Khazanah on 1st 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.



John McFarlane
 Chairman, Barclays



John McFarlane is chairman of Barclays and TheCityUK (which represents the financial sector in the UK), a director of Westfield Corporation, Old Oak Holdings, and the International Monetary Conference, and is a member of the UK Financial Services Trade and Investment Board, the European Financial Roundtable, and the Institut International d'Etudes Bancaires.

John was Chairman of Aviva, FirstGroup, and the Australian Bankers Association. Earlier, he was Chief Executive Officer of Australia and New Zealand banking Group, Group Executive Director of Standard Chartered and head of Citibank in the UK region.

He has additionally held non-executive directorships at The Royal Bank of Scotland, Capital Radio, and the London Stock Exchange.



Roni L. Abdulwahab
 Executive Director, Investments, Khazanah Nasional Berhad



Roni L. Abdulwahab re-joined Khazanah in May 2017 as Executive Director of Investments. Previously, he served as Managing Director and Head of Global Banking, Malaysia for HSBC. Prior to that, Roni held several banking and corporate positions at Credit Suisse, Khazanah, UEM Group, J.P. Morgan, and Capstar Partners.

He graduated with a Bachelor of Science in Economics from The Wharton School, University of Pennsylvania.



Dr Emiliana Simon-Thomas
 Neuroscientist; and Science Director, Greater Good Science Center, University of California, Berkeley



Emiliana Simon-Thomas, PhD, is the Science Director at UC Berkeley's Greater Good Science Center where she oversees the student fellowship programme, runs key initiatives like Expanding the Science and Practice of Gratitude, and teaches the Massive Open Online Course (MOOC) GG101x: The Science of Happiness.

She serves as an expert voice on human pro-sociality, as well as empirically-supported approaches to fostering a kinder, more compassionate world. Alongside her academic and popular publications, Emiliana co-edited the 2017 Oxford Handbook of Compassion Science, a transdisciplinary compendium of articles from world-class researchers. She consults on increasing pro-social impact of both products and policies aimed at enhancing trust and teamwork.

Emiliana's work spotlights the science that connects health and happiness to social connection, caregiving, and collaboration.



Ahmad Zulqarnain Onn
 Executive Director, Investments and Head of Strategic Management Unit, Khazanah Nasional Berhad



Zul joined Khazanah in May 2014 as an Executive Director of Investments, with responsibility for Khazanah's investments in financial services. He is also Head of the Strategic Management Unit, overseeing both corporate and portfolio strategy.

Prior to Khazanah, he was appointed as the first Managing Director/Chief Executive Officer of Danajamin Nasional Berhad in 2009, Malaysia's first financial guarantee insurer. He has 20 years experience in both banking and corporates, including tenures with UBS Warburg, Pengurusan Danaharta Berhad, CIMB Group and Symphony Group.

He graduated with a Bachelor of Arts in Economics from Harvard University.



Allon Reich
 Film producer;
 Producer of 'Ex Machina'



Allon Reich has been a producing partner with Andrew Macdonald at DNA Films since November 2002 working on all of DNA Films' projects since then, including: *The History Boys*, *The Last King of Scotland*, *Notes on A Scandal*, *28 Weeks Later*, *Never Let Me Go*, *Dredd*, *Sunshine On Leith*, *Far From the Madding Crowd*, *Ex Machina*, *Trainspotting 2* and the forthcoming *Annihilation* written and directed by Alex Garland and starring Natalie Portman and Oscar Isaac.

Formerly, Allon was at Miramax, where he had been the Head of Film UK and executive produced Stephen Frears' *Four Feathers* and *Dirty Pretty Things*. Previously, at Film Four, he worked on many productions including *Four Weddings and a Funeral*, *Shallow Grave*, *The Madness of King George*, *Brassed Off* and the original *Trainspotting*.



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*. Earlier this year, he published *The Problem Solvers*, his exploration of how education can prepare young people for turbulent times. 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 a devout Arsenal fan.



CORE SESSION 1: MACRO AND MARKETS

The Search for *Alpha*: Can Algorithm Trump Cerebrum?



Jan Metzger

Managing Director, Global Co-Head IB Technology and Head of Asia Pacific TMT, Citigroup



Jan joined Citi in November 2015 and has over 20 years of experience. He started in Europe and joined Credit Suisse in 2005, subsequently moving to Hong Kong and headed the APAC TMT banking franchise.

Jan graduated from the University of Cambridge, United Kingdom with a Master of Philosophy in Economics. His tutors included Prof. Mirrlees (1996 Nobel Prize winner) for Microeconomics. Prior to that, Jan received First Class Honor of Bachelor of Arts degree (double major in Economics and Computer Science with Artificial Intelligence) from University of Sussex, United Kingdom.

Jan has led and executed a number of industry-defining deals such as Alibaba's US\$25 billion US IPO (largest ever IPO in history), Lenovo's US\$3.14 billion acquisition of Motorola Mobility smartphone business from Google and US\$2.1 billion acquisition of x86 server business from IBM (largest and second largest ever Chinese technology M&A transaction) etc.



Martin Skancke

Chair, Principles of Responsible Investment (PRI); and former Head of Asset Management, Ministry of Finance, Norway



Martin Skancke advises SWFs on investment and governance issues and is Chair of the Principles of Responsible Investment (PRI). He is a Board member at Storebrand ASA, Kommunalbanken AS and Norfund.

Martin Skancke was head of the Asset Management Department of the Norwegian Ministry of Finance from 2006 to 2011, with responsibility for overseeing the Norwegian Government Pension Fund. Previous roles include Director General of the Office of the Prime Minister of Norway, head of the section for monetary policy and fiscal affairs at the Norwegian Ministry of Finance and consultant at McKinsey & Co.

Martin Skancke holds a business degree from NHH, a Russian language degree from the University of Oslo and an MSc (Econ) from the LSE.



Nurhisham Hussein

Head of Economics and Capital Markets, Employees Provident Fund Malaysia (EPF)



Nurhisham Hussein is the Head of the Economics and Capital Markets Department of the Employees Provident Fund (EPF). His department oversees economic surveillance of over 20 economies across the globe, contributing to the investment process at EPF. He joined EPF after a stint with the Malaysian Rating Corporation Berhad (MARC), producing country reports, developing economic viewpoints and making quantitative forecasts.

He holds a Bachelors of Science (Econs) in Monetary Economics from the University of London School of Economics and Political Science (LSE), and a Masters in Economics from University Malaya (UM).



Sharifatu Laila Syed Ali

Group CEO, ValueCAP



Sharifatu Laila is Group CEO of ValueCAP, an investment holding company equally owned by Khazanah Nasional Berhad, Retirement Fund (Incorporated), and Permodalan Nasional Berhad (PNB). She oversees the Group's proprietary business and interests in two wholly-owned licensed asset management businesses, with Group AUM in excess of RM12 billion.

The Group actively promotes strategies in the Sustainable and Responsible Investing (SRI) space, focussing on Environmental, Social, and Governance (ESG) funds. ValueCAP has also rolled out Islamic Exchange Traded Funds (ETFs), offering diverse passive strategies.

Sharifa began her career at PNB and has held senior roles at the Employees Provident Fund and the Pilgrims Fund Board. A Capital Markets Services Representative's License (CMSRL) holder, Sharifa holds an MBA from the University of Malaya and a BSc (Hons) from the National University of Malaysia. She completed Harvard Business School's Advanced Management Programme in 2011.

ValueCAP is an investee company of Khazanah Nasional Berhad.



Tariq Al-Sudairy

Managing Director and CEO, Jadwa Investment



Tariq Al-Sudairy is the Managing Director and CEO of Jadwa Investment, a leading regional investment management and advisory firm, headquartered in Riyadh, Saudi Arabia. Tariq joined Jadwa in 2011 as Head of the Private Equity and Investment Banking Division, and was subsequently appointed as Managing Director and CEO in May 2014.

Prior to that, Tariq was a Senior Vice President at Amwal AlKhaleej, a regional private equity firm. Tariq has served as a manager with McKinsey & Company, advising clients in the GCC on strategy, organisation and implementation, with a particular focus on the financial services sector. Earlier in his career, Tariq was a consultant with economics consulting firm, Lexecon Inc. in Boston.

Tariq is a board member of the Saudi Stock Exchange and Saudi Aramco Base Oil Company. He earned his MBA from Harvard Business School and holds a BA with honours in Economics from Williams College.

Jadwa Investment is an investee company of Khazanah Nasional Berhad.



Chairperson

Mohamed Ridzuan Mohamed

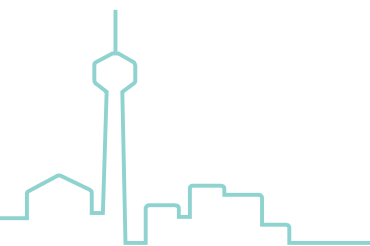
Director, Khazanah Research & Investment Strategy, Khazanah Nasional Berhad



KHAZANAH NASIONAL

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).



CORE SESSION 2: FIRMS AND TRANSFORMATION

A World Awash With Data: What is the Role of the Algorithm in Enhancing Corporate Performance?



Dato' Abdul Rahman Ahmad
President and Group Chief Executive,
Permodalan Nasional Berhad (PNB)



Dato' Abdul Rahman Ahmad is currently President and Group Chief Executive of Permodalan Nasional Berhad (PNB), a government-linked investment corporation managing RM260 billion of assets primarily for the Malaysian public under its unit trust operations.

Dato' Abdul Rahman was previously CEO of Ekuiti Nasional Bhd (Ekuinas), a government-linked private equity firm. Prior to that, he was Group Managing Director / CEO of Media Prima Berhad, the leading integrated media investment group in Malaysia. He also held the post of Group Managing Director / CEO of Malaysian Resources Corporation Berhad (MRCB), a Malaysian conglomerate involved in property, construction and infrastructure.

Dato' Abdul Rahman is currently Non-Executive Chairman of UMW Oil & Gas Corporation Berhad, and Non-Executive Director of M+S Pte Ltd. He holds an MA in Economics from Cambridge University, United Kingdom and is a member of the Institute of Chartered Accountants in England and Wales (ICAEW).



Neal Cross
Managing Director and
Chief Innovation Officer, DBS Bank



Neal Cross is Managing Director and Chief Innovation Officer of DBS Bank, hotelier and wildlife advocate who strongly believes in innovation thinking and culture.

With more than 20 years' experience in technology, innovation and financial services he is helping DBS Bank shape the future of banking, by enhancing customer experience and better engaging customers in the digital landscape. In fact, Neal just won the 'Most Disruptive' CIO global award by impressing judges Steve Wozniak and Sir Richard Branson at the finals of the Talent Unleashed Awards 2016.

On his weekends, Neal lives in the Sumatran jungle where he has founded Hotel Orangutan, a social enterprise to help save the critically endangered Sumatran Orangutan and to give local villagers employment and education.



Sandip Sen
Global CEO and Executive Director, Aegis



Sandip Sen, is the Global CEO of Aegis. He is a serial entrepreneur and a veteran in the IT / ITes domain with over 27 years of experience. Prior to joining Aegis, in 2001, Sandip founded Customer First Services, one of India's pioneering CRM companies. In 2006, Customer First Services was acquired by Aegis.

Sandip has been instrumental in building Aegis' global business across countries like India, the US, South Africa, Australia, Philippines, Malaysia, Saudi Arabia and the UK. From less than USD 60 million revenues he architected Aegis into a USD 1 billion company by 2014.

Sandip is a well-known writer, speaker and thought leader and has been expansively quoted and featured by the national & global media fraternity.



Sandy Ogg
Founder, CEO.works



Sandy Ogg is the Founder of CEO.works. Prior to that, he was Operating Partner in the Private Equity Group at Blackstone. His other past corporate positions include Chief Human Resources Officer at Unilever in London, and Senior Vice President of Leadership, Learning and Performance at Motorola. Before his corporate roles, Mr. Ogg worked as a consultant with Dove Associates, The VIA Consulting Group, and The Center for Leadership Studies. He began his career doing rescue work at sea as a line officer in the U.S. Coast Guard.

Mr. Ogg holds a Bachelor's degree in Mathematics from the U.S. Coast Guard Academy, a Master's in Human Development from George Washington University and an MBA from Kellogg School of Management. He has served on the boards of INSEAD, Erasmus University's Rotterdam School of Management, The European Academy for Business in Society, and BBH Advertising in London.



**Tengku Dato' Sri Zafrul
Tengku Abdul Aziz**
Group CEO, CIMB Group



Tengku Dato' Sri Zafrul Tengku Abdul Aziz is the Group CEO of CIMB Group, a leading ASEAN universal bank offering consumer banking, investment banking, Islamic banking and asset management products and services.

He has 20 years' experience in the financial industry including establishing Tune Money, Asia's first online financial service provider. Zafrul currently serves on various boards, heads the Kuala Lumpur Business Club and is passionate on youth development.

He holds a Masters in Finance and Management from Exeter University and is a fellow of the Asian Institute of Chartered Bankers.

CIMB Group is an investee company of Khazanah Nasional Berhad.

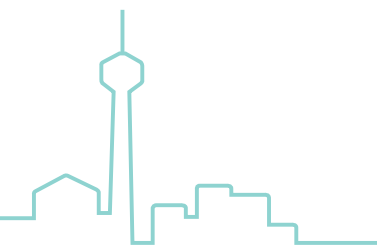


Datuk Hisham Hamdan
Executive Director, Investments and
Head of Khazanah Research & Investment
Strategy, Khazanah Nasional Berhad



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.



CORE SESSION 3: GROWTH AND DEVELOPMENT

Artificial Intelligence: Enhancing Growth X Exacerbating Inequality?



Dr Carl Benedikt Frey

Co-Director and Oxford Martin Citi Fellow, Oxford Martin Programme on Technology and Employment, University of Oxford



Carl Benedikt is Oxford Martin Citi Fellow where he directs the programme on Technology and Employment at the Oxford Martin School, University of Oxford. He is also Economics Associate of Nuffield College, and Senior Fellow of the Programme on Employment, Equity and Growth at the Institute for New Economic Thinking, both University of Oxford. He remains a Senior Fellow of the Department of Economic History at Lund University, and a board member of Futurion AB.

He is one of the most widely cited scholars in the field of workforce automation and industrial renewal, researching the transition of industrial nations to digital economies, and associated challenges for corporations and governments.

He has served as an advisor and consultant to the OECD, the European Commission, the United Nations, and several Fortune 500 companies. In 2016, he was named the 2nd most influential young opinion leader by the Swedish business magazine Veckans Affärer.



Prof Danny Quah

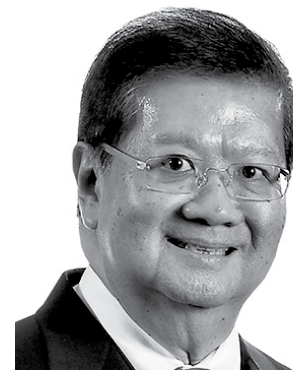
Li Ka Shing Professor in Economics and Vice Dean (Academic Affairs), Lee Kuan Yew School of Public Policy, National University of Singapore; and Senior Fellow, Khazanah Research Institute



Danny Quah is Li Ka Shing Professor in Economics and Vice Dean (Academic Affairs) at the Lee Kuan Yew School of Public Policy, NUS. His current research is on an economic approach to world order, although he has published on a wide range of topics including income inequality, convergence and growth, spatial economics, business cycles, and inflation.

Quah was previously Assistant Professor of Economics at MIT, and then Professor of Economics and International Development at LSE, and Director of the Saw Swee Hock Southeast Asia Centre at LSE's Institute of Global Affairs. He also served as LSE's Head of Department for Economics, and Council Member on Malaysia's National Economic Advisory Council.

Quah is from Penang, and studied at Princeton, Minnesota, and Harvard.



Tan Sri Dato' Dr Michael Yeoh

Co-Founder and CEO, Asian Strategy & Leadership Institute (ASLI)



Tan Sri Dato' Dr. Michael Yeoh is Co-Founder and CEO of the Asian Strategy and Leadership Institute (ASLI). ASLI is ranked by the University of Pennsylvania as one of the top think tanks in the Asia Pacific region.

Tan Sri Yeoh is Malaysia's representative with Ambassadorial status to the ASEAN High Level Task Force on ASEAN Connectivity. He is the founding Chairman of the World Chinese Economic Summit and the ASEAN Leadership Forum, Secretary-General of the Malaysia-Japan Economic Association (MAJECA), Director of the Malaysia-China Business Council and Deputy President of the Association for Promotion of Human Rights. Previously, he was a principal adviser to a bank and had served on boards of companies involved in financial services, education and healthcare.

He is a Fellow of the U.K. Institute of Directors, the Malaysian Institute of Management and a Member of the UK Institute of Strategic Studies.



Sandiaga S. Uno

Deputy Governor-elect of Jakarta

Sandiaga was one of Indonesia's most prominent young entrepreneurs and active in the Indonesian business community. He is the co-founder of PT Saratoga Investama Sedaya Tbk. and served as a President Director 2004 - 2015. He has led the investment firm to have a solid track record of profitable investments across key sectors of the Indonesian economy.

Since 2005, Sandiaga has been actively involved and serves as a Chairman in several well-known associations and foundations in Indonesia. In mid 2015, he embarked on a new role to serve and support Indonesia's economic development as a Vice Chairperson Advisory Board of The Greater Indonesia Movement Party. In April 2017, he has been elected deputy governor of Jakarta and will be inaugurated in mid October 2017.

Sandiaga holds a Bachelor of Business Administration (Summa Cum Laude) from the Wichita State University and an MBA from George Washington University.



Tan Sri Dato' Sri Dr Zeti Akhtar Aziz

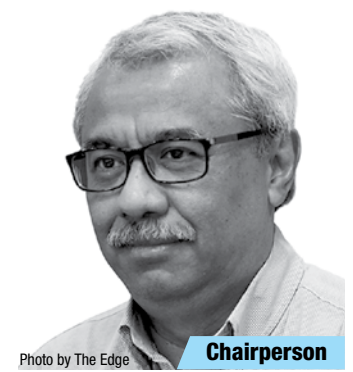
Co-Chair, Board of Governors, Asian School of Business (ASB); and former Governor, Bank Negara Malaysia



Tan Sri Dato' Sri Dr. Zeti Akhtar Aziz served as Governor of Bank Negara Malaysia from May 2000 until April 2016. In this capacity, she successfully managed the repair and resolution of the financial system during the Asian financial crisis and the consequent strong recovery of the economy.

In the Asian region, Dr. Zeti was actively involved in strengthening cooperation and regional financial integration. She was a founding member of the Bank for International Settlements (BIS) Asian Consultative Council, and was also the first co-chair of the Financial Stability Board Regional Consultative Group for Asia. She is currently the Co-chair Board of Governors of Asia School of Business, established in collaboration with MIT Sloan.

Dr. Zeti received her PhD in Economics from the University of Pennsylvania.



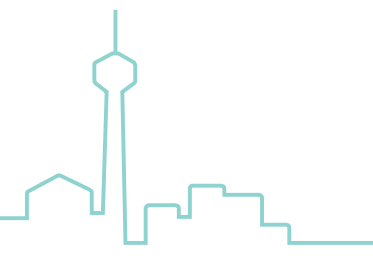
Chairperson
Photo by The Edge

Dr Nungsari Ahmad Radhi
Managing Director, Prokhas Sdn Bhd



Dr. Nungsari Ahmad Radhi is Managing Director of Prokhas Sdn Bhd who also serves as the Principal Officer of Pengurusan Danaharta Nasional Berhad, DanaInfra Nasional Berhad, Syarikat Jaminan Pembiayaan Perniagaan Berhad and Syarikat Jaminan Kredit Perumahan Berhad. He sits on the boards of Blue Archipelago Berhad, Agrifood Resources Holdings Sdn Bhd and Lembaga Pembiayaan Perumahan Sektor Awam. He is also a member of the Malaysian Aviation Commission and is on the Board of Trustees of Khazanah Research Institute.

Prior to joining Prokhas, he was an Executive Director at Khazanah Nasional. In his career of over 30 years, he has been an academic, a Member of Parliament, a consultant, and a policy advocate. He is a contributing columnist for The Edge since 2000.



CORE SESSION 4: PEOPLE AND LEADERSHIP

X Marks the Spot: What is the 'X' in 'Cerebrum X Algorithm'?



Dr Emiliana Simon-Thomas

Neuroscientist; and Science Director, Greater Good Science Center, University of California, Berkeley



Emiliana Simon-Thomas, PhD, is the Science Director at UC Berkeley's Greater Good Science Center where she oversees the student fellowship programme, runs key initiatives like Expanding the Science and Practice of Gratitude, and teaches the Massive Open Online Course (MOOC) GG101x: The Science of Happiness.

She serves as an expert voice on human pro-sociality, as well as empirically-supported approaches to fostering a kinder, more compassionate world. Alongside her academic and popular publications, Emiliana co-edited the 2017 Oxford Handbook of Compassion Science, a transdisciplinary compendium of articles from world-class researchers. She consults on increasing pro-social impact of both products and policies aimed at enhancing trust and teamwork.

Emiliana's work spotlights the science that connects health and happiness to social connection, caregiving, and collaboration.



Hashim Shawa

Chairman and General Manager, Bank of Palestine



Hashim Shawa joined Bank of Palestine as Chairman and General Manager in 2007. He has maintained the bank's strategic direction and growth as the largest Palestinian financial institution with coverage for Islamic Banking.

After obtaining his BSc (Hons) from University College London, Shawa began his banking career at Citigroup in 1997, holding various management positions in Corporate and Private Banking in UK, Italy, Spain and Switzerland. In 2005, he joined HSBC in Switzerland as director of Middle East & North Africa.

Shawa is Chairman of the boards of directors of Al-Wasata Securities Company and PalPay E-Payment Solutions Company. Shawa is a member of the Emerging Markets Advisory Council at the International Institute of Finance Washington DC. Shawa is a member of the board of trustees of Bethlehem University; and the World Economic Forum in Geneva.



Dato' Paduka Iqbal Khan

CEO, Fajr Capital



Iqbal Khan is the CEO of Fajr Capital, a Dubai-based principal investment firm. He also serves on the board of Bank Islam Brunei Darussalam, Cravia Group, GEMS Education, Jadwa Investment, and National Petroleum Services. Prior to Fajr Capital, Mr. Khan was the founding CEO of HSBC Amanah, where he built the business and team over eight years into one of the fastest growing and most successful emerging businesses in HSBC Group.

Mr. Khan holds a Bachelor's degree in Physics and Chemistry and a Master's degree in Political Science and International Relations, both from Aligarh Muslim University. He is the recipient of several global accolades, including the Royal Award for Islamic Finance, a biannual prize presented by HM the King of Malaysia, and a Lifetime Achievement Award presented by the Prime Minister of the UAE.

Fajr Capital is an investee company of Khazanah Nasional Berhad.



Dato' Dr Nirmala Menon

Board Member, Khazanah Nasional Berhad; and former Executive Vice President and Head of Designated Markets & Health Asia, MetLife Asia Pacific Ltd



In a career spanning over 24 years, Dr. Nirmala Menon held various leadership positions within the life and health insurance industry. She was the Regional Head for MetLife Asia where she oversaw MetLife's operations in Hong Kong, Australia and South Asia, new market entry into South East Asia and led the company's strategic development and execution for Asia.

Prior to MetLife, Nirmala was with ING where she served as President and CEO of ING Malaysia and Regional Head of South Asia in Hong Kong. During her time with ING Malaysia, she grew ING's operations to become the second largest insurance company in the country.

Nirmala is a qualified medical practitioner and practiced medicine for nine years in the Malaysian public health sector. She was recognised as the "Leading Woman in Finance & Investment in Asia" by the Women in Leadership (WIL) Awards in 2011.

Nirmala currently serves as a Board Member of Khazanah Nasional Berhad.



Tan Sri Dato' Seri Dr Sulaiman Mahbob

Chairman, Telekom Malaysia Berhad



Tan Sri Dr. Sulaiman is currently Chairman of Telekom Malaysia Berhad and Acting Chairman of Felda Global Ventures Holdings Berhad.

He has served in the government sector for over 38 years, most notably as Director General of Economic Planning Unit, Secretary-General of the then Ministry of Domestic Trade and Consumer Affairs, and Under Secretary (Economics) of the Ministry of Finance. He headed the Secretariat for the National Economic Action Council during the 1997/1998 financial crisis and served as Executive Director of Malaysian Institute of Economic Research (MIER) between 1995 and 1997.

He is an Adjunct Professor (Economics) at Universiti Malaya, Universiti Utara Malaysia and Universiti Tun Abdul Razak.

He holds a degree in Economics from University of Malaya (UM), MSc. from University of London and PhD from Maxwell School of Citizenship and Public Affairs, Syracuse University, New York.

Telekom Malaysia Berhad is an investee company of Khazanah Nasional Berhad.



Vivek Wadhwa

Distinguished Fellow and Adjunct Professor, Carnegie Mellon University



Vivek Wadhwa is a Distinguished Fellow at Carnegie Mellon University's College of Engineering. He is a globally syndicated columnist for The Washington Post and author of The Driver in the Driverless Car: How Our Technology Choices Will Create the Future; The Immigrant Exodus: Why America Is Losing the Global Race to Capture Entrepreneurial Talent; and Innovating Women: The Changing Face of Technology.

Wadhwa has held appointments at Duke University, Stanford Law School, Harvard Law School, and Emory University and is a faculty member at Singularity University. He is based in Silicon Valley and researches exponentially advancing technologies that are soon going to change our world.

In 2012, the U.S. Government awarded Wadhwa distinguished recognition as an "Outstanding American by Choice", for his "commitment to this country and to the common civic values that unite us as Americans".



Chairperson

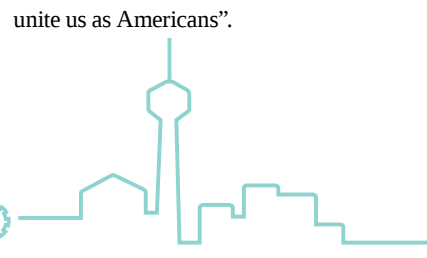
Dato' Charon Mokhzani

Executive Director, Khazanah Nasional Berhad; and Managing Director, 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: ASEAN X OBOR X The World

The Rise of Corporate Economic Soft Power



Joseph C. Tsai
Executive Vice Chairman,
Alibaba Group



Joseph C. Tsai joined Alibaba Group in 1999 as one of the eighteen founders of Alibaba. He served as chief financial officer of the company until May 2013 and currently is executive vice chairman of the company. Joe oversees Alibaba's strategic acquisitions and investments. He has been a board member of the company since its inception, and is a founding member of the Alibaba Partnership.

From 1995 to 1999, Joe was a private equity investor based in Hong Kong with Investor AB, the main investment vehicle of Sweden's Wallenberg family. Prior to that, he was general counsel of Rosecliff, Inc., a New York management buyout firm and was a tax associate with the New York-based law firm Sullivan & Cromwell LLP.

Joe is qualified lawyer in the State of New York. He received his bachelor's degree in Economics and East Asian Studies from Yale College and a juris doctor from Yale Law School.

Alibaba Group is an investee company of Khazanah Nasional Berhad.



Prof Mari Pangestu
Senior Fellow in International and Public Affairs, Columbia University; Professor of International Economics, University of Indonesia; former Minister of Trade, Republic of Indonesia



Professor Pangestu served as Indonesia's Minister of Trade from 2004 to 2011, and as Minister of Tourism and Creative Economy from 2011 until October 2014. She is a Senior Fellow at Columbia School of International and Public Affairs, Professor of International Economics at the University of Indonesia and on the Board of Trustees, Centre for Strategic and International Studies, Jakarta.

She currently serves on a number of boards such as the Leadership Council of the UN Sustainable Development Solutions Network (SDSN); Member of the High Level Commission on Carbon Prices; Member of the Global Future Council on Trade and Investment, World Economic Forum; International Advisory Board of McLarty Associates, Washington DC; and Board Member of International Chamber of Commerce (ICC), Paris. She is also a Commissioner on the Board of Astra International; Chairman of Bank BTPN in Indonesia; and President of the United in Diversity (UID) Foundation, Jakarta.



Tan Sri Dato' Dr Mohd Munir Abdul Majid
Chairman, Bank Muamalat Malaysia Berhad; Chairman, ASEAN Business Advisory Council - Malaysia; and President, ASEAN Business Club



Tan Sri Dr. Munir is currently Chairman of Bank Muamalat Malaysia, of the Financial Services Professional Board, of ASEAN Business Advisory Council – Malaysia, of CIMB ASEAN Research Institute, and President of the ASEAN Business Club. He sits on the board of the Institute of Strategic and International Studies (ISIS) Malaysia and on the Financial Services Talent Council of Bank Negara Malaysia.

Tan Sri Dr. Munir had been the Group Editor of the New Straits Times, first executive chairman of CIMB and founding chairman of the Malaysian Securities Commission. He was also the founder and President of the Kuala Lumpur Business Club.

He obtained a B.Sc (Econ) and Ph.D in international relations from the London School of Economic and Political Science (LSE). He is an Honorary Fellow, a Visiting Senior Fellow at Centre of International Affairs, Diplomacy and Strategy, and an associate of Southeast Asia Centre (SEAC) at LSE.



YB Dato' Sri Mustapa Mohamed
Minister of International Trade and Industry, Malaysia



Dato' Sri Mustapa Mohamed is currently the Minister of International Trade and Industry, Malaysia. He represents Jeli, Kelantan as its Member of Parliament and was first elected in 1995.

Dato' Sri Mustapa's involvement in the Malaysian Cabinet began as the Minister of Entrepreneur Development (1995-1999). As the Asian Financial Crisis hit Malaysia, he was later appointed as the Second Finance Minister in 1998. He has also served as the Minister of Higher Education (2006- 2008), and Minister of Agriculture and Agro-Based Industry (2008 –2009) prior to assuming his current role.

Dato' Sri Mustapa holds a degree in Economics from University of Melbourne and a Masters in Economic Development from Boston University. He was conferred with an Honorary Doctor of Commerce from University of Melbourne, and an Honorary Degree of Law from University of Nottingham. He also authored several books on Malaysian economic policies and politics.



Tan Sri Andrew Sheng
Distinguished Fellow, Asia Global Institute, The University of Hong Kong; and Board Member, Khazanah Nasional Berhad



Andrew Sheng is Distinguished Fellow of Asia Global Institute, The University of Hong Kong. He is Chief Adviser to CBRC, a Board Member of Khazanah Nasional Berhad and a member of the international advisory councils of CIC, CDB, CSRC and Securities and Exchange Board of India.

Previously, he was a Chairman of the Securities and Futures Commission of Hong Kong and a central banker with Hong Kong Monetary Authority and Bank Negara Malaysia.

He writes regularly on international finance and monetary economics, financial regulation and global governance for Project Syndicate, AsiaNewsNet and leading economic magazines and newspapers in China and Asia. His latest book is Shadow Banking in China: An Opportunity for Financial Reform, with Ng Chow Soon (John Wiley).



SPECIAL SESSION in collaboration with TEDxKL INNOVATION WITHOUT BORDERS 3.0



Ambarish Mitra
Co-Founder and CEO, Blippar



Dr. Michel Laberge
Founder and Chief Scientist,
General Fusion



Simon Kuper
Author; and Columnist,
Financial Times



Srikanth Velamakanni
Co-Founder, Group CEO and
Executive Vice-Chairman,
Fractal Analytics



Sumant Mandal
Co-Founder and Managing Director,
March Capital Partners



Introducer
Tengku Dato' Sri Azmil Zahrudin
Executive Director, Investments,
Khazanah Nasional Berhad



TEDxKL
 x = independently organized TED event

Ambarish Mitra is the Co-Founder and CEO of Blippar, a leading technology company specializing in augmented reality, artificial intelligence and computer vision.

Ambarish is a serial entrepreneur who started his tech career in 1997 as a 17 year old high school drop-out entrepreneur on Women Empowerment. Ambarish is an active private investor in the field of AR, AI and Genomics.

With a vision to create the ultimate visual browser by recognizing everything in the physical world, Ambarish has been widely recognised for his pioneering work in the field of Augmented Reality. In 2016, Mitra was named UK Entrepreneur of the Year by Ernst & Young and Mitra was named a Young Global Leader by the World Economic Forum in 2017. Blippar was listed 3 years in a row in CNBC's list of most disruptive companies in the world.

Blippar is an investee company of Khazanah Nasional Berhad.

Dr. Michel Laberge is a physicist with widespread practical experience in plasma physics and modern plasma diagnostic techniques. He has extensive knowledge of the latest technologies related to electronics, computers, materials, lithography, optics and fabrication, and is experienced at designing and constructing test apparatuses to evaluate technical concepts.

Prior to establishing General Fusion, Michel spent nine years at Creo Products in Vancouver as a senior physicist and principal engineer. His roles included inventor, designer, and scientific project leader on projects that resulted in more than \$1 billion worth of product sales.

Michel holds a B.Sc. and M.Sc. in physics from Laval University and earned his Ph.D. in physics from the University of British Columbia. He completed a post doc at L'ecole Polytechnique in Paris in 1991 and another at the National Research Council in Ottawa in 1992.

General Fusion is an investee company of Khazanah Nasional Berhad.

Simon Kuper, born in Kampala, Uganda in 1969, was educated at Oxford University and Harvard. He has been working for the Financial Times since 1994, and now writes a general column for the newspaper.

He is British but lives with his wife and three children in Paris. He is the author of several books including Football Against the Enemy (winner of the William Hill prize for Sports Book of the Year 1994), and – as co-author with Stefan Szymanski - Socceronomics (2009).

He has won several awards for his journalism, ranging from the Manuel Vazquez Montalban prize for sportswriting in 2008 (sponsored by FC Barcelona) to the British Society of Magazine Editors' prize for Columnist of the Year in 2016.

Fractal Analytics is an investee company of Khazanah Nasional Berhad.

Srikanth Velamakanni is the Co-founder, Group CEO & Executive Vice-Chairman of Fractal Analytics, one of the most respected pure play analytics companies across the globe. Fractal aspires to power every human decision in the enterprise. Fractal Analytics helps companies leverage Analytics, AI and Deep learning to transform the way strategic, tactical and operational decisions are made.

The Co-Chairman of the NASSCOM BPM Council, Srikanth has a BS in Electrical Engineering from IIT-Delhi and an MBA from IIM Ahmedabad.

Srikanth considers himself a lifelong student of Mathematics, Behavioral Economics, neuroscience and consumer behavior. Srikanth enjoys speaking and writing on the power of Big Data to enable better decision making.

Father to an active five-year-old, Srikanth enjoys Squash, Snooker and Bridge.

Fractal Analytics is an investee company of Khazanah Nasional Berhad.

Sumant is a co-founder and Managing Director at March Capital Partners, a multi-stage technology fund; and a Managing Director at Clearstone Venture Partners. He is also a co-founder of The Hive, an AI & Big data focused incubator; and The Fabric, a cloud and networking focused incubator.

He has incubated over twenty projects in his career, led investments in numerous technology companies, and seen many successful exits in multiple geographies of the world. He is on the board of The Rubicon Project, E8 Security, Perspica, Velocloud, Foghorn, Pensa, Clearfly Networks, Games2win, BillDesk, and CarTrade.

Sumant holds an MBA from Kellogg School of Management, Northwestern University and a B.S. in Electrical Engineering from Michigan State University. He is also a charter member at TiE.

March Capital Partners is an investee company of Khazanah Nasional Berhad.

Tengku Dato' Sri Azmil Zahrudin joined Khazanah as an Executive Director of Investments in October 2011. Prior to joining Khazanah, he was the CEO 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 / CEO 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.

ENHANCE YOUR KMF2017 EXPERIENCE BY DOWNLOADING THE KMF2017 MOBILE APP

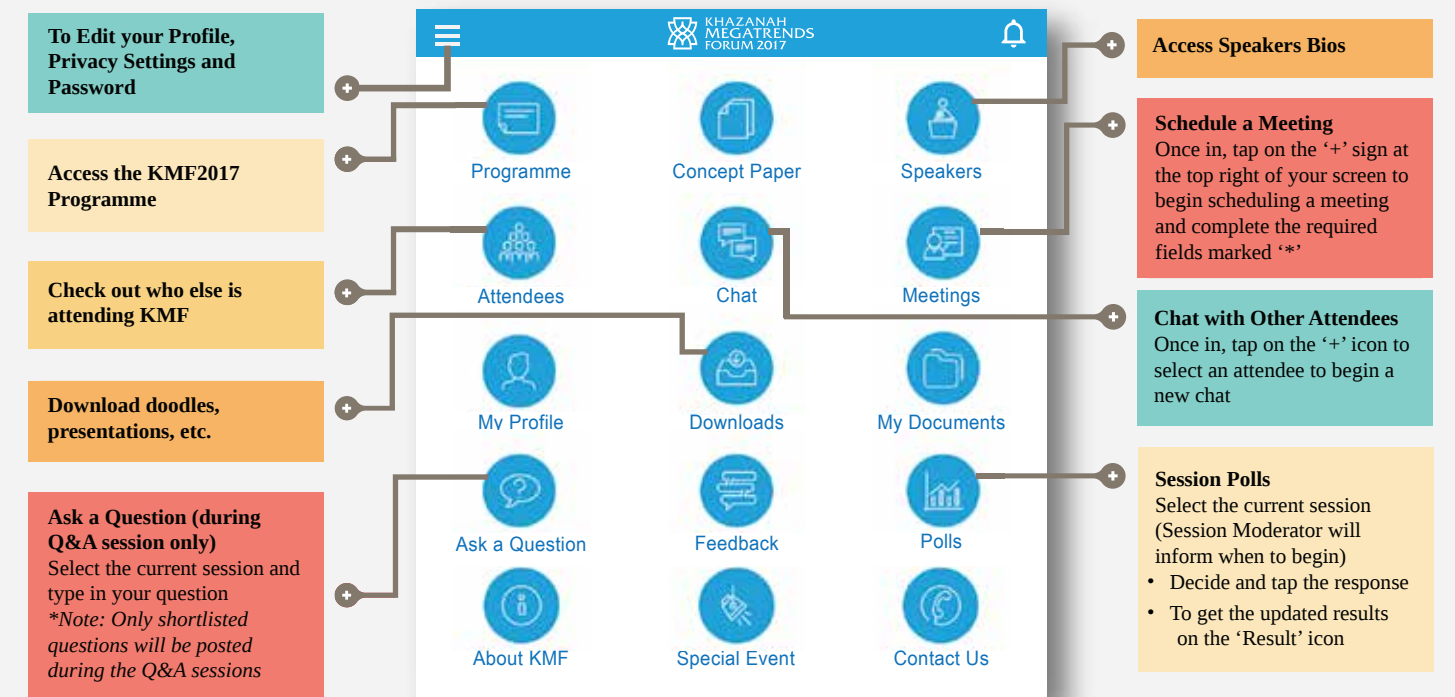
Search 'KMF' at the following app stores to download



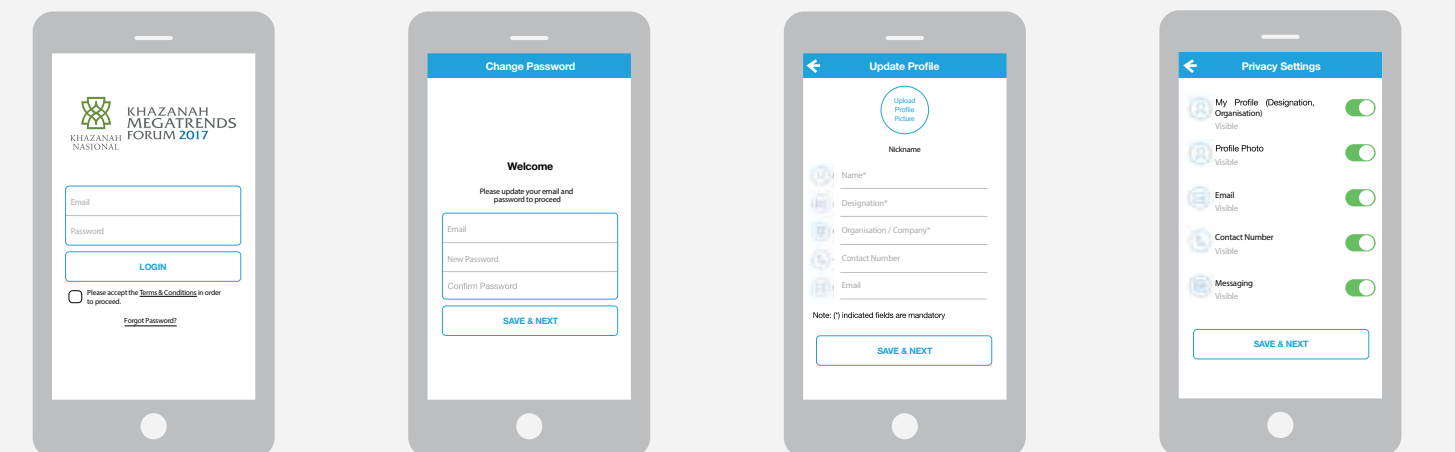
KEY FEATURES

- Quick access to Programme, Concept Paper and Speakers** – have on-the-go access to KMF2017 information right on your mobile device
- Session Voting** – cast your votes in session polls related to particular sessions
- Attendee Chat** – contact your peers from within the list of Forum attendees without having to share any personal contact information (dependent on the individual's privacy settings)
- Meeting Scheduler** – schedule a meeting with another KMF attendee
- Question submission for Q&A sessions** – participate in the Q&A sessions from your mobile
- KMF Downloads** – download KMF materials (magazine, doodles, presentations and more!)

Problems? Questions?
Please proceed to our KMF2017 App Helpdesk located at the foyer of the Grand Ballroom.



FIRST TIME LOGIN?



- Step 1: Login**
- Enter your KMF-registered email address
 - Enter the temporary password that you received
 - Tap on 'Login'
- Step 2: Change Password**
- Your current email address will appear
 - Update your email address (optional)
 - Enter and confirm your new password
 - Tap on 'Save & Next'
- Step 3: Update Profile**
- Update your profile details
 - Tap on 'Save & Next'
- Step 4: Privacy Settings**
- Set your personal information to either 'Visible' or 'Invisible' (to other KMF attendees)
 - Tap 'Save & Next'

Terima Kasih

Our heartfelt gratitude and appreciation to
**Yang Berhormat
Datuk Seri Johari Abdul Ghani
Minister of Finance II Malaysia and
Board Member of Khazanah Nasional Berhad**

for honouring us with your presence at the
**Closing Session of
Khazanah Megatrends Forum
2017**

From all of us at



**KHAZANAH
NASIONAL**





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.



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.



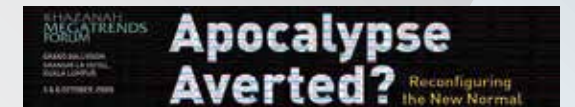
MALAYSIA 2057

This was a very special KMF, coinciding with fifty years of Malaysia's independence. An ambitiously 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.



SHIFTING SANDS: THREATS & OPPORTUNITIES

The global financial crisis was the beginning of a major shift, with subprime US mortgages 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.



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.

2005

2006

2007

2008

Growth with Inclusion



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

KMF2013 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.



THE BIG SHIFT: TRAVERSING THE COMPLEXITIES OF A NEW WORLD

The theme of KMF2012 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.



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.

2009



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.

2010

2013

2012

2011



SCALING THE EFFICIENCY FRONTIER: INSTITUTIONS · INNOVATION · INCLUSION

SCALING THE EFFICIENCY FRONTIER: INSTITUTIONS, INNOVATION, INCLUSION

KMF2014 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.

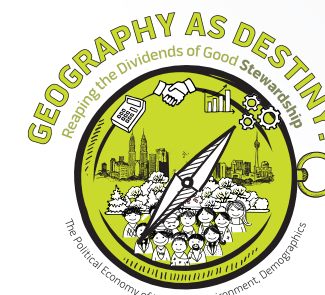
2014



HARNESSING CREATIVE DISRUPTION: UNLOCKING THE POWER OF INCLUSIVE INNOVATION

KMF2015 addressed the need for nations, firms and people to engage in creative disruption by embracing innovation, while simultaneously ensuring that the gains from creative disruption accrue to all stakeholders in the local, national and global communities.

2015



GEOGRAPHY AS DESTINY? REAPING THE DIVIDENDS OF GOOD STEWARDSHIP: THE POLITICAL ECONOMY OF LOCATION, ENVIRONMENT, DEMOGRAPHICS

KMF2016 explored the issue of geographic endowment: whether or not certain countries were destined for certain economic outcomes, based on their geography. It established that while geography had a huge part to play in determining standards of living, the state could intervene in some cases and overcome the limitations of geography via education and technology.

2016



THE MIND IN THE MACHINE: DEMIS HASSABIS ON ARTIFICIAL INTELLIGENCE

THE CO-FOUNDER OF DEEPMIND EXPLAINS HOW AI WILL HELP US MAKE UNIMAGINABLE LEAPS IN UNDERSTANDING THE WORLD

By Demis Hassabis, Financial Times, April 21, 2017

Modern civilisation is a miraculous feat, one made possible by science. Every time I take a flight, I marvel at the technology that has allowed us to soar above the clouds as a matter of routine. We have mapped the genome, built supercomputers and the internet, landed probes on comets, smashed atoms at near light speed in particle accelerators and put a man on the Moon. How have we managed to do any of this? When one stops to contemplate what has been accomplished by our 3lb brains, it's quite remarkable.

The scientific method might be the single most powerful idea humans have ever had, and progress since the Enlightenment has been simply astonishing. But we are now at a critical juncture where many of the systems we need to master are fiendishly complex, from climate change to macroeconomic issues to Alzheimer's disease. Whether we can solve these challenges — and how fast we can get there — will affect the future wellbeing of billions of people and the environment we all live in.

The problem is that these challenges are so complex that even the world's top scientists, clinicians and engineers can struggle to master all the intricacies necessary to make the breakthroughs required. It has been said that Leonardo da Vinci was perhaps the last person to have lived who understood

the entire breadth of knowledge of their age. Since then we've had to specialise, and today it takes a lifetime to completely master even a single field such as astrophysics or quantum mechanics.

The systems we now seek to understand are underpinned by a vast amount of data, usually highly dynamic, non-linear and with emergent properties that make it incredibly hard to find the structure and connections to reveal the insights hidden therein. Kepler and Newton could write equations to describe the motion of planets and objects on Earth, but few of today's problems can be reduced down to a simple set of elegant and compact formulae.

This is one of the greatest scientific challenges of our times. The founding fathers of the modern computer age — Alan Turing, John von Neumann, Claude Shannon — all understood the central importance of information theory, and today we have come to realise that almost everything can either be thought of or expressed in this paradigm. This is most evident in bioinformatics, where the genome is effectively a gigantic information coding schema. I believe that, one day, information will come to be viewed as being as fundamental as energy and matter.

At its core, intelligence can be viewed as a process that converts unstructured information

into useful and actionable knowledge. The scientific promise of artificial intelligence (AI), to which I have devoted my life's work, is that we may be able to synthesise, automate and optimise that process, using technology as a tool to help us acquire rapid new knowledge in fields that would remain intractable for humans unaided.

At its core, intelligence can be viewed as a process that converts unstructured information into useful and actionable knowledge.

Today, working on AI has become very fashionable. However, the term AI can mean myriad things depending on the context. The approach we take at DeepMind, the company I co-founded, focuses on notions of learning and generality, with the aim of developing the kind of AI we need for science. If we want computers to discover new knowledge, then we must give them the ability to truly learn for themselves.

The algorithms we work on learn how to master tasks directly from raw experience, meaning that the knowledge they acquire is ultimately grounded in some form of sensory reality rather than in abstract symbols.

We further require them to be general in the sense that the same system with the same parameters can perform well across a wide range of tasks. Both these tenets were demonstrated in DeepMind's 2015 Nature paper in which a single program taught itself to play dozens of classic Atari games, with no input other than the pixels on the screen and the running score. We also use systems-level neuroscience as a key source of inspiration for new algorithmic and architectural ideas. After all, the brain is the only existence proof we have that a general-purpose experience-based learning system is even possible.

This is a radical departure from the approach of many of our predecessors. The difference is perhaps best illustrated by comparing two breakthrough programs that achieved world firsts in the field of games: IBM's Deep Blue, which beat the world chess champion Garry Kasparov in 1997, and our recent AlphaGo program, which last year beat one of the world's top players at the even more complex game of Go. Deep Blue used what is known as an "expert systems" approach: a team of programmers sat down with some chess grandmasters to explicitly distil and codify their knowledge into a sophisticated set of heuristics. A powerful supercomputer then used these handcrafted rules to assess a vast number of possible variations, calculating its way by brute force to the right move.

Deep Blue's victory against Kasparov represented a major milestone in the history of AI. But its win was more a testament to the brilliance of its team of programmers and grandmasters, as well as to the computational power of the contemporary hardware, than to any inherent intelligence in the program itself.

After chess was cracked, Go became the new holy grail AlphaGo played a for AI research. Go is around 3,000 years old and has a handful of highly profound cultural importance across Asia, where it is considered to be not just a game but an art form, and inventive winning moves, one of which was its professional champions are public icons. With an astonishing 10 to the power of 170 possible board so surprising it overturned hundreds of configurations — more than the number of atoms in years of received the universe — it is insoluble by brute-force methods. In fact, even writing a function to determine which side is winning in a particular Go position was long thought to be impossible, since a tiny change in the location of a single piece can radically alter the entire board state. Top human Go players deal with this enormous complexity by leaning heavily on their intuition and instinct, often describing moves as simply "feeling right",

in contrast to chess players, who rely more on precise calculation.

For AlphaGo we realised that in order to capture this intuitive aspect of the game we would have to take an approach radically different from chess programs such as Deep Blue. Rather than hand-coding human expert strategies, we used general-purpose techniques including deep neural networks to build a learning system, and showed it thousands of strong amateur games to help it develop its own understanding of what reasonable human play looks like. Then we had it play against different versions of itself thousands of times, each time learning from its mistakes and incrementally improving until it became immensely strong. In March 2016 we were ready to take on the ultimate challenge: playing the legendary Lee Se-dol, winner of 18 world titles and widely considered to be the greatest player of the past decade.

More than 200 million people watched online as AlphaGo emerged a surprise 4-1 victor, with the consensus among experts that this breakthrough was a decade ahead of its time. More importantly, during the games AlphaGo played a handful of highly inventive winning moves, one of which — move 37 in game two — was so surprising it overturned hundreds of years of received wisdom and has been intensely examined by players since. In the course of winning, AlphaGo somehow taught the world completely new knowledge about perhaps the most studied game in history.

...in the next few years scientists and researchers using similar approaches will generate insights in a multitude of areas, from superconductor material design to drug discovery. In many ways I see AI as analogous to the Hubble telescope

These moments of algorithmic inspiration give us a glimpse of why AI could be so beneficial for science: the possibility of machine-aided scientific discovery. We believe the techniques underpinning AlphaGo are general-purpose and could be applied to a wide range of other domains, especially those with clear objective functions that can be optimised, and environments that can be accurately simulated, allowing for efficient high-speed experimentation. In energy

efficiency, for instance, we used a variant of these algorithms to find a set of novel techniques able to reduce the energy used to cool Google's data centres by 40 per cent, which we are now rolling out across the fleet, and which will deliver a huge cost saving and be great for the environment.

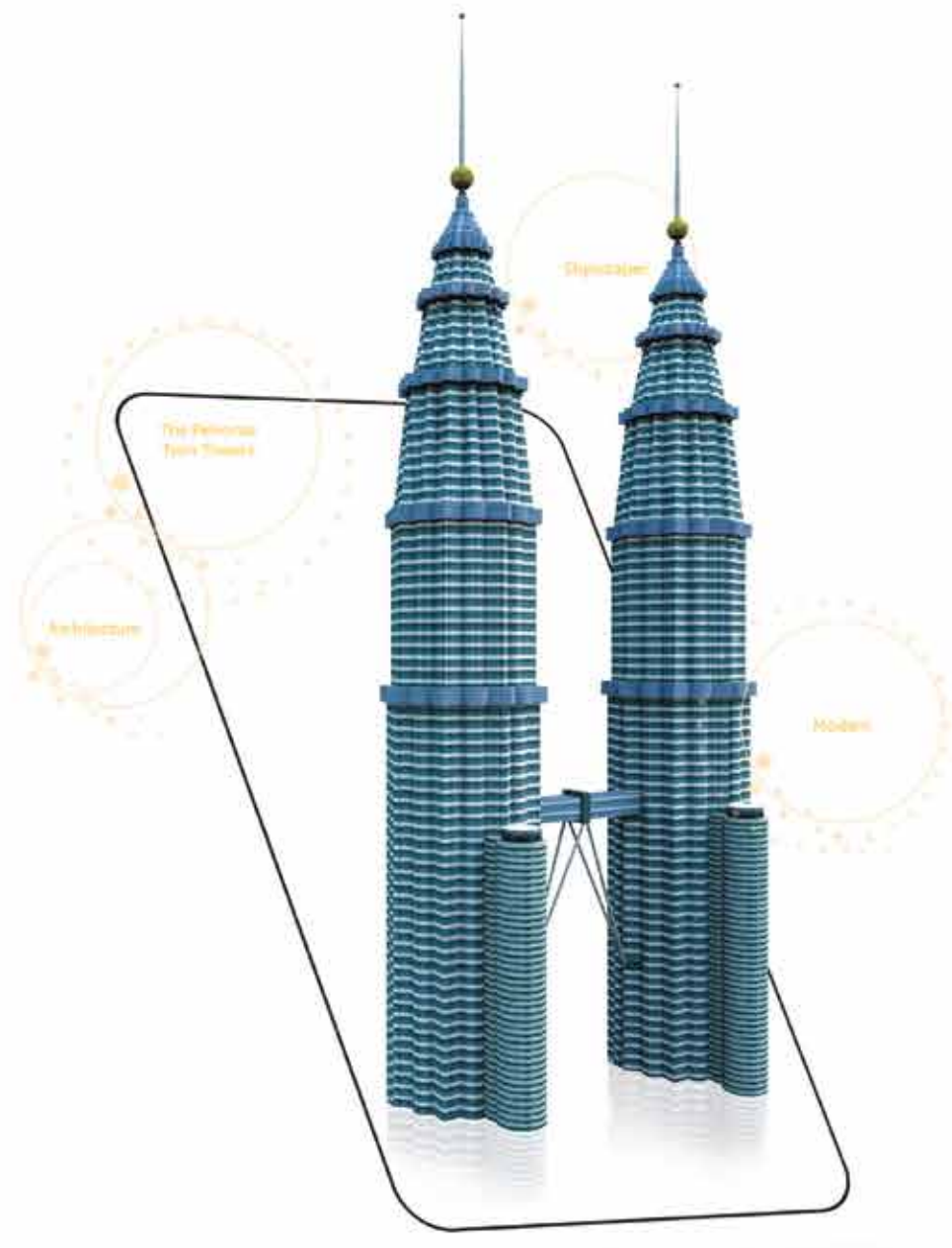
We believe that in the next few years scientists and researchers using similar approaches will generate insights in a multitude of areas, from superconductor material design to drug discovery. In many ways I see AI as analogous to the Hubble telescope — a scientific tool that allows us to see farther and better understand the universe around us.

Of course, like any powerful technology AI must be used responsibly, ethically and to benefit everyone. We must also continue to be highly cognisant of both the utility and limitations of AI algorithms. But with rigorous attention to programs' capabilities, and more research into the effects of the quality of the data we use as inputs and the transparency of their workings, we may find that AI can play a vital role in supporting all manner of experts by identifying patterns and sources that can escape human eyes alone.

It is in this collaboration between people and algorithms that incredible scientific progress lies over the next few decades. I believe that AI will become a kind of meta-solution for scientists to deploy, enhancing our daily lives and allowing us all to work more quickly and effectively. If we can deploy these tools broadly and fairly, fostering an environment in which everyone can participate in and benefit from them, we have the opportunity to enrich and advance humanity as a whole.

In doing so, we may learn something about ourselves, too. I've always felt that physics and neuroscience are in some ways the most fundamental subjects: one is concerned with the external world out there, and the other with the internal world in our minds. Between them they therefore cover everything. AI has the potential to help us to understand both better. As we discover more about the learning process itself and compare it to the human brain, we could one day attain a better understanding of what makes us unique, including shedding light on such enduring mysteries of the mind as dreaming, creativity and perhaps one day even consciousness.

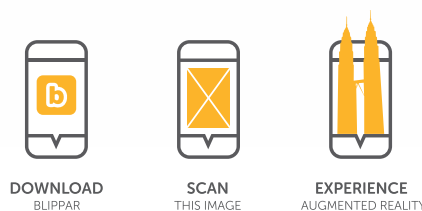
If AI can help us as a society to not only save the environment, cure disease and explore the universe, but also better understand ourselves — well, that may prove one of the greatest discoveries of them all.



We are AR. We are AI.

Hello, we are Blippar. Through augmented reality (AR) and computer vision (CV), we are helping brands and businesses create memorable mobile and wearable-led experiences for consumers.

Our suite of products puts the power of AR and CV in the hands of advertisers, agencies and developers - helping them push the boundaries to create rich, immersive content.



blippar

VISIT OUR BOOTH
Grand Ballroom Foyer,
Mandarin Oriental Kuala Lumpur

ABOUT IMAGINEERING INSTITUTE

Imagineering Institute (IDM Lab Sdn Bhd) is the first independent multi-disciplinary internet and digital media research & development (R&D) research lab, located at the fast-developing Malaysia's new central business district (CBD) of Iskandar Puteri. This research centre is headed by a famous pervasive computing researcher from University of London called Professor Adrian David Cheok. "Inventing the future of Internet" is their tagline and their research works expands through number of interesting research fields such as Multisensory Technologies, Human Computer Interaction, Augmented Reality & Virtual Reality, Robotics, Artificial Intelligent Systems, Smart Environments, etc. This centre has launched in December 2014 and within a short period this research lab has recognised as one of the best multi-sensory research centre in the world. It has a blend of multi-disciplinary researchers comes from various parts of the world working together with talented Malaysian youths to develop exciting next generation technologies.

The imaginative application of engineering sciences or Imagineering is done in the lab and it involves three main strands of work, namely:

- **Imaginative Envisioning:** The projections and viewpoints of artists and designers
- **Future-casting:** Extrapolation of recent and present technological developments, making imaginative but credible (do-able) scenarios, and simulating the future
- **Creative Engineering:** New product design, prototyping, and demonstration work of engineers, computer scientists, and designers

Imagineering Institute is the first lab of its kind to integrate blue skies research and an accelerator programme for start-up companies through the commercialisation of IPs. Entrepreneurs are given the chance to work side by side with academic researchers, building a symbiotic benefit by combining entrepreneurs' commercial input and world-class researchers' technical advice. The institute is envisioned to be a hotbed for high-impact R&D in a relatively nascent Malaysian IDM industry. Furthermore, the successful commercialisation of projects emerging from the institute, along with partnerships with renowned research labs, will potentially place both the institute and Iskandar on the global radar.



AI WILL VASTLY CHANGE THE WAY THAT HUMANS INTERACT

Project which Imagineering Institute will present at the Khazanah Megatrends Forum is result of its recent research in the field of Artificial Intelligence and conceptualise as set of discussions between clone robots. We are planning to offer to the audience at the forum, direct conversation with the artificial clones (robots) of Aristotle, Donald Trump, and Michael Jackson. The 3D models of the characters will be projected on the screens and answering questions asked by the forum visitors. The characters converted to the AI clones will obtain a distinctive personality, intelligence, and decision-making ability. What we would like to achieve with this installation is creation of intelligent Robot-Robot and Human-Robot Interactions which raises fundamental questions toward new social practices, robot's contextual role in future human-environment relationship development, symbolising potential end of human supremacy but give a hope for artificial eternity.

Key technical novelty presented in the proposed Interactive Installation is the combination of chatbot technologies and Recurrent Neural Network (RNN) models that will enable reinforcement learning in order to create artificial conversational agents who will achieve human level performance. The fact, that things can communicate with each other and with the humans enables unsupervised learning and reinforcement learning and knowledge multiplying opportunities.

IMAGINEERING
INSTITUTE
inventing the future of internet

VISIT OUR BOOTH
Grand Ballroom Foyer,
Mandarin Oriental Kuala Lumpur



WHY FACTS DON'T CHANGE OUR MINDS

NEW DISCOVERIES ABOUT THE HUMAN MIND SHOW THE LIMITATIONS OF REASON

By Elizabeth Kolbert, *The New Yorker*, August 25, 2017

In 1975, researchers at Stanford invited a group of undergraduates to take part in a study about suicide. They were presented with pairs of suicide notes. In each pair, one note had been composed by a random individual, the other by a person who had subsequently taken his own life. The students were then asked to distinguish between the genuine notes and the fake ones.

Some students discovered that they had a genius for the task. Out of twenty-five pairs of notes, they correctly identified the real one twenty-four times. Others discovered that they were hopeless.

They identified the real note in only ten instances.

As is often the case with psychological studies, the whole setup was a put-on. Though half the notes were indeed genuine—they'd been obtained from the Los Angeles County coroner's office—the scores were fictitious. The students who'd been told they were almost always right were, on average, no more discerning than those who had been told they were mostly wrong.

In the second phase of the study, the deception was revealed. The students

were told that the real point of the experiment was to gauge their responses to *thinking* they were right or wrong. (This, it turned out, was also a deception.) Finally, the students were asked to estimate how many suicide notes they had actually categorized correctly, and how many they thought an average student would get right. At this point, something curious happened. The students in the high-score group said that they thought they had, in fact, done quite well—significantly better than the average student—even though, as they'd just been told, they had zero grounds for believing this. Conversely,

those who'd been assigned to the low-score group said that they thought they had done significantly worse than the average student—a conclusion that was equally unfounded.

“Once formed,” the researchers observed dryly, “impressions are remarkably perseverant.”

Reason developed not to enable us to solve abstract, logical problems or even to help us draw conclusions from unfamiliar data; rather, it developed to resolve the problems posed by living in collaborative groups.

A few years later, a new set of Stanford students was recruited for a related study. The students were handed packets of information about a pair of firefighters, Frank K. and George H. Frank's bio noted that, among other things, he had a baby daughter and he liked to scuba dive. George had a small son and played golf. The packets also included the men's responses on what the researchers called the Risky-Conservative Choice Test. According to one version of the packet, Frank was a successful firefighter who, on the test, almost always went with the safest option. In the other version, Frank also chose the safest option, but he was a lousy firefighter who'd been put “on report” by his supervisors several times. Once again, midway through the study, the students were informed that they'd been misled, and that the information they'd received was entirely fictitious. The students were then asked to describe their own beliefs. What sort of attitude toward risk did they think a successful firefighter would have? The students who'd received the first packet thought that he would avoid it. The students in the second group thought he'd embrace it.

Even after the evidence “for their beliefs has been totally refuted, people fail to make appropriate revisions in those beliefs,” the researchers noted. In this case, the failure was “particularly

impressive,” since two data points would never have been enough information to generalize from.

The Stanford studies became famous. Coming from a group of academics in the nineteen-seventies, the contention that people can't think straight was shocking. It isn't any longer. Thousands of subsequent experiments have confirmed (and elaborated on) this finding. As everyone who's followed the research—or even occasionally picked up a copy of *Psychology Today*—knows, any graduate student with a clipboard can demonstrate that reasonable-seeming people are often totally irrational. Rarely has this insight seemed more relevant than it does right now. Still, an essential puzzle remains: How did we come to be this way?

In a new book, “The Enigma of Reason” (Harvard), the cognitive scientists Hugo Mercier and Dan Sperber take a stab at answering this question. Mercier, who works at a French research institute in Lyon, and Sperber, now based at the Central European University, in Budapest, point out that reason is an evolved trait, like bipedalism or three-color vision. It emerged on the savannas of Africa, and has to be understood in that context.

Stripped of a lot of what might be called cognitive-science-ese, Mercier and Sperber's argument runs, more or less, as follows: Humans' biggest advantage over other species is our ability to cooperate. Cooperation is difficult to establish and almost as difficult to sustain. For any individual, freeloading is always the best course of action. Reason developed not to enable us to solve abstract, logical problems or even to help us draw conclusions from unfamiliar data; rather, it developed to resolve the problems posed by living in collaborative groups.

“Reason is an adaptation to the hypersocial niche humans have evolved for themselves,” Mercier and Sperber write. Habits of mind that seem weird or goofy or just plain dumb from an “intellectualist” point of view prove

shrewd when seen from a social “interactionist” perspective.

Consider what's become known as “confirmation bias,” the tendency people have to embrace information that supports their beliefs and reject information that contradicts them. Of the many forms of faulty thinking that have been identified, confirmation bias is among the best catalogued; it's the subject of entire textbooks' worth of experiments. One of the most famous of these was conducted, again, at Stanford. For this experiment, researchers rounded up a group of students who had opposing opinions about capital punishment. Half the students were in favor of it and thought that it deterred crime; the other half were against it and thought that it had no effect on crime.

Humans, they (Mercier and Sperber) point out, aren't randomly credulous. Presented with someone else's argument, we're quite adept at spotting the weaknesses. Almost invariably, the positions we're blind about are our own.

The students were asked to respond to two studies. One provided data in support of the deterrence argument, and the other provided data that called it into question. Both studies—you guessed it—were made up, and had been designed to present what were, objectively speaking, equally compelling statistics. The students who had originally supported capital punishment rated the pro-deterrence data highly credible and the anti-deterrence data unconvincing; the students who'd originally opposed capital punishment did the reverse. At the end of the experiment, the students were asked once again about their views. Those who'd started out pro-capital punishment were now even more in favor of it; those who'd opposed it were even more hostile.

If reason is designed to generate sound judgments, then it's hard to conceive

of a more serious design flaw than confirmation bias. Imagine, Mercier and Sperber suggest a mouse that thinks the way we do. Such a mouse, “bent on confirming its belief that there are no cats around,” would soon be dinner. To the extent that confirmation bias leads people to dismiss evidence of new or underappreciated threats—the human equivalent of the cat around the corner—it’s a trait that should have been selected against. The fact that both we and it survive, Mercier and Sperber argue, proves that it must have some adaptive function, and that function, they maintain, is related to our “hypersociability.”

Mercier and Sperber prefer the term “myside bias.” Humans, they point out, aren’t randomly credulous. Presented with someone else’s argument, we’re quite adept at spotting the weaknesses. Almost invariably, the positions we’re blind about are our own.

A recent experiment performed by Mercier and some European colleagues neatly demonstrates this asymmetry. Participants were asked to answer a series of simple reasoning problems. They were then asked to explain their responses, and were given a chance to modify them if they identified mistakes. The majority were satisfied with their original choices; fewer than fifteen per cent changed their minds in step two.

In step three, participants were shown one of the same problems, along with their answer and the answer of another participant, who’d come to a different conclusion. Once again, they were given the chance to change their responses. But a trick had been played: the answers presented to them as someone else’s were actually their own, and vice versa. About half the participants realized what was going on. Among the other half, suddenly people became a lot more critical. Nearly sixty per cent now rejected the responses that they’d earlier been satisfied with.

This lopsidedness, according to Mercier and Sperber, reflects the task that reason evolved to perform, which

is to prevent us from getting screwed by the other members of our group. Living in small bands of hunter-gatherers, our ancestors were primarily concerned with their social standing, and with making sure that they weren’t the ones risking their lives on the hunt while others loafed around in the cave. There was little advantage in reasoning clearly, while much was to be gained from winning arguments.

Among the many, many issues our forebears didn’t worry about were the deterrent effects of capital punishment and the ideal attributes of a firefighter. Nor did they have to contend with fabricated studies, or fake news, or Twitter. It’s no wonder, then, that today reason often seems to fail us. As Mercier and Sperber write, “This is one of many cases in which the environment changed too quickly for natural selection to catch up.”

Steven Sloman, a professor at Brown, and Philip Fernbach, a professor at the University of Colorado, are also cognitive scientists. They, too, believe sociability is the key to how the human mind functions or, perhaps more pertinently, malfunctions. They begin their book, “The Knowledge Illusion: Why We Never Think Alone” (Riverhead), with a look at toilets.

Virtually everyone in the United States, and indeed throughout the developed world, is familiar with toilets. A typical flush toilet has a ceramic bowl filled with water. When the handle is depressed, or the button pushed, the water—and everything that’s been deposited in it—gets sucked into a pipe and from there into the sewage system. But how does this actually happen?

In a study conducted at Yale, graduate students were asked to rate their understanding of everyday devices, including toilets, zippers, and cylinder locks. They were then asked to write detailed, step-by-step explanations of how the devices work, and to rate their understanding again. Apparently, the effort revealed to the students their own ignorance, because their self-assessments dropped. (Toilets, it turns out, are more complicated than they appear.)

Sloman and Fernbach see this effect, which they call the “illusion of explanatory depth,” just about everywhere. People believe that they know way more than they actually do. What allows us to persist in this belief is other people. In the case of my toilet, someone else designed it so that I can operate it easily. This is something humans are very good at. We’ve been relying on one another’s expertise ever since we figured out how to hunt together, which was probably a key development in our evolutionary history. So well do we collaborate, Sloman and Fernbach argue, that we can hardly tell where our own understanding ends and others’ begins.

“One implication of the naturalness with which we divide cognitive labor,” they write, is that there’s “no sharp boundary between one person’s ideas and knowledge” and “those of other members” of the group.

This borderlessness, or, if you prefer, confusion, is also crucial to what we consider progress. As people invented new tools for new ways of living, they simultaneously created new realms of ignorance; if everyone had insisted on, say, mastering the principles of metalworking before picking up a knife, the Bronze Age wouldn’t have amounted to much. When it comes to new technologies, incomplete understanding is empowering.

Where it gets us into trouble, according to Sloman and Fernbach, is in the political domain. It’s one thing for me to flush a toilet without knowing how it operates, and another for me to favor (or oppose) an immigration ban without knowing what I’m talking about. Sloman and Fernbach cite a survey conducted in 2014, not long after Russia annexed the Ukrainian territory of Crimea. Respondents were asked how they thought the U.S. should react, and also whether they could identify Ukraine on a map. The farther off base they were about the geography, the more likely they were to favor military intervention. (Respondents were so unsure of Ukraine’s location that the median guess was wrong by eighteen hundred miles, roughly the distance from Kiev to Madrid.)

Surveys on many other issues have yielded similarly dismaying results. “As a rule, strong feelings about issues do not emerge from deep understanding,” Sloman and Fernbach write. And here our dependence on other minds reinforces the problem. If your position on, say, the Affordable Care Act is baseless and I rely on it, then my opinion is also baseless. When I talk to Tom and he decides he agrees with me, his opinion is also baseless, but now that the three of us concur we feel that much more smug about our views. If we all now dismiss as unconvincing any information that contradicts our opinion, you get, well, the Trump Administration.

“This is how a community of knowledge can become dangerous,” Sloman and Fernbach observe. The two have performed their own version of the toilet experiment, substituting public policy for household gadgets. In a study conducted in 2012, they asked people for their stance on questions like: Should there be a single-payer health-care system? Or merit-based pay for teachers? Participants were asked to rate their positions depending on how strongly they agreed or disagreed with the proposals. Next, they were instructed to explain, in as much detail as they could, the impacts of implementing each one. Most people at this point ran into trouble. Asked once again to rate their views, they ratcheted down the intensity, so that they either agreed or disagreed less vehemently.

Sloman and Fernbach see in this result a little candle for a dark world. If we—or our friends or the pundits on CNN—spent less time pontificating and more trying to work through the implications of policy proposals, we’d realize how clueless we are and moderate our views. This, they write, “may be the only form of thinking that will shatter the illusion of explanatory depth and change people’s attitudes.”

One way to look at science is as a system that corrects for people’s natural inclinations. In a well-run laboratory, there’s no room for myside bias; the results have to be reproducible in other laboratories, by researchers

who have no motive to confirm them. And this, it could be argued, is why the system has proved so successful. At any given moment, a field may be dominated by squabbles, but, in the end, the methodology prevails. Science moves forward, even as we remain stuck in place.

They (The Gormans) cite research suggesting that people experience genuine pleasure—a rush of dopamine—when processing information that supports their beliefs. “It feels good to ‘stick to our guns’ even if we are wrong,” they observe.

In “Denying to the Grave: Why We Ignore the Facts That Will Save Us” (Oxford), Jack Gorman, a psychiatrist, and his daughter, Sara Gorman, a public-health specialist, probe the gap between what science tells us and what we tell ourselves. Their concern is with those persistent beliefs which are not just demonstrably false but also potentially deadly, like the conviction that vaccines are hazardous. Of course, what’s hazardous is *not* being vaccinated; that’s why vaccines were created in the first place. “Immunization is one of the triumphs of modern medicine,” the Gormans note. But no matter how many scientific studies conclude that vaccines are safe, and that there’s no link between immunizations and autism, anti-vaxxers remain unmoved. (They can now count on their side—sort of—Donald Trump, who has said that, although he and his wife had their son, Barron, vaccinated, they refused to do so on the timetable recommended by pediatricians.)

The Gormans, too, argue that ways of thinking that now seem self-destructive must at some point have been adaptive. And they, too, dedicate many pages to confirmation bias, which, they claim, has a physiological component. They cite research suggesting that people experience genuine pleasure—a

rush of dopamine—when processing information that supports their beliefs. “It feels good to ‘stick to our guns’ even if we are wrong,” they observe.

The Gormans don’t just want to catalogue the ways we go wrong; they want to correct for them. There must be some way, they maintain, to convince people that vaccines are good for kids, and handguns are dangerous. (Another widespread but statistically insupportable belief they’d like to discredit is that owning a gun makes you safer.) But here they encounter the very problems they have enumerated. Providing people with accurate information doesn’t seem to help; they simply discount it. Appealing to their emotions may work better, but doing so is obviously antithetical to the goal of promoting sound science. “The challenge that remains,” they write toward the end of their book, “is to figure out how to address the tendencies that lead to false scientific belief.”

“The Enigma of Reason,” “The Knowledge Illusion,” and “Denying to the Grave” were all written before the November election. And yet they anticipate Kellyanne Conway and the rise of “alternative facts.” These days, it can feel as if the entire country has been given over to a vast psychological experiment being run either by no one or by Steve Bannon. Rational agents would be able to think their way to a solution. But, on this matter, the literature is not reassuring.

you **IBM**



**YOU
TO THE
POWER
OF
IBM.**

VISIT OUR BOOTH
Grand Ballroom Foyer,
Mandarin Oriental Kuala Lumpur

**LEAD
WITH
AI**



We don't just give business solutions, we power future altering decisions with Artificial Intelligence. With a deep understanding of the world, AI helps make insight driven decisions that transform businesses and help build a better tomorrow.

www.fractalanalytics.com | info@fractalanalytics.com | India: +91 224-067-5800 | US: +1 201-469-0693



VISIT OUR BOOTH
Grand Ballroom Foyer,
Mandarin Oriental Kuala Lumpur



THE REAL THREAT OF ARTIFICIAL INTELLIGENCE

BEIJING — WHAT WORRIES YOU ABOUT THE COMING WORLD OF ARTIFICIAL INTELLIGENCE?

By Kai-Fu Lee, The New York Times, June 24, 2017

Too often the answer to this question resembles the plot of a sci-fi thriller. People worry that developments in A.I. will bring about the “singularity” — that point in history when A.I. surpasses human intelligence, leading to an unimaginable revolution in human affairs. Or they wonder whether instead of our controlling artificial intelligence, it will control us, turning us, in effect, into cyborgs.

These are interesting issues to contemplate, but they are not pressing. They concern situations that may not arise for hundreds of years, if ever. At the moment, there is no known path from our best A.I. tools (like the Google computer program that recently beat the world’s best player of the game of Go) to “general” A.I. — self-aware computer programs that can engage in common-sense reasoning, attain knowledge in multiple domains,

feel, express and understand emotions and so on.

This doesn’t mean we have nothing to worry about. On the contrary, the A.I. products that now exist are improving faster than most people realize and promise to radically transform our world, not always for the better. They are only tools, not a competing form of intelligence. But they will reshape what work means and how wealth is created, leading to unprecedented economic inequalities and even altering the global balance of power.

It is imperative that we turn our attention to these imminent challenges.

What is artificial intelligence today? Roughly speaking, it’s technology that takes in huge amounts of information from a specific domain (say, loan repayment histories) and uses it to make a decision in a specific case (whether to

give an individual a loan) in the service of a specified goal (maximizing profits for the lender). Think of a spreadsheet on steroids, trained on big data. These tools can outperform human beings at a given task.

This kind of A.I. is spreading to thousands of domains (not just loans), and as it does, it will eliminate many jobs. Bank tellers, customer service representatives, telemarketers, stock and bond traders, even paralegals and radiologists will gradually be replaced by such software. Over time this technology will come to control semiautonomous and autonomous hardware like self-driving cars and robots, displacing factory workers, construction workers, drivers, delivery workers and many others.

Unlike the Industrial Revolution and the computer revolution, the A.I. revolution is not taking certain jobs (artisans, personal assistants who use paper and typewriters) and replacing them with other jobs (assembly-line workers, personal assistants conversant with computers). Instead, it is poised to bring about a wide-scale decimation of jobs — mostly lower-paying jobs, but some higher-paying ones, too.

This transformation will result in enormous profits for the companies that develop A.I., as well as for the companies that adopt it. Imagine how much money a company like Uber would make if it used only robot drivers. Imagine the profits if Apple could manufacture its products without human labor. Imagine the gains to a loan company that could issue 30 million loans a year with virtually no human involvement. (As it happens, my venture capital firm has invested in just such a loan company.)

We are thus facing two developments that do not sit easily together: enormous wealth concentrated in relatively few hands and enormous numbers of people out of work. What is to be done?

Part of the answer will involve educating or retraining people in tasks A.I. tools aren’t good at. Artificial intelligence is poorly suited for jobs involving creativity, planning and “cross-domain” thinking — for example, the work of a trial lawyer. But these skills are typically

required by high-paying jobs that may be hard to retrain displaced workers to do. More promising are lower-paying jobs involving the “people skills” that A.I. lacks: social workers, bartenders, concierges — professions requiring nuanced human interaction. But here, too, there is a problem: How many bartenders does a society really need?

These are jobs that A.I. cannot do, that society needs and that give people a sense of purpose ... The volunteer service jobs of today, in other words, may turn into the real jobs of the future.

The solution to the problem of mass unemployment, I suspect, will involve “service jobs of love.” These are jobs that A.I. cannot do, that society needs and that give people a sense of purpose. Examples include accompanying an older person to visit a doctor, mentoring at an orphanage and serving as a sponsor at Alcoholics Anonymous — or, potentially soon, Virtual Reality Anonymous (for those addicted to their parallel lives in computer-generated simulations). The volunteer service jobs of today, in other words, may turn into the real jobs of the future.

Other volunteer jobs may be higher-paying and professional, such as compassionate medical service providers who serve as the “human interface” for A.I. programs that diagnose cancer. In all cases, people will be able to choose to work fewer hours than they do now.

Who will pay for these jobs? Here is where the enormous wealth concentrated in relatively few hands comes in. It strikes me as unavoidable that large chunks of the money created by A.I. will have to be transferred to those whose jobs have been displaced. This seems feasible only through Keynesian policies of increased government spending, presumably raised through taxation on wealthy companies.

As for what form that social welfare would take, I would argue for a conditional universal basic income: welfare offered to

those who have a financial need, on the condition they either show an effort to receive training that would make them employable or commit to a certain number of hours of “service of love” voluntarism.

To fund this, tax rates will have to be high. The government will not only have to subsidize most people’s lives and work; it will also have to compensate for the loss of individual tax revenue previously collected from employed individuals.

This leads to the final and perhaps most consequential challenge of A.I. The Keynesian approach I have sketched out may be feasible in the United States and China, which will have enough successful A.I. businesses to fund welfare initiatives via taxes. But what about other countries?

They face two insurmountable problems. First, most of the money being made from artificial intelligence will go to the United States and China. A.I. is an industry in which strength begets strength: The more data you have, the better your product; the better your product, the more data you can collect; the more data you can collect, the more talent you can attract; the more talent you can attract, the better your product. It’s a virtuous circle, and the United States and China have already amassed the talent, market share and data to set it in motion.

For example, the Chinese speech-recognition company iFlytek and several Chinese face-recognition companies such as Megvii and SenseTime have become industry leaders, as measured by market capitalization. The United States is spearheading the development of autonomous vehicles, led by companies like Google, Tesla and Uber. As for the consumer internet market, seven American or Chinese companies — Google, Facebook, Microsoft, Amazon, Baidu, Alibaba and Tencent — are making extensive use of A.I. and expanding operations to other countries, essentially owning those A.I. markets. It seems American businesses will dominate in developed markets and some developing markets, while Chinese companies will win in most developing markets.

The other challenge for many countries that are not China or the United States is that their populations are increasing,

especially in the developing world. While a large, growing population can be an economic asset (as in China and India in recent decades), in the age of A.I. it will be an economic liability because it will comprise mostly displaced workers, not productive ones.

Unless they (countries) wish to plunge their people into poverty, they will be forced to negotiate with whichever country supplies most of their A.I. software — China or the United States — to essentially become that country’s economic dependent, taking in welfare subsidies in exchange for letting the “parent” nation’s A.I. companies continue to profit from the dependent country’s users.

So if most countries will not be able to tax ultra-profitable A.I. companies to subsidize their workers, what options will they have? I foresee only one: Unless they wish to plunge their people into poverty, they will be forced to negotiate with whichever country supplies most of their A.I. software — China or the United States — to essentially become that country’s economic dependent, taking in welfare subsidies in exchange for letting the “parent” nation’s A.I. companies continue to profit from the dependent country’s users. Such economic arrangements would reshape today’s geopolitical alliances.

One way or another, we are going to have to start thinking about how to minimize the looming A.I.-fueled gap between the haves and the have-nots, both within and between nations. Or to put the matter more optimistically: A.I. is presenting us with an opportunity to rethink economic inequality on a global scale. These challenges are too far-ranging in their effects for any nation to isolate itself from the rest of the world.



THE NEXT BIG WINNERS IN TECH WILL BE THE COMPANIES THAT CHOOSE HEART OVER HEAD

By David Webster, Quartz, September 15, 2017

Recently, an alert popped up on my colleague's phone: "Looks like you've gained a few pounds. Let's get you back on track!" The email came from the "smart" scale in her bathroom. The message, intended to motivate, was more than a little tone-deaf—especially considering she was four months pregnant.

As "smart" technology proliferates and enables the objects in our lives to sense, process, and connect, humans are on the

culmination of developing a more emotional relationship with our devices. But, as my colleague can attest, we're not quite there yet.

The power to use emotional cues to tap into our lizard brains has never been more obvious, as evidenced by our addiction to social-media feeds and our fragmentation into political tribes. But how might we coax that power out from behind the screen and back into the physical world? We

can wield it to bring out the best in people, rather than just draw eyeballs for ad revenue.

Recently, an alert popped up on my colleague's phone: "Looks like you've gained a few pounds. Let's get you back on track!" The email came from the "smart" scale in her bathroom. The message, intended to motivate, was more than a little tone-deaf—especially considering she was four months pregnant.

Recent advances in artificial intelligence give us the chance to make technology an active partner in our lives by building a deep, emotional bond between devices and users. Perhaps this will alleviate some of the overstimulation we suffer from technology every day, which forces us to engage and causes decision fatigue.

As "smart" technology proliferates and enables the objects in our lives to sense, process, and connect, humans are on the cusp of developing a more emotional relationship with our devices. But, as my colleague can attest, we're not quite there yet.

The power to use emotional cues to tap into our lizard brains has never been more obvious, as evidenced by our addiction to social-media feeds and our fragmentation into political tribes. But how might we coax that power out from behind the screen and back into the physical world? We can wield it to bring out the best in people, rather than just draw eyeballs for ad revenue.

The key is to design experiences around emotional value rather than rational value. Rational value is measurable and quantifiable: steps taken, calories burned, or tasks completed. Emotional value is less literal; it's more subtle, more complex, and often less immediate. It's how an experience makes us *feel* about ourselves or our relationships with others.

Never mind the industrial and technological revolutions of the past: We're ready for an emotional revolution, in which humans develop evolving, long-term relationships with the objects around them. Recent advances in artificial intelligence give us the chance to make technology an active partner in our lives by building a deep, emotional bond between devices and users. Perhaps this will alleviate some of the overstimulation we suffer from

technology every day, which forces us to engage and causes decision fatigue. Instead, it might become a source of nourishment, amusement, and fascination while alleviating some of the anxiety and polarization we currently experience.

That's where design comes in. The fundamental role of designers is to use creativity to bridge the gap between rational and emotional—to make new technology engaging and appealing by having it meet humans on their terms. We've found the best way to get people to integrate new products or behaviors into their lives is to connect with them emotionally, which encourages adoption.

For example, when redesigning the voting system for Los Angeles County, IDEO heard from users that the act of casting a ballot in person had immense emotional significance. This was often particularly true for voters with vision or hearing impairments or other accessibility challenges. We created a system that allowed users to navigate and record their voting choices on their phones, then go to their polling stations, scan the devices, and easily print out physical ballots to cast by hand. We struck a balance between the rational convenience afforded by technology and the emotional meaning of preserving the voting ritual.

Gifted industrial designers such as Naoto Fukasawa and Jasper Morrison have demonstrated that it's possible to pinpoint the most potent blend of rational and emotional, and quietly implement it at the most humble level. Fukasawa's iconic example is the Muji CD player: Designed in 1999, the music device used the form and behavior of a wall fan as an intuitive interface to play digital music. They've shown the world the power of adding unexpected delight to ordinary objects and systems we take for granted, which feels like the right way to begin an emotional rapport with AI.

Let's consider a deliberately ordinary example: my beloved Zojirushi insulated travel mug. I already have a good relationship with it. It works well and looks good, and I carry it with me every day. I'm a fan of the brand. How might that bond be enhanced by making the mug "smart?"

The rational approach would likely lead to something like the Vessyl "intelligent cup," which captures data about what and how much you drink, then presents that to you via an app so you can track your nutrition and hydration. The intent is good, but it seems like information overload.

An emotional approach would start in a very different place. For example, the mug might notice that I leave it in a different spot every day, then it learns from my phone's location data that I tend to forget it and backtrack for it after I leave the office. What if it playfully chastised me, or sent me subtle or funny reminders as I got ready to head home? Would I begin to trust it? As we developed a relationship, could it learn how to nudge me to stay hydrated without getting on my nerves, like the Vessyl might?

The emotional revolution in technology is fast approaching. Designers have the tools to integrate emotion into organizational strategy to help companies stay relevant, connect, and create value for society.

Business leaders have the opportunity to claim huge market value through experiences built on these emotionally intelligent objects. Over time, I would probably come to relate differently to the Zojirushi brand, not only as a high-performance mug maker, but also as a good-humored partner with my best interests at heart. Those kinds of product relationships are what create lifelong brand loyalty. And once a company establishes an emotional relationship with consumers, the organization becomes more resilient in the face of competition and changing tastes.

The emotional revolution in technology is fast approaching. Designers have the tools to integrate emotion into organizational strategy to help companies stay relevant, connect, and create value for society. Organizations that use design principles to adapt to this coming sea change and create deeper bonds with their customers will ultimately win the war for people's minds—and hearts.



THE RISE OF AI MAKES EMOTIONAL INTELLIGENCE MORE IMPORTANT

By Megan Beck and Barry Libert, Harvard Business Review, February 15, 2017

The booming growth of machine learning and artificial intelligence (AI), like most transformational technologies, is both exciting and scary. It's exciting to consider all the ways our lives may improve, from managing our calendars to making medical diagnoses, but it's scary to consider the social and personal implications — and particularly the implications for our careers. As machine learning continues to grow, we all need to develop new skills in order to differentiate ourselves. But which ones?

It's long been known that AI and automation/robotics will change markets and workforces. Self-driving cars will force over three thousand truck drivers to seek new forms of employment, and robotic production lines like Tesla's will continue to eat away at manufacturing jobs, which are currently at 12 million and falling. But this is just the beginning of the disruption. As AI improves, which is happening quickly, a much broader set of "thinking" rather than "doing" jobs will be affected. We're talking about jobs, that, until the last few years, we couldn't imagine being done without the participation of an actual,

trained human being. Jobs like teacher, doctor, financial advisor, stockbroker, marketer, and business consultant.

There are just a lot of things that machines can do better than human beings, and we shouldn't be too proud to admit it. Many skilled jobs follow the same general workflow:

1. Gather data
2. Analyze the data
3. Interpret the results
4. Determine a recommended course of action
5. Implement the course of action

We can look at any number of occupations to see that this holds true. Doctors perform tests, analyze the results, interpret the results to make a diagnosis, plan a course of treatment, and then work with the patient to make this treatment plan a reality.

Financial advisers gather and analyze data about their clients and potential investment vehicles, interpret the implications given a variety of factors such as risk tolerance, recommend an investment strategy, and help their clients carry this strategy out over time.

Business consultants do much of the same, but diagnose and solve business problems.

These highly skilled workers can command high rates because of three capabilities. Their abilities to go through the early rote tasks quickly and accurately; their experiences and judgment in determining a course of action; and their savviness for helping clients navigate that course. AI and machine learning will quickly surpass our abilities on the first two capabilities—and this will shift the skillset required for any worker wishing to stay in these careers as they are transformed by artificial intelligence.

It's easy to see the role of automated systems in data gathering and analysis. We've accepted that machines can do these types of tasks efficiently. However, their potential goes much further. Human beings are limited, and often biased. Doctors will never be able to keep up with every new publication in their areas of expertise. Instead, they must rely on a small number of

Those that want to stay relevant in their professions will need to focus on skills and capabilities that artificial intelligence has trouble replicating — understanding, motivating, and interacting with human beings.

personal experiences rather than the complete knowledge in their field. Consultants, too, can only experience so many company transformations over their careers. From a narrow set of experiences, they form their preferences, expectations, and insights. Human beings can't just plug in more servers when we reach our limits processing new information. Instead, we must rely on our own, often biased, preferences, habits, and rules of thumb.

Some people may say that we will never trust machines with important decisions such as the management of our health and money, but this is twentieth century thinking. But a new generation is engaging with smart machines that they trust, and often prefer. Further, it's hard for anyone to argue with results. IBM's Watson is already cracking medical cases that stump doctors, and investors are fleeing expensive, actively managed funds for better-performing passive ones. The value of some of our most prized career paths is already being eroded.

Those that want to stay relevant in their professions will need to focus on skills and capabilities that artificial intelligence has trouble replicating — understanding, motivating, and interacting with human beings. A smart machine might be able to diagnose an illness and even recommend treatment better than a doctor. It takes a person, however, to sit with a patient, understand their life situation (finances, family, quality of life, etc.), and help determine what treatment plan is optimal.

Similarly, a smart machine may be able to diagnose complex business problems and recommend actions to improve an organization. A human being, however, is still best suited to jobs like spurring the leadership team to action, avoiding political hot buttons, and identifying savvy individuals to lead change.

It's these human capabilities that will become more and more prized over the next decade. Skills like persuasion, social understanding, and empathy are going to become differentiators

as artificial intelligence and machine learning take over our other tasks. Unfortunately, these human-oriented skills have generally been viewed as second priority in terms of training and education. We've all experienced the doctor, financial planner, or consultant who is more focused on his or her reports and data than on our unique situations and desires.

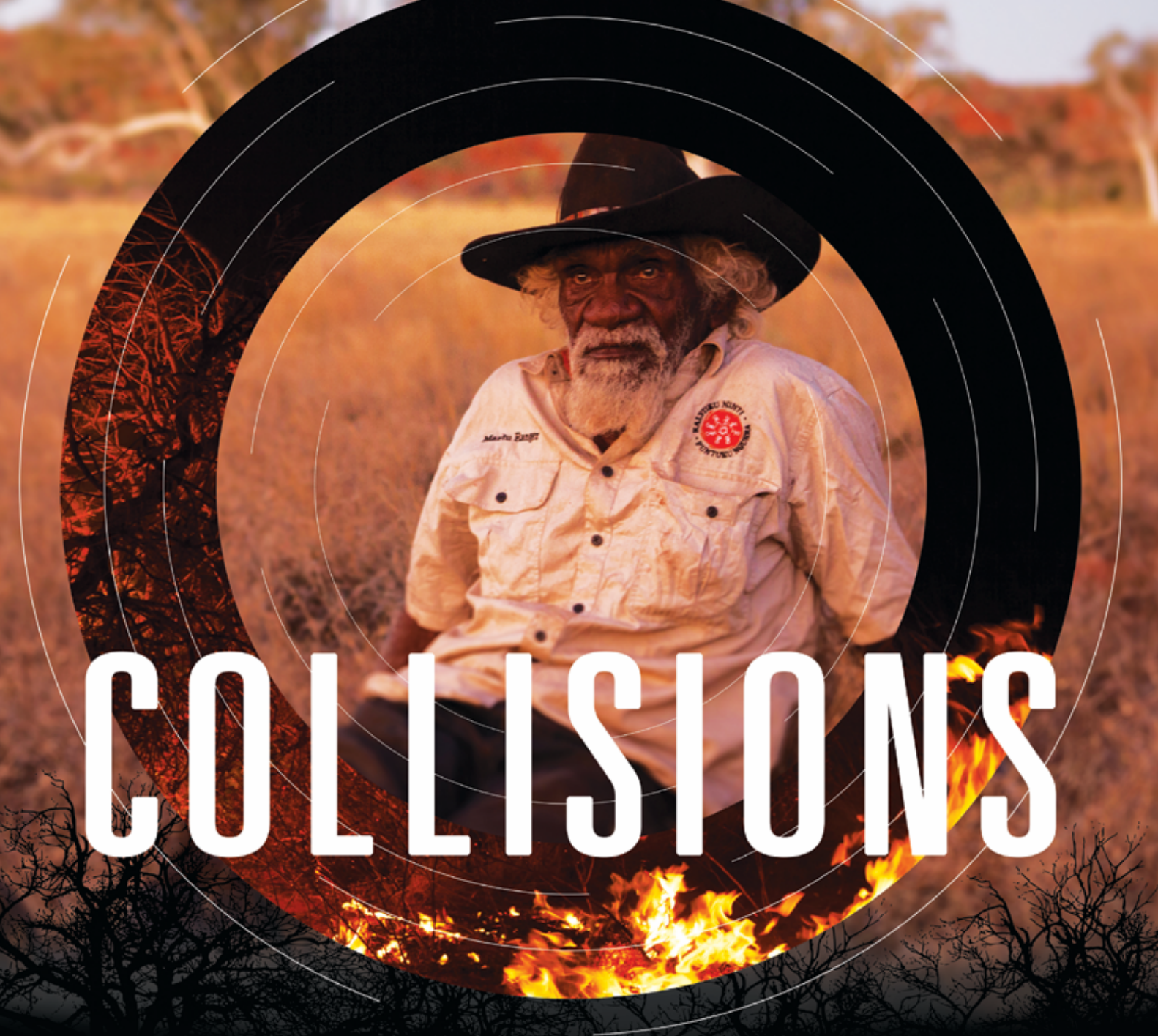
What you have to offer — what you can do better than any smart machine — is relate to the people around you.

For better or worse, these skills will become essential to anyone who wants to stay relevant in their field as automated systems proliferate. We have three recommendations:

- Don't fight the progress of technology. Machine learning and AI have the ability to improve outcomes and lower cost — so don't fight the robots. Welcome the change in your industry and work to make it fruitful and complementary.
- Examine your own capabilities interacting with, motivating, and assessing people. Recognize your strengths and weaknesses when it comes to emotional intelligence.
- Invest in developing your emotional intelligence. The simplest way is to change your mental model about what is important in your role, and begin focusing on how you can better manage, influence, and relate to others. Or, take it a step further by seeking out training and stretch opportunities.

What you have to offer — what you can do better than any smart machine — is relate to the people around you. Begin to nurture and invest in these abilities the same way that you have the more technical parts of your career. If you can be an outstanding motivator, manager, or listener, then you will still have a part to play as technology changes your industry.

© 2017 Harvard Business School Publishing Corp.



COLLISIONS

A virtual reality film experience like no other,
exploring the collision of science and spirit.

FROM ACCLAIMED ARTIST LYNETTE WALLWORTH,
FEATURING NYARRI MORGAN AND HIS STORY.



DON'T MISS THIS VR EXPERIENCE
Grand Ballroom Foyer,
Mandarin Oriental Kuala Lumpur



AI AND THE CITY

By Think City

Cities will always be at the forefront of change because they are where people and industry are most concentrated. This is especially so with the changes that the current revolution in Artificial Intelligence (AI) will bring. This will be keenly felt in our cities. For the present it is a technological change, rather than an ideological one, but it will nevertheless alter our beliefs, our behaviour and physiology.

Once robotics have developed beyond merely carrying out repetitive actions, entering instead into the realm of AI, it will greatly enhance productivity and drive further economic growth. Carefully planned patterns of money-making, corporate decisions and investment, using complicated algorithms are already widely used, and steady progress into the realms of AI will soon be added.

But all of this will come to nothing in the face of a revolution or a nuclear war. And with global warming people will go on killing each other for a source of water long before technology comes up with more costly alternatives. The heterogeneous and illogical nature of Human thoughts, attitudes and beliefs do not in any way approximate to AI and will continue unabated. AI may develop their own “species” but would never even approximate to our own species in terms of our way of learning and behaving and managing our affairs.

This raises the question: What will the societal impacts of AI be and how will this change our cities? With this heavy reliance on machines and AI, will cities hollow out as people move to seek work and purpose elsewhere? Imagine a city where there are more machines on the street than people. This would exacerbate the already amplified feelings of loneliness and isolation reportedly felt by city dwellers. If AI does not contribute to social and personal enrichment alongside economic growth – why then would people stay in cities that do not support them?

The down side of robotics and AI will be continuing loss of jobs, redundancy of core human skills, and increasing reliance on AI to enable a multitude of tasks to be carried out. A huge pool of acquired human skills will be gradually lost.

An artist once said that “art is the business of doing the totally unnecessary with love”. AI would not be good at that. Composing music in the same style as Bach requires very advanced AI, but any

human composer could do it with ease. In fact imitating the style of other composers or performers is normal for artists, sometimes as a joke. The “joke” for the listener is how the copy goes slightly off track in unexpected ways, thus lampooning the original. At this point in time AI could not do this because it is data-dependant and lacks any human sense of humour. On the other hand for humans, this sort of thing is an act of creativity, based upon previous data for sure, but also on an additional desire to deviate in completely unexpected ways. In this case the deviation is not random.

How about the case of built heritage? AI would be unlikely choose to keep our historic buildings going, or tolerate the imperfections and inefficiencies of these buildings unless instructed to do so. On the contrary it would seek to smooth over any imperfections and ensure the optimal selection of building materials, design and construction methods.

If it was actually programmed to do this task, the period of transition in our cities might well create ever wider divergence within the population. Society might become even more unequal, with those at the bottom of the educational ladder soon marginalised, unable to work and struggling to survive. In the best case, AI could make education in the humanities more valuable, with technical work relegated to AI. How cities will cope with the speed of change, minimising the adverse impact will be the ultimate test of our ingenuity. Will our leaders develop new ways to plan quickly enough to keep pace with the needs of their citizens?

Only twenty years ago, at the outset of the digital revolution, we lived in an analogue world and we still do. This is how our minds work. We understand the world by making comparisons and drawing on experience, not by boiling everything down to “one’s” and “noughts”. But in the foreseeable future, even before AI reaches a state of self-awareness, we will be increasingly dependant upon tasks that use this form of learning and analysis even though we never see its inner workings.

These are the programmes that drive Facebook, Instagram and other social networking tools. Nowadays our lives seem empty without them. But where is this leading? It is already possible to track everyone with a smart phone, follow their tweets and create “heat” maps using their mood. Is Big Brother already here? Are algorithms dictating how we think, what we like? Do they seek to reinforce our best and worst behaviours? Urbanisation and its attendant impact on the environment is altering us as a species and has brought about the anthropocene age. One manifestation of this will be the growing inter-dependence between Human Intelligence (HI) and Artificial intelligence (AI).

This will particularly affect city life which will become denser and ever more integrated with that of AI. In this sense we are already hybrids. The tasks carried out by AI even at this early stage of development have become part of our baggage. We can no longer function without them and this is because we are so ill-equipped to do such tasks unaided. Hybrid humans, with AI “bolted on”, have become the benchmark for securing jobs and resources.

So as AI advances and encroaches into all aspects of our lives, how do we strike a balance between economic growth and development, and maintaining liveable cities with soul so that people may continue to thrive.

If there is to be an acceptable resolution, it will come from somewhere within our dense, bubbling and intoxicating cities.



KHAZANAH RESEARCH INSTITUTE

The Khazanah Research Institute carries out research on the pressing issues of the nation. We then recommend policies to improve the well-being of Malaysians based on that research.

We do all this through:

- 1) Rigorous impartial analysis founded on data;
- 2) Convening discussions, amongst those who are relevant, to illuminate understanding of the issues;
- 3) Being advocates of the knowledge we acquire.

Sponsored by Khazanah Nasional Berhad, the Institute is a not-for-profit organisation that is incorporated as a company limited by guarantee. We started operations in 2014.

Our Research Programmes

Cities

The Cities Research Programme aims to find workable solutions for the challenges and opportunities posed and faced by cities in Malaysia, for example:

- 1) Improving housing affordability;
- 2) Improving factors driving both liveability and inclusion for Malaysia's cities; and
- 3) Developing new approaches on economic development and spatial strategies to strengthen the role of cities as locations for economic clustering and growth.

The New Economy for Malaysia

The NEM Programme aims to provide policy and regulatory recommendations on trade and investment policy. The NEM team's current areas of research include international trade regulation and microeconomic reform.

Inequality of Wealth, Income and Opportunities

The Inequality Research Programme aims to promote fact-based debates on the topic of inequality and propose appropriate policy measures in ensuring a more equitable and inclusive society. The Inequality team looks into inequalities in Malaysia, including its sources and transmission, the role of the state and markets, as well as international experiences in addressing the issue.

Ongoing Research Activities

Projek Perumahan Rakyat (PPR)



Enumerators being briefed on their roles by a KRI staff

At the end of August 2017, the Inclusive Cities team concluded its research fieldwork for an ongoing project on social housing. Over the course of nearly two years, the team conducted household surveys at five selected Projek Perumahan Rakyat (PPR) locations – four in Kuala Lumpur and one in Pulau Pinang. The team, along with a group of enumerators from various local institutions, spent two to four weeks at each location, going door-to-door to talk to residents living in these housing projects.

Approximately 130 students from Universiti Sains Malaysia (USM), Universiti Malaya (UM), Universiti Teknologi MARA (UiTM) as well as other universities participated as enumerators for the survey, where as many as 3,893 households were interviewed. Findings from this survey will be included in an upcoming publication by the Inclusive Cities team.

Why Trade Matters

International trade and trade policy have far reaching effects on the public, ranging from 'everyday' issues such as food to more pressing issues such as health and essential medicines. The *Why Trade Matters* series, sheds some light on these important interlinkages.

To encourage knowledge-sharing with the general public, KRI has collaborated and presented at University Malaya and the National Institute of Public Administration (INTAN) on the first two reports of the *Why Trade Matters* series as well as methods to conduct good research.

Part One of the *Why Trade Matters* series discusses how international trade is measured, as well as the interlinkages between trade and food policy, and trade and regional integration. Part Two focuses on people-centred subject areas, with chapters on trade and the healthcare services sector, trade and the movement of people, and trade and labour.

Currently, the team is working on the third report of the *Why Trade Matters* series. This report studies how international trade is interlinked with 'lifestyle' diseases, access to essential medicines and access to education in Malaysia.

The *Why Trade Matters* series aims to act as thought-starters for the Malaysian public to appreciate the complexity of international trade and trade policy.

School-to-work Transition Survey for Young Malaysians (SWTS)

The purpose of school-to-work transition survey (SWTS) is to better understand mismatches between supply and demand in Malaysian labour markets, in particular why young Malaysians aged between 15-29 years face difficulties making the transition from education and training institutions into decent jobs, while at the same time employers have problems recruiting workers and there is a growing demand for migrant labour.



Fieldwork Survey in Progress

Our Most Recent Publication

Climbing the Ladder: Socio-Economic Mobility In Malaysia

In October 2016, the Inequality team published a report entitled *Climbing the Ladder: Socio-economic Mobility in Malaysia*. The study looked at how Malaysian families, particularly children from different backgrounds, have fared in the face of growth and structural transformation in the country.

Some key findings of the study include:

- 1) Education mobility is high – 62% of the children in the study are better educated than their parents. In particular, among those born to parents without formal education, 33% have attained tertiary education
- 2) Income mobility is also high – Almost three in four of the children in the bottom quintile have moved up while two in three born in the top quintile have moved down
- 3) There is a 'middle class squeeze' – Many children born to middle income parents do not only move down the income ladder, they also earn less than their parents

Interest garnered on the report has led the team to present its findings to various government ministries and agencies as well as academic institutions. Additionally, in pursuit of reaching a wider audience, KRI also produced a short video in June 2017 that highlights the major outcomes of the study. This video has been shared across all of KRI's social media platforms.

The SWTS is a tool developed by the International Labour Organization (ILO) and tested in more than 30 countries. The SWTS has been adapted to suit the specific Malaysian context and concerns and to provide information classified by the main stakeholders – different groups of young Malaysians, educational and training institutions, and employers. The data on the profiles, perspectives and behavioural choices of the different stakeholders are intended to provide an informed basis for refining and better targeting policies and programmes to enhance employability, facilitate the school-to-work transition, tackle youth unemployment and promote decent work for youth.

The multi-component SWTS focuses on young Malaysians aged 15-29 years of age who are:

- in secondary schools;
- in tertiary education institutions;
- job seekers;
- young workers.

Another component of the SWTS interviews employers on their assessment of young job seekers and workers and on the role they can play to address mismatches between labour supply and demand. KRI will be undertaking this survey in collaboration with selected universities around Malaysia between September to November 2017.



Launch of 'Climbing the Ladder: Socio-economic Mobility in Malaysia' publication by YBhg. Tan Sri Dato' Seri Utama Nor Mohamed Yakcop, Chairman of the Institute, together with its Managing Director, YBhg. Dato Charon Mokhzani



Knowledge Events

KRI Public Talk – Housing As Habitat: A Case Of Market Failure Or Institutional Limitation? 23 August 2017

On 23 August 2017, Khazanah Research Institute organised a public talk entitled “Housing as Habitat: A case of Market Failure or Institutional Limitation?”. The talk provided a critical reflection on the role of housing in cities and how players in the industry can improve the housing market. The event featured a keynote lecture by Professor Michael Oxley who is the Director of Cambridge Centre for Housing and Planning Research. The keynote lecture was followed by a panel dialogue during which participants were able to pose their questions for discussion.



Panel dialogue featuring the keynote speaker, Professor Oxley; YBhg. Mr. Jayaselan K. Navaratnam, Director General of National Housing Department; YBhg. Datuk Seri Fateh Iskandar, President of REHDA; Puan Norliza Hashim, Secretary General of EAROPH and moderated by Dr. Suraya Ismail, Director of Research of KRI.

KRI Brown Bag Seminar #3 ‘The Production of Ethnicity and Class through Communication Gaps at the Workplace’ 9 August 2017

On 9 Aug 2017, guest speaker Dr. Eric Olmedo, Principal Research Fellow at the Institute of Ethnic Studies (KITA), Universiti Kebangsaan Malaysia (UKM), presented at the third KRI Brown Bag Seminar on a topic titled “The Production of Ethnicity and Class through Communication Gaps at the Workplace”.



KRI Brown Bag Seminar #2 ‘Malaysia: Current Scenario and Way Forward for the Fruit Industry’ 18 May 2017

On 18 May 2017, guest speaker Dr. Mohd Desa Hassim, CEO of International Tropical Fruits Network (TFNet), presented at the second KRI Brown Bag Seminar on a topic titled ‘Malaysia: Current Scenario and Way Forward for the Fruit Industry’.



KRI Brown Bag Seminar #1 ‘Islamic Finance: New Tools for Innovation with Social Impact’ 15 February 2017

This year’s first KRI Brown Bag Seminar was held on Wednesday, 15 February 2017. The session entitled ‘Islamic Finance: New Tools for Innovations with Social Impact’ was presented by guest speaker, Prof. Dr. Saadiah Mohamad, Professor of Economics at the Arshad Ayub Graduate Business School, Universiti Teknologi MARA, (UiTM).



The Malaysian-French International Conference ‘Malaysian Capitalism : in Comparative Perspective’ 7 and 8 November 2016

The Malaysian-French International Conference in collaboration with the Embassy of France in Malaysia and the Malaysia-France University Centre (MFUC) was held on 7 and 8 November 2016. It was the first international conference co-organised by the Institute. The MFUC, which was established as a government-to-government initiative, is an institution that aims at reinforcing the cooperation between France and Malaysia in the Higher Education and Research sectors.

The one and half days conference brought together 16 Malaysian, French and international scholars and commentators to explore Malaysian capitalism in a comparative perspective. The conference was structured around keynote speeches, panel discussions, a brief introduction on ‘The Development of Malaysian Capitalism, from British Rule to the Present Day’, a book by the author, Dr. Elsa Lafaye de Micheaux, an institutional building workshop, and the Malaysian premiere of Jean-Luc Godard’s film, ‘Film Socialisme’.



KRI’s first international conference in collaboration with Embassy of France in Malaysia and the Malaysia-France University Centre

Research Articles

We are pleased to share the list of KRI research articles which were published on our website as well as some in Berita Harian and The Star newspapers, since Jan 2017 to date:

- *Household Income is Better Than GDP* - by Dato’ Charon Mokhzani, 7 Jan 2017 (published in The Star)
- *Golongan Muda Sebagai Peneraju Ekonomi Malaysia Di Dekad Yang Mendatang* - by Dato’ Charon Mokhzani, 26 Jan 2017 (published in Berita Harian)
- *Why Are Young People Unemployed* - by Dato’ Charon Mokhzani, 4 Feb 2017 (published in The Star)
- *Cabaran Untuk Mendapatkan Makanan Berkhasiat* - by Dato’ Charon Mokhzani, 23 Feb 2017 (published in Berita Harian)
- *Some Are More Equal Than Others* - by Dato’ Charon Mokhzani 4 Mar 2017 (published in The Star)
- *Our Women Falling Behind* - by Tan Theng Theng, Jarud Romadan Khalidi & Allen Ng, 6 Mar 2017
- *Pendapatan Isi Rumah Meningkatkan Tetapi Tidak Sekata* - by Dato’ Charon Mokhzani, 30 Mar 2017 (published in Berita Harian)
- *Ten Things That Make America Great* - by Dato’ Charon Mokhzani, 1 Apr 2017 (published in The Star)
- *The Case for Rental Housing* - by Christopher Choong Weng Wai, 7 Apr 2017
- *1 Mei – Hari Robot Sedunia?* - by Dato’ Charon Mokhzani, 27 Apr 2017 (published in Berita Harian)
- *A Matter of Culture (Review of A Culture of Growth: The Origins of the Modern Economy, by Joel Mokyr)* - by Allen Ng, 15 May 2017
- *Pembaziran Makanan Dan Kesan Kepada Negara* - by Dato’ Charon Mokhzani, 26 May 2017 (published in Berita Harian)
- *The Sisyphian Balance?* (review The Limits of Market: The Pendulum between Government and Market, by Paul De Grauwe) - by Allen Ng, 1 Jun 2017
- *Productivity in Progress: Labour Productivity in Malaysia Over the Last Three Decades* - by Tan Zhai Gen & Allen Ng, 1 Jun 2017
- *Kindness or Greed – Looking at Motives for Elderly Care* (review of Why Do Children Take Care of Their Parents? Are the Japanese Any Different? by Horioka et al.) - by Nur Fareza Mustapha, 8 Jun 2017
- *Kitaran Pendapatan Membantu Pengurangan Ketaksamaan Agihan Ekonomi* - by Dato’ Charon Mokhzani, 29 Jun 2017 (published in Berita Harian)
- *Pemakanan Baik Mampu Tingkat Mutu Sukan Negara* – by Dato’ Charon Mokhzani, 28 Jul 2017 (published in Berita Harian)
- *King of Fruit* – by Dato’ Charon Mokhzani, 4 Aug 2017 (published in The Star)
- *Ride-Hailing Services—A Welcome Disruptive Change?* (review of Cramer And Krueger’s ‘Disruptive Change in the Taxi Business: The Case of Uber’) by Adam Manaf Mohamed Firouz, 21 Sep 2017

To find out more about us and our research works, visit www.KRIInstitute.org

YAYASAN HASANAH

A foundation of Khazanah Nasional

Delivering True Value through Social Impact

Yayasan Hasanah's vision is to become a leading impact-based foundation that promotes Malaysia's global sustainability through solutions that empower communities, encourage social inclusivity and improve the environment supported by its focus in education; community development; environment; arts, heritage & culture; knowledge; and initiatives in capacity building, social enterprise and public spaces; anchored to its core foundations of long-term nation-building.



Hasanah's mandate covers a broad spectrum of areas and issues. We must prioritise on levers that will deliver the biggest impact for the well-being of Malaysians. Our Primary and Secondary Impact for 2017-2021 reflect this and we look forward to the collaboration and support from all stakeholders to make this vision a reality.

*Shahira Ahmed Bazari
Managing Director, Yayasan Hasanah*



Five Focus Areas



Primary Impact (2017-2021) An impact-based foundation of Khazanah Nasional, focused on delivering long-term social impact in Malaysia



More details can be found in The Hasanah Report (2016), which can be downloaded at www.yayasanhasanah.org/#reports

f /yayasan hasanah @yayasan_hasanah yayasanhasanah.org

Advocacy & Influencing for the Environment Environment

The CFS runs down the length of Peninsular Malaysia, straddling eight states. It is comprised of four main forest complexes; Banjaran Titiwangsa – Banjaran Bintang – Banjaran Nakawan; Taman Negara – Banjaran Timur; South-East Pahang, Chini and Bera Wetlands; and Endau-Rompin National Park – Kluang WR. The CFS supplies multiple ecosystem services. One of its main functions is as the “water tower” of Peninsular Malaysia, embracing many critical watersheds that supply water for 22.3 million people in Malaysia (80% of its population) as well as to the island nation of Singapore, and for agriculture and other industries. The significance of the CFS in Peninsular Malaysia lies beyond its beauty, biodiversity within, forest products and recreation, IT IS more of its ecosystem services that CFS provides including water, carbon sink (capturing Carbon dioxide and producing oxygen) and pollination that is serving and providing for 80% of the population of the country. However, there is a low level of awareness of the importance of this critical and important landscape among Malaysians, especially policy makers, state leaders, school children and public at large.

The on-going degradation of Peninsular Malaysia over the last 50 years, have led to a loss of about 30% of our forest cover, where in 1970, the total forest cover was 7.4 mil ha and by 2015, only 5.3 mil ha of standing forest remains. In terms of more recent years' comparison, between our forest cover in 2000 and 2015, we removed 1 million ha of our standing forest in Peninsular Malaysia. The reduction in forest cover have led to many environmental and climate issues, for e.g. landslide, floods and local extinction of Malaysian species incl. the Javan rhinoceros and the green peafowl.

The loss of forest cover is inter-connected with the pressure on water resources in Malaysia. It is intensifying with rapid urbanization growth that at times are unplanned and with our population growth, it is leading to increase in per capita use of water, including that of industries. This is compounded by land conversion for development, run-off leading to rivers are increasing the siltation and pollution in our rivers, where more than 50% of Malaysian rivers are reported to be polluted.

Yayasan Hasanah is aware of these challenges and its complexities but it is important and compelling enough that it is one of our primary impact areas as we want to stop further degradation and defragmentation of critical sites in the Central Forest Spine (CFS) through advocacy, community led action and civil society initiatives which will eventually result in CFS states' commitments to preserve and conserve the Central Forest Spine.

Big Data: Real-Time Spatial Imagery

Prioritisation of actions in critical ecological sites will be carried out using the Qualtrics software, where both qualitative information and quantitative data about the CFS will be produced based on stakeholders' inputs. Its implementation, qualified by spatial imagery, will produce key recommendations for the future.

The reach of this tool will range from experts from academia, CSOs, government agencies, and the private sector.



"In 30 years, advances in molecular biology and telemetry techniques will allow us to know the name, family history, and real-time location of wild elephants in Malaysia's forests. We will have access to unprecedented amounts of useful data for conservation. But let's remember that how we use this information will always remain a matter of old-fashioned human values, judgments, and priorities."

Dr. Ahimsa Campos-Arceiz, Hasanah Partner



Cultivating the Creative Ecosystem Arts, Heritage & Culture

At the launch of the Cultural Economy Development Agency (Cendana) in September, Prime Minister YAB Dato' Sri Mohd Najib Tun Abdul Razak announced that “cultural economy is a new asset for Malaysia” and “the core of a civilisation lies in the form of its arts and cultures that would become its ‘soul.’” The appointment of Hasanah's Managing Director, Shahira Ahmed Bazari, to Cendana's Executive Advisory Committee recognises Hasanah's commitment to positively advance the Arts, Heritage & Culture (AHC) ecosystem in Malaysia.

Art, in all of its manifestations (visual, music, dance, heritage food, textile weaving and much more) plays an important role in every society. It has been used as a platform to convey cultural norms, ideas and ethnic identity to name a few. Each work of art is unique, depending on its origin, and cannot be replicated easily within a short period of time.

Arguably, even in this age of supercomputing and artificial intelligence (AI), art will remain one of the most defining aspects of human creativity & ingenuity.

Hasanah's AHC pillar have been enabling and supporting AHC led initiatives that positively advance the AHC ecosystem in the country. Hasanah partner, Pusat Kreatif Kanak-Kanak Tuanku's Bainun, runs “Alam Kreatif” a creative platform of classes and programmes such as theatre, gamelan, painting, and cooking to underprivileged children and teens under 18 years old from marginalised communities. The centre's philosophy that encourages the inherent creativity within children will instil an appreciation for arts, heritage and culture and enrich humanity and that arts should be accessible to all children is the basis of this programme.

In 2016, Hasanah with a new partner, Netcarbon, a content development specialist initiated a concept to incorporate technology components in arts education as this will resonate with the younger digital native generation and captivate their interest. This resulted in the development of a co-curriculum module, “Design Thinking Towards Solving AHC themed Problems” developed by panel of industry experts involved in different aspects of AHC covering three areas: AHC awareness, design thinking methodology and deployment pedagogy. The entire programme-workshop and competition was well received by students, school's arts educator, parents and schools. Future plans are in the pipeline for a further roll-out of the co-curriculum to more schools.

Hasanah AHC's pillar's work through our partners will continue to celebrate the arts space, especially here in Malaysia that is not short on colourful stories, rich diversity, culture and heritage that would transform Malaysia into a distinctive destination for AHC

Preservation through Consumption

Project KWIH (Kuih Warisan Ihsan Haridepan) is aimed at conserving heritage kuihs for future generations. *Kuih*-makers are undoubtedly artisans and there is a massive handmade element, also known as ‘air tangan’, that comes with *kuih*-making as well as time, effort and love.

All recipes gathered in Project KWIH are carefully documented in great detail, including all tips or ‘petua’ that are integral to the art of making kuihs like ‘gedung chak’ and ‘apam johol’. These recipes will also be published to preserve these heritage kuihs before they are lost forever

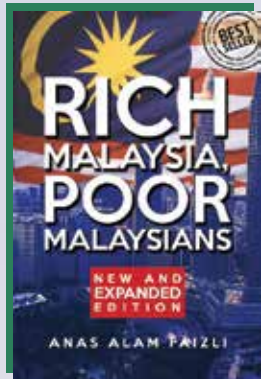


"It is our responsibility to elevate our artisans before it's too late; record recipes and 'petua' (traditional tips) because if we lose it completely a little bit of our soul will go with it. And that is something you can't imitate with machinery and algorithms."

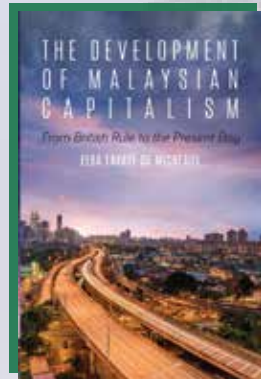
Mohd Adly Rizal, Hasanah Partner



Gerakbudaya publishes and distributes books that embody social awareness, alternative perspectives and the hidden histories of Southeast Asia and the wider world.



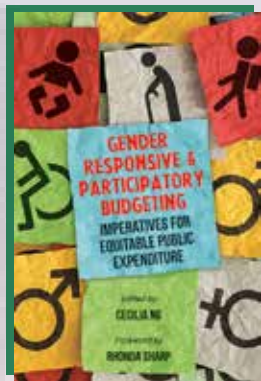
Rich Malaysia, Poor Malaysians
RM35 ~~RM31.50~~



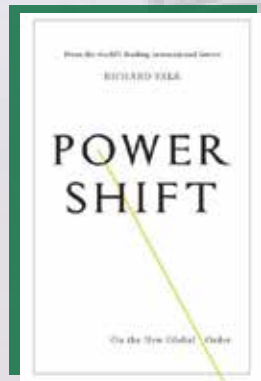
The Development of Malaysian Capitalism
RM65 ~~RM58.50~~



The New Economic Policy in Malaysia
RM50 ~~RM45~~



Gender Responsive & Participatory Budgeting
RM38 ~~RM34.20~~



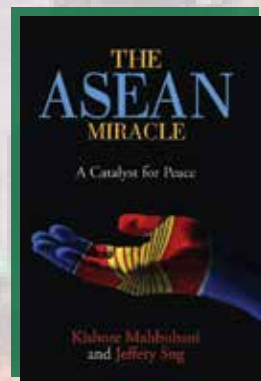
Power Shift: On the New Global Order
RM95 ~~RM85.50~~



Outward Foreign Direct Investment in ASEAN
RM105 ~~RM94.50~~



Minister of Finance Incorporated
RM45 ~~RM40.50~~



The ASEAN Miracle: A Catalyst for Peace
RM70 ~~RM63~~



The Veil of Circumstance
RM120 ~~RM108~~



Inspiring Malaysians To Do Good Together

2017 marked the launch of Hari Hasanah as a day where Khazanah, together with Yayasan Hasanah, Yayasan Khazanah, Khazanah Research Institute, Think City, our network of partners and our staff contributed their time and effort to do good deeds for the benefit of others. This programme, under the 'Negaraku, Negara Kita' campaign of Khazanah Nasional, aims to promote and foster unity and patriotism among all Malaysians, and is planned to take place annually between Hari Kebangsaan and Hari Malaysia.

In the years to come, we hope Hari Hasanah will become a movement where Malaysians come together and do good for the benefit of others, and in the process, help to foster togetherness and promote unity in our multi-cultural, multi-ethnic society. Kindness can be a powerful force.


The highlight event for Hari Hasanah 2017 on Monday, 4th September 2017 kicked off in Taman Tugu, Kuala Lumpur; where Prime Minister YAB Dato' Sri Mohd Najib Tun Abdul Razak helped to plant a Belian tree symbolising the Government's commitment to heritage and environmental conservation for the benefit of future generations of Malaysians. The Prime Minister later joined the crowd at Dataran PPR Seri Semarak, Kuala Lumpur to officiate the launch of 2 new Cruyff Courts.

For Hari Hasanah at Dataran PPR Seri Semarak, a variety of exciting activities were also organised by Hasanah partners & friends for the local community. In the spirit of Hari Hasanah & doing good together, all of the activities were offered free of charge.



Learn more about other Hari Hasanah stories from all over Malaysia:

www.harihasanah.com.my

 @harihasanah

Stronger Profit and Resilient Performance

Amidst a volatile year for equity and currency markets, Khazanah reported stronger Profit Before Tax (Unaudited) in 2016, an increase of 32% to RM1.56 billion from RM1.18 billion in 2015. In line with weakness in most benchmark equity markets and currencies, the portfolio Net Worth Adjusted (NWA) declined slightly, posting an unrealised decline of 6.4% to RM101.9 billion as at 31st December 2016 (2015: RM108.9 billion). Nonetheless, the long-run value creation trend remains strong with NWA up by 3.1x or a CAGR of 9.3% p.a., for the period May 2004 to 31st December 2016, with a high-quality portfolio with an Asset Cover of 2.9 times. In 2016, Khazanah made investments totaling RM6.9 billion, including 17 new investments, and 13 divestments providing proceeds amounting to RM4.7 billion, with gains on divestments totaling RM2.6 billion.

Khazanah gains from shift in portfolio of investments

Alibaba proceeds used to invest in other technology firms



Aizam: 'Whenever there is some value creation, it's important to invest in a very gradual way.'

By FINTAN NG and SHARIDAH M. ALI
star@thestartv.com

THE gradual shift in sovereign wealth fund Khazanah Nasional Bhd's portfolio of investments to include companies involved in the innovation and technology sector is bearing fruit with the proceeds from a partial divestment in Chinese e-commerce firm Alibaba Group Holding Ltd having been used to invest in other technology firms.

Khazanah made a move to diversify from the investment in Alibaba, which was listed in September 2014, 40% of the gains of which have been realised and have since been invested into other technology firms with an emphasis on the data analytics and e-commerce space.

Now the focus is on Singapore's Gamuda Interactive Holding Ltd, an Internet and mobile platform mostly known as an online games distributor, which has picked up the Alibaba Group Ltd to be used to invest in a US\$1.1bn (RM4.46bn) initial public offering. Gamuda raised US\$170m from Khazanah last March, making the company the largest IPO in the region.

With 20% of the fund's portfolio valued, there is always the temptation to float the shares but he says that even if a company is growing well, it may sometimes be too early to list it. "It depends on the readiness of the companies and market as well," Aizam says.

Khazanah managing director Tan Sri Aizam bin Ahmad says in a media briefing that this shift in investment focus has been reflected in the geographic spread of the fund's investments too. "When we started 12 years ago, practically everything was done in and in the sectors of the oil economy, over the years you can see the shift into different sectors and different geographical regions and this is reflected in our investment 'offices too'."

The sovereign wealth fund opened an office in San Francisco back in October 2013 to be close to the investment opportunities of the Silicon Valley as well as build relationships and business linkages with the tech start-ups and investments in healthcare, life sciences, sustainable development, telecommunications and media.

As for Gamuda, Aizam says Khazanah hopes to rise the value and will make the decision on whether to exit fully, partially or hold on to the stake "as we go along". He gives the example of London-based travel search engine Skyscanner Ltd, which was sold to Shanghai-based online travel operator Ctrip.com International Ltd last March.

Whenever there is some value creation, it's important to invest in a very gradual way," he explains. But Aizam cautioned that technology company valuations tend to overreact sometimes and that is where the fund needs to take a gradual approach plus a whole lot of risk management to investing in the sector.

He adds that the value of the remainder stake the fund still has in Alibaba continues to rise while the residual portion of the Alibaba stake was invested in 12 other innovation and technology companies, of which 13 were direct investments with the rest invested through other funds. Khazanah also received an Alibaba's listing arm, Calista Network Technology Co Ltd last March.



Financial highlights
Profit after tax increased 32% in 2016, but dividend payout to the Government was down by about 2 cents.

2016	2015	2014
RM3.13bil Profit before tax	RM1.18bil Profit before tax	RM1.56bil Profit before tax
RM900mil Dividend declared	RM1.05bil Dividend declared	RM650mil Dividend declared
RM129mil Taxation	RM136mil Taxation	RM123mil Taxation

RM218.8b INVESTMENTS

Investee companies involved in key domestic projects

KUALA LUMPUR
Khazanah Nasional Bhd's investment fund, reported RM218.8 billion in investments in key domestic projects in 2016, up from RM190.1 billion in 2015.

Khazanah looks up

KHAZANAH Nasional Bhd's pre-tax profit rose 32 per cent to RM1.56 billion last year, a rise its managing director says was driven by strong contributions from its investments in Tenaga Nasional and Alibaba, among others.

As for Gamuda, Aizam says Khazanah hopes to rise the value and will make the decision on whether to exit fully, partially or hold on to the stake "as we go along". He gives the example of London-based travel search engine Skyscanner Ltd, which was sold to Shanghai-based online travel operator Ctrip.com International Ltd last March.

Sovereign venture fund
Khazanah continues to focus its new investments on the innovation and technology sectors, funded primarily by recycling returns from earlier investments in Alibaba Group. Meanwhile, its venture companies also expanded their international presence.

Selected new investments in 2016:

- **Karena Interactive** (a game publisher)
- **Fractal Analytics** (a data analytics company)
- **Farfetch** (online luxury fashion marketplace)
- **Way2u** (a global leader in technology services & consulting)
- **DeVita Kurevo Care** (an Asian retail healthcare platform)
- **Calina** (a technology-based logistic firm)

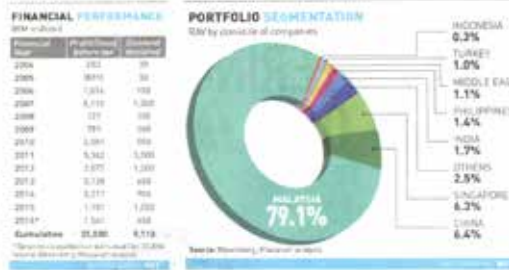
Harvesting value created:

- **THD** acquired stakes in energy firms in Turkey and India.
- **AMC Healthcare**
- **Tenaga Nasional**
- **Telekom Malaysia**

Selected overseas transactions:

- **THD** acquired stakes in energy firms in Turkey and India.
- **AMC** entered into a strategic partnership with a Chinese brokerage and investment bank, which also launched a banking licence in Vietnam.
- **UEM Sijang** acquired a majority stake in a utility company in Singapore.
- **CMB** entered into a strategic partnership with a Chinese brokerage and investment bank, which also launched a banking licence in Vietnam.

	INVESTMENT	DEVESTMENT
No. of deals	Amount	No. of deals
2015	23	13
2016	27	10



Khazanah's investment strategy is also diversified to include key domestic projects, including the launch of KEM, Ampang by Telekom Malaysia, and the launch of the new airport terminal at Kuala Lumpur International Airport (KLIA2).

Khazanah PRE-TAX UP 32pc

FINANCIAL PERFORMANCE

Year	Profit/loss before tax	Dividend declared
2004	207	30
2005	803	30
2006	1,014	140
2007	5,110	1,000
2008	177	100
2009	791	130
2010	2,081	500
2011	5,342	3,000
2012	2,077	1,000
2013	2,128	650
2014	3,217	900
2015	1,181	1,050
2016	2,017	900
Cumulative	1,181	1,658

Catalysing Growth and Harnessing Technology & Innovation

Khazanah continues to execute its strategic mandate to catalyse growth, create and distribute value. This includes supporting domestic growth, driving further internationalisation, including among investee companies, and maintaining a strong focus on innovation and technology. In June 2017, Khazanah issued the second tranche of RM100 million Sustainable Responsible Investment (SRI) sukuk to further fund the rollout of Yayasan AMIR's Trust School Programme. Khazanah also announced new appointees in its Board of Directors and Senior Leadership Team.

Khazanah eyes further investments in tech sector

The company will continue to drive long-term value creation says MD

KUALA LUMPUR—Khazanah Nasional Bhd has set its sights on continuing to invest in technology and innovation sectors, including among others, the technology services which made up 10% of the fund's portfolio in 2016, according to the national sovereign investment fund's managing director (MD) Tan Sri Aizam bin Ahmad.

At a press conference last Friday, Aizam said the Malaysian government's intention is visible in the financing of a digital economy and there are a lot of business (online) opportunities.

"We do support technology services where appropriate, but the key point is that we need to know our respective roles as an investor and fund. We have our own network with companies or investment in the fund. We are not an investor ourselves. We have our role to play. It depends on the readiness of the companies and the market," Aizam said.

Khazanah also announced last Friday that it had acquired a 20% stake in a technology company, Fractal Analytics, which provides data analytics solutions for various industries.

"It depends on the readiness of the companies and the market," Aizam said.

Khazanah also announced last Friday that it had acquired a 20% stake in a technology company, Fractal Analytics, which provides data analytics solutions for various industries.



Johari (left), Azman (centre) and Yayasan AMIR chairman Raja Tan Sri Arshad Raja Tun Uda (white shirt) paying a visit to students during the launch of Khazanah's SRI sukuk yesterday. Photo by Sam Fong

Dr Nirmala appointed Khazanah director

KUALA LUMPUR: Khazanah Nasional Bhd has appointment Datuk Dr Nirmala Menon to its board of directors.

The appointment was made at Khazanah's 82nd board of directors meeting yesterday.

In a statement, Khazanah said Dr Nirmala has over three decades of experience in the insurance and health sectors.

She was executive vice-president, head of designated markets and health Asia at MetLife Asia Pacific Ltd, where she was responsible for operations in Hong Kong, Australia, Malaysia, Vietnam, Bangladesh, Nepal, and Myanmar.

Nirmala was Malaysia's first woman chief executive officer (CEO) in the life insurance industry, having served as head of South Asia at ING Asia Pacific Ltd and president and CEO of ING Malaysia Bhd. — Bernama

Khazanah issues second tranche of SRI sukuk

KUALA LUMPUR: Khazanah Nasional Bhd will issue a second tranche of RM100 million Sustainable and Responsible Investment (SRI) sukuk via independent special purpose vehicle (SPV) Sukuk Bhd, as part of its RM1 billion sukuk programme.

The state investment fund said the sukuk will fund the roll-out of Yayasan AMIR's Trust Schools Programme in at least 20 schools.

Khazanah said the issuance will include a retail portion to provide an opportunity for individual Malaysians to participate.

It said the step-down returns structure and option to waive the principle of the sukuk allow investors to make staggered contributions and to donate to the Trust Schools Programme.

"After the success of the inaugural SRI sukuk, we move forward with a second tranche to further support the Trust Schools Programme," said Khazanah managing director Tan Sri Aizam bin Ahmad at the launch of the sukuk yesterday.

"We continue to contribute to the development of Islamic finance by advocating what we believe is real finance whereby the financing is closely linked to real activities that advance the socio-economic status of the rakyat.

"For this second tranche, we will also initiate a crowdfunding campaign through which like-minded members of the public can support Yayasan AMIR," he added.

Second Finance Minister Datuk Seri Johari Abdul Ghani said Malaysia has to remain competitive to maintain its leading position in the world of Islamic finance, adding that there must be a conducive environment and incentives to encourage SRI sukuk issuances.

"For example, in Budget 2016, the government introduced incentives in the form of tax cuts for issuances of SRI sukuk and others.

"To make SRIs more attractive, I think that a study must be done on whether a grant or special allocation should be given to cover the extra costs that SRI issuers may face," he said.

Khazanah Leadership Team

New appointees to boost corporate structure



Khazanah Nasional Bhd says changes will supplement its ongoing institutionalisation efforts.

KUALA LUMPUR—Khazanah Nasional Bhd yesterday announced several new appointments and changes to its senior leadership team to strengthen its corporate structure.

This also supplemented its ongoing institutionalisation efforts.

said Khazanah in a statement yesterday.

With this, the team led by managing director Tan Sri Aizam bin Ahmad will have 21 members.

Investment directors Nik Riza Kamil and Serena Tan Mei Shwee have been promoted to executive director of investments from April 1.

Roni Lihawa Abdul Wahab will rejoin Khazanah as executive director on May 1.

Executive director of investment Datuk Dominic Silva, who is also head of investment, will be leaving Khazanah on July 31 after serving for nine years.

He will continue to represent Khazanah as a non-executive director on the board of Avicennia Capital Sdn Bhd, the 100 per cent-owned insurance holding company of Khazanah.

As a transition from Silva's departure and to facilitate long-term succession planning, executive director of investment Datuk Noorazman Abdul Aziz and Datuk Ben Chan, who is executive director of Khazanah National Consulting (Beijing) Co Ltd, will jointly lead the investments division from June 1 till December 31.

Khazanah said executive director of investment Ahmad Farouk Mohammed would be leaving tomorrow after serving for 11 years and assume the role of chief strategy officer at Avicennia Capital as well as represent Khazanah as a nominee non-executive director on Cenviro Sdn Bhd's board.

Ati Othman, director at Managing Director's Office and chief risk officer, left Khazanah on Jan

uary 31 after serving for eight years. Suhana Dewi Selamat replaced Ati on February 1.

Executive director of finance and chief financial officer Datuk Mohd Izani Ghani will be executive director of investments from June 1.

His responsibilities include overseeing the operations of Khazanah Turkey regional office while director of finance Faridah Bakar Ali will be chief financial officer from June 1.

Value Distribution and Nation-Building Initiatives

Khazanah continues to deliver societal returns via corporate responsibility efforts led by its foundation Yayasan Hasanah, which focuses on five core areas: Education; Community Development; Environment; Arts, Heritage and Culture; and Knowledge. Overall, Khazanah and Yayasan Hasanah have collectively spent more than RM900 million on CR initiatives since 2006. For the 5th year, Khazanah continues to support the Wolfson Press Fellowship by sending two Malaysian journalists to participate in the programme in Cambridge. Yayasan AMIR, a not-for-profit foundation incorporated by Khazanah to improve accessibility of quality education in schools through a Public-Private Partnership with the Ministry of Education, continues to roll out its Trust School Programme to more schools across the country.

Yayasan Hasanah komited bangun komuniti

UTUSAN MALAYSIA: Pemimpin Yayasan Hasanah menegaskan komitmen organisasi ini terhadap pembangunan komuniti dan pembangunan negara.

MUKADIMAH
Ketua Yayasan Hasanah, Datuk Abdul Jalil Hamid, menegaskan komitmen organisasi ini terhadap pembangunan komuniti dan pembangunan negara. Beliau berkata, Yayasan Hasanah akan terus berkolaborasi dengan kerajaan dan sektor swasta untuk memperkasa komuniti.



Making learning fun

KOTA SAMARAHAN

Siti Aisyah Ahamady Lian, 16, was overwhelmed with excitement when she walked into the Kuala Lumpur Convention Centre, Kuala Lumpur for the national and international level Malaysia Young Investors Competition (MYIC) last year.



School has become much more interesting with the various creative activities implemented under the Trust School programme. PIC BY CHE RANI CHE DIN

programme here since the initiative was designed to encourage students participation in class.

"Students get more opportunities to share their ideas and opinions through presentations and other activities, which makes learning more interesting and fun," Sandra said.

Audrey believes the programme should be extended to other schools.

"The programme promotes activities, which requires greater students' interaction and for us to be creative, in which, I learned to turn my fears into my strength.

"When students are encouraged to talk via presentation and other activities, the opportunity has indirectly helped us to build our self confidence," said Audrey, who is also the school's head prefect.

Ashley Alex Morris, 15, said the programme is a hit as it gave freedom for the students to present their ideas in the best way possible.

"It gives room to us to be creative. We can present our ideas in any way including using (Microsoft Window) PowerPoint tools, on the blackboard or without using any materials. There is no restriction.

"The programme also encourages healthy competition especially when it comes to group presentation since everyone wants to be the presenter in the team," said the Form Three student, who aspires to be a doctor.

Ashley's and his schoolmates' love for the programme was also shared by students from SM Sains Kuching in Matang, which was among the first 10 schools in Sarawak and Johor to be placed under the programme.

Edmund Anyie Gura, 17, said the programme exposed him to new experiences. For example, students at the school were required to attend different classrooms for almost every subject.

Try to imagine that a student will take at least six to seven subjects a

year. This means that we need to switch to six different classes for each of the subjects.

"It was confusing at first but we learned to adapt to the situation. And now, it is fun since we do not have to sit in the same classroom for the entire day," he said.

Dayang Nur Syazwani Abang Redzuan, 16, said there was never a dull moment in class since the Trust School Programme was implemented at the school.

"Learning has become more fun, which is why, the programme has helped to generate interest among students towards studying," she said.

Meanwhile, SK Desa Pandan Parent-Teacher Association chairman Faizal Mohammad Arshad said under the Trust School Programme, the involvement of parents in school is acknowledged and encouraged.

He said parents are involved in four development aspects which include

the components of academic improvement initiatives, spiritual and personality development, co-curriculum, sports and association as well as infrastructure development.

"The parents have demonstrated a high volunteerism spirit as they are very much involved in organising programmes with the school," he said.

A total of 83 primary and secondary schools around the country have been selected under the Trust School Programme since it was introduced by Yayasan AMIR in 2011. Yayasan AMIR is a foundation established by Khazanah Nasional Bhd in 2010.

In 2015, Khazanah established Yayasan Hasanah to spearhead its corporate responsibility efforts, and to realise the success of the Trust School Programme under Yayasan AMIR.

Bidang tumpuan Yayasan Hasanah dan Rakan Kerjasama

PENDIDIKAN
Meningkatkan kualiti pendidikan dan meningkatkan akses kepada pendidikan berkualiti.

PENGANGKATAN KOMUNITI
Meningkatkan taraf hidup komuniti yang memerlukan perhatian, khususnya untuk golongan yang memerlukan perhatian.

ALAM SEKITAR
Meningkatkan kesedaran dan meningkatkan kesedaran alam sekitar.

SENI, WARISAN & BUDAYA
Meningkatkan kesedaran dan meningkatkan kesedaran mengenai warisan budaya.

ILMU PENGETAHUAN
Meningkatkan kesedaran dan meningkatkan kesedaran mengenai ilmu pengetahuan.

YAYASAN HASANAH

Yayasan Hasanah berfokus kepada lima bidang utama: Pendidikan, Pengangkatan Komuniti, Alam Sekitar, Seni, Warisan & Budaya, dan Ilmu Pengetahuan.

Yayasan Hasanah berkolaborasi dengan kerajaan, sektor swasta, dan masyarakat untuk memperkasa komuniti.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek komuniti di seluruh negara.

Yayasan Hasanah juga telah membangunkan lebih daripada 100 projek alam sekitar di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek seni, warisan & budaya di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek ilmu pengetahuan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

Yayasan Hasanah telah membangunkan lebih daripada 100 projek kesihatan di seluruh negara.

bagian pelajar secara holistic meminati aktiviti ko-kurikulum. Ia juga telah memperkasa bidang pengajaran bahasa Melayu dan bahasa Inggeris.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

Yayasan Hasanah merupakan badan berbadan hukum yang berfokus kepada pembangunan komuniti di negara ini.

KHAZHANAH-WOLFSON PRESS FELLOWSHIP

NST sends second candidate to Cambridge University

KUALA LUMPUR: The New Straits Times is sending a second candidate for the prestigious Khazanah-Wolfson Press Fellowship at Cambridge University, the United Kingdom.

Journalist Lidiana Rosli, of NST's Business desk, will undergo the 10-week fellowship, which runs from April 17 to June 23 at Wolfson College, one of Cambridge University's 31 colleges.

The other recipients are Melissa Idris, producer and presenter at BFM, and Asma Abdul Aziz, assistant general manager, Media

Management & External Communications of Telekom Malaysia Bhd. This is the second time Khazanah is sponsoring an NST journalist for this prestigious fellowship.

Speaking at the award presentation, Khazanah managing director Tan Sri Azman Mokhtar said this year's selected fellows would face an interesting situation.

"You are undergoing this fellowship during a most interesting time as the world is undergoing a period of adjustment with



Tan Sri Azman Mokhtar (fifth from right), NSTP chief executive officer Datuk Abdul Jalil Hamid (third from left), TM group chief executive officer Tan Sri Zamzamairani Mohd Isa (fifth from left), BFM founder Malek Ali (right) and Lidiana Rosli (fourth from left) at the Khazanah-Wolfson Press Fellowship award presentation in Kuala Lumpur yesterday. PIC BY YAZIT RAZALI

the likes of Brexit and the political happenings in the United States and other European countries," Azman said.

"I hope the fellows who are selected this year make use of their time there and return with something useful for their respective organisations, as well as the country," Azman said.

Khazanah has been sponsoring the fellowship since 2013. Present were NSTP chief executive officer Datuk Abdul Jalil Hamid, TM group chief executive officer Tan Sri Zamzamairani Mohd Isa and BFM founder Malek Ali.

NEGARAKU, NEGARA KITA CAMPAIGN

The “Negaraku, Negara Kita” campaign celebrates and commemorates Malaysia’s journey and progress as a nation, in conjunction with Hari Kebangsaan and Hari Malaysia. The campaign is aligned with the national Negaraku campaign, and aims to promote and foster unity and patriotism among Malaysians through several initiatives such as campaign advertisements, Hari Hasanah, Grit & Grace and Anak Merdeka mini series. Hari Hasanah is a day where Khazanah Nasional, together with Yayasan Hasanah, Yayasan Khazanah, Khazanah Research Institute, Think City, our network of partners and our staff contribute their time and effort to do good deeds for the benefit of others. Grit & Grace: The Grandeur of Monochrome Malaysia is a photo collection capturing the beauty of Malaysia and its people through a photobook and public exhibitions. More than 100 initiatives in 12 states are being undertaken by various individuals, partners and organisations in conjunction with Hari Hasanah, including at the Taman Tugu Project site and PPR Seri Semarak today. In addition, all Khazanah staff are doing their own Hari Hasanah initiatives, either individually or in groups.



Prime Minister Datuk Seri Najib Razak kicking a ball into a court's goalpost to symbolise the opening of the Seri Semarak People's Housing Project Cruyff Court in Kuala Lumpur yesterday. PIC BY MOHAMAD SHAHRIL BADRI SAALI

HARI HASANAH

PM launches third and fourth Cruyff Court in KL

KUALA LUMPUR: Prime Minister Datuk Seri Najib Razak launched the country's third and fourth Cruyff Court yesterday, in conjunction with the Hari Hasanah celebration, held in several spots in the city.

The Seri Semarak Cruyff Court and Air Panas Cruyff Court are for children, youth as well as other segments of the community in the surrounding areas to play football on a synthetic pitch, free of charge.

The courts are close to the Seri Semarak People's Housing Project (PPR) here.

The facility, courtesy of a collaboration between Yayasan Hasanah and the Johan Cruyff Foundation, provides those in the areas a unique football experience.

Najib kicked a ball into the court's goalpost to symbolise the opening of the court.

He also mingled with those who attended the event.

The first Cruyff Court in Malaysia was launched in Kampung Melayu Majidee, Johor

Baru, in 2012. The Brickfields Cruyff Court here was opened a year later.

The Hari Hasanah celebration at the Seri Semarak PPR attracted more than 3,000 people from surrounding communities.

Present were Khazanah Nasional Bhd managing director Tan Sri Azman Mokhtar, Setiawangsa member of parliament Datuk Ahmad Fauzi Zahari and Dewan Negara deputy president Datuk Seri Abdul Halim Abd Samad.

Sunday marked the inaugural day of Hari Hasanah, a day when Khazanah Nasional, together with Yayasan Hasanah, Yayasan Khazanah, Khazanah Research Institute, Think City, investee companies, partners and staff, contribute time and effort to do good deeds for the community.

The event is also an initiative under Khazanah's “Negaraku, Negara Kita” campaign, which commemorates Malaysia's journey and progress as a nation in conjunction with Merdeka and Malaysia Day this year.



'A gift to future generations'

Taman Tugu belongs to all Malaysians, says Prime Minister

KUALA LUMPUR: Taman Tugu is to be managed as an urban forest park for the benefit of the people, said Prime Minister Datuk Seri Najib Tun Razak.

He said the park, launched last September as a TN50 project, was close to his heart and “we are leaving something for future generations”.

TN50 is an initiative to plan for the future of Malaysia in the period 2020 to 2050.

Najib said a recurring theme in the Government's dialogues with the people is that they want a clean, green living environment.

“Taman Tugu will belong to all Malaysians,” he said during a visit to the park project site yesterday.

The rainforest park project is behind the Tugu Negara and is expected to be ready in 2020, with the urban forest park component to open a year earlier.

The park will feature facilities such as restaurants, camping area, canopy walk, zip lines, water park, jogging path, walkways, cycling lanes, observation deck and a walkway linked to the Perdana Botanical Gardens and KL Sentral.

Najib had more good news for nature and green lovers – a 10ha plot adjacent to the site will be placed under the National Heritage Trust, bringing the total area of the park to a sprawling 30.8ha.

And with the Perdana Botanical Gardens, the entire green space would come up to 133.9ha, he said.

“This puts the project on par with world famous urban green lungs such as Hyde Park in London. The attractions will include 1,000 species of flora and fauna, and running and hiking trails,” he added.



One for the album: Najib, Tun Abdullah and Tun Joanne taking a special photo with schoolchildren and participants during the event at Taman Tugu in Kuala Lumpur.

The Prime Minister said the project ranks high on the Government's priority list, along with the River of Life and Blue Fund projects aimed at reviving the Klang River and Gombak River within the city respectively, and transforming their banks into waterfront areas.

Also, Najib announced a design competition for gazebos and benches that will be placed in Taman Tugu.

With him at the event was former prime minister Tun Abdullah Ahmad Badawi and wife Tun Joanne, National Resources and Environment Minister Datuk Seri Dr Wan

Janaihi Tuanaku Jaafar, Khazanah Nasional Bhd managing director Tan Sri Azman Mokhtar and Kuala Lumpur mayor Datuk Seri Mohd Amin Nordin Abd Aziz.

Later, Najib launched the Cruyff Court programme at the Seri Semarak People's Housing Project where he was greeted by thousands of people.

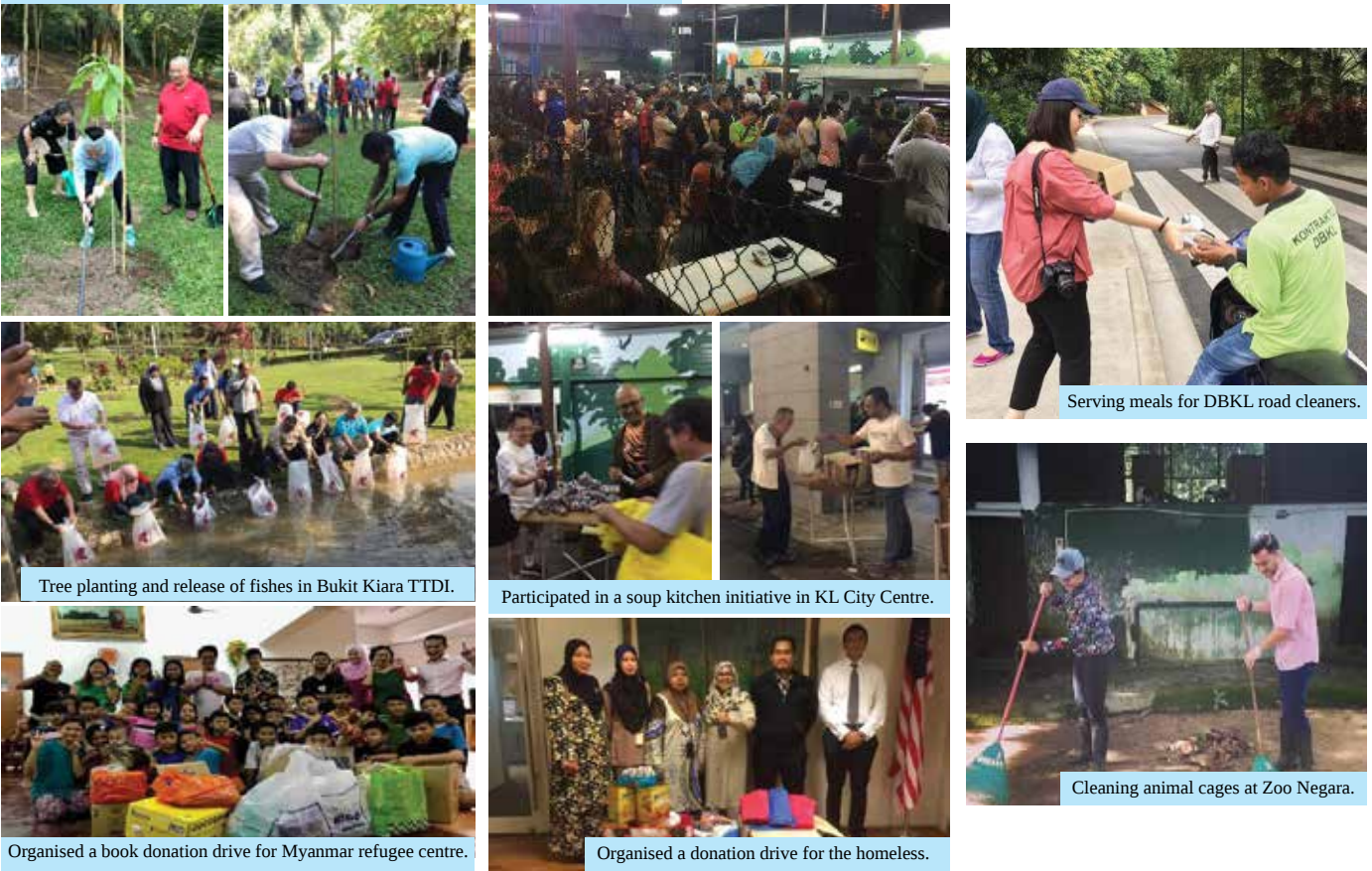
The programme is a partnership between Yayasan Hasanah and the Johan Cruyff Foundation, named after the famed late Dutch footballer, to provide a unique football experience for youngsters.



Kenali Malaysia menerusi Grit & Grace

KUALA LUMPUR 12 OKT: Tawaran seni yang berprestij dan berkesan ini akan membolehkan rakyat Malaysia mengenal pasti dan memahami keindahan alam dan budaya negara ini melalui koleksi gambar-gambar yang indah dan bermakna. Projek ini akan membolehkan rakyat Malaysia mengenal pasti dan memahami keindahan alam dan budaya negara ini melalui koleksi gambar-gambar yang indah dan bermakna. Projek ini akan membolehkan rakyat Malaysia mengenal pasti dan memahami keindahan alam dan budaya negara ini melalui koleksi gambar-gambar yang indah dan bermakna.

Some of the Hari Hasanah's initiatives by Khazanah's staff



Tree planting and release of fishes in Bukit Kiara TTDL.

Participated in a soup kitchen initiative in KL City Centre.

Serving meals for DBKL road cleaners.

Organised a book donation drive for Myanmar refugee centre.

Organised a donation drive for the homeless.

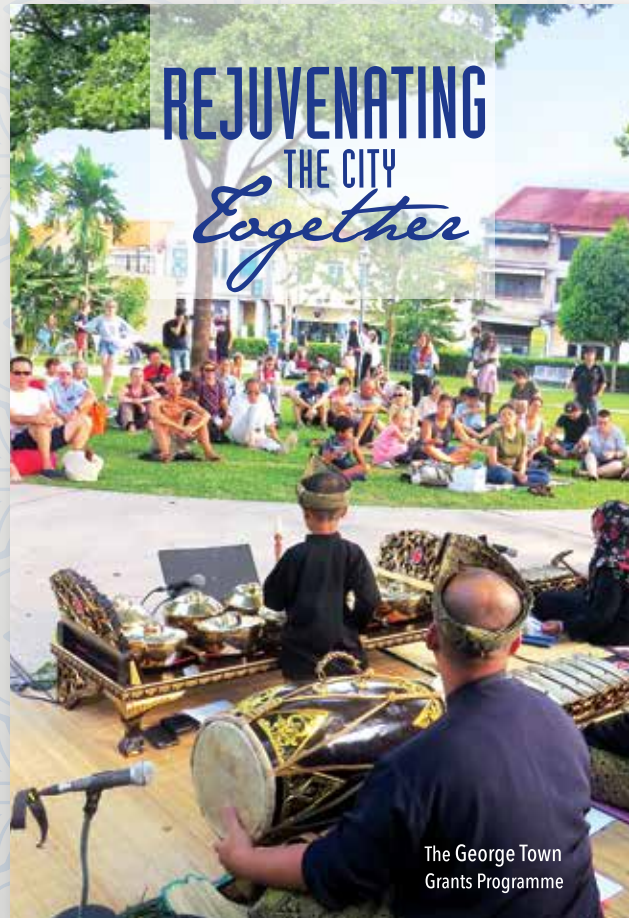
Cleaning animal cages at Zoo Negara.

Negaraku, Negara Kita campaign advertisements, which appeared in major newspapers from 21st August 2017 until 16th September 2017.



BOOK
LAUNCH

REJUVENATING THE CITY TOGETHER



The George Town Grants Programme

UNESCO described Melaka and George Town as “the most complete, surviving historic city centres on the Straits of Malacca with a multicultural living originating from the trade routes from Great Britain and Europe through the Middle East, the Indian subcontinent and the Malay Archipelago to China.” In 2008 it granted the two towns a joint heritage listing as *Historic Cities of the Straits of Malacca* saying they have “a unique architectural and cultural townscape without parallel anywhere in East and Southeast Asia”.

Malaysia did not take this honour lightly. To preserve this heritage, Parliament allocated funds and channelled it through Khazanah, the national sovereign fund. Khazanah established a special purpose vehicle called Think City and George Town was chosen as a experiment to see if a sustainable regeneration initiative could be kick-started through a grants programme.

In four years, the George Town Grants Programme disbursed RM16.3 million to almost 240 projects involving local communities, government agencies, and local and international experts. The challenges, successes and shortcomings of this four-year journey led by a passionate and dedicated team are laid out in this book even as transformations continue to unfold.

Most of all, the greatest gain has been the depth of heritage know-how that is now being shared with other cities in Malaysia. In time, it is hoped that this knowledge can also be used to help transform other historic cities in the world.

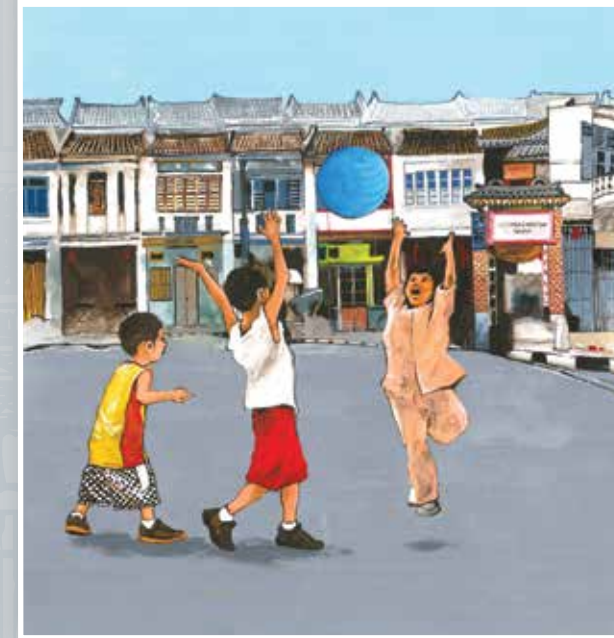
BOOK
LAUNCH



CITIES

KHAZANAH
RESEARCH
INSTITUTE

BUILDING SOCIAL CAPITAL: THE GEORGE TOWN EXPERIMENT



Building Social Capital The George Town Experiment

This report highlights the benefits of a Community Development Fund (CDF) in alleviating the pressures of social displacement from top-down urban regeneration development.

A case study is presented on the Hock Teik Initiative, the first recipient of the CDF. Situated in George Town World Heritage Site, the initiative sought to empower tenants to negotiate for their tenancy rights and prevent their eviction by proving that they are willing to shoulder some financial burden towards the upgrading of their homes. A CDF that provided a collective loan to the tenants combined with a matching grant to the property owners gave rise to a new method of providing affordable renting, away from the area's general 'market' trend of rapid rent escalation. With this localised initiative, the mutually agreed rent-price addressed both parties' financial burdens, without the inherent problems of city level rent control.

Furthermore, the report recommended policy prescriptions on the institutionalisation of CDFs at local councils as platforms for inclusive redevelopment in cities and towns in Malaysia.



The Ren I Tang boutique hotel on Lebu Penang retains the historic links to Chinese medicine after renovations



The fully restored Cheah Kongsi clan house, one of the oldest clan houses in Penang dating back to 1804.



thinkCITY

KHAZANAH
RESEARCH
INSTITUTE

You don't find purpose alone, You find purpose together



Join bestselling author and leadership coach Alvin Ung as he travels to 10 countries in Asia to learn from 100 purpose-led leaders. This book brings together wise counsel, riveting stories and rigorous research that will help you find your purpose.

www.findyourpurposetogether.com

"Leaders in governments and companies should use this book to lead with purpose, passion and impact."

Tan Sri Mohd Sidek Hassan, Chairman of PETRONAS

KHAZANAH NASIONAL ENTREPRENEURSHIP OUTREACH

The Khazanah Nasional Entrepreneurship Outreach (KNEO) is aimed at unearthing entrepreneurial talent in Malaysia while equipping them with vital training and industry information via a series of bootcamp and accelerator programmes. KNEO also provides aspiring entrepreneurs with access to a multitude of relevant funding sources, allowing them to make their business aspirations a reality.

As the strategic investment arm of Malaysia, Khazanah is mandated to not only generate financial returns for the country, but also strategic and societal returns as well. Cultivating local entrepreneurship, seen as national assets to be nurtured and motivated, has the potential to result in the development of path breaking and innovative products and services, while positively impacting employment availability and stimulating economic growth.

KNEO is crafted to enable participants to rapidly fine tune their business cases, validate said models, and most importantly, build their business ventures. KNEO is structured for aspiring entrepreneurs with interesting business ideas to equip themselves with the necessary skills to turn their ideas into viable companies for further funding access and investments from angel and/or institutional investors.

RM690,000
up for grabs



Who can participate?

All Malaysians above the age of 18 years old

How to submit an application?

Applications can be submitted via www.khazanahneo.com.my

*The application requires interested teams (each team requires a minimum of two team members) to fill-up a simple application form as well as a 2-minute video detailing the team's idea and vision for their startup

Deadline for submission

Monday, 27th November 2017, 11:59pm

The official launch of KNEO will be held on 3rd October 2017 (KMF Day 2).

Partner Accelerators



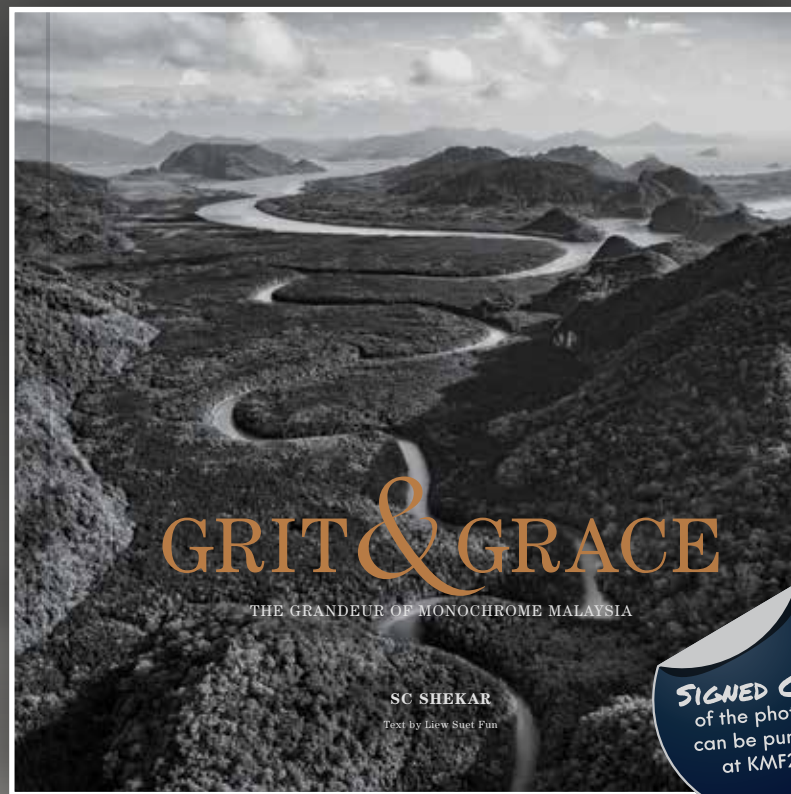
1337 is a technology accelerator and early stage venture capital focused on doing pre-seed and seed stage investments in Malaysia as well as South East Asia. 1337accelerator.com



WatchTower and Friends (WTF) is a company that is pursuing its vision of building a startup ecosystem that will raise an ever growing number of successful startups. watchtowerfriends.com



An energetic team aiming to make a difference and impact in the local & regional startup community by practicing and advocating the Lean Startup Methodology. codearmy.com



Grit & Grace: The Grandeur of Monochrome Malaysia is a 330-page photobook showcasing the beauty of Malaysia's landscape and her people. The book covers all states within Malaysia and touches on aspects of Malaysian history, geography and culture.

The *Grit & Grace* photography project by SC Shekar is one of the initiatives supported by Khazanah Nasional to celebrate Malaysia's journey and achievements as a nation. His work through *Grit & Grace* is a reminder that Malaysia has much to offer, be it her rich natural resources, or environment, or the diversity of her people.

Grit & Grace represents the aspirations of a nation that has achieved so much as a young country. 'Grit' refers to determination, perseverance, and conviction. 'Grace' on the other hand refers to thoughtfulness, understanding and refinement. Together, *Grit & Grace* is an amalgamation of these noble qualities that drive and motivate us to achieve the best that we possibly can. Through this book, it is Shekar's and Khazanah's aspiration to create awareness among the general public on the various facets of Malaysia and unite all Malaysians, regardless of race, religion or ethnicity to appreciate the grandeur of the land we live in.



SC Shekar is a renowned photojournalist who started his career at a local newspaper in the early 1980s where his work won many awards. After leaving the country and spending many years abroad, he returned to Malaysia to pursue his passion of documenting Southeast Asia's rich and diverse cultures with a focus on Malaysia.

Over the last 30 years, his body of work has resulted in the publication of more than 25 books. Shekar describes his work as a combination of "documentary photography" and "ethnography portraiture" which has its roots planted in the fields of anthropology and sociology. It is a study of mankind, ways of life, customs, beliefs and behaviours.

For more information, visit www.scshekar/gritandgrace

In conjunction with the book launch, a photo exhibition is held between **16 September to 16 October** at **2, Jalan Hang Kasturi, 50050 Kuala Lumpur** (below 'Ruang by Think City'). Exhibition opens **10am to 8pm daily**. Admission is free.



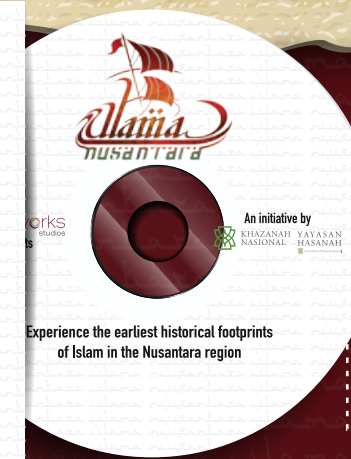
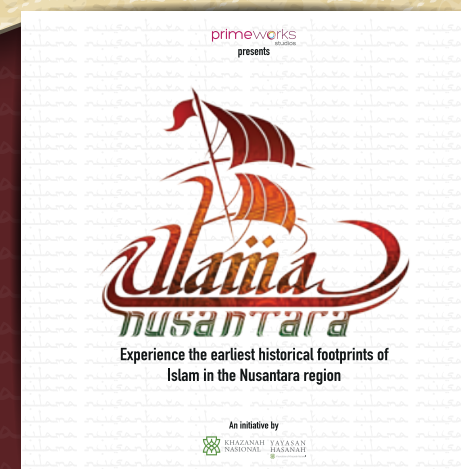
Experience the earliest historical footprints of Islam in the Nusantara region

Ulama Nusantara brings the audience to different parts of historical Islamic states in the early Nusantara to trace and re-enact historical stories of Islamic scholars. The documentary traces how, through the spice route around the Malay Archipelago, Islam had helped further propagate integration of society especially in education and culture. The documentary explored six countries: Malaysia, Indonesia, Brunei, Thailand, Egypt and Turkey.

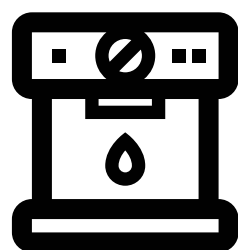
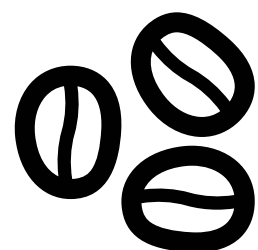
Produced by Primeworks Studios, the documentary was a collaboration with the Department of Arabic and Islamic Civilizational Studies in Universiti Kebangsaan Malaysia. Researchers from three distinguished Indonesian universities – Syarif Hidayatullah State Islamic University, Jakarta; the State Islamic University Imam Bonjol, Padang; and the State Islamic University Ar Raniry, Banda Aceh – came together to share important information explaining how Islam spread across the region.

Ulama Nusantara was launched by Malaysian Prime Minister, Dato' Sri Najib Tun Abdul Razak and Indonesian President H.E. Joko Widodo at World Islamic Economic Forum (WIEF) 2016 in Jakarta. The documentary finds its place in the hearts of audiences and proved to be a successful television series in Malaysia and Indonesia. Since it was first broadcasted on Metro TV in Jakarta, *Ulama Nusantara* was twice ranked as the number one show on the Indonesia's leading news channel. In Malaysia, the documentary on average garnered approximately half a million viewership on Media Prima Berhad's TV Network, TV3.

Ulama Nusantara is a corporate responsibility initiative by Khazanah Nasional Berhad and Yayasan Hasanah.



GET YOUR DVD NOW AT RM20 EACH!
Available for the first time exclusively at KMF2017



Your Friendly Neighbourhood Coffee Shop

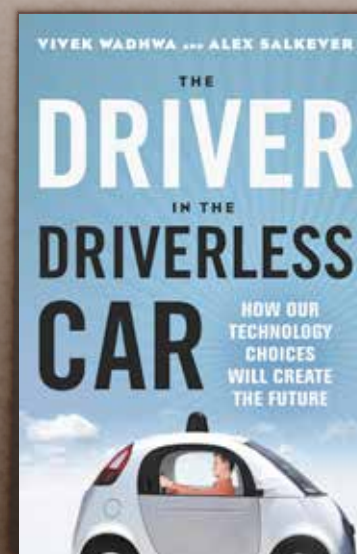
Facebook:
www.facebook.com/aitchcoffee

Instagram:
[@aitchcoffeeroasters](https://www.instagram.com/aitchcoffeeroasters)

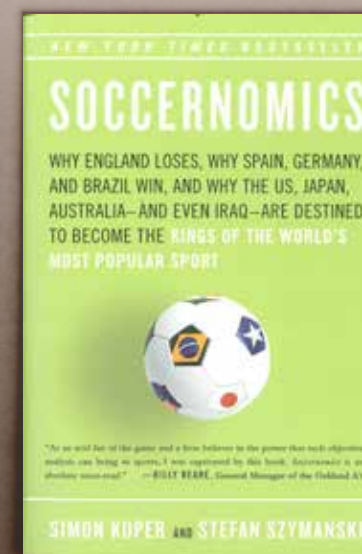
Address:
27-1 Jalan PJU7/16A,
Mutiara Damansara,
47800, Petaling Jaya, Selangor.



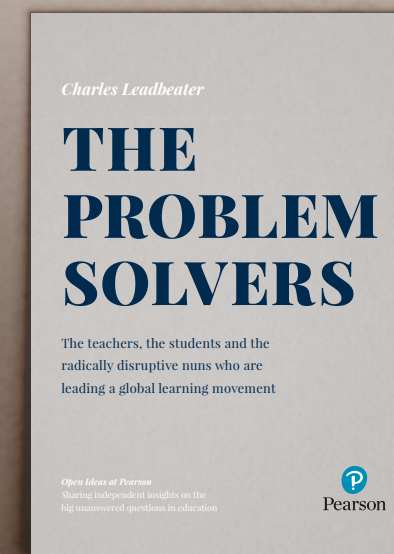
KMF participants are entitled to redeem one of the three books while stocks last.



The Driver in the Driverless Car
Vivek Wadhwa, Alex Salkever



Soccernomics
Simon Kuper, Stefan Szymanski



The Problem Solvers
Charles Leadbeater

Discovering
Langkawi
with Irshad Mobarak

MINI-DOCUMENTARY SERIES

After the successful launch of the publication *Discovering Langkawi with Irshad Mobarak* (now in its first reprint) at last year's KMF, Khazanah Nasional is delighted to support the release of the mini-documentary series of the same title at this year's KMF.

Filmed over 12 months, *Discovering Langkawi with Irshad Mobarak: The Mini-Documetary Series* is a ten-episode armchair voyage of the enchanting archipelago. Join host Irshad Mobarak as he takes you on an intimate journey through Langkawi where you will get to experience the rich fauna and flora biodiversity found in its forests.

Find out how the island of Langkawi was formed millions of years ago, meet stones that are over 1 billion years old, get to know some of nature's cleaners and artists like the sand bubbler crab, learn more about the fascinating mudskipper, witness the beauty of the migratory birds on their annual visit.

Also, find out why the Strangling Fig Tree is so misunderstood, why the mangroves are called "The Kings of Adaptability", how man and nature live in balance and why it is important to preserve our natural heritage at all costs.



A copy of the DVDs is in your KMF goodie bag.

Do enjoy and the next time you visit the beautiful Langkawi archipelago, you'll certainly view it in a different light!



From the humble beginnings of a little family business, **Nasir bin Hassan** has brought his famous **“Coconut Shake”** family recipe from Senawang, Negeri Sembilan to Kuala Lumpur in 2015.

Try the **Desa Pandan Coconut Shake**.
It's frosty, it's silky smooth and it's an absolute delight.

Phone number:
NASIR BIN HASSAN
013 710 0050

Address:
Jalan Hilir 3,
55100 Kuala Lumpur,
Wilayah Persekutuan,
Kuala Lumpur, Malaysia



Established in 2005, Holstein is the leading integrated dairy company in Malaysia, producing premium grade fresh milk (cow and goat), yogurt, and yogurt drinks. The company's operations cover the full breadth of the dairy value chain (from grass to glass), mainly marketed under the brands Farm Fresh and Nubian. Holstein's integrated business model has enabled it to maintain its unique propositioning in the Malaysian market to deliver fresh dairy produce to retail shelves within 48 hours from production. Holstein is also the appointed anchor company for the NKEA Entry Point Project 13 for the dairy industry, which aims to reduce Malaysia's dependence on imported fresh milk.



NO Preservatives

Day 1 Programme

Grand Ballroom, Mandarin Oriental Kuala Lumpur

8:00am	Registration
9:00am - 9:30am	Welcome Remarks and Introduction to KMF2017 Tan Sri Dato' Azman Hj Mokhtar , Managing Director, Khazanah Nasional Berhad
9:30am - 10:20am	SPECIAL ADDRESS: 'How We Can Solve the Grand Challenges of Humanity and Build New Trillion Dollar Industries' Vivek Wadhwa , Distinguished Fellow and Adjunct Professor, Carnegie Mellon University Introducer: Serena Tan Mei Shwen , Executive Director, Investments, Khazanah Nasional Berhad
10:20am - 10:35am	Break
10:45am - 11:55am	CORE SESSION 1: MACRO AND MARKETS <i>The Search for Alpha: Can Algorithm Trump Cerebrum?</i> Jan Metzger , Managing Director, Global Co-Head IB Technology and Head of Asia Pacific TMT, Citigroup Martin Skancke , Chair, Principles of Responsible Investment (PRI); and former Head of Asset Management, Ministry of Finance, Norway Nurhisham Hussein , Head of Economics and Capital Markets, Employees Provident Fund Malaysia Sharifatu Laila Syed Ali , Group CEO, ValueCAP Tariq Al-Sudairy , Managing Director and CEO, Jadwa Investment Chairperson: Mohamed Ridzuan Mohamed , Director, Khazanah Research & Investment Strategy, Khazanah Nasional Berhad
12:00pm - 12:45pm	SPECIAL ADDRESS: 'In Conversation with Dr Ngozi Okonjo-Iweala' Dr Ngozi Okonjo-Iweala , Chair, Global Alliance for Vaccines and Immunisation (GAVI); and former Finance Minister, Federal Republic of Nigeria Introducer: Tan Sri Dato' Azman Hj Mokhtar , Managing Director, Khazanah Nasional Berhad Moderator: Prof Jomo Kwame Sundaram , Third Holder of the Tun Hussein Onn Chair in International Studies, Institute of Strategic and International Studies (ISIS) Malaysia; and Visiting Senior Fellow, Khazanah Research Institute
12:55pm - 2:15pm	LUNCHEON ADDRESS Joseph C. Tsai , Executive Vice Chairman, Alibaba Group Introducer: Datuk Ben Chan , Executive Director and Co-Head of Investments, Khazanah Nasional Berhad
2:25pm - 3:35pm	CORE SESSION 2: FIRMS AND TRANSFORMATION <i>A World Awash With Data: What is the Role of the Algorithm in Enhancing Corporate Performance?</i> Dato' Abdul Rahman Ahmad , President and Group Chief Executive Permodalan Nasional Berhad (PNB) Neal Cross , Managing Director and Chief Innovation Officer, DBS Bank Sandip Sen , Global CEO and Executive Director, Aegis Sandy Ogg , Founder, CEO.works Tengku Dato' Sri Zafrul Tengku Abdul Aziz , Group CEO, CIMB Group Chairperson: Datuk Hisham Hamdan , Executive Director, Investments and Head of Khazanah Research & Investment Strategy, Khazanah Nasional Berhad
3:40pm - 4:50pm	SPECIAL SESSION: ASEAN X OBOR X The World <i>The Rise of Corporate Economic Soft Power</i> Joseph C. Tsai , Executive Vice Chairman, Alibaba Group Prof Mari Pangestu , Senior Fellow in International and Public Affairs, Columbia University; Professor of International Economics, University of Indonesia; former Minister of Trade, Republic of Indonesia Tan Sri Dato' Dr Mohd Munir Abdul Majid , Chairman, Bank Muamalat Malaysia Berhad; Chairman, ASEAN Business Advisory Council - Malaysia; and President, ASEAN Business Club YB Dato' Seri Mustapa Mohamed , Minister of International Trade and Industry, Malaysia Chairperson: Tan Sri Andrew Sheng , Distinguished Fellow, Asia Global Institute, The University of Hong Kong; and Board Member, Khazanah Nasional Berhad
4:50pm - 5:05pm	Break
5:15pm - 7:00pm	SPECIAL SESSION in collaboration with TEDxKL: INNOVATION WITHOUT BORDERS 3.0 Ambarish Mitra , Co-Founder and CEO, Blippar Dr Michel Laberge , Founder and Chief Scientist, General Fusion Simon Kuper , Author; and Columnist, Financial Times Srikanth Velamakanni , Co-Founder, Group CEO, and Executive Vice-Chairman, Fractal Analytics Sumant Mandal , Co-Founder and Managing Director, March Capital Partners Introducer: Tengku Dato' Seri Azmil Zahrudin , Executive Director, Investments, Khazanah Nasional Berhad
7:00pm	End of Day One
7:15pm	Dinner
8:30pm - 10:00pm	SPECIAL EVENT: FEARLESS DESIGN - Perspectives in Form, Function and the Future <i>featuring</i> Amanda Levete , Architect and Principal, AL_A Ben Evans , Co-Founder and Director, London Design Festival Izmir Yamini , Founder and Chief Executive, Independence-X Aerospace and Pulsar UAV Lynette Wallworth , Interactive media artist

Day 2 Programme

Grand Ballroom, Mandarin Oriental Kuala Lumpur

9:00am - 9:45am	SPECIAL ADDRESS: "The Future of Work: Is This Time Different?" Dr Carl Benedikt Frey , Co-Director and Oxford Martin Citi Fellow, Oxford Martin Programme on Technology and Employment, University of Oxford Introducer: Johan Mahmood Merican , Deputy Director General (Human Capital), Economic Planning Unit, Prime Minister's Department, Malaysia
9:45am - 10:00am	Break
10:10am - 11:00am	SPECIAL ADDRESS: 'Do We Really Live in a Post-Truth World? And If We Do, then How Do We Fix It?' Jimmy Wales , Founder, Wikipedia; Co-Founder, Wikia; and Founder, WikiTRIBUNE Introducer: Javier Santiso , Executive Director, Khazanah Europe Investment Limited
11:05am - 12:15pm	CORE SESSION 3: GROWTH AND DEVELOPMENT <i>Artificial Intelligence: Enhancing Growth X Exacerbating Inequality?</i> Dr Carl Benedikt Frey , Co-Director and Oxford Martin Citi Fellow, Oxford Martin Programme on Technology and Employment, University of Oxford Prof Danny Quah , Li Ka Shing Professor of Economics and Vice Dean (Academic Affairs), Lee Kuan Yew School of Public Policy, National University of Singapore; and Senior Fellow, Khazanah Research Institute Tan Sri Dato' Dr Michael Yeoh , Co-Founder and CEO, Asian Strategy & Leadership Institute (ASLI) Sandiaga S. Uno , Deputy Governor-elect of Jakarta Tan Sri Dato' Sri Dr Zeti Akhtar Aziz , Co-Chair, Board of Governors, Asian School of Business (ASB); and former Governor, Bank Negara Malaysia Chairperson: Dr Nungsari Ahmad Radhi , Managing Director, Prokhas Sdn Bhd
12:20pm - 1:05pm	SPECIAL ADDRESS: 'Major Forces Transforming Banking' John McFarlane , Chairman, Barclays Introducer: Roni L. Abdulwahab , Executive Director, Investments, Khazanah Nasional Berhad
1:15pm - 2:35pm	LUNCHEON ADDRESS: 'Building True Value: Striving to be a Community First, and a Company Second' Kent J. Thiry , Chairman and CEO, DaVita Inc Introducer: Chinta Bhagat , Executive Director, Khazanah India Advisors Private Limited
2:45pm - 3:30pm	SPECIAL ADDRESS: 'What Makes us Human? The Power and Privilege of Prosociality' Dr Emiliana Simon-Thomas , Neuroscientist; and Science Director, Greater Good Science Center, University of California, Berkeley Introducer: Ahmad Zulqarnain Onn , Executive Director, Investments and Head of Strategic Management Unit, Khazanah Nasional Berhad
3:35pm - 4:20pm	SPECIAL ADDRESS: 'Falling in Love with AI' Allon Reich , Film producer; Producer of 'Ex Machina' Introducer: Charles Leadbeater , Author and independent strategic advisor
4:25pm - 5:35pm	CORE SESSION 4: PEOPLE AND LEADERSHIP <i>X Marks the Spot: What is the 'X' in 'Cerebrum X Algorithm'?</i> Dr Emiliana Simon-Thomas , Neuroscientist; and Science Director, Greater Good Science Center, University of California, Berkeley Hashim Shawa , Chairman and General Manager, Bank of Palestine Dato' Paduka Iqbal Khan , CEO, Fajr Capital Dato' Dr Nirmala Menon , Board Member, Khazanah Nasional Berhad; and former Executive Vice President and Head of Designated Markets & Health Asia, MetLife Asia Pacific Ltd Tan Sri Dato' Seri Dr Sulaiman Mahbob , Chairman, Telekom Malaysia Berhad Vivek Wadhwa , Distinguished Fellow and Adjunct Professor, Carnegie Mellon University Chairperson: Dato' Charon Mokhzani , Executive Director, Khazanah Nasional Berhad; and Managing Director, Khazanah Research Institute
5:35pm - 6:00pm	Break
6:10pm - 6:20pm	BOOK LAUNCHES
6:20pm - 6:30pm	Launch of Khazanah Nasional Entrepreneurship Outreach
6:30pm - 7:00pm	CLOSING ADDRESS YB Datuk Seri Johari Abdul Ghani , Minister of Finance II, Malaysia; and Board Member, Khazanah Nasional Berhad
7:00pm	End of Day Two

Notes








the world's best Tongkat Ali* in a cup Enjoy now



*Biotropics extract is acknowledge
by American Botanical Council,
USA

THE BENEFITS OF *Physta* TONGKAT ALI

 PURE RAW MATERIAL	 EXTRACTION PROCESS	 DOSAGE	 STANDARDIZED	 QUALITY STATEMENT
100% pure Tongkat Ali extract, freeze dried. *Ensures the biologically active components are not destroyed.	Patented water extraction technology. * Isolates and maintains the active components.	50mg extract of Tongkat Ali per serving. *Based on clinical studies for effectiveness.	Standardized to SIRIM MS:2409:2011. *Ensures the active components are present and are consistent.	Certified HACCP, Good Manufacturing Practice (GMP) and USA FDA inspected. *Quality assured, ensures peace of mind.

