

**Khazanah Megatrends Forum 2015**  
**Monday, 5 November 2015**  
**Grand Ballroom, Mandarin Oriental Kuala Lumpur**

**Opening Address by Tan Sri Dato' Seri Utama Nor Mohamed Yakcop**

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1. Salutations
2. The theme for this year's Khazanah Megatrends Forum (KMF) is "*Harnessing Creative Disruption: Unlocking the Power of Inclusive Innovation.*" The topic of creative disruption is more relevant now than ever before, considering how much creative disruption has permeated into our daily lives.
3. Each year sees more scientists and better instruments and faster, smarter computers probing deeper and seeing further into the mysteries of the physical world. Each year, more entrepreneurs are seeking to convert these discoveries and insights into new ways to do things. In the ensuing disruption, sacred taboos and ancient hierarchies totter.
4. As such, it is not surprising that the concept of creative disruption receives a great deal of attention, as it promises important and exciting results. However, there is less excitement over discussions on the impact of creative disruption on social inclusivity. So today, I want to focus on the "inclusive innovation" aspect of the theme, with "inclusive" being the operative word here.
5. The relationship between innovation and income starts from the standpoint that innovation is often a key driver of economic growth. By providing and commercializing new products, processes or services to meet market needs, innovation creates new businesses and new employment, which subsequently fuels economic growth. Theory suggests that this economic growth would then translate into income growth. However, in reality, we must be aware of whose income innovation *really* grows, as innovation does not necessarily lead to income and wealth creation for all classes in the economy.
6. To illustrate this point, let us look at the situation in the United States. The US is the most innovative nation in the world, having given birth to innovation giants such as Apple, eBay and Google. Incidentally, these three companies are all located in the San Francisco Bay Area's Silicon Valley, which is often considered the leading hub for high-tech innovation and development, being home to some of the world's most successful innovative companies. For example, the technology behemoth Apple recorded revenue of USD74.6b in Q4 of 2014

*alone*. Consider this for scale: Google's total revenue for the *entire* 2014 was USD66b, a figure that would have been impressive on its own.

7. At the same time, against this backdrop of innovation-driven wealth, San Francisco is also home to some of the most visible homeless community in the United States. According to the 2015 San Francisco Homeless Count and Survey, there were at least 7,500 individuals living on the streets or in homeless shelters in San Francisco.
8. This contrast is a defining feature of the country. If we look at the Forbes 2015 list of the richest people in the world, we can see that Americans, many of whom have made their wealth from the commercialization of innovative products, dominate the top 20 spots. For example, Bill Gates, co-founder of Microsoft, is listed as the wealthiest individual globally, with a net worth of USD79.2b. Larry Ellison, former CEO of the software company Oracle, is listed as the fifth wealthiest individual, with a net worth of USD56.3b. Also on this list of the top 20 richest individuals in the world are other famous American innovators, such as Jeff Bezos, founder of Amazon.com, Mark Zuckerberg, co-founder of Facebook, and Larry Page and Sergey Brin, co-founders of Google. Furthermore, at the country level, the US is a nation with one of the highest GDP per capita globally. Yet, according to the most recent Income and Poverty Census, 15% of the American population lived in poverty in 2014, a figure that has steadily increased over the past years. This stark difference in levels of economic inequality can be observed across the US, a country that is facing an increasingly widening income gap between its wealthiest 1% and the rest of the population, one of the factors that ignited the infamous Occupy Wall Street movement in 2011.
9. The situation in the US shows that the economic philosophy of laissez-faire and its assumption of trickle down dynamics, namely that the beneficiaries of wealth creation would pass on the largesse to all segments of the society, is not valid.
10. How does innovation affect the different sections of the population? Innovation by itself, is not necessarily a game that is rigged in favor of the rich. After all, innovative ideas do not come only to the wealthy. Anyone, from any level of socio-economic status, can become the next Bill Gates. However, in its commercialization process, innovation often favors the risk takers, and as such it favors those from a wealthier background. Translating an innovative idea into a commercial product or service intrinsically demands risk-taking, particularly in terms of capital. Those from an economically disadvantaged background may be more risk-averse when it comes to investing in a new idea, due to a lack of experience, connections, confidence, and financial support. On the other hand, an entrepreneur from a wealthier background may be more willing to take chances to

establish a startup company delivering an innovative solution, knowing that he can weather the storm should his venture not succeed.

11. Furthermore, innovation also favors the highly skilled, particularly where technological innovation is concerned, as technology itself is inherently skill-biased. These technologically skilled individuals are often able to demand relatively high wages due to the specificity of their skillset. On the other hand, low-skilled workers, largely belonging to the low-income group, often become replaced by technological innovation, which has a tendency to be labor reducing. We need only consider the example of how the mechanization of the manufacturing process has replaced a significant portion of factory workers, who, at one time, formed the backbone of many of the world's economies. This subsequently results in increased unemployment of the low-income group, who become displaced as a result of technological advancements. As such, unless workers' education level can keep up with technological progress, these types of innovation can lead to greater inequality across skill groups.
12. Additionally, as we have sadly seen in the past, the owners of innovation may use and abuse their product or services to further increase their wealth, to the detriment of the rest of the population. Take the recent example of the gigantic, and frankly, unethical price increase of the drug Daraprim, necessary for treating a life-threatening parasitic infection which particularly affects newborns and those with weak immune systems such as HIV/AIDS patients and cancer patients. The price of this life-saving medication was raised from USD13.50 per tablet to a whopping USD750 per tablet overnight without a valid reason, severely reducing the affordability of the medication for vulnerable patients. This price hike occurred following the acquisition of the drug by Turing Pharmaceuticals, a startup company run by a former hedge fund manager. This is unfortunately not an isolated incident – other recent examples include the price hike for Cycloserine, a drug used for the treatment of a severe form of tuberculosis, from USD500 for 30 pills, to USD10,800. While we can appreciate that the cost of developing and delivering an innovative product or service may be expensive, the two examples illustrate how innovation can sometimes be abused for the sake of the wealth of the few, at the expense of the vulnerable members of society.
13. Let me now turn to the issue of harnessing creative disruption for social inclusivity. The previous examples I have mentioned may have painted a grim image of how innovation may shape a future where progress only serves to further elevate the socio-economic status of the rich at the expense of the poor, in the face of seeming economic growth. However, this does not have to be the case. Innovation also has the potential to provide solutions for improving the welfare of the lower- and middle-income groups. In fact,

innovative products, especially in the areas of food, health, and basic livelihood, can contribute substantially to improving the welfare of the lower-income groups. Hence, the concept of inclusive innovation, which, according to the World Bank, is defined as “any innovation that leads to affordable access to quality goods and services for the poor on a sustainable basis and with extensive outreach.”

14. One of the core components of inclusive innovation is that it leads to affordable access. This may sometimes seem discordant with the concept of innovation. Indeed, when we talk about innovation, our minds are often directed towards fancy technologies that are often also expensive. Consider this for scale: the cheapest iPhone 6 model retails at RM2,699 in Malaysia, whereas RM660 can provide a balanced diet for a Malaysian family of five for a month. This high price is often justified by the high cost of research and development (R&D) required to successfully produce and commercialize the product.
15. However, successful innovation does not necessarily require extensive and expensive R&D. In fact, financial constraints have sometimes led to some of the most innovative products and services affordable for all and any income group, in a process known as frugal innovation. Frugal innovation is the process of reducing the complexity and cost of a good or a service and its production, so that more people may be able to enjoy the innovation, including and especially the lower-income groups.
16. The world has seen some remarkable examples of frugal innovation, designed to meet the needs of the lower-income group through process innovations. Process innovation relates to the concept of taking existing operations and resources and making them more efficient, without needing to incur much additional expense that is usually required for the research and development of an innovation. Driven by the need to make a little go a long way, developing countries have particularly excelled in implementing process innovation, as has been seen in Kenya and India.
17. Kenya, a lower-middle income nation, currently leads the world with its mobile-money system known as M-PESA, which lets people easily transfer cash using their phones. In fact, according to The Economist Magazine, it is easier to pay for a taxi ride using a phone in Nairobi than it is in New York. M-PESA was originally designed as a platform to reduce the costs associated with handling cash (and the geographical inconvenience of withdrawing cash from a designated ATM). Since its launch in 2007, M-PESA is now used by over two thirds of the adult population of Kenya. According to The Economist, it is estimated that approximately 25% of Kenya’s GDP flows through the M-PESA system. This system has since been successfully mimicked in other countries with similar settings throughout the world, including Afghanistan, Tanzania and more recently in India.

18. India has embraced the concept of frugal innovation and is hitting the ground running with it. Aravind Eye Hospitals, a hospital chain in India, has received worldwide recognition for significantly reducing cataract-related blindness in the country by delivering cheap (sometimes free), effective, and safe cataract removal surgery. Aravind, founded by Dr. Govindappa Venkataswamy in 1976, manages to do this by ensuring that its employees are specialized in each of its operations: the clinical staff carries out the diagnosis, the surgeons prescribe and operate, while the counselor staff explains the procedures to the patient. This system works by increasing the efficiency of the entire operations. As of 2012, Aravind has reportedly treated nearly 32 million patients and performed 4 million surgeries.
19. Also in India, and following a similar model to Aravind's, is the Narayana Hrudayalaya Cardiac Care Center. Narayana provides heart surgery at a fraction of the normal cost, without reducing the quality and safety of the procedure, simply by standardizing surgical procedures and delegating the rest of the tasks that do not require a doctor's intervention to the unskilled labor. Not only has this maximized the surgeon's time and skills, it has also promoted the economic contribution of the low-skilled labor force in India. In addition to illustrating the point that innovation does not have to be expensive, Narayana also provides an example of how innovation can also be used to promote employment through human capital intensive innovation.
20. Moving forward, what are the lessons for inclusive innovation ? Innovation is important for growth, but its impact is not always positive or even neutral. As we have seen previously, certain types of innovation seem to have a tendency to favor the already-privileged, sometimes at the expense of the underprivileged. Thus, we must be conscious not just of the effects of the disruption, but also whom the disruption will be affecting. As such, if we hope to become an inclusive society, we cannot afford to adopt a laissez-faire attitude towards innovation-led growth.
21. What can the Government do? The Government, of course, needs to intervene to ensure a fair distribution of the wealth created in the economy and remove social injustice, including social injustice arising from any disruption. This can be done by the Government by providing good education for all its citizens, good infrastructure in urban as well as rural areas, and technical and vocational training to enable the young to take up skilled jobs and thereby earn reasonable income. The Government must also provide financial and technical assistance to individuals from disadvantaged backgrounds to become entrepreneurs, particularly innovative entrepreneurs.
22. Equally important, the Government must provide the environment where, through a combination of education or skills training, hard work and good behavior, any citizen can

move up from humble beginnings to at least reasonable success. Unfortunately today, in many parts of the world, there are millions of people who are behaving well and working hard but barely getting by.

23. At the same time, we must ensure that our regulations allow for the “creative” in “creative disruption”. As Bob Iger, CEO of the Walt Disney Company, said, “the heart and soul of the company is creativity and innovation.” These two go hand-in-hand. As we face the difficult challenges in the years ahead, we cannot attempt to overcome the challenges by using the same techniques we have used previously. As the saying goes, insanity is doing the same thing repeatedly and expecting a different outcome. We must establish new approaches. To do this, we must encourage creativity. We must ensure that our regulations do not stifle creativity and thus stifle innovation. According to Sergey Brin, one of the co-founders of Google, one of the reasons they were able to successfully develop their flagship search engine was the open environment of the web at the time.
24. The role of Government, as I see it, is indispensable. Sometimes clumsy, sometimes errant, but active Government is much required to guide us during these exciting times. But at the same time, the Government must not kill the goose that lays the golden egg. We need to motivate the “animal spirit” in our entrepreneurs. Where then is the golden mean? The ancient Chinese philosopher, Lawzi, gave us the answer long years ago, when he defined a pragmatic Government in the following words:-

*Wu Wei*

*Er Wu Buwei*

(The ruler does nothing, but nothing is left undone.)

25. Let me now say a few words regarding innovation in Malaysia. Looking at our history since Independence in 1957 and the creation of Malaysia in 1963, we have embraced innovation and inclusiveness in all our major policy initiatives. Let me briefly tell the story.
26. Up to 1970, we continued the laissez-faire economic policy of the British colonial masters. However, once we realized that this trickle-down assumption doesn’t work, we implemented, in 1971, an innovative and inclusive national policy, namely the New Economic Policy (NEP) to ensure both growth and equity. The NEP’s objective was to eradicate poverty and ensure that all ethnic groups benefit from the growth and development of the nation. This was quite an innovative approach at that time, when most countries concentrated only on growth, believing in the trickle-down assumption.

27. When property and commodity prices collapsed in 1986, we needed to boost foreign investments. In spite of the dictates of the NEP, we showed our innovative attitude as a Government (as well as much pragmatism and practicality) by relaxing various requirements on equity participation and foreign ownership. When Asia was swept by the 1997 / 1998 financial crisis, we again showed our innovative streak and audacity in the solutions we implemented. We made the necessary and painful decisions, but we did it in our own innovative way.
28. This innovative and inclusive frame of mind has yielded plenty of dividends. Our sustained and rapid economic growth over six decades has raised Malaysia's status from a low-income country to an upper-middle income nation, a remarkable feat by any definition. We have virtually eradicated poverty from 49.3 per cent in 1970 to 0.6 per cent in 2014. Health care has also advanced, resulting in increased life expectancy.

### Conclusion

29. I want to end my speech on a philosophical note. We all know about robotics. It is quite probable that, in the not so distant future, innovation in robotics could take us to a different dimension altogether. Even as early as 2030, by some estimates, smart machines, based on artificial intelligence, will replace many types of work at present performed by humans. Even skilled workers will find their skills suddenly becoming redundant.
30. What will happen to unemployment in such a scenario? The nightmare scenario is one of massive unemployment and poverty. However, it may be possible that the productivity gain and wealth created by using robots and smart machines may enable us, although unemployed, to live a leisurely life with good income, assuming of course that the Government distributes the wealth fairly. This would be the ultimate form of the welfare state.
31. Would that be the happy fairy tale ending for our human species on this planet ? I do not know the answer, as the correlation between material well-being and happiness is tenuous at best. But I remember a story from the greek mythology, where a person named Sisyphus, whose devious attempt to defy the gods and even death, was punished with his condemnation to the task of pushing a boulder up a hill, only for it to roll down again and oblige him to renew the effort through all eternity. For a long time, the moral of the story has been that the punishment of Sisyphus captures the futility of existence.

32. However, the French writer and philosopher, Albert Camus (1913 to 1960) in his book “The Myth of Sisyphus”, says that the labour of Sisyphus may be the embodiment of the absurd, but he is freed by his lucid knowledge and acceptance of his task. Sisyphus keeps pushing, even if the pushing appears to lead nowhere. Camus’ conclusion is that “One must imagine Sisyphus happy”. The German Finance Minister, Wolfgang Schaeuble recently said, while commenting on this matter, that Sisyphus is a happy man because he has a task to do and it is his own.
33. My purpose of relating the story of Sisyphus is to make two points. The first point is that, if, in the future, most of our work can be done by robots and machines and we are left to enjoy a life of leisure, will we be happy? The story of Sisyphus, by Albert Camus implies that we will not be happy because we will have no purpose in life. ? In fact we will be worse off than Sisyphus, who at least has a daily task to perform ! Does this mean that there is a limit to technological innovation, beyond which we come to a very slippery slope? If there is such a limit to innovation, how do we identify it ex-ante ?
34. The second point has to do with the image of modern heroes, an issue raised by Roger Cohen in his column in the International New York Times recently. The culture of innovation today sometimes holds repetitive actions – like working on a production line in a factory – in contempt. Hundreds of millions may do it, and take care of their families with what they earn, but the heroes of our era are the Silicon Valley inventors of the killer app or the global financiers adept in making money with money. The workers, even skilled workers, in an era of rapid technological innovation, are not held in high regard. Well, while we must embrace rapid innovation, even with the disruption that it brings with it, let us also applaud the millions of workers who work hard to put food on the table and pay the mortgage, even though they may not have the glamour of being directly involved in rapid innovation.
35. As we ponder on the issue of inclusiveness and social justice, let me leave you with one final thought regarding the level of inequality today : The world’s top one per cent is set to hold more than half of the global wealth by 2016. That is frightening !

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