

A REVIEW ON THE CONCEPT OF FOURTH INDUSTRIAL REVOLUTION AND THE GOVERNMENT'S INITIATIVES TO PROMOTE IT AMONG YOUTHS IN MALAYSIA

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ABSTRACT

The world is now in the fourth stage of industrial revolution. This fourth industrial revolution would bring digital lifestyle where automation and Internet of Things or IoT widely applied in almost all aspects of daily life. Malaysia is already welcoming this revolution via number of initiatives set out by agencies like the Malaysian Digital Economy Corporation or MDEC. However, are Malaysians ready to accept the Fourth Industrial Revolution with the right mind set? This article discusses the concept of fourth industrial revolution and relate it to several initiatives by the government to promote it among the young generation. The government has developed all the info-structure necessary and now the main hurdle is to change the mind set of the people towards utilizing information communication technologies or ICT in a positive manner and created wealth through ICT. This is the main challenge faced by the country and efforts are under way to address that challenge. Obviously, the diffusion of the idea of fourth industrial revolution and its opportunities is needed to enhance awareness among the public. The Government is paying special attention to youths in the form of providing a platform for them to share their opinions or pitch for ideas. The young generation has begun to embrace fourth industrial revolution with their involvement in various government's initiatives.

Keywords: Fourth industrial revolution, youth, Internet of Things, digital lifestyles, Malaysia

INTRODUCTION

The catchphrase of the day is the Fourth Industrial Revolution or Industry 4.0. Industrialists have started talking about it since 1999, predicting human civilization that is geared by the Internet in the near future. True enough, it did not take long for the revolution to go full-fledged with many breakthroughs in technologies such as artificial intelligence, robotics, the internet of things, autonomous vehicles, 3D printing, the blockchain, biotechnology and so on (Thornhill, 2016). Where people communicate within the information technology domain less than two decades ago, devices and machines are doing the talking now in an era powered by the Internet of Things (IoT). Citing Jean-Marc Frangos, Chief Innovation Officer of BT United Kingdom, 50 billion things will be connected 'from cranes to coffee machines' by 2020. People will be able to control items and their values since the data provided by the IoT enable the owners to understand the product performance and manage their assets better. For example, they will be alerted if any parts of a car require maintenance. This way, risks involving security, safety or finance can be minimized thus, extending the product life-cycle and rejuvenate the environment by reducing carbon emission in the long run.

Moving back home, the Industry 4.0 is being promoted by the Government via a number of initiatives set out by agencies like the Malaysian Digital Economy Corporation or MDEC. More importantly, the Prime Minister himself, Dato' Seri Najib Razak has envisioned a future generation who embraces advanced technology post-2020 with Transformasi Nasional 2050 (TN50). The concept of TN50 reaches out 30 years into the future from the time when the country has achieved Vision 2020. The onus is on the people of Malaysia to either ride on the opportunity to prosper and be one of the economically developed country with innovative citizens or be left behind. This article provides a quick glance on the concept of fourth industrial revolution and relate it to the government's initiatives to promote usage of digital applications among the young generation.

THE ISSUE

Many have prepared to embrace the 4IR especially those from the advanced countries like the European Union, United Kingdom, the United States, Japan and Korea or even those from the emerging economies such as China and India. Advanced technology is integrated into their daily activities which they naturally adopt with the support of infrastructure, policies and strategies designed to suit the population from different walks of lives including the youth. In a poll conducted by the consulting firm Infosys, 74% of youth from India and 71% from China recognized the importance of technology skills as the catalyst for securing well paid jobs, relative to their counterparts in France (60%) and the United Kingdom (59%) (www.infosys.com/newsroom/press-releases/Pages/human-potential-education-industrial.aspx). In the same survey, it was found that despite their technical confidence, 76% of young people between the ages of 16 and 25 in France believe that their potential to secure well-paying jobs are worse than that of their parents' generation. On the opposite, only some 49% of youth in India under the same age category shared the sentiment, proving that the 4IR, in so many ways, opened up new opportunities for them to pursue continuous upskilling especially on some of the artificial intelligence part that cannot be performed by computers, in spite of taking away the rudimentary.

These nations perceive their youths like gems that need to be preserved so that the lustre will continue to shine. When Erica Kochi, Futures Lead of the Office of Innovation, UNICEF spoke at the opening of the World Economic Forum's 'Center for the Fourth Industrial Revolution' in San Francisco, she revealed the shocking figure of youths who are below 25 years of age living in emerging economies on the planet (Unicef stories, 2017), made up of some 3.5 billion people with Africa estimated to grow from 18% now to 28% by 2040. Our lives are being built around the IoT, connectivity, artificial intelligence and breakthrough technologies that raise the concern of our readiness to accept the rapid changes as it will surely affect the society in ways that we cannot fully describe as yet except to anticipate. Internet literacy is growing even in a country like Malaysia where the 30.51 million population surprisingly has 41.8 million mobile connections as reported by Researchgate in 2015 (Kemp S, 2015). The same study reported a growing number of active mobile Internet users at 16.5 million or 54% of the total population with Whatsapp application ranking high on the top active social platforms with 38% followed by facebook at 32%. This statistics augur well for the awareness build-up of the concept of 4IR across the generation, what more with the launch of the Transformasi Nasional 2020 or TN50 initiative announced by the

Prime Minister in the House of Parliament during his 2017 Budget address. At a glance, the TN50 is set in place to prepare the young generation of today for life in 2050 with the aspirations to become one of the high achieving nations in the world from the economy, innovation and humankind perspectives (<https://mytn50.com/>) in a Malaysian Renaissance of sort.

Although we are still lacking in terms of infrastructure and facility compared with the advanced economies, the Government has no doubt done so much to realize the aspiration including initiatives to boost the digital economy generated by the Malaysian Digital Economy Corporation (MDEC). However, at this juncture, the initiatives may not be very visible among the public in general as the touch base is rather confined to the technocrats. Where the 4IR is concerned, reaching the farmers and fishermen at the far end of the social divides will prove to be a challenge if the infrastructure is not provided. The technobabble engaged by key opinion leaders to describe features, benefits or the needs for the establishment of advanced technology in the country may seem to go on quite a bumpy ride since the innovation is more converged at the state capitals.

Most importantly, are Malaysians ready to accept the Fourth Industrial Revolution with the right mind set? If judging by the number of social media engagement, perhaps we are not too far behind in our preparations compared with other countries in the region. If this is the direction that we are heading to, all the stakeholders have to make responsible and conscious effort to become responsible citizens in our adoption of the technologies. Owning smart phones mean little if the younger generation use them for negative purposes including to access prohibited materials like violence and pornography. Of late, there has been an increase in the cases of teenage pregnancy, abandoned babies by young mothers and drug abuse among youth, just to name a few. The Ministry of Health Malaysia reported an alarming number of teenage pregnancies with 16,270 cases between 2012 and 2015 recorded while the Royal Malaysian Police reported another 526 cases of babies being abandoned because their mothers conceived them out of wedlock (The Malay Mail Online). One of the major causes being blamed for the rise in this case is the unsupervised use of the smart phones where the teenagers can access pornographic materials resulting in an urge to try out the act with like-minded peers.

Drug use has also risen to an unbelievable percentage. Every other day, the news will report of arrests of drug-related offences by the police. It is hardly difficult to gather where the substances come from if not the sophisticated use of technology to formulate especially designer drugs like ecstasy, amphetamine and methamphetamine. The capture of the youth involved in drugs strike the nerve bone, knowing fully well the consequences of substance abuse that will lead the whole generation onto the path of destruction. To a certain extent, the fight to eradicate drug abuse in the country seems like a losing battle as the evil changes face from naturally produced drugs like heroine and morphine to synthetic ones which do more damage to the brain and the overall wellbeing of a healthy human being than anything ever seen by history. Based on the data collected by the AADK between 2012 and 2016, 30,844 drug addicts either new or repeat offenders were recorded with the highest number coming from the state of Penang at 16.47%. Further, statistics showed 153,204 arrests being made on drug-related offences amounting to RM170.1 million for the corresponding period (Maklumat Dadah 2016).

Can the Fourth Industrial Revolution balance out the challenges of attaining that Top 20 advanced nations by 2050 we so craving or will the future generation get carried away in their pursuit of achievements with the great things the Industry 4.0 brings? Here is where the Government which has been elected by the people has to play the role vigilantly to guard this precious cargo made up of the future of Malaysia. Policies put in place to guide the people to move in the right direction have to balance between material achievement and spiritual gain. An advanced generation without a positive attitude is bound to steer the country in the wrong direction. One of the virtuous values of the Rukunegara is courtesy and morality. This basic tenet that has been ingrained in the minds of Malaysians must be upheld ferociously by the current generation so that we reap what we sow 30 years from now.

THE GENERAL PERCEPTION

Generally speaking, Malaysians are the welcoming lot in embracing new technologies, such that we become one of the active users of applications like Whatsapp, Facebook and Instagram as reported by Researchgate (2015). That is a rather impressive achievement when we compare the feat with advanced nations like Japan and Korea, or even Singapore. How could a country that produces one of the most coveted android smartphones in the world not be the leader in applications usage? Here, there is the presence of an imbalance between demand and supply; Malaysians mainly act as users of technological products offered to them by the trade compared to a country for example, Korea that chooses to create and innovate technology for the global market. Why can't then we become innovative people too? The dawn of the Fourth Industrial Revolution spreads the rays of opportunity that reaches far and wide; Grab, a ride-hailing application startup company was founded by Anthony Tan, a Malaysian who graduated from the Harvard Business School where the founder of Facebook, Mark Zuckerberg attended the university (You Ain't Hustled till You've Hustled like Anthony Tan – Founder & CEO of Grab, By-June 14, 2017). The venture started out as a solution to the problem faced by one of his classmates on hailing a cab in Malaysia. Currently, the company not only operates a taxi-booking service sans owning any physical fleet, but it also is investing in the growth of engineering technology and innovation. Now that is something that should be emulated by the youth in Malaysia to participate in the generation of 4IR for the benefits of the society.

The Fourth Industrial Revolution in Malaysia is not governed by any ministry at the moment, leaving the matter hanging precariously to be taken care of by industry players. However, the Malaysian Industry-Government Group for High technology (MIGHT) is spearheading the initiative to promote the optimization of the innovation for the benefits of the Malaysian public as a whole. Apart from identifying the local enterprises which are involved in the effort, the agency is also propagating partnership with foreign investors in a way to propel the advancement of high technology. Among the local entities it has identified in a yet to be published report as the early adopters of the 4IR are the Keretapi Tanah Melayu Berhad (KTMB), REDtone International Berhad, Aerospace Malaysia Innovation Centre (AMIC) and Boustead Heavy Industries Corporation Bhd. In its observation of the adopting trend, there is bound to be an impact on the people as far as the transformation stimulated by the Industry 4.0 is concerned. Workforce will require skills other than the ones performed by machines and robots, so ideally the human capital will have to place themselves higher than the inanimate objects in terms of knowledge and skills mainly in the fields of science,

technology, engineering and mathematics (STEM). On top of this agency, there are other agencies in-charge of providing incentives and financial support for businesses to embark on the Industry 4.0 bandwagon vis a vis MOSTI, MOE, Cradle, MAVCAP, MTDC and a few others.

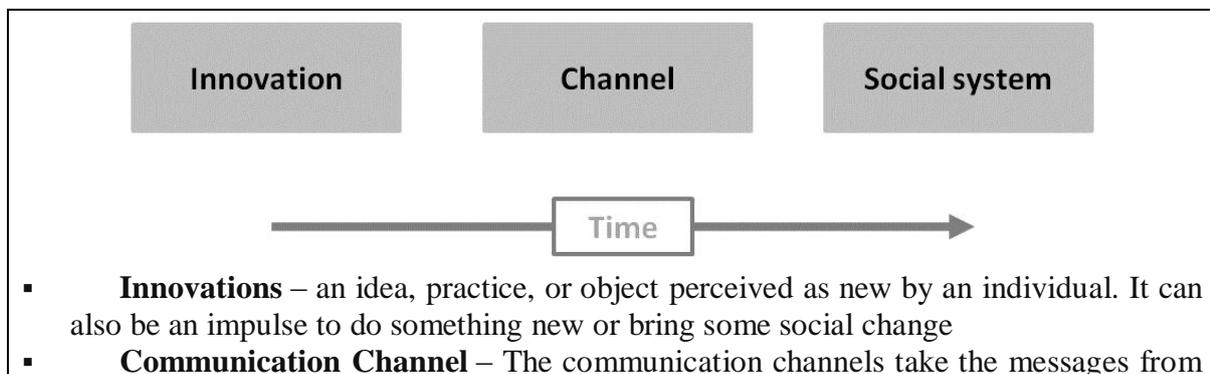
THE FACTORS OF UNDERSTANDING AND ACCEPTANCE

The Government may have not done enough to communicate the importance of the fourth Industrial Revolution, hence we have yet to see the acceptance by the people on a grander scale. There has not been any awareness program carried out especially among the older generation in order to give them a better understanding of the whole concept. No doubt there is a greater awareness among those who have a higher literacy of media as well as the information and communication technology but their participation in the transformation is yet to be gauged. To some extent, businesses have started to appreciate and manipulate the privilege of being pioneers in setting up the foundation on which they may be able to run at full scale at the height of the industrial revolution.

But are we really ready to live and breathe the 4IR? Have we reached the level where we are comfortable having robots doing the house chores and always be in control of the remote button? Do we have the resources to feed our lifestyle, will we be able to reach the status of high income nation by 2020 as we so strongly aspire? Again, the answer lies in how effective the Government program is in educating the public on the importance of accepting the fourth Industrial Revolution as the way forward.

THE DIFFUSION OF INNOVATION THEORY

Using Rogers' diffusion of innovation theory is only appropriate to describe the development of the Fourth Industrial Revolution in Malaysia. The diffusion of innovation theory analyses how the social members adopt the new innovative ideas and how they made the decision towards it (<http://communicationtheory.org/diffusion-of-innovation-theory/>). The writer further adds that human capital and the mass media play an important role in diffusing the innovation mainly through the interpersonal communication channel. For an innovation to withstand the challenges of acceptance, it has to spread far and wide. Rogers identified four elements to support the diffusion process vis a vis innovation, channel, social system and time. This was further explained as follows:



one individual to another. It is through the channel of communication the Innovation spreads across the people. It can take any form like word of mouth, SMS, any sort of literary form etc

- **Time** – It refers to the length of time which takes from the people to get adopted to the innovations in a society. It is the time people take to get used to new ideas. For an example consider mobile phones it took a while to get spread among the people when it is introduced in the market
- **Social System** – Interrelated network group joint together to solve the problems for a common goal. Social system refers to all kinds of components which construct the society like religion, institutions, groups of people etc

According to Rogers, some elements of decision is present in the acceptance of innovation in a social landscape where people may choose to adopt it individually (optional), or adopt the innovation as a group (collectively), or being decided upon by a few individuals in the social system (authority). This theory further categorized the mechanism that enables the innovation to diffuse within a community that is via knowledge, persuasion, decision, implementation and confirmation.

The use of this theory in the propagation of the Fourth Industrial Revolution is apparent when all of the elements are present on the first part i.e. innovation, channel, social system and time. The technological achievements are already in place for people to use for example, the smart phones through which multiple channels are available for communication. With the level of internet literacy of Malaysians, it is doubted that the innovation coming from the 4IR will take too long a time to spread, what more with the kind of excitement demonstrated by them especially in making news viral. At the decision to adopt the innovation stage, we currently sit in the optional and collective levels when it comes to the Industry 4.0.

INNOVATION CRITERIA THAT INFLUENCE THE COMMUNITY

Some examples that can be drawn from the innovation of the 4IR is the automation of the production lines in a manufacturing facility. The time will come when factories around the world no longer require humans to operate the machines. This task rather will be taken over completely by robots which will then minimize errors and save costs, and be sustainable in the long run. This technology is known as the smart factory, the brain child of the Industry 4.0 workgroup formed under Germany's government strategy of high technology.

Closer to home, the IoT enables users to achieve their intentions with the click of a button, giving them complete control of devices and apparatus that will simplify their lives. An example of the daily use of the IoT is the smart watch that is able to tell time, text messages, make telephone calls and provide health data from working out at the gymnasium (Meola, 2016). Out in the community, living within a smart city comes with huge benefits including connectivity to ensure security of the residents are of utmost priority, while further afield, the IoT amplifies the potential to solve problems related to traffic, help to reduce noise, crimes and pollution. These are just some of the benefits people will gain from the 4IR technology which is changing the way we live and work.

CONCLUSION

Kochi ([unicefstories](#), 2017) saw that there were going to be two major challenges for the young people to face head on with the Fourth Industrial Revolution. Firstly, industrialization will die out soon since it belongs to the previous generation, thus, killing the jobs that require skills. Secondly, the effort to equip youth with the proper skills will be hampered by the absence or lack of suitable education system. These handicaps will in some ways, push the next generation into the path of extremism when their basic needs can't be met.

The World Economic Forum has released reports on the future of jobs in January 2016. Among the understanding was how the Fourth Industrial Revolution was able to merge between the digital, physical and biological systems that would eventually transform the way people live in the world (By Beth Holland on September 1, 2016, PBL and Design Thinking to Unleash Student Creativity). The report recognized one trait in the employability qualities of a job candidate by 2020 - creativity. The next generation of human capitals will need to use their skills and knowledge differently in the sense that they don't follow the teaching convention of finding the right answers but rather, follow their creativity to solve problems.

The youth of Malaysia has a lot of potential to gain benefits from the advent of the Industry 4.0. The Government is paying special attention to them in the form of providing a platform for them to share their opinions or pitch for ideas. It is heartening to witness many successful young people who have achieved many feats especially in start-up companies like Grab but at the same time, it is equally disappointing to see some of the young and so-called innocents taking the destructive paths that will ruin an otherwise advanced nation where civilization thrives and economy prospers.

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