

# myForesight<sup>®</sup>

MALAYSIA'S NATIONAL FORESIGHT MAGAZINE

## Future of Society

Impact of demographic trends  
and rapid technological change



Is earth's population  
manageable?

Housing trends and  
social demands

PhD a "springboard"  
trend?

**26<sup>th</sup>**  
edition

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## AREAS OF INTEREST

Solar



Digital Education



Waste to Wealth



Rail



Artificial Intelligence



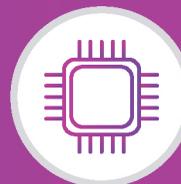
Agriculture



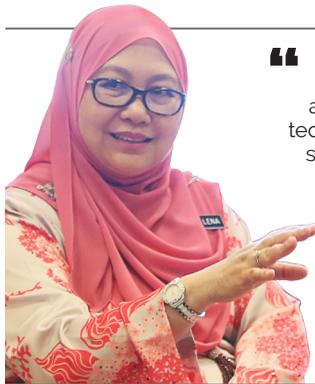
Digital Security



Semi Conductor



**TECHNOMART**  
MALAYSIA



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myForesight® is pioneering a national level foresight initiative to facilitate technology prospecting for local businesses. myForesight® advises and provides a common platform for the government, industry and academia to share experience, insights and expertise on 'futures' strategy, both locally and at a larger global level.

Key components of myForesight's mission are intelligence, research, competency framework and community engagement. myForesight® raison d'être is set out to accomplish the following:

1. Anticipate Malaysia's future possibilities;
2. Promote foresighting at national, sectoral and corporate levels;
3. Identify key technologies to support sectoral development;
4. Outline key future R&D areas.

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## Initial thoughts

### Greetings & salutations



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# Future individual, family & community

It is my pleasure to bring you the latest edition of myForesight® magazine, our second one for 2019. If this is not the first time you have this magazine in your hands, you would have realised that for each edition, we will focus on a specific theme and develop supplemental articles around it—providing insights and discussion points to frame future oriented topics.

For the past year, I have been involved in a few panel discussions that talked at length about "Malaysia Baharu" or "New Malaysia". I think by now most are aware that this involves attempts to realign and refocus priorities with the target of pushing the country to greater heights. These discourses have always centred on what the future will look like, what scenarios will develop, what will be the new priorities as well as insights into issues, challenges and drivers of the future. What will be the future fabric of society?

In our 04/2018 edition, we had highlighted the need to focus on societal values as we move forward into the era of the fourth industrial revolution. Values and integrity will be of paramount importance as people become more knowledgeable and empowered. Knowledge and power in the hands of people with the wrong values and integrity are definitely our not too distant future disowned.

Next, what will be the future of the Malaysian society? Will we be happy? There are various dimensions that make up the future of our society.

Recently, Gallup produced "Global Emotions Report, 2019". The report measured people's positive and negative daily experiences by looking into two metrics—how people see their lives and how they live their lives. The concepts used were a branch of behavioural economics. Significantly, the report explained how world

citizens were living their best and worst lives relative to the states of their emotional well-being. So, how are we Malaysians doing? You can look for the answers provided in the infographics laid out here. Well, you be the judge. Do you agree with the findings?

We sat down with Datuk Dr. Rose Lena, the Secretary General of Malaysia's Ministry of Women, Community & Family development to talk about this. You can read her thoughts on the roles of family and technology in shaping the future of society in the following pages.

Also in this edition, we have a contribution from Institut Sosial Malaysia that highlights issues facing adolescents across Malaysian children's institutions. These adolescent children were admitted to these institutions for various reasons including neglect, broken families, extreme poverty and abuse. Apart from this, there are viewpoints on overpopulation, housing and other fresh articles that touch on the societal well-being of the future.

As mentioned previously, looking at the futures of society, there are various angles and concerns raised. Admittedly, we are unable to be definitive and cover all of them. What we hope to present in this edition is a conversation starter and sufficient food for thought to help us think through the future of our Malaysian society.

For the past few years, we have received both criticisms and praises in respect of the magazine. Therefore, we are continuously working to improve and make the publication worthy of your time. This is why we appreciate the feedback and support we receive from you.

We encourage you to share what you like, just kindly acknowledge us accordingly.

# How is Malaysia's emotion temperature?

>151,000

143

The Gallup's 2019 Global Emotions Report

interviews with adults countries

## Positive experience

These scores strongly relate to people's perceptions about their living standards, personal freedom and the presence of social networks.

## Negative experience

People's experiences with health problems and their ability to afford food are predictive of higher negative scores.

HAPPY

WELL-RESTED

ENJOY

WORRY

STRESS

SAD

ANGRY

### TOP 5

<b>#1 NIGERIA</b>  91% Yes 9% No	<b>#1 MONGOLIA</b>  86% Yes 14% No	<b>#1 PARAGUAY</b>  91% Yes 9% No	<b>#1 MOZAMBIQUE</b>  63% Yes 36% No	<b>#1 GREECE</b>  59% Yes 41% No	<b>#1 CHAD</b>  54% Yes 41% No	<b>#1 ARMENIA</b>  45% Yes 55% No
<b>#2 EL SALVADOR</b>  90% Yes 10% No	<b>#2 INDONESIA</b>  85% Yes 15% No	<b>#2 MEXICO</b>  88% Yes 12% No	<b>#2 CHAD</b>  61% Yes 32% No	<b>#2 PHILIPPINES</b>  58% Yes 42% No	<b>#2 NIGER</b>  49% Yes 50% No	<b>#2 IRAQ</b>  44% Yes 56% No
<b>#3 INDONESIA</b>  90% Yes 9% No	<b>#3 UZBEKISTAN</b>  85% Yes 15% No	<b>#3 CHINA</b>  87% Yes 12% No	<b>#3 BENIN</b>  60% Yes 40% No	<b>#3 TANZANIA</b>  57% Yes 43% No	<b>#3 LIBERIA</b>  47% Yes 53% No	<b>#3 IRAN</b>  43% Yes 57% No
<b>#4 SRI LANKA</b>  90% Yes 9% No	<b>#4 VIETNAM</b>  85% Yes 15% No	<b>#4 COSTA RICA</b>  87% Yes 13% No	<b>#4 IRAN</b>  59% Yes 41% No	<b>#4 ALBANIA</b>  55% Yes 44% No	<b>#4 SIERRA LEONE</b>  46% Yes 52% No	<b>#4 PALESTINIAN TERRITORIES</b>  43% Yes 57% No
<b>#5 PANAMA</b>  89% Yes 10% No	<b>#5 CHINA</b>  85% Yes 16% No	<b>#5 DENMARK</b>  87% Yes 13% No	<b>#5 PORTUGAL</b>  59% Yes 41% No	<b>#5 IRAN</b>  55% Yes 45% No	<b>#5 GUINEA</b>  45% Yes 54% No	<b>#5 MOROCCO</b>  41% Yes 59% No

 <b>#21</b>	 <b>#15</b>	 <b>#33</b>	 <b>#123</b>	 <b>#119</b>	 <b>#127</b>	 <b>#86</b>
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<b>#5 LEBANON</b>  44% Yes 56% No	<b>#5 BELARUS</b>  51% Yes 46% No	<b>#5 TURKEY</b>  44% Yes 53% No	<b>#5 UZBEKISTAN</b>  20% Yes 80% No	<b>#5 UZBEKISTAN</b>  13% Yes 87% No	<b>#5 SWEDEN</b>  12% Yes 86% No	<b>#5 MEXICO</b>  8% Yes 91% No
<b>#4 TURKEY</b>  41% Yes 57% No	<b>#4 PALESTINIAN TERRITORIES</b>  50% Yes 50% No	<b>#4 EGYPT</b>  44% Yes 55% No	<b>#4 SINGAPORE</b>  19% Yes 81% No	<b>#4 KYRGYZSTAN</b>  13% Yes 87% No	<b>#4 CHINA</b>  12% Yes 87% No	<b>#4 MAURITIUS</b>  8% Yes 92% No
<b>#3 NORTHERN CYPRUS</b>  41% Yes 58% No	<b>#3 ARMENIA</b>  45% Yes 55% No	<b>#3 LITHUANIA</b>  43% Yes 44% No	<b>#3 KAZAKHSTAN</b>  19% Yes 80% No	<b>#3 KAZAKHSTAN</b>  13% Yes 86% No	<b>#3 KOSOVO</b>  9% Yes 90% No	<b>#3 FINLAND</b>  7% Yes 93% No
<b>#2 BELARUS</b>  41% Yes 51% No	<b>#2 YEMEN</b>  44% Yes 55% No	<b>#2 BELARUS</b>  42% Yes 50% No	<b>#2 KYRGYZSTAN</b>  18% Yes 82% No	<b>#2 INDONESIA</b>  13% Yes 87% No	<b>#2 SINGAPORE</b>  7% Yes 93% No	<b>#2 SINGAPORE</b>  7% Yes 93% No
<b>#1 AFGHANISTAN</b>  36% Yes 64% No	<b>#1 KUWAIT</b>  28% Yes 71% No	<b>#1 SIERRA LEONE</b>  41% Yes 58% No	<b>#1 TAIWAN</b>  12% Yes 88% No	<b>#1 TURKMENISTAN</b>  10% Yes 89% No	<b>#1 TAIWAN</b>  5% Yes 95% No	<b>#1 ESTONIA</b>  6% Yes 93% No

### BOTTOM 5

## In person with...

# YBhg. Datuk Dr Rose Lena binti Lazemi

## Secretary General of Ministry of Woman, Family and Community Development

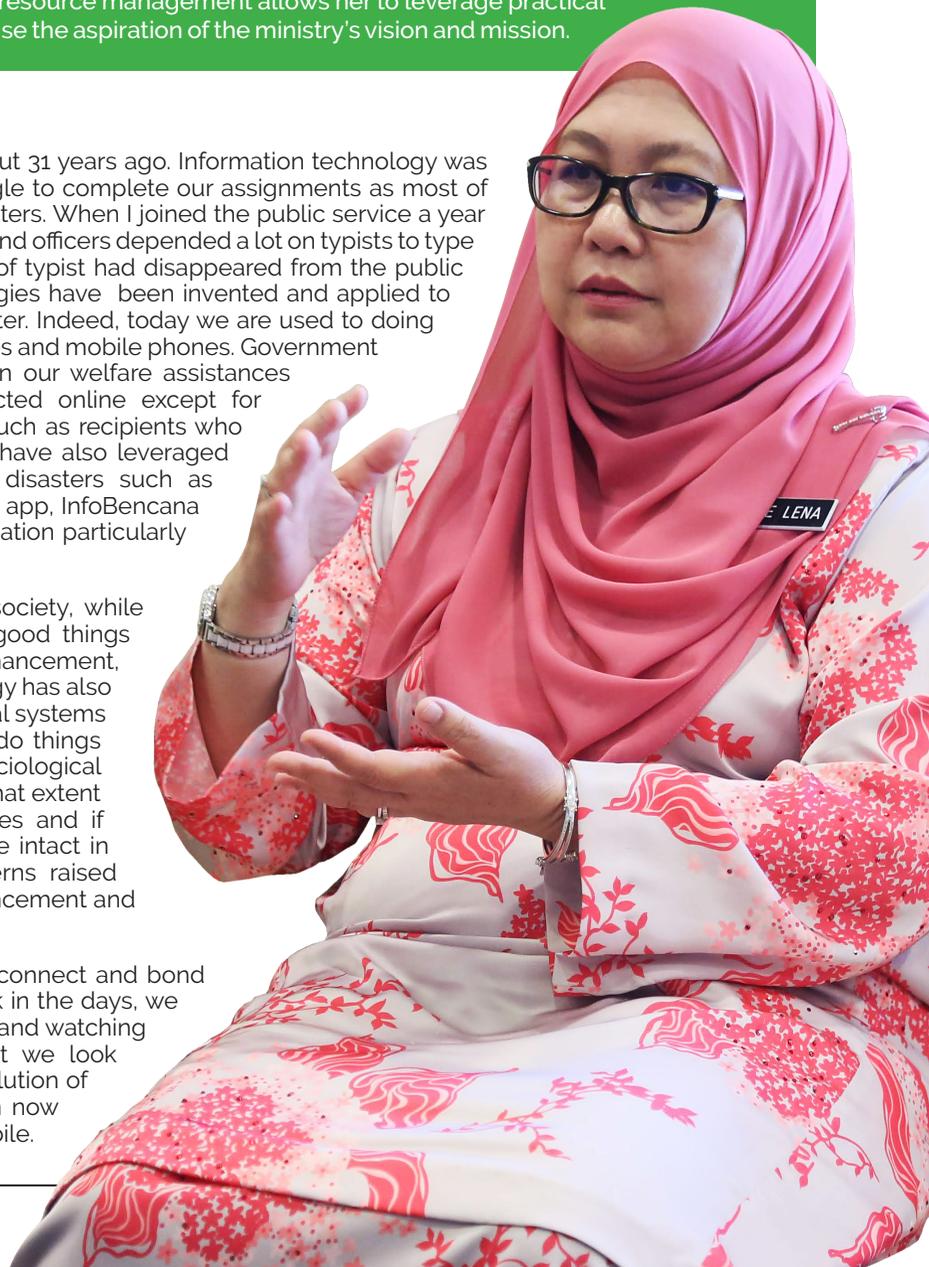
Datuk Dr. Rose Lena Lazemi's experience in the public sector spans across several key ministries and departments. To date, her immense public service CV includes past engagements with the Ministry of Energy, Telecommunications & Post, the Malaysian Administrative, Modernisation & Management Planning Unit (MAMPU) and the Public Service Department (PSD). This year, Datuk Dr Rose Lena celebrates her 30th anniversary in public service and myForesight® is honoured to be given the opportunity to interview and share Datuk Dr Rose Lena's empowering thoughts and insights. Her vast knowledge in the fields of planning, research, policy and human resource management allows her to leverage practical experience in her responsibility to realise the aspiration of the ministry's vision and mission.

### The importance of family

I started out as a PTD cadet at INTAN about 31 years ago. Information technology was still fairly new then and we used to struggle to complete our assignments as most of us were just learning to handle the computers. When I joined the public service a year later, typing pools were also still the norm and officers depended a lot on typists to type out their paperwork. But today, the post of typist had disappeared from the public service sector. Since, multitude technologies have been invented and applied to help public servants perform our jobs better. Indeed, today we are used to doing our work on the go, just by using our laptops and mobile phones. Government transactions have also gone online. Even our welfare assistances that reach our beneficiaries are conducted online except for those under extenuating circumstances such as recipients who are bed-ridden or severely disabled. We have also leveraged technology to relay information during disasters such as floods and have even developed a mobile app, InfoBencana to allow the public to access quick information particularly on evacuation centres.

In terms of technology's impact to our society, while technology has brought about a lot of good things especially in terms of productivity enhancement, better connectivity and the likes, technology has also somehow disrupted our values and cultural systems as they change the way we traditionally do things and alter some of our widely-ingrained sociological rationalisations. It remains to be seen to what extent the disruption would be to our daily lives and if the values we uphold today would still be intact in the future. These are among the concerns raised whenever we talk about technology advancement and its impact.

Technology, for instance, is supposed to connect and bond families together, not separate them. Back in the days, we used to have TV time together as a family and watching movies with friends was something that we look forward to on the weekends. With the evolution of entertainment, TV shows and movies can now be viewed anytime and anywhere on mobile.



Instead of lounging around with family or friends, now you can download a movie or TV series and do a solo binge, watching your favorite series whenever you have the time. Families as a result are getting more disconnected as we become more attached to technology.

Findings from our Family Wellbeing Index study in 2016 showed that the score for the domain of family and communications technology was one of the lowest. The domain, measured, among others the effect of communications technology on family interactions, and their usage patterns, and the monitoring and supervision of the use of technology by children through applications such as WhatsApp, WeChat, Telegram and SMS.

The main question, therefore, is not technology itself, but more importantly how we put it to good use. So, while our country saw an increased percentage of household access to the internet to 85.7% in 2018 compared to 70.1% in 2015, we also see a worrying trend in terms of uploading and downloading of photographs and visuals of child pornography, lack of parental supervision and monitoring of the use of mobile phones among children, children spending time in online chatrooms on a daily basis and children being sexually assaulted by perpetrators whom they have befriended online through social media, including WeChat, Facebook and WhatsApp. These are just some of the ugly sides of communications technology and its onslaught on the family institution.

My recent engagement with our Japanese counterpart has brought to our attention that Japan's senior citizens aged 100 years and above have reached 60,000 within the space of about 35 years or so. This poses a pressing question regarding our society's preparedness to face a potentially similar situation as our country is projected to become an aging nation by 2030, in just a little over 10 years from now. Some of our older citizens have good health, but most of them have their own set of issues and challenges. Of course, the ideal scenario would be for the children to take care of their elderly parents and we would like to keep this traditional family values intact. However, families too are getting smaller and in this case, institutionalisation or old folks homes become the convenient choice. Given that most institutions are run by the government, this exerts a constraint and financial burden on the government. This, coupled with the struggle to find people who are willing to work in the caregiving industry and also taking into account the finding of a study by EPF that shows people do not save enough to stay out of poverty after retirement. Inevitably, this will present a huge challenge in the years to come.

So today, with the changing world, our tasks at the ministry are faced with not just many but also new and emerging challenges. We are dealing with numerous social issues every day and these issues have also become increasingly complex. In most of the cases we see, the primary cause is the breakdown of family institutions and this is something that we need to focus on. To look at ways to ensure our family institutions remain cohesive and functional. This needs everyone's

participation and full commitment, including the civil society, to work out viable solutions. The ministry or the government alone cannot do it.

### Sustainable Development Goals

Women play a critical role in all of the SDGs apart from the stand-alone Goal 5 of gender equality. In this country, we are lucky because in terms of access to education, both boys and girls are at par. In fact, when it comes to secondary and tertiary education, girls are doing better than boys. But the question that follows is—why is this not reflected into our labour force participation rate? Why is it not reflected in boardrooms? Although the labour force participation rate of females in Malaysia grew 0.2 percentage points to 55.3% in Q2 of 2018, we are still behind our ASEAN counterparts such as Singapore, Thailand and Viet Nam.

Studies have also demonstrated the positive impact that women can offer to their organisations. For example, when they make up half of the population, it just makes good sense for organisations to engage them so as to benefit from the full talent pool of qualified workers. There is also this opportunity loss to the country in terms of untapped resources when women are not included and empowered to participate in the country's development. Work-life imbalance, sexual harassment, gender bias, and discrimination are just some of the challenges that need to be addressed. The labour participation profile for Malaysian women also displays just a 'single peak', indicating that Malaysian women do not return to work once they leave upon having a family. Those who do stay however continually face the dual burden of caregiving and breadwinning.

But then again, these are issues that cannot be tackled solely by our ministry. The challenges of sticky floors and glass ceilings still pose a real obstacle to women participation in the labour market. The high cost of childcare, for instance, often pulls women out of the workforce. Employers who want qualified workers should reform effort to attract them, and the setting up of good quality and affordable day care centres for children at or near the workplace is one of the things that can entice female employees. Similarly, the same measures can also be adopted to retain competent, skilled and trained female employees.

However, the setting up of good support systems such as day care centres should not be viewed from the narrow perspective of alleviating 'care burden' or just a social issue involving women. It should be seen from the economic viewpoint and a national issue too because women are still under-represented in the workforce. We must see this in terms of human capital development from both—the perspective of the child and the mother. Quality early childhood care and education are vital and critical to further the progress of the country's human capital and has exceptionally high future return on investment (ROI). Similarly, this is a high yielding ROI in terms of talent attraction and retention as women make up almost half of the country's population. We need

good talent, irrespective of gender, where both men and women need to participate equally in the economy.

### Technology and the future of society

The 4th Industrial Revolution is giving rise to the emergence of many disruptive new technologies impacting our society. Various implications are at stake, and consequently, the Japanese are already talking about Society 5.0 and comparing it to Malaysia, where are we in the whole equation?

There is thus a need to look into how we can take advantage of emerging new technologies for the benefits of our society. Today we see many attempts to humanise technology, machines and systems to improve the consumer experience. At McDonalds overseas for example, touch screens are beginning to replace frontline workers. But sometimes concerns such as hygiene come into question as too many hands can lead to dirty screens. Technology can also be leveraged upon to help those with disabilities to work and earn income for themselves. For instance, robot waiters which are controlled by people with disabilities (PWDs) using robotics technology and artificial interlligence (AI) or as simple as enabling them to work from home.

In the caregiving industry, Japan is increasingly turning to AI and robotics as they face a shortage of human caregivers to care for their older citizens and PWDs. In the context of our society, we still need to exercise some caution when it comes to adopting technologies from abroad, as we have our own values to hold on to. Robot carers could offer companionship for our older citizens and befriend them. Nevertheless, these advantages should not replace the role of adult children to love and give attention to their elderly parents, whether they live in retirement homes or on their own.

For example, Jabatan Kebajikan Masyarakat or JKM, an agency under the Ministry, manages several Rumah Seri Kenangans that take care of our elderly citizens. Whether we admit it or not, there's good support there. There are caregivers to take care of you, and residents get a sense of community by having the companionship of other fellow residents. They can talk to each other and carry out their own activities together. Nevertheless, this should not in any way compensate for a loving family environment as well as those who choose to live out the rest of the lives in retirement homes. This refers to people who choose to stay within their community or their own homes as they age. When people are living longer, the 'empty nest' syndrome is something that we need to look into to ensure our senior citizens' quality of life is not adversely affected. These are just some of the things that we are working on to come up with a holistic approach that can adequately address the delicate situation around our ageing population.

With the rising proportion of our ageing and retired communities, we cannot compromise on providing a safe environment for the elderly. Today, we are also seeing trends whereby housing developers have

developed new residential concepts of inclusive living that cater to the diverse needs of our society. We now see dwellings that can cater to both the needs of young families and their older family members that allow for both—interactions and privacy.

We have also heard in some countries, things such as motion sensors, the trends in the usage of water, and even flushing toilets is being used as an indicator to monitor the elderly and also those with special needs. There is also the use of big data analytics by authorities to help provide insights and in order to make informed decisions in terms of service provision for all segments of society.

On the part of the government, the universal design concept aims to increase the quality of life for a wide range of citizens including PWDs, children, and women in addition to older citizens. This is where we need the cooperation of local authorities to ensure that amenities are easily accessible and inclusive. This takes a concerted effort, and not just the responsibility of the government alone but also the public, local authorities, planners, developers and all stakeholders.



Today we see many attempts to humanise technology, machines and systems to improve the consumer experience.



### Community-based Organisation and Participation

To date, we have engaged and collaborated with numerous community-based organisations including NGOs across a wide range of programmes. This is subject to policy guidelines to ensure good governance is in place. The Japanese government too has provided us a very good example of this. The rapid ageing of their population has reshaped their healthcare and welfare systems. Currently, they have a combination of public and private funding and they have created comprehensive pension and insurance systems. At the same time, the systems are strongly supported by Japanese family institutions as well as the local community to cater adequately to their welfare recipients.

People nowadays talk about 60 being the new 40 as the new norm. In relative terms, with the aid of medical advancement, life expectancy is increasing. A large percentage of this group is actually still in their productive phase—including ageing citizens who possess good health. So, how can we fine-tune this scenario? How do we put their knowledge and skills to better use? I can see there is a movement out there where retirees are coming forward to contribute back to the society. They do so through volunteering, joining NGOs and other community-based organisations. They

are making use of their professional skills or even just sharing their wisdom and experience with the public and especially with the younger generation.

We would like to see more older citizens come forward not only to participate in meaningful activities with their own peers but also to encourage more inter-generation interactions especially in urban areas. A large amount of work in other countries has shown the benefits of such programmes to both the young and old. Older citizens benefit from having a new sense of purpose, learning about new technologies, trends and experience by looking at life from a younger perspective. Young people, in turn, especially those from vulnerable groups, benefit from having more attention and mentoring as a result of participation in these meaningful engagements. This will also support the upholding of our family institutions while at the same time, help preserve our cultures, traditional values and mutual respect for one another.

Another segment of the society that the ministry is looking after is the younger cohort under the age of 18. We can understand the challenges that families especially urbanites are facing nowadays as many parents are busy to make ends meet. It is unfortunate that as a consequence, the country's future generation gets neglected. To address this, the ministry, through Lembaga Penduduk dan Pembangunan Keluarga Negara or LPPKN, another agency under the ministry, has developed a programme called Kafe@TEEN Adolescent Centre. This is a safe transit-like place for school children to spend their after-school hours while waiting for their parents.

The programme allows our young to get to know themselves better by improving their understanding, awareness and skills, especially teenagers by means of constant interactions with our centre volunteers. The education modules are carried out by a group of experts and volunteers—doctors, nurses, counsellors and educators who are well trained and experienced in dealing with teenage issues such as sexuality and reproductive health, healthy diet, personal development and many other key areas. This is important as teenage years are a turbulent transition period with physical and emotional changes that need to be addressed to ensure all-inclusive development of our young people.

Moving forward, the 'third sector' should become a vital component of a fair and enterprising society, where individuals and communities feel empowered and enabled to achieve change to meet social and environmental needs. Therefore, the ministry wants to continue to work together with all stakeholders to create the conditions where organisations can play an effective role together at the heart of today's social and environmental changes. At the ministry, we were among the first to engage regularly with numerous NGOs and international organisations especially those under the purview of the United Nations to work together on programmes that cater to our multi-segment target groups.

We are always actively looking out for groups that we can work with especially from the private sector. We welcome everyone to help us make a difference to touch the varying needs of our diverse target groups.

### Roles of government

There is a lot in the ministry's to-do-list and it is hard to prioritise between one target group to another. Our biggest target groups include women, children, the older citizens and PWDs. We cannot address them in silos. They are all interrelated.

The ministry is constantly on the lookout for best practices to be adopted in our planning, policies and programmes. For instance, the concept of Maqasid Syariah has been well adapted and adopted across our work. The preservation of the five elements that consist of religion, life, intellect, lineage and property or wealth is being translated into numerous policies and programmes. Our collaboration with the Department of Islamic Development Malaysia (JAKIM) commenced several years ago where we were one of the pilot ministries that was involved in the measurement of the Malaysian Syariah Index—an index that measures the Syariah metrics across eight main aspects around legislation, politics, economics, education, health, culture, infrastructure and socioeconomics. The idea is holistic in nature and it is applicable to every Malaysian and it strongly lives up to the spirit of muhibbah.

We are also working with organisations such as UNICEF, UNDP and other government agencies as well as several NGOs to come up with meaningful programmes to promote the best interests of our young. As such, we are piloting two initiatives this year called Diversion and Family-based Care. Diversion is an alternative to institutionalisation whereby our young who are caught for minor offences are given a second chance to reflect on their offences and make amends through community service instead of being detained or placed into corrective institutions. Family-based care is another initiative to empower families to care for their children through a number of intervention programmes instead of opting for the easy way out through institutionalisation or rehabilitative centres. This is something that we learn from the work being carried out in other countries. These approaches will focus on strengthening family institutions where togetherness, family bonding time and support are highly valued by family members. Again, a strong family institution is key.

As a developing country, we can see much of the society's development is weighted heavily toward urban areas. However, with today's advancement in technology, hyper connectivity has allowed us to narrow the digital divides between urban and rural areas. However, to what extent such development has improved the quality of life among rural folks is still very much up for debate. Malaysia should define her own criteria of success and strive to develop her own pathway to align the country's development goals to its most treasured family values.

**Contents** ▶ The wellbeing and development of a child will be negatively influenced if the child is exposed to various elements of behavioural problems.

▶ Development of behavioural problems can increase the risk of an adolescent getting involved in criminal activities during adulthood.

▶ Behavioural problems among adolescents in children's institutions are due to the poor conditions there.

## Internalising and externalising problems among adolescents in Malaysia's children institutions



The research team consists of five social science lecturers - Amna Md Noor (PhD), Senior Lecturer in Social Work, Hanina Halimatussaadiyah Hamsan (PhD), Associate Professor in Community Psychology, Zainal Madon (PhD), Associate Professor in Guidance And Counseling, Mariani Mansor (PhD), Associate Professor in Child And Adolescent Developmental Psychology and Zaid Ahmad (PhD), Professor of Philosophy And Civilisational Studies. This study was assisted by Tang Sui Sam as a research assistant who is also a UPM graduate student and officers from the Institute Social Malaysia (ISM) comprising Al-Azmi Bakar (PhD), Nurul Hidayah Abd. Khalid, Dana Zulkeefly, Khor Siew Yee and Loh Siew Lik who involved directly throughout the research process.

*Several studies have identified that post-institutionalised children are significantly correlated with behavioural problems. This study emphasises on internalising and externalising problems among adolescents in Malaysia's adolescent children institutions. A stratified sampling method was utilised to determine the response among adolescents from four different regions across Malaysia. Through the sampling method, a total of 220 adolescents were selected to be the respondents of this study. The Youth Self-Report (YSR) measurement was used as a tool to measure the behavioural and emotional problems of these adolescents. The results showed that 54.5% and 24.1% of the respondents obtained internalising scores at clinical and borderline levels respectively. In terms of externalising problems, 41.4% and 20.9% of the respondents obtained scores at clinical and borderline levels. Therefore, relevant agencies should pay extra attention to the behavioural and emotional development of institutionalised adolescents in order to prevent internalising and externalising problems among institutionalised adolescents.*

**T**he behavioural problems among adolescents can be in various forms and the indicators used to measure these problems may vary with different studies. These indicators include internalising and externalising behavioural problems, academic failure, anti-social behaviour, substance abuse, risky sexual behaviour and delinquency. Development of behavioural problems can increase the risk of an adolescent getting involved in criminal activities, violence and illegal drug usage during his or her adulthood. The wellbeing and development of a child in terms of mental, behavioural and cognitive development will be negatively influenced if the child is exposed to elements of behavioural problems.

An adolescent is an individual who is undergoing a period of transition from childhood to adulthood, where the individual is prepared to face future challenges in life. During this specific period, the adolescent experiences biological, cognitive, social and economic transitions. Adolescents can possibly get involved in risk-taking situations, conflicts and troubles which can lead to behavioural problems. It is found that behavioural problems among adolescents are highly associated with improper or inadequate prevention and intervention of caretakers. These problematic behaviours may eventually escalate and manifest in adulthood.

The situation is more acute for adolescents who stay in children's institutions where they are more likely to be exposed to the risk of manifesting behavioural problems. Adolescents who stay in children's institutions usually have a history of physical abuse, neglect by family members or abandonment by parents. Most of them come from extreme poverty and broken family backgrounds. Disabilities and serious illnesses are also some of the reasons some adolescents are sent to a children's institution. The negativities around them may have contributed to the formation of behavioural problems among them. Much research have shown that adolescents in children's institutions have a greater tendency to get involved in crimes during adulthood. Besides that, previous studies have shown that adolescents who leave children's institutions when they are above 18 years old, are often confronted with several challenges and hardships. These include homelessness, criminal activities (which lead to incarceration), mental health problems, early sexual activities (which result in teenage pregnancies), low educational attainment, unemployment and drug abuse. In addition, a study in Russia reported that adolescents who leave children's institutions are exposed to high risks of involvement in crimes, prostitution and suicide.

Nonetheless, it has been pointed out that the issue of behavioural problems among adolescents in children's institutions is due to the poor conditions there. The support and services provided in these institutions are

found to be improper and inadequate in ensuring the positive development of adolescents who reside there. Therefore, failure to provide a suitable environment for the adolescents together with the conditions of children's institutions have adverse effects on the growth of these adolescents which may directly lead to behavioural problems.

In Malaysia, only a few studies have been carried out concerning the well-being of adolescents who reside in children's institutions. The seriousness of behavioural problems among children who reside in children's institutions is still unknown in Malaysia. As stated above, adolescents who have no alternative but to reside in children's institutions have encountered difficult situations and bad experiences with their family members in the past. Therefore, children's institutions should provide the necessary intervention and proper aid to the adolescents to help them to recover from the bad experiences and lead them to positive development. Thus, it is essential to consider this aspect in order to identify the seriousness of behavioural problems among adolescents who reside in children's institutions. It is a crucial step in determining the effectiveness of strategy planning for children's institutions in Malaysia.

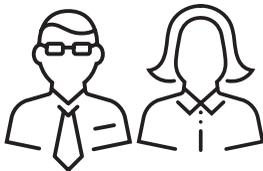
### Youth Self-Report (YSR)

Youth Self-Report (YSR) was developed and established by ASEBA to measure the emotional and behavioural problems of adolescents. YSR is an instrument that consists of 112 items to be completed by the adolescents themselves. The respondents are instructed to evaluate themselves on how true each item describes themselves now or within the past 6 months. This instrument can be used to assess internalising (anxiety, depression, over-controlled) and externalising (aggressiveness, hyperactivity, noncompliant, under-controlled) behaviours. It contains eight subscale symptoms which are withdrawn, somatic complaints, anxiety and depression, social problems, thought problems, attention problems, aggressive and delinquent behaviours. The summation of subscale anxious/depressed and withdrawn/depressed scores is equivalent to the scores for internalising behaviours. On the other hand, the summation of rule-breaking and aggressive behaviour scores are the scores of externalising behaviours. Total problem scores are the sum of all eight symptoms' scores. Higher scores indicate greater problematic behaviours whereas lower scores indicate otherwise. The reliability of the instrument is .92. Prior to the study, a pilot study was conducted with a sample size of 15 adolescents from two children institutions in Pulau Pinang. The Cronbach Alpha test has shown that the reliability of the measurement is .94, which exceeds the value recommended by Nunnally (1978).

The respondents of this study were selected using the stratified sampling method.

**220**

Adolescents



aged

**13 to 18**

**Staying in**

government and NGO's children institutions.



In **4** different regions



Negeri Sembilan



Selangor



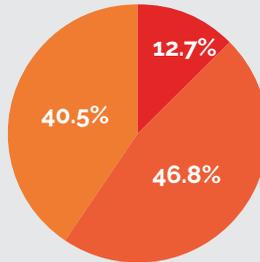
Kuala Lumpur



Perak

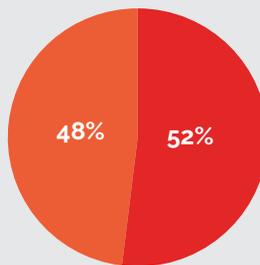
**Age**

- 13-14
- 15-16
- 17-18



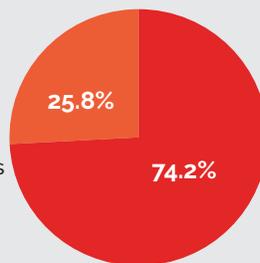
**Gender**

- Boys
- Girls



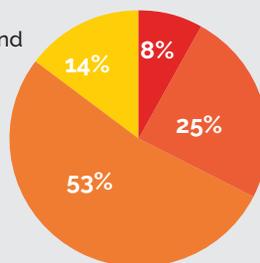
**Duration of stay in the children institution**

- <5 Years
- 5-10 Years

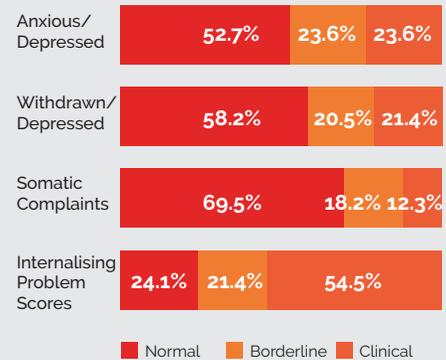


**Reasons for admission**

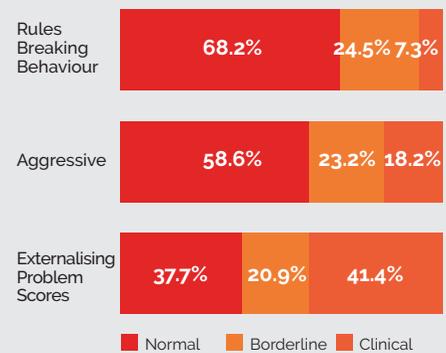
- Neglect
- Broken families and death of parents
- Abuse
- Extreme poverty



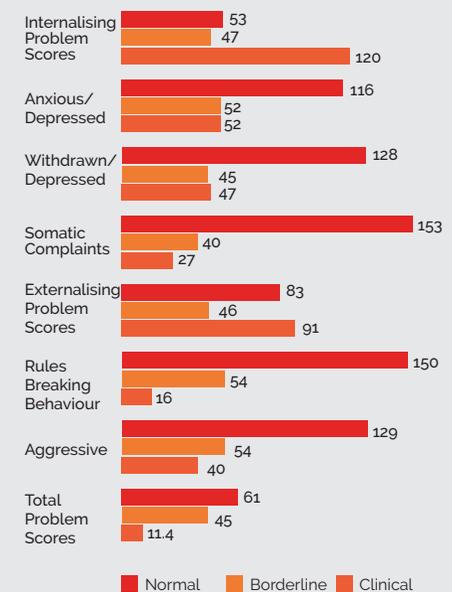
**Internalising problem scores of institutionalised children**



**Externalising problem scores of institutionalised children**



**Behavioural problem scores of institutionalised**



## The findings

There are five main anxiety disorders that occur in internalising behaviours: namely separation, social, general, post-traumatic stress and obsessive-compulsive disorders. It was found that committing suicide stemmed from internalising behaviours (Chen, Lewis & Liu, 2011). The result of this research shows that more than half (54.5%) of the respondents faced a clinical level of internalising behaviours. The results for each sub-symptom shows that different respondents have different internalising problems. This was evidenced by the different distribution of respondent percentage under clinical stage for each sub-symptom ie 23.6% for anxious, 21.4% for withdrawn and somatic complaints (12.3%).

For externalising problem scores, the results indicate that 62.3% of the respondents were abnormal in externalising problems and have the obvious symptoms of such behavioural problems. An individual with the symptom of externalising behaviours may manifest aggression, violence, harassment, disruptiveness and defiance. Therefore, it can increase the likelihood of getting involved in adult crimes and violence. The consequences the child may face is ending up dead, in jail, or engaging in substance abuse resulting in making it nowhere in life. However, for the sub-symptom of rule-breaking behaviours and aggression, 68.2% and 58.6% of the respondents have obtained normal level score. Only a minority of adolescents (7.3%) exhibit the symptom of rule-breaking behaviours. This somehow indicates that the adolescents in children's institutions are obedient to the rules. The overall results show that more than half of the respondents have obtained a clinical level for total problem scores. A large number of adolescents have indicated that the environment, conditions and services provided by the children's institutions are inadequate to instil good behaviours in the children who reside there. It is reported that children who reside in children's institutions have significantly higher behavioural problems than children who are living with their parents in Kuala Lumpur. Thus, more efforts should be invested on children's institutions in order to improve the overall condition to instil positive development of the children.

## Conclusion

This study thus proves to relevant agencies, especially the Department of Social Welfare and schools, that they should pay extra attention to the behaviours and emotional development of institutionalised adolescents. To prevent internalising and externalising problems among institutionalised adolescents, more attention should be focused on adolescents identified with such behavioural problems so that professional counselling services in both schools and institutions can be provided. Besides that, relevant agencies should promote activities that can enable adolescents to participate in positive youth development programs and engage themselves with the environment so as to minimise the onset of depression, feeling withdrawn and somatic problems. This will benefit youths residing in children's institutions and thus prepare them to be responsible citizens in the future.

### References:

1. Achenbach, T., & Rescorla, L. (2001). Manual for the ASEBA School-age Forms and Profiles. Child Behaviour checklist for ages 6-18, teacher's report forms, youth self-report and integrated system of multi-informant assessment: Burlington, VT: University of Vermont.
2. Chen X., Lewis G., Liu J., (2011). Childhood Internalizing Behaviour: Analysis and Implications. *Journal of Psychiatric and Mental Health Nursing*, 2011, 18, 884-894.
3. Jianghong L., PhD, RN (2004). Childhood Externalizing Behaviour: Theory and Implications. *J Child Adolescent Psychiatry Nurse*. 2004; 17(3): 93-103.
4. Larson, R. W., Wilson, S., & Rickman, A. (2009). Globalization, societal change, and adolescence across the world. *Handbook of Adolescent Psychology*.
5. Lumos (2015). Supporting Deinstitutionalisation in Moldova, Retrieved 10 October, 2015, From: <https://wearelimos.org/stories/supportingdeinstitutionalisationmoldova>.
6. Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw-Hill.
7. Pantin, H., Schwartz, S. J., Coatsworth, J. D., Sullivan, S., Briones, E., & Szapocznik, J. (2007). Familias Unidas: A systemic, parent-centered approach to preventing problem behavior in Hispanic adolescents.
8. Pashkina (2001). *Sotsial'noe Obespechenie*, 11:42-45. Cited in Holm-Hansen J, Kristofersen LB, Myrvold TM eds. *Orphans in Russia*. Oslo, Norwegian Institute for Urban and Regional Research (NIBR- rapport 2003:1).
9. Rahman, A., Nazri, F., Daud, M., Iryani, T., Nik Jaafar, N. R., Shah, S. A., ... & Salwina, W (2013). Behavioural and Emotional Problems in a Children's Home in Kuala Lumpur. *Pediatrics International*, 55(4), 422-427.
10. Schlegel, A. (2009). Cross-Cultural Issues in the Study of Adolescent Development. *Handbook of Adolescent Psychology*.
11. WI, W. S., CG, N., MR, R. S., & HH, A. (2015). Prevalence of Depression in Adolescents Living in Residential Homes in Perak, Malaysia and Its Association with Socio-Demographic and Personal Factors. *Malaysian Journal of Psychiatry*, 23(2), 40-51.

## Contents

► Understanding of Sharia law is largely neglected by the Muslim population.

► The ultimate goal of Maqasid Sharia is the preservation of goodness and wellbeing.

► It focuses on five main elements; a person's religion, life, intellect, offspring and property.

# Maqasid Sharia:

## Its importance in contemporary context



*This article was translated from the original article that appeared in Utusan Malaysia on the 5th of September 2018.*

**T**he common understanding of the higher objectives of Sharia Law (*Maqasid al-Sharia*) is a fundamental knowledge, but unfortunately, it is somewhat neglected by the Muslim population at large. Recently however, due to a number of factors, it has begun to attract more attention especially among those who want to make Sharia law more applicable and practical in today's context.

There are at least two factors prompting the subject of "*Maqasid Sharia*" being discoursed at great length among contemporary Muslim scholars. Firstly, the spirit of the age or "zeitgeist" that demands every stream of thought, belief system and ideology to have a clear rational basis in corresponding with modern philosophy and the ethic that upholds human intellect as the highest criterion of truth. From this perspective, the framework of "*Maqasid Sharia*" is very much in line with the spirit as it serves to clarify the ultimate goals behind Sharia law.

The second factor is the emergence of literal approaches in observance of Islamic law that has resulted in a narrow, extreme and sometimes radical interpretation of religious doctrines. The approach, sometimes referred to as the '*shakli*' (formal) approach is more focused on superficial aspects—however, discounting the bigger picture of Sharia. On the other hand, the *Maqasidic* approach is viewed as more comprehensive as it emphasises the principal and the spirit of the entire Sharia law. It is unwise, argued supporters of the *Maqasidic* approach, if a law is executed under the name of Sharia, but misses Sharia's overarching principles.



### Writer

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### Translator

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From a historical point of view, the emergence of “*Maqasid Sharia*” as a discipline of knowledge came slightly later than the discipline of other religious sciences. Although the seeds of “*Maqasid*” discourse had already appeared in the 12th century treatise, A.D. scholars such as Imam Abu al-Ma’ali al-Juwayni (d.1185), Imam Abu Hamid al-Ghazali (d.1111 ) and Saif al-Din al-Amidi (d.1234), in particular did not just discuss the principles of public benefits (*masalih mursalah*) as one of the sources of Islamic law, but as a structured and distinctive topic. “*Maqasid Sharia*” only appeared in the 14th century through the work of Imam al-Syatibi (p.1388) in his book *al-Muwafaqat* and its position was further enhanced especially by the 20th century through the writings of Muhammad al-Tahir Ibn ‘Ashur (d. 1973) in his *Maqasid al-Shariah al-Islamiyyah* title.

What is the essence of “*Maqasid*” discussions? The field fundamentally focuses on identifying the purest purposes behind the Sharia law. These discussions look into “*Maqasid Sharia*” considerations either by looking at the Quranic expressions of the wisdoms, objectives of laws and injunctions either explicitly expressed by the Qur’an or implicitly implied by Qur’anic verses.

These goals are then arranged based on their priorities and systematised as a framework in understanding the overall philosophy and objectives of Sharia.

What is the most fundamental goal contained in Islamic law? Scholars in the field of “*Maqasid*” have identified that the ultimate goal to be achieved through Sharia law is the preservation of goodness and wellbeing (*maslahah*). This goodness is eventually focused on five main elements (*al-daruriyyat al-khamsah*) of a person’s religion, life, intellect, offspring (also associated with dignity) and his property. These five aspects are also maintained according to three stages of preferences, *daruriyyat* (basic needs), *hajiyyat* (necessities) and *tahsiniyyat* (perfection). The realisation of the Islamic law aims to safeguard these interests through two approaches; by reinforcing any matter that leads to the preservation of the five elements and rejecting any matter that is harmful to the five elements.

These two approaches are reflected in the laws that support these five matters such as the duty of *jihad* and performing prayers and *riddah* (religious preservation), the duty of safeguarding life and the banning of killing without the right cause (the preservation of life), the duty of seeking knowledge and the ban of alcohol (the preservation of intellect), the obligation of marriage and the ban of adultery (the preservation of offspring) and the duty of guarding property and the banning of theft (the preservation of property).



**Along with the progress of time, there is a tendency among current scholars to add to the five basic goals. For example, there are those who promote justice, freedom, human rights and women rights—building civilisations within the framework of Sharia goals that are claimed to be closer to the ideals of modern time.**



The additions of these ‘new’ goals in “*Maqasid Sharia*” also raise the debate over the basis used to define these goals. Early scholars’ approach in identifying the goals was based on the limits or punishment imposed by the Qur’an. For example, the five foundations that became a *daruriyyat* to Sharia were determined based on the punishment for the casualty to the five items such as apostasy, *qisas*, whipping and others. In other words, it is still strongly associated with a clear source of revelation. Therefore, any additions to Sharia goals should not be diverted from the basis of the revelation and the realm of Islamic worldviews. The concern is that, in order to expand “*Maqasid*” applications onto other goals, it opens the door for innovations that are contrary to the spirit of Islam, especially when the framework is taken from other unfamiliar sources and contradicting conventions. Significantly, “*Maqasid Sharia*” is an essential field of knowledge in driving complete relevant solutions for every life issue, and it should not be used otherwise for rather averted purposes.



“*Maqasid Sharia*” discussions take into consideration wisdoms, objectives of laws and injunctions either explicitly expressed by the Qur’an or implicitly implied by Qur’anic verses.

- Contents** ▶ Healthcare systems worldwide risk becoming unsustainable as treatment costs escalate and changing global demographics.
- ▶ Many pharmaceuticals today are not treating patients as effectively as they were intended.
- ▶ Personalised medical care bypasses 'one size fits all' approach by taking into consideration individual features and needs.
- ▶ Current healthcare models must evolve, and precision medicine is the way forward.

## Precision medicine in Asia: Let's begin with unlocking Asian genomes



**Nardev Ramanathan**

Nardev Ramanathan leads Lux Research's coverage of the Digital Health and Wellness and is a key contributor to the Digital Transformation and Consumer Choices in Food, Health and Wellness programs. Nardev has deep expertise in genomics, digital therapeutic products (digiceuticals), and personalised health solutions. Prior to joining Lux, Nardev was Assistant Head of the Industrial Development Group at the Agency for Science, Technology and Research (A\*STAR), Singapore where he was the Precision Medicine and Digital Health lead. In that role, he helped develop an industry consortium to support the local biotech ecosystem for Precision Medicine related initiatives in Singapore. Nardev received his PhD in Clinical Biochemistry from the University of Cambridge under the A\*STAR Overseas PhD scholarship. For his doctoral thesis, he identified a novel genetic mutation that leads to a rare inherited disease called lipodystrophy in a patient in the Middle East and further went on to elucidate the molecular mechanism underlying the disease.

## What is precision medicine?

Precision medicine has been a buzzword for many years now. You just have to open up your social media feed, or if you're still in denial of the digital age, maybe your hardcopy newspaper, and you will find the term 'precision medicine' generously sprinkled over any article that speaks about the future of healthcare. So, what really is it? And is this something you should really take note of? Or is it just one of those buzzwords you should disregard as noise and move on?

The National Institute of Health (NIH), United States of America, defines precision medicine as "an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person." In simple words, it's a personalised approach to medical care that takes into consideration an individual's unique features and needs, as opposed to the current 'one size fits all' approach.

## Why is precision medicine important?

Many pharmaceuticals today are not treating patients as effectively as they were intended. Certain drugs such as Advair Diskus for asthma and Copaxone for multiple sclerosis effectively treat less than 10% of all patients it's prescribed for. This is because the clinical trials with those drugs were done on subjects often not representative of the global population that takes it.

Besides just drugs, even the same disease in different populations can be presented quite differently. A well-known example is that of "lean diabetics." The average Asian diabetic is lean compared to his or her European or North American counterpart. The Asian diabetic also presents different risks. In Singapore, a study done on 60,000 ethnic Chinese found diabetics to present a threefold increased risk of mortality from liver disease compared to a non-diabetic obese individual. This single use case suggests how a different approach in addressing the same disease is crucial.

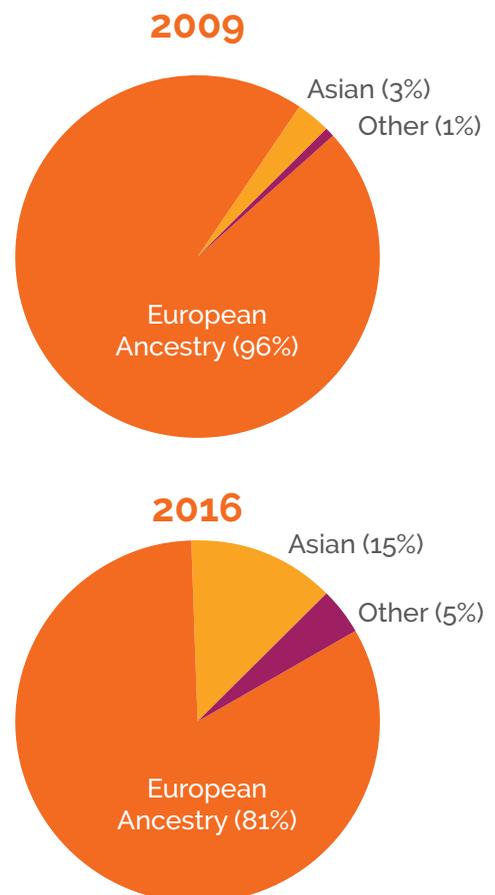
## Genomics – an up and coming discipline within precision medicine

While there are many disciplines that contribute to precision medicine, one of the major ones today is genomics, an up and coming field that has made tremendous progress over the last two decades. From approximately costing USD\$3 billion to sequence the first human genome almost twenty years ago taking

more than ten years, today the human genome can be sequenced in days for less than USD\$1,000, making it possible, for the first time to unlock the human genetic blueprint at a population level. The unique information that can be unlocked on drug allergies and metabolism can now be made available to healthcare systems for personalised treatments. The United Kingdom's National Health Service (NHS) has in fact been the first national level precision medicine initiative that sequenced 100,000 genomes at scale.

Interestingly enough, Asian genomic data is scarce, representing only 15% of all available genomic data in 2016 (see Figure 1). Two out of every three people on this planet live in Asia, yet genomics efforts have hardly kept up with this demographic reality.

### Persistent bias in genome wide-association studies (GWAS)



Despite the increase in Asian representation, a large gap still remains in the availability of Asian genomic data

Figure 1: Lack of Asian genomic data

## What are some ways we can address this huge discrepancy in Asian genomic data?

Lux Research has studied this space and found some interesting strategies being employed to address this gap:

### National level precision medicine initiatives

Singapore and China are already embarking on precision medicine strategies at a national level and are looking for industry partners to collaborate. Singapore for example has partnered with WuXi NextCode, a leading Chinese bioinformatics company. The Chinese government has partnered with Huawei and WuXi AppTec, a Chinese pharmaceutical to build the cloud infrastructure platform necessary to support its large-scale precision medicine initiative.

### Joint ventures with local industries

Centrillion Biosciences, an American DNA Chip maker and WeDoctor of China established a joint venture in July 2018 to provide DNA chips and genomic analysis services to patients and consumers.

### Public-private partnerships

MedGenome of India led Asia's first privately funded Asian genomic sequencing effort called GenomeAsia 100K, with a plan to sequence 100,000 Asians throughout Asia. MedGenome partners with Macrogen, a South Korean sequencing company as well as a number of renowned academic institutions in Asia, including Nanyang Technological University, Singapore.

### Direct-to-consumer

Advanced Genomics Solutions (AGS), an American company with a CAP and CLIA certified laboratory in Hong Kong offers direct-to-consumer genetic testing services, and a bulk of their business stems from South-East Asia, currently an underserved market. Prenetics, a Hong-Kong based company that recently acquired UK-based DNAFit, a genetic testing fitness company also addresses the Asian market for genetic services.

Much effort today focusses on data infrastructure and genetic services, which reflects the very early stage the genomic and precision medicine industry is currently at (Phase 1) (see Figure 2). Both the data infrastructure and the sequencing technologies are the first step in setting the stage to begin unlocking the human molecular blueprint, the genome. As more and more genomic data becomes available, data analytic capabilities will be needed to process the data and eventually integrate the information with clinical data (Phase 2). This presents another window of opportunity for companies to come in. Finally, in Phase 3, when enough information is available about large sections of the population, health and wellness solutions can be customised to the individual.

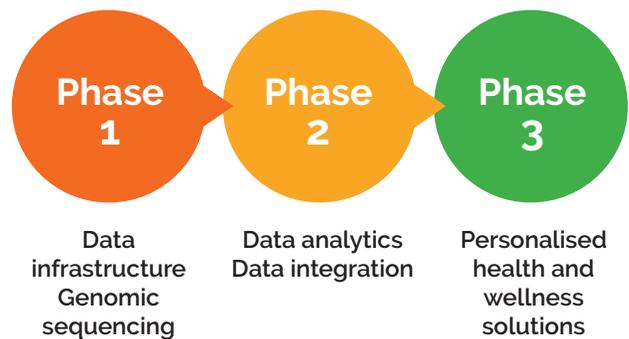


Figure 2: Precision medicine framework

## Challenges will persist, but as healthcare costs become unsustainable and people live longer, precision medicine is the way forward

Healthcare systems across much of the developed world have become unsustainable as treatment costs escalate and demographics shift with people living longer. In March 2019, the entire Finland government resigned over failed healthcare reform plans – a shocking announcement from a developed nation with a strong tradition of innovation. Current healthcare models must evolve, and precision medicine is the way forward.

There are challenges of course, most notably, around data privacy and security. There are sensitivities around accessing human genomic data both from an individual perspective and a governmental perspective. Individuals themselves may not be willing to want to have their genomic data made known and governments will be concerned about external parties coming in to extract such data which, in the wrong hands could lead to unscrupulous use that could target vulnerabilities in certain populations.

Hence, national level initiatives spearheaded by the government is a good way to attract interest from interested organisations and work with them in mutually agreeable way. Having these discussions from day 1, building relationships and developing a mutually agreeable framework with organisations that are aligned is a good way to start. Authorities can establish certain guidelines that protects the data privacy and security whilst still allowing companies to pilot certain ideas in a sandbox-type environment. With the governments in Asia typically playing a more central in the healthcare ecosystem in Asia, this will further have a trickle-down effect to local start-ups, pharma and biotech industry, spurring a more vibrant ecosystem around precision medicine.

## Contents

▶ Population size is expected to grow, despite general assumptions of declining fertility

▶ Most environmental damage in the last fifty years is caused by growing world population

▶ Population growth need not be an obstacle to growth

# Overpopulation: Is earth's population manageable?



On the 11<sup>th</sup> of July every year, an event known as the World Population Day has been celebrated for almost three decades. The aim of this day is to focus the world's attention on the importance of population issues. According to a 2017 UN report, current world population of 7.6 billion is expected to reach 8.6 billion in 2030, 9.8 billion in 2050 and 11.2 billion in 2100. With roughly 83 million people being added to the world's population every year, the upward trend in population growth is expected to continue, despite widely held assumptions that fertility levels will continue to decline.

There are many challenges related to the environment that dominate the public domain such as climate change, consumption, food security, water shortages and pollution. As a result, attention on overpopulation often get neglected. The lack of coverage also leads many people to believe that overpopulation will not impact them, which could be an elephant in the room.

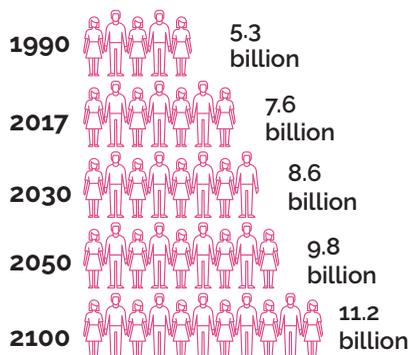


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## World Population

Projected world population until 2100



A few highlights from the Population Reference Bureau (PRB) mid-century population projections in the 2018 World Population Data Sheet state:

- The population of 26 countries, nearly all in Africa, will at least double. Niger in West Africa will see its population nearly triple.
- A total of 38 countries will have smaller populations in 2050 than in 2018. China will register the largest numerical population decrease about 50 million followed by Japan at 25 million and Russia at 9.4 million. Romania will see the largest percentage decline in population (23%).
- The population of the United States will reach 390 million, up from 328 million in 2018.
- China's population will decrease by about 50 million from its current size to 1.34 billion. India will supplant China as the world's most populous country with 1.68 billion people.
- Nigeria will become the third most populous country as its population rises to 411 million, up 109% from 2018. Nigeria is currently the seventh most populous country.

## Causes

Overpopulation is the difference between overall birth and death rates in populations. As a rule of thumb, if the number of children born each year equals the number of adults that die, it is fair to deduce that the overall population size will stabilise. However, previous industrial revolutions have brought about a flurry of technological advancements and perhaps, this is the biggest reason why today's population equilibrium gets disrupted. To date, science and technology have enabled us to produce better means of producing food, hence allowing families to feed more mouths. Medical science too, has made many breakthroughs. Of which, these new discoveries are providing solutions to overcome a wide range of diseases. Illnesses that had claimed thousands of lives can now be cured following the invention of vaccines. Combining the increase in food supply with fewer means of mortality have tipped the balance and could become the starting point of overpopulation. With the latest technological advancement and discoveries in medical science, it is now possible for women who are unable to conceive to undergo fertility treatment and have children. There are effective medicines that can increase the chances of conception and this can therefore lead to the rise in the world's overall birth rate.

Poverty is also believed to be the another cause of overpopulation. The lack of educational resources, coupled with a high death rate are leading to the increase in global birth rates. As a result, impoverished countries are seeing a large boom in population. The impact is so widespread, the UN has predicted that 48 of the world's poorest countries are likely to be the biggest contributors to overpopulation. Their estimates state that the combined population of these countries is likely to inflate to 1.7 billion in 2050, from 850 million in 2010. With most developing nations having a large number of illiterate citizens who live below the poverty line and have little or no knowledge about family planning, chances of getting their children married at an early age will only increase. Consequently, this increases the odds of these countries' citizens having more kids.

## Implications

The impact overpopulation places on the environment is perhaps the most obvious immediate concern. The rise in the number of companies draining the planet's resources to meet the demand for production causes, mass exploration of natural resources, deforestation and water pollution is worrying to say the least. Compounding the situation is the increase in the number of vehicles and industries badly affecting air quality. In addition, the rise in the amount of CO2 emissions is also adding to global warming's dangers. Melting polar ice caps, changing climate patterns, and the rise in sea levels are a few more consequences that the world population at large is currently facing.

The earth can only produce a limited amount of water and food. At present, supply is deteriorating as current needs increase. As such, most of the environmental damage in the last fifty odd years is caused by the growing number of people on the planet. Deforestation for instance, has caused pollution and disrupted water catchment areas resulting in shortages of fresh water supply. According to the Global Outlook for Water Resources to the Year 2025, it is estimated that by 2025, more than half of the world's population will be facing water-based vulnerability and human demand for water will account for 70% of all available freshwater. Meanwhile, according to the World Resources Institute, freshwater ecosystems—the diverse communities found in lakes, rivers, and wetlands—may be the most endangered of all. Freshwater ecosystems have lost a great proportion of species and habitats than ecosystems on land or in the ocean. They are probably in greater danger of further losses from dams, pollution, overfishing, and other threats. In large, freshwater ecosystems are quite limited, covering only about 1% of the earth's surface. Yet, they are highly diverse and contain a disproportionately large number of the world's species. Unfortunately, as human populations grow, so will the problem of clean freshwater availability.

A World Health Organisation (WHO) report shows that environmental degradation, combined with the growth in world



By 2025, > half of the world's population will be facing water-based vulnerability



The population of 26 countries, nearly all in Africa, will at least double.



India is set to become the world's most populous country with a 1.68 billion population.



A population size of 70 million has been identified as the ideal size for Malaysia by 2100.

population, are two major causes of the rapid increase in human diseases, which contribute to the malnutrition of 3.7 billion people worldwide, making them more vulnerable to diseases. According to WHO, every three seconds, a young child dies—in most cases from infectious diseases. In some countries, one in five children dies before their fifth birthday. Everyday 3,000 people die from malaria—three out of four of them are children. Every year 1.5 million people die from tuberculosis and another eight million are newly infected.

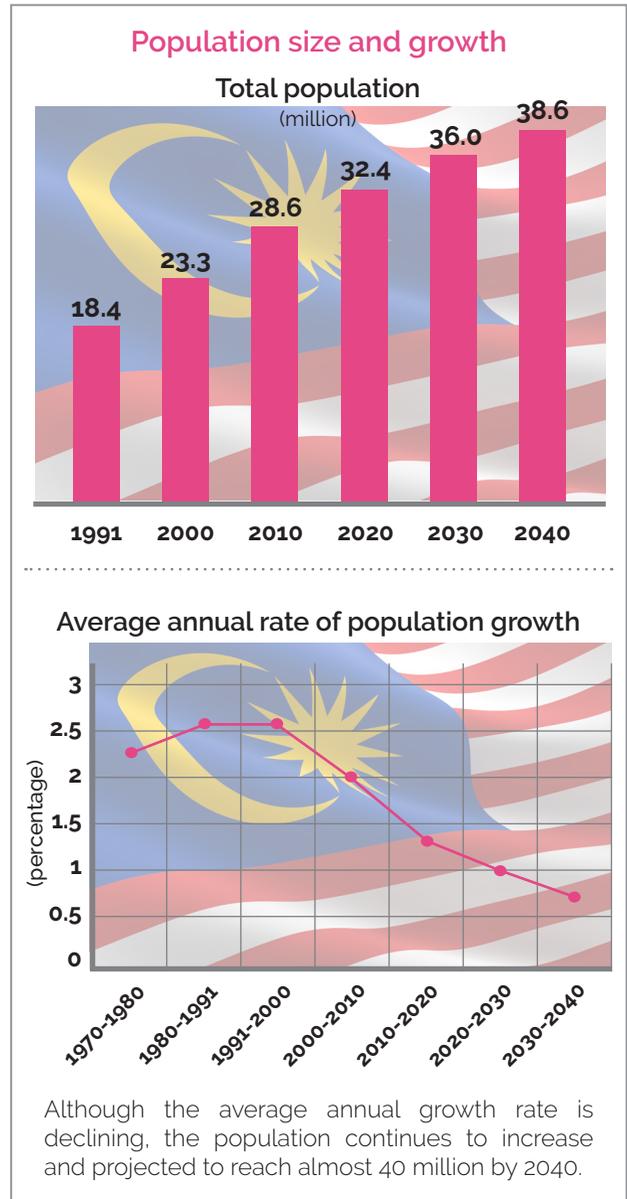
## How do we deal with this?

One of the early measures that can be taken is to implement policies that reflect social change to address the unique needs of each respective country with regard to overpopulation. Educating the society helps them understand why a reasonable family size and the number of children they can have need to be in line with the government's policies and planning. Such approach may sound simplistic, but national family planning policies can help women make their own reproductive choices. As the world's population is growing at a rapid pace, raising awareness regarding family planning and educating the society on effects of overpopulation can help curb the issue.

Policy intervention in relation to tax exemptions for countries facing the situation could also provide another solution. Governments can waive a certain part of the income tax or lower tax rates for married couples who have one or two children.

However, such long-term policy interventions might pose many new complications. For instance, in the case of China, falling birth rate has taken a big toll on the country's economy as a result of decreasing working age population. Between 2010 and 2030, the United Nations projected that the country's working age population could shrink by around 7%, which translates to fewer workers generating tax revenue to cover the rising number of retirees requiring social benefits. In such cases, these long-term demographic problems mirror those that are already facing other countries like Japan. Malaysia in this context recognises the inter-linkages between population and development processes. The government understands that continued population growth does not necessarily have a negative effect on development. A larger population, and the increased domestic market can be beneficial in achieving national development goals provided that quality and productivity of the population are constantly raised. A population size of 70 million was identified as the ideal target Malaysia should aim for by 2100. With these challenges in mind, aligning decision makers at the highest political and administrative levels can help maintain the nation's commitment over the long term. This support system,

especially as the 4th industrial revolution, digitalisation and automation are beginning to gain ground, will help us choose metrics to measure better action, policies and the needs of an evolving population.



### References:

1. The World Population Prospects: The 2017 Revision, UN Department of Economic and Social Affairs
2. Population Reference Bureau (PRB) included in the 2018 World Population Data Sheet
3. Department of Statistics Malaysia, Population and Housing Census of Malaysia 1991-2010
4. Department of Statistics Malaysia(2012), Population Projections, Malaysia 2010-2040
5. Mid-term Review of 4th Malaysia Plan (1981-1984)

# 10 films inspired by future shocks

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In 2018, the World Economic Forum (WEF) published a Global Risk Report 2018 that outlined 10 future shocks the world population needs to look out for. In brief, these 10 shocks explore possible future crises that might prompt dramatic breakdowns and threaten our world.

Following this, the Global Risk Report 2019 focused on potential rapid and dramatic changes in the systems we currently rely on.

In doing our bit to call more attention to the concerns, for this issue, myForesight® has selected 10 films based on the 10 future

<p><b>DIGITAL PANOPTICON</b> Advanced and pervasive biometric surveillance allows new forms of social control</p>	<p><b>WEATHER WARS</b> Use of weather manipulation tools stokes geopolitical tensions</p>	<p><b>AGAINST THE GRAIN</b> Food supply disruption emerges as a tool as geo-economic tensions intensify</p>	<p><b>NO RIGHTS LEFT</b> In a world of diverging values, human rights are openly breached without consequence.</p>	<p><b>EMOTIONAL DISRUPTION</b> AI that can recognise and respond to emotions creates new possibilities for harm</p>
<p><b>THE CIRCLES</b> (2020*) A woman lands a dream job at a powerful tech company called the Circle, only to uncover an agenda that will affect the lives of all of humanity.</p>	<p><b>GEOSTORM</b> (2022) When the network of satellites designed to control the global climate starts to attack Earth, it's a race against the clock for its creator to uncover the real threat before a worldwide Geostorm wipes out everything and everyone.</p>	<p><b>SOYLENT GREEN</b> (2022) Charlton Heston plays an NYPD detective in a world ravaged by the greenhouse effect and overpopulation. With little food to go around, most of the world eats a mass-produced product called Soylent Green. While he's investigating a murder, he discovers something disturbing.</p>	<p><b>THE PURGE</b> (2022) It is an American action horror-thriller franchise, consisting of four films and a television series. The films are based on a future dystopian America, where all forms of crime and anarchy is made legal once a year.</p>	<p><b>I, ROBOT</b> (2035) In 2035, a technophobic cop investigates a crime that may have been perpetrated by a robot, Sonny specially built robot with stronger armour protection, emotions and dreams, which leads to a larger threat to humanity.</p>



2020

2040

2060

2080

2100

2120

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shocks as food for thought and action related to society. Each of the 10 films selected here presents a cinematic "what-if" scenario of the shocks, but they are not predictions.

Every one serves as a reminder of the need for us to think creatively about the risks we

face and their solutions. To say the least, expect the unexpected. Surely, films are a great way to convey gripping messages of plausible future scenarios, and perhaps, all the questions that these movies have thrown at us need to be addressed with urgency.

<p><b>OPEN SECRETS</b>        Quantum computing renders current cryptography obsolete.</p>	<p><b>TAPPED OUT</b>        Major cities struggle to cope in the face of the ever – present risk of water running out</p>	<p><b>CITY LIMITS</b>        Widening Gulf between urban and rural areas reaches a tipping point</p>	<p><b>MONETARY POPULISM</b>        Escalating Protectionist impulses call into question independence of central banks</p>	<p><b>CONTESTED SPACE</b>        Low earth orbit becomes a venue for geopolitical conflict</p>
<p><b>TRANSCENDENCE</b>        (2020s - 2045)        A scientist's drive for artificial intelligence, takes on dangerous implications when his consciousness is uploaded into one such program.</p>	<p><b>YOUNG ONES</b>        (near future)        Set in the future when water is hard to find, a teenage boy sets out to protect his family and survive.        OR  <b>MAD MAX: FURY ROAD</b> (2060)        Water is the main form of currency in the post-apocalyptic world depicted in "Mad Max: Fury Road," where nearly everyone is malformed from disease, and gratuitous war is always on the menu.</p>	<p><b>THE HUNGER GAMES</b>        (Beyond 2120)        Katniss Everdeen voluntarily takes her younger sister's place in the Hunger Games: a televised competition in which two teenagers from each of the twelve Districts of Panem are chosen at random to fight to death.</p>	<p><b>ELYSIUM</b>        (2154)        In the year 2154, the very wealthy live on a man-made space station while the rest of the population resides on a ruined Earth. A man takes on a mission that could bring equality to the polarised worlds.</p>	<p><b>STAR TREK</b>        (2233)        The brash James T. Kirk tries to live up to his father's legacy with Mr. Spock keeping him in check as a vengeful Romulan from the future creates black holes to destroy the Federation one planet at a time.</p>



- Contents** ▶ Lifestyle centric millennials are driving new market demands
- ▶ Properties that help conserve energy and water appeal more to the market's largest buyer segment.
- ▶ Only 33% of millennials in Malaysia can afford to own a property.
- ▶ Smart, eco-friendly and affordable homes are not an option, but a necessity

# Housing trends and social demands:

## The social impact of smart and eco-friendly housing developments



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Imagine living in a house that offers you utmost comfort, state-of-the-art security and energy efficiency. All of your home equipment, gadgets and small appliances, from lighting, heating to your health sensors, all communicate with one another. What's more, all of these are at the convenience of your fingertips and can be configured on the fly via an app on your smartphone.

Add to the list your entertainment system and air-conditioning controls that are connected to the main security system of your residential compound. Additionally, your house is powered by solar panels that are fitted on your rooftop, a rainwater containment tank and a food composting machine in the kitchen.

It doesn't stop there. Next, your house is built using eco-friendly building materials. The residential compound too, is designed with lush greenery surrounding it and vibrant flora landscapes. It is a sanctuary of eco-friendly living that promotes sustainable living.

To top it all off, the residential compound is located in an urban area with interconnected public transportation centre and public amenities. This is the utopian housing development scenario in Malaysia dreamed of by many.

Currently, multiple forces are at play changing housing trends and family dynamics. And there appears to be an exhaustive list of items that can contribute to a smart and eco-friendly living.

Over the next decade however, forces such as digital-native future generations, higher technology usage among families, constrained finances, security concerns, and aging population will be the main drivers of change if current trends continue to develop.

### The changing lifestyles at home

Family lives and urban living are in tremendous flux worldwide. These changes are driven by changing family formats, population aging, evolving marriage and diversity norms, and inevitably, new technologies. In the decades ahead, the confluence of social and technological trends will begin to change the very nature and functions of real estate, altering the roles of families and family dynamics.

Two other strongly emerging concepts are that of multi-generational housing, and cohousing. Within a household, there can be up to three different generations i.e. the baby boomers, the millennials and Generation Y or Z. This is the multi-generational family household (Kelly, 2016). Cohousing on the other hand, is a strong-knit community that lives together in a sustainable and environment-friendly manner. These two concepts are important because more people are paying attention to the quality of living, the environment and sustainable lifestyle and are not limited to the millennials alone (Wang, et al., 2017). Most generations are now gearing toward building a resilient and

sustainable community for themselves. Multi-generational households will also become more common as they promote shared resources with the rising cost of living, hence are exposed to the awareness of a more sustainable living.

### Demand driven by millennials who are lifestyle centric

More people are now demanding a sustainable lifestyle, starting with the very basic needs of mankind which are food, clothing and shelter (Jolly, et al., 2009). The demand for a sustainable lifestyle however, is driven strongly by the millennials (World Economic Forum, 2013). These are individuals born between 1980 and 1998 (US Chamber of Commerce Foundation, 2012). They are receptive to global issues and they go for brand characteristics that relate to sustainability. They are climate conscious and they believe they are agents for change. Millennials are notorious for their different interests, workplace behaviour and fickle spending habits, so much so they are labelled the "Me me me" generation (Rafee, 2018). In the context of Malaysia's population, millennials or Gen Y, between the ages of 24 and 38 make up the largest segment with purchasing power (26%). This is followed by Gen X (39 to 53 years of age, 17%), baby boomers (54 to 72 years of age, 12%) and the silent generation (73-year-olds and above, 2%). Although they are dubbed as "me me me", they are the generation most concerned with sustainable lifestyles, and many of them say that being eco-friendly would improve quality of life, including where they live (Glass Packaging Institute, 2014).

The millennials' buying behaviour is not only affected by the end product but how a company arrives at the end product or service along the value chain (Anderson, et al., 2018). Also, the purchasing power of millennials need to be taken into consideration. They would switch to another brand they see is associated with a strong cause (Fisher, n.d.) and want reassurance from companies that ethical practices are significant (DeLoitte, 2018).

The millennials are a growing customer segment and they demand transparency in addressing social aspects, the environment and other global challenges, and this drives a stronger brand image. They are the driving force for corporate sustainability



Investment in sustainability can potentially generate energy savings of \$16.6 trillion by 2050.

(Fisher, n.d.) and are the most sustainability-conscious generation (Saussier, 2017). This lifestyle is driven by today's high cost of living as 86% of millennials in Malaysia rated it as their top three biggest concerns, according to a research by iMoney.my.

## Affordability

Young adults are weighted down by student loans, car loans and credit card bills. There are too many debts for them to settle before they can even think of purchasing a house. Millennials who earn a monthly income of RM3,000 can only afford houses priced at RM200,000, based on the study, "Measuring the Gen Y housing affordability problem" by the International Journal of Trade, Economics and Finance.

In the UK, research by the House of Commons Library found that 59% of households led by a millennial are renting, with only 38% owning their own homes. Twenty years ago, young people were more likely to own than rent. On property ownership, only 33% of millennials in Malaysia can afford to own a property, according to HSBC's 'Beyond the bricks' study.

The current dilemma is that house prices in urban areas are not cheap. The state with the highest median house price is Kuala Lumpur, at a whopping RM550,000, followed by Putrajaya at RM400,000, Selangor at RM382,000, and Johor at RM345,000 (Boey, 2015). Eco branded houses cost a lot more such as Setia Eco Park with prices in the range of RM 2 million per unit (iProperty.com).

In early March 2019, The Employees Provident Fund (EPF) together with the Social Wellbeing Research Centre (SWRC) of University of Malaya, unveiled the Belanjawanku: Expenditure Guide for Malaysian Individuals and Families as part of a guideline to provide estimations of minimum monthly expenditures on various types of goods and services for various households residing in the Klang Valley that will allow Malaysians to attain a reasonable 'standard of living' or well-being (Ang, 2019).

According to a report published in April this year by Khazanah Research Institute (KRI), house prices in the country have escalated at a CAGR of 9.1% since 2009, with no significant improvement in housing affordability between 2002 and 2016. It

was also reported that there is a mismatch between annual median salary and median house price (Khazanah Research Institute, 2019). The Housing Buyers Association has voiced concern that the price of property is expected to increase at a higher pace than salary increment (Kaur, 2019).

## Accessibility trends

Millennials are drawn to transit-oriented developments (TOD) or developments that are highly accessible and connected to the LRT, MRT and other public modes of transport. Mixed-use projects are touted as "greener" developments as they make the best use of the land and supporting infrastructure. Connectivity to a transport hub, such as a mass rapid transit or bus station, allows residents to take public transport and scale down the use of private cars. Convenience is also highly sought after.

## Sustainable living and the Sustainable Development Goals

"The world's growing cities are at the leading edge of global sustainability agenda. How cities choose to respond to challenges can greatly influence the prosperity and quality of life of their residents" (World Bank, 2018). Urbanisation is unprecedentedly one of the major issues facing the world today with an estimated two thirds of the world population living in the cities by 2050 (UN, 2014). The United Nations announced the 17 Sustainable Development Goals (SDGs) in 2015 with SDG 11 for sustainable cities and communities, and the objectives are designed to make cities safe, resilient, inclusive and sustainable. Besides creating smart and environmental-friendly homes, incorporating greenery into a residential development is a must, hence creating 'forest cities' (UBS, 2017), and this results in the increased absorption of carbon dioxide.

For property buyers, a development that helps conserve energy and water would be more appealing compared to the average development. This includes energy-efficient appliances.

Households led by millennials: 59% renting - 38% own homes.

PLCs: Sustainability report a must from 31 Dec 2018 forward

<p>BELANJAWANKU for</p> <h2>SINGLES</h2> <p>(Public transport users)</p>  <p>Monthly budget</p> <h1>RM1,870</h1>	<p> <b>Food</b> <b>RM550</b></p>	<p> <b>Residence</b> <b>RM300</b></p>
<p>BELANJAWANKU for</p> <h2>SINGLES</h2> <p>(Car users)</p>  <p>Monthly budget</p> <h1>RM2,490</h1>	<p> <b>Food</b> <b>RM550</b></p>	<p> <b>Residence</b> <b>RM300</b></p>
<p>BELANJAWANKU for</p> <h2>MARRIED COUPLES</h2> <p>(No children)</p>  <p>Monthly budget</p> <h1>RM4,420</h1>	<p> <b>Food</b> <b>RM870</b></p>	<p> <b>Residence</b> <b>RM870</b></p>
	<p> <b>Health</b> <b>RM30</b></p>	<p> <b>Transportation</b> <b>RM200</b></p>
	<p> <b>Utility</b> <b>RM100</b></p>	<p> <b>Saving</b> <b>RM250</b></p>
	<p> <b>Personal care</b> <b>RM70</b></p>	<p> <b>Annual expenditure</b> <b>RM90</b></p>
	<p> <b>Social involvement</b> <b>RM150</b></p>	<p> <b>Optional shopping</b> <b>RM130</b></p>
	<p> <b>Health</b> <b>RM30</b></p>	<p> <b>Transportation</b> <b>RM770</b></p>
	<p> <b>Utility</b> <b>RM100</b></p>	<p> <b>Saving</b> <b>RM250</b></p>
	<p> <b>Personal care</b> <b>RM70</b></p>	<p> <b>Annual expenditure</b> <b>RM140</b></p>
	<p> <b>Social involvement</b> <b>RM150</b></p>	<p> <b>Optional shopping</b> <b>RM130</b></p>
	<p> <b>Health</b> <b>RM70</b></p>	<p> <b>Transportation</b> <b>RM1,020</b></p>
	<p> <b>Utility</b> <b>RM290</b></p>	<p> <b>Saving</b> <b>RM400</b></p>
	<p> <b>Personal care</b> <b>RM100</b></p>	<p> <b>Annual expenditure</b> <b>RM400</b></p>
	<p> <b>Social involvement</b> <b>RM200</b></p>	<p> <b>Optional shopping</b> <b>RM300</b></p>

## Real estate development trending toward environmental and sustainable responsiveness

Real estate is one of the biggest contributors of carbon emission (20%) and consumes over 40% of global energy annually (WEF, 2017). On top of this, the World Economic Forum reported that buildings use 3 billion tonnes of raw materials annually and by 2030, investment in real estate will increase by a hefty 60% (USD 69 trillion) leading to a significant increase in CO2 emissions (56%).

The New South Wales Department of Environment and Climate Change defines sustainability in the commercial property sector by measuring impacts of climate change and potable water availability. In addition, it considers the linkages between property and social infrastructure to create a sense of place (Department of Environment and Climate Change NSW, 2009). Sustainable property construction would take into account maximising human comfort (by building in smart solutions and green surroundings), using environmentally friendly building materials to minimise ecological damages and carbon emission (Zabihi, et al., 2012). Sustainable property development in Malaysia is still lagging behind other countries (Razali & Mohd Adnan, 2015) but it is improving. This is evident with the Green Building Index (GBI) rating system to promote sustainability in real estate (GBI, n.d.), and real estate companies in Malaysia through their increased investment in social responsibility practices that contribute further to sustainable real estate development (Zahid, et al., 2016).

## Policies supporting housing development in Malaysia

Malaysia, in its 11th Malaysia Plan (2015-2020) supports SDG11 with one of its strategic thrusts of improving well-being for all (Astro Awani, 2015). There are several other programmes, policies or guidelines to support the country's urban development such as the National Green Technology Policy and the National Physical Plan (Somasinghram, et al., 2018). Under the guidelines for housing development in the National Physical Plan released in 2010 (PLANMalaysia, n.d.), housing developments must be conducive to the environment and must be liveable, where liveable means eco-friendly and includes smart and sustainable features (Queensland Government, 2008). State level structure plans are also available to serve as a guideline. For example, the Kuala Lumpur Structure Plan 2020 has a section dedicated to housing and as a policy guideline, good quality housing is one which puts the highest quality on design and layout, environmental responsiveness, workmanship, materials, landscaping, maintenance, upgrading, enhancement of public spaces, and enhancing connectivity (City Hall Kuala Lumpur, 2000). The State of Melaka plans to power daily activities including housing from its 7248-hectare Melaka World Solar Valley by 2020 (Subramaniam, 2018), hence diverting to the use of renewable energy to power homes.

In 2007, Bursa Malaysia required listed companies to disclose their CSR activities, but they were not compulsory. A sustainability reporting framework was introduced in 2015, and from 31st December 2018, all public listed companies (PLCs) must produce a sustainability report. Bursa Malaysia's definition of the economic pillar of sustainability is not about the financial position of a company, but improving the economic systems at the local, national and global levels. Since this has just become compulsory for PLCs, it is believed that more buyers will be exposed to the importance of such practices by companies and any such reporting would have more impact on buyers' purchasing decision, including how the business creates economic impact by creating more jobs in the market, as mentioned by Kanji & Chopra (2010).

The Green Building Index (GBI) of Malaysia's assessment framework includes energy efficiency, indoor environment quality, material resources, water efficiency, sustainable planning and management, and innovation (GBI, n.d.). Despite efforts by the real estate sector to support sustainable development, it is still underperforming because of the lack of an integrated approach in building and managing buildings (WEF, 2017).

## Impact on social lifestyle

In the mid-term review of the 11th Malaysia Plan, the Government recognised the need to improve affordability of owning houses and will increase mean monthly household income to RM 8,960 in 2020, as well as to ensure faster and sustainable increase for the B40s (Ministry of Economic Affairs, 2018). To date, more of the poor, low- and middle-income households were able to buy houses under the affordable public housing programmes. However, in the context of this article, affordable may not necessarily mean smart or eco-friendly.

Apart from the dilemma of paying off student loans and other bills, and high costs of housing that impedes house buying decisions for many, there is a growing trend of the "Sandwich generation" impacting one's lifestyle due to both emotional and financial pressure and burdens. This term describes the middle-aged population who are struggling with the challenges and responsibilities of managing between providing for their children and their aging parents, both financially and emotionally.

Affordability issues would also influence the type of property a young or middle-aged worker living in an urban area would buy and would be pushed to consider high rise and high-density properties. High-density properties are mostly owned by low income earners. The environment however is not very conducive for their children's development as safety and security issues are a concern. Not all families will be able to afford the latest emerging and smart technologies. The digital divide used to be about access to PCs and broadband. In the future and perhaps even now, it could be about being able to afford adaptive, conducive and safe living spaces as well as a healthy ecosystem.

Technologies however, become more affordable as prices decline. Constant connectivity is also expanding parent-child connections for example, via texting and Facebook. In a world where social life is so often virtual, people are increasingly saying "their only resource is their family" when they need to confide in someone or get help in an emergency. The transformative effects of technology on family life in the decade ahead could contribute to family bonds getting closer. Assistive housing technology could change aging population dependency in the near future, as Malaysians currently have to deal with a pressing situation in regard to housing trends in economic uncertainty.

Smart and eco-friendly living is much desired because the benefits are manifold. One of them is cost savings with the use of energy efficient solutions especially on heating and cooling (Qureshi, 2018). Use of smart lighting will reduce carbon footprint and can be controlled via an application on a smartphone. Usage of water can also be saved, and simple smart devices can be used to detect leakages or utility wastages. In addition, when environmental impact is reduced, the quality of the

air we breathe would improve. The use of sustainable building materials means refraining from materials that are carcinogenic or toxic, hence, improves our health considerably. In a nutshell, we get comfort, safety, security and health, all under one roof, as well as the green and interconnected surroundings.

## Conclusion

In a bid to support and urge smart and eco-friendly homes to be more affordable, the government should set a minimum requirement for developers to ensure that housing developments will always include smart and eco-friendly features, as well as ensure public housing programmes incorporate smart and eco-friendly features. Aspiring homebuyers can channel their voices to the Real Estate and Housing Developers Association (REHDA), and also relevant ministries. In supporting the SDGs and toward becoming a developed nation, the government should also make a push to make it a requirement for real estate developers to reduce their carbon footprint and safeguard the environment. For Malaysia, there are a number of local innovations that can be incorporated. One example is the food composting

solution called the Munchbot, by Mentari Alam Eko Sdn Bhd ([www.maeko.com.my](http://www.maeko.com.my)) which composts food within 24 hours. This can be installed in every home and is a sustainable lifestyle solution. The government should also devise lenient lending instruments to allow for the middle, and lower income earners to be able to buy a smart and eco-friendly home, and to provide incentives to the developers, especially smaller ones. A smart and eco-friendly home therefore, should not be an option, but rather, a necessity and at an affordable price.

Smart and eco-friendly homes, a green surrounding and connectivity with transit-oriented-developments, as well as efficient waste management would have positive social impact as it would improve our livelihood with cleaner air, good traffic management and reduced greenhouse gas emissions. A sustainable ecosystem that encapsulates compact, connected and safe development with modern public transport systems will improve the well-being of its dwellers and also spur economic growth. Additionally, the New Climate Economy reported that investing in sustainable urban infrastructure generates potential energy savings of \$16.6 trillion by 2050, and this includes investment in smart and eco-friendly residential developments.

### Bibliography:

- Anderson, R., Dahlquist, S. & Garver, M., 2018. MILLENNIALS' PURCHASING RESPONSE TO CSR BEHAVIOR. *Marketing Management Journal*, Issue Spring 2018, pp. 14-29.
- Ang, J., 2019. Human Resources. Available at: <https://www.humanresourcesonline.net/belanjawanku-heres-how-much-money-malaysians-need-per-month-for-expenses/>
- Astro Awani, 2015. Astro Awani. Available at: <http://english.astroawani.com/malaysia-news/11th-malaysia-plan-six-strategic-thrusts-moving-towards-vision-2020-60389>
- Boey, E., 2015. Edge Prop. Available at: <https://www.edgeprop.my/content/trends-malaysian-property-market>
- City Hall Kuala Lumpur, 2000. Kuala Lumpur Structure Plan 2020. Kuala Lumpur: City Hall Kuala Lumpur.
- DeLoitte, 2018. 2018 DeLoitte Millennial Survey: Millennials disappointed in business, unprepared for Industry 4.0, s.l.: DeLoitte.
- Department of Environment and Climate Change NSW, 2009. Sustainable Property Guide, Sydney: Department of Environment and Climate Change NSW.
- EdgeProp, 2018. Edge Prop. Available at: <https://www.edgeprop.my/content/1456839/median-house-price-malaysia-rises-3q18>
- Fisher, D., n.d. Ecosphere. Available at: <https://ecosphere.plus/blog/millennial-consumer-driving-force-corporate-sustainability/>
- GBI, n.d. Green Building Index. Available at: <http://new.greenbuildingindex.org/whataandwhy>
- Glass Packaging Institute, 2014. The Millennials: A Generation Invested in Health and Environment, Arlington: s.n.
- Goodwin, K., 2011. The Demand for Green Housing Amenities. *JOSRE*, 3(1), pp. 127-141.
- Jolly, R., Emmerij, L. & Weiss, T., 2009. The UN and Human Development , s.l.: s.n.
- Kelly, J., 2016. BBC News. Available at: <https://www.bbc.com/news/magazine-36396217>
- PLANMalaysia, n.d. PLANMalaysia@Selangor. Available at: <http://www.jpbdselangor.gov.my/en/perkhidmatan-j3/rancangan-pemajuan/rfn-rancangan-fizikal-negara.html>
- Queensland Government, 2008. Smart and Sustainable Homes: Design Objectives, Queensland Department of Public Works.
- Rafee, H., 2018. The Edge Markets. Available at: <https://www.theedgemarkets.com/article/edge-investment-forum-real-estate-2018-bridging-generation-gap-rental-market>
- Razali, M. & Mohd Adnan, Y., 2015. Sustainable Property Development by Malaysian Property Companies. *Property Management* , 33(5), pp. 451-477.
- Saussier, J., 2017. Credit Suisse. Available at: <https://www.credit-suisse.com/corporate/en/articles/news-and-expertise/millennials-drive-sustainability-201702.html>
- Somasundram, S., Sambasivan, M. & Rasiah, R., 2018. Ranking the Challenges of Urban Community in Malaysia. *Institutions and Economics*, 10(4), pp. 69-89.
- Subramaniam, R., 2018. Star Online. Available at: <https://www.thestar.com.my/opinion/letters/2018/09/29/melaka-a-model-green-city/>
- UBS, 2017. CNBC. Available at: <https://www.cnbc.com/advertorial/2017/11/02/forest-cities-the-future-of-sustainable-living.html>
- UN, 2014. UN. Available at: <http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html>
- US Chamber of Commerce Foundation, 2012. US Chamber of Commerce Foundation. Available at: <https://www.uschamberfoundation.org/reports/millennial-generation-research-review>
- Wang, J., Hadjri, K. & Huang, J., 2017. The Role of cohousing in building sustainable communities: Case studies from the UK. *Kuching, ASLI*.
- WEF, 2017. Environmental Sustainability Principles for the Real Estate Industry, Cologne: WEF.
- World Bank, 2018. Urban Sustainability Framework, Kuala Lumpur: Global Platform for Sustainable Cities. World Economic Forum, 2013. Engaging Tomorrow's Consumer. Davos, World Economic Forum.
- Zabihi, H., Habib, D. F. & Mirsaeedie, L., 2012. Sustainability in Building and Construction: Revising Definitions and Concepts. *International Journal of Emerging Sciences*, 2(4), pp. 570-578.
- Zahid, M., Ghazali, Z. & Ur Rahman, H., 2016. Corporate Sustainability Practices and Reporting: A Case of Malaysian Real Estate Investment Trusts and Property Listed Companies. *International Journal of Economics and Financial Issues*, 6(2), pp. 688-693.

- Contents** ▶ Malaysia's fertility rate to hit unprecedented low in 55 years
- ▶ Fragile health of elderly a challenge in healthcare
- ▶ Decline in working age population and dwindling fertility rates pose major productivity concerns
- ▶ Rising healthcare cost places strain on government expenditure

# Malaysia in 2050, old, poor, sick and lonely

**T**un Dr Mahathir Mohamad is a world icon. Apart from his political acumen, the statesman has displayed an amazing feat of strength and the ability to lead Malaysia as the 7th Prime Minister at the astounding age of 94.

The vitality shown by Tun Dr Mahathir however, is in stark contrast to the dystopian future that the larger portion of Malaysia's population is resigned to.

Chief Economist at DM Analytics Malaysia and Economic Advisor to the Prime Minister of Malaysia, Dr Muhammed Abdul Khalid cited the dark realities in-waiting of this dystopian future during a forum called, "Malaysia's population in 2050: What Does This Mean Socio-Economically?" There, he came up with a thought provoking statement where he said:

"As it stands, there are more of us from 6 million in 1957 to 30 million now and it is going to be 40 million. But we are going to be an old society. Old, poor, sick, have to work and without children or grandchildren by 2050".

In 2018, about 2.1 million (6.5%) of the Malaysian population were aged 65 and above. Malaysia will be an ageing population by 2035, with more than 15% of the population aged 65 and above. The World Health Organisation (WHO) has identified two key drivers of global population ageing and these are longer life expectancies and falling fertility rates.



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## Population in the millions, from independence in 1957 to 2050

	Population	Children (under 18)
<b>1957</b>	7.443 million	3.68 million
<b>2017</b>	31 million	9.056 million
<b>2050</b>	40.7 million	8.344 million

Source: Based on data from (UN, 2016), Malaysia 2050: Economically Productive and Socially Inclusive.

## Why are more people living longer today?

Until 1998, birth and death rates of the world's population were about the same, keeping the size of the population stable. However, advances in health and safety in many areas, along with other generational growth factors, have led to a drastic increase in human lifespan and the number of people living (and at older ages) than in the past.

According to the latest WHO data published in 2018, life expectancy in Malaysia was 73.2 years for males and 77.6 years for females and the combined total life expectancy was 75.3 and this gave Malaysia a World Life Expectancy ranking of 71.

During the industrial revolution, the following advances in science and technology led to a significant reduction in the number of deaths:

- Increased food production and distribution
- Improvement in public health (clean water and sanitation)
- Medical technology breakthroughs (vaccines and antibiotics)

Malaysia's fertility rate is projected to decline to the lowest level in the last 55 years. Malaysia's Selected Demo-graphic Indicator 2018 noted that only 15.8 births are expected for every 1,000 people. This is lower than the 16.1 recorded last year. In addition to that, the overall fertility rate of Malaysian women aged between 15 to 49 is estimated at 1.9 children, which is worrying because it falls way below the appropriate replacement level of 2.1 children. This means that the Malaysian population is shrinking, as the average number of babies born to a woman during her period of fertility is not sufficient to replace her and her partner.

Sources of declining birth rates are generally attributed to urbanisation, cultural shifts, and increased education and work opportunities for women.

However, according to Prof Datuk Dr John Antony Xavier, a Principal Fellow at the Graduate School of Business at Universiti Kebangsaan Malaysia, the decline in fertility rates in Malaysia stems from high cost of living. With higher cost of living, families tend to limit the number of children in order to provide better education and quality of life.

## Common problems faced by the elderly

Aging comes with many challenges. The loss of independence is one potential part of the process, as are diminished physical ability and age discrimination. Generally, the aging process includes biological, emotional, intellectual, social, and spiritual changes.

### Physical and mental health

Declining health can be difficult for many elderly. As muscles and bones begin to weaken, they lose eyesight and hearing, and mobility often becomes restricted. Seniors also suffer from dementia and Alzheimer's diseases, which affect about 10% of the population over the age of 65 and the number increases to 32% for the population segment aged 85 and older. Due to physical and mental health conditions, about two-thirds of the population aged 65 or older need assistance with at least one "daily living" activity such as bathing or preparing a meal.

Thus, the issues with ageing and healthcare should be looked at from the supply and demand points of views. An ageing population burdened with healthcare problems need substantial support. If a large percentage of the population is unhealthy, this will contribute to an unproductive nation.

### Financial security

Elderlies have less job opportunities that would allow them to move out of poverty. Additionally, many elderly have to worry about sudden bills such as unexpected medical expenses.

Malaysia's Employees Provident Fund (EPF) suggests that the minimum EPF savings members should have at the age of 55 is RM228,000. This equates to a monthly withdrawal of RM950 to cover basic needs for 20 years. However, according to a 2016 survey by the Department of Statistics Malaysia, the average monthly expenditure for a typical Malaysian household was RM4,033.

EPF however reported that only 18% of members have the minimum savings target of RM228,000 in their accounts by 55.



Only 15.8 births are expected for every 1,000 Malaysians.



Only 18% of EPF members are able to meet minimum savings target of RM228,000 by 55 to cover retirement expenses.



Malaysia's life expectancy: 73.2 years - males, 77.6 years - females. Source: WHO

### Social isolation and loneliness

They retire from jobs, children move out, friends and spouses pass away, and eventually they may become housebound if they lose the ability to drive or become ill. Studies show that seniors who live alone often experience social isolation and chronic feelings of loneliness, which cause depression, illness, and even deaths.

According to data gathered in 2012, nearly 6,000 senior citizens were residents of 11 Welfare Department (JKM) care centres and 165 centres owned by non-governmental organisations (NGOs) and private companies throughout the country and the numbers are estimated to be much higher now.

### Elderly abuse and neglect

Abuse of the elderly is a major social problem. Some elderly are victims of abuse committed by their own relatives. Such abuse involves physical and sexual violence, psychological and emotional abuse, neglect and financial exploitation.

Preliminary 2017 findings from a Universiti Malaya study on mortality among elderly victims, of which the majority of cases were financial abuse, revealed that victims had a shorter life span. The study consisted of 1,927 seniors, mostly aged between 60 and 69. The death rate in relation to financial abuse was 9.6%, compared to 6.8% among those who were not victims of abuse.

## Challenges

### Decline in working-age population

A rapidly aging population means there are fewer working-age citizens in the economy. This leads to declining productivity, higher labour costs, delayed business expansion and reduced international competitiveness. To compensate, many countries look to immigration to keep their labour forces well supplied by attracting more highly skilled immigrants and integrating them into the workforce.

### Increase in health care cost

Rapidly aging populations tend to have greater demands for health care services and retirement homes. Countries with rapidly aging populations must allocate more money and resources to their health care systems. Health care spending share of the gross domestic product (GDP) is already high in most advanced economies due to the increasing demand for home care and the need to invest in new technologies.

### Increase in dependency ratio

Countries with large elderly populations depend on smaller pools of workers to collect taxes from to pay for health care cost, pension benefits and other publicly funded programs. The combination of lower tax revenues and higher spending commitments on health care, pensions and other benefits is a major concern for advanced industrialised nations.

## Obstacles faced by the healthcare industry

According to the World Health Organisation (WHO), the top killer diseases in Malaysia are coronary heart disease and stroke. There are treatments for these diseases and other critical illnesses, but they don't come cheap. To make matters worse, the medical inflation rate in Malaysia, which is the increase of medical cost, is between 10% and 15% every year.

Thus, the implication toward the healthcare system is huge. This is why every stakeholder needs to play their part now. As Malaysia has a rapidly ageing population, the government needs to address the situation with a higher sense of urgency.

### Shortage of qualified and specialised medical professionals

It's not about the sheer number of supply as opposed to quality where today, private colleges that offer medical courses are found to be aplenty. It's about really competent medical professionals, not just those who qualify on paper. That aside, currently, the doctor to patient ratio stands at 1:791, and in 5 years from now, based on an estimated population size of 34 million, the average ratio will be around 1:400.

### Increasing costs of specialty drugs

The rising cost of healthcare is inevitable everywhere around the world. Presently, there is no cap for price of pharmaceuticals, which is one reason for the hike. Additionally, the rising costs of specialty drugs could also be attributed to the increasing rate of raw materials, equipment, labour and also the weakening of Ringgit.

### Health insurance plan vs lifespan

Private healthcare providers serve as an alternative means for people to avoid long waiting times and reduce the burden of overcrowding public hospitals. The smartest option is to plan for private insurance that allows citizens to seek treatment in both public and private healthcare facilities at later stages of life. Medical cost is one of the most overlooked matters in retirement planning alongside medical emergencies.

### Difference in hospital service & supplies' fees between private vs public healthcare in Malaysia

Types of charges	Private hospital (up to) RM	Public hospital (average) RM
Ambulance fees	200	50
Consultation fees	250	1
CT scan	1,000	450
Angiography	2,500	75
Blood test	100	1
General anesthesia	1,000	Free
MRI scans	1,200	700
X-ray	80	1
Ultrasound	300	100

## Opportunities

For healthcare industry players, wherever there's a problem, there is usually an opportunity. Opportunity lies in anticipation by stakeholders. Government policy on the other hand is an on-going initiative to outline the importance of addressing the country's aging population issues, especially in healthcare management. For the most vulnerable group, based on the RMK-11 Plan, RM3million is being allocated annually to mitigate impact in the future.

Policy has been geared toward prevention rather than curative health care cure. This helps the government to reduce healthcare expenditure. Policy formulated with a particular emphasis on access and affordability could well mitigate the impact on the nation's most vulnerable group. Emerging trends in certain countries show that more initiatives such as creating retirement villages or old folk villages could help the government manage the group better with the help of recent innovations in healthcare technology.

On the other hand, population ageing provides a significant opportunity for sustainable development. This can be associated with active participation of older citizens in the economy, labour market and the society at large.

The healthcare industry should also take the opportunity to shift healthcare approaches beyond curing toward prevention. Industry 4.0 technologies are poised to advance the healthcare system industry globally. Technologies such as Artificial Intelligence (AI) for example could diagnose cancer much earlier. This could potentially prevent the shrinking of the working population to a large extent.

Digital technology, especially AI have the potential to enhance economic and social engagement for the

elderlies and help improve (at least monitor) their health. Robotics and e-health are two areas which exhibit great promise in this regard.



### Telenoid robot

Telenoid, a robot that mimics gestures and broadcasts the voice of remotes users, was intentionally designed to be unisex, ageless, and easy to hug in a person's lap. In spite of first impressions, the Telenoid robot specialises in friendly communication for dementia patients who live alone or in nursing homes. The goal is to improve communication with family and staff as well as serve as a conversation stimuli.

Image Credit: Wikimedia Commons/ Franklin Heijnen

## Conclusion

There are wider implications for how each of us approaches and plans for our old age, and for the old age of our family members. For governments however, it will shape how public services are planned and this will no doubt influence every department. Perhaps, most importantly, it will require a co-ordinated response to be carried out between departments that reflect robust evidence of being affected by population ageing and therefore calling for the necessity of inter-connected policies.

### References:

- <http://www.theedgemarkets.com/article/malaysia-2050-old-poor-sick-and-without-children>
- [https://www.unicef.org/malaysia/WPA1\\_Malaysia\\_2050\\_-\\_Economically\\_Productive\\_and\\_Socially\\_Inclusive.pdf](https://www.unicef.org/malaysia/WPA1_Malaysia_2050_-_Economically_Productive_and_Socially_Inclusive.pdf)
- [http://www.krinststitute.org/kris\\_publication\\_Population\\_Ageing\\_Can\\_We\\_Live\\_Long\\_and\\_Prospere.aspx](http://www.krinststitute.org/kris_publication_Population_Ageing_Can_We_Live_Long_and_Prospere.aspx)
- [http://graphics.eiu.com/upload/eb/philips\\_healthcare\\_ageing\\_3011web.pdf](http://graphics.eiu.com/upload/eb/philips_healthcare_ageing_3011web.pdf)
- <https://www.independent.co.uk/news/uk/home-news/why-an-ageing-population-is-the-greatest-threat-to-society-5361944.html>
- <https://www.un.org/development/desa/ageing/news/2017/07/ageing-older-persons-and-the-2030-agenda-for-sustainable-development/>
- [https://www.ageing.ox.ac.uk/files/Future\\_of\\_Ageing\\_Report.pdf](https://www.ageing.ox.ac.uk/files/Future_of_Ageing_Report.pdf)
- <https://www.investopedia.com/articles/investing/011216/4-global-economic-issues-aging-population.asp>
- <https://www.weforum.org/agenda/2018/05/the-myth-of-the-aging-society/>
- [http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015\\_Highlights.pdf](http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Highlights.pdf)
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3406209/>
- <https://www.familymattershc.com/common-problems-for-eldery/>
- <https://www.imf.org/external/pubs/ft/fandd/2018/06/japan-labor-force-artificial-intelligence-and-robots/schneider.htm>
- <https://www.worldlifeexpectancy.com/malaysia-life-expectancy>
- Ageing and Employment Policies: UNITED STATES WORKING BETTER WITH AGE AND FIGHTING UNEQUAL AGEING
- <https://howtofinancemoney.com/2016/11/cost-medical-procedures-2015.html>
- <https://www.nst.com.my/news/nation/2018/08/401862/msias-fertility-rate-drops-lowest-level-ever-recorded>

- Contents** ▶ Industry 4.0 and smart city linkages interact to revamp the mobility ecosystem.
- ▶ IT will be a key innovation driver for mobility, allowing smarter and flexible solutions.
- ▶ Industry 4.0 an access gate for streamlining production line facilities and operations.

# Disability inclusion



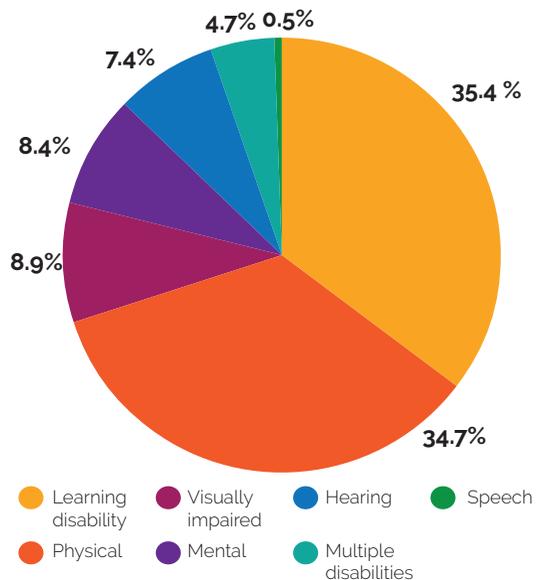
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**Anis Najihah Ahmad**

In the first ever world disability report published in 2011, Stephen Hawking wrote, "Disability need not be an obstacle to success." One of the world's most revered scientists of modern time, the wheelchair-bound physicist was surely a proof that it wasn't. Across the world, approximately 15% of the world's population live with some form of disability, of whom 2- 4% experience significant functional difficulties. Meanwhile in Malaysia, there are 486, 878 registered disabled citizens. The actual amount might be bigger as registration is voluntary. Based on the Persons of Disabilities Act 2008 Malaysia, Persons with Disabilities (PWD) include those who have long term physical, mental, intellectual or sensory impairments (visual impairment, hearing impairment or speech impairment) which cause various barriers that may hinder them from full or effective participation in society.

**Percentage of registration of Persons with Disabilities (PWD) by category of disabilities, Malaysia 2018**



Source : Ministry of Human Resources, June 2019

## Types of disabilities



### Speech impairment

An individual who is unable to speak (mute) but can hear.



### Learning disability

An individual whose learning ability is not at the same level of his/her biological age such as slow learner, down syndrome, intellectual disability, autism, attention deficit hyperactive disorder and global development delay.



### Hearing impairment

An individual who is unable to hear clearly in both ears without using hearing aid or unable to hear completely even by using hearing aid.



### Mental disabilities

An individual who suffers from severe mental disability and has undergone treatment or diagnosed as such for at least two years by a psychiatrist.



### Visually impaired

An individual who is unable to see completely or experience limited eyesight either on one eye or both even by using vision aids such as spectacles or contact lenses.



### Physical disability

An individual who is physically disabled due to loss of his/her body functions or any of his/her limb in any part of his/her body which may hinder his/her ability to live a normal life.

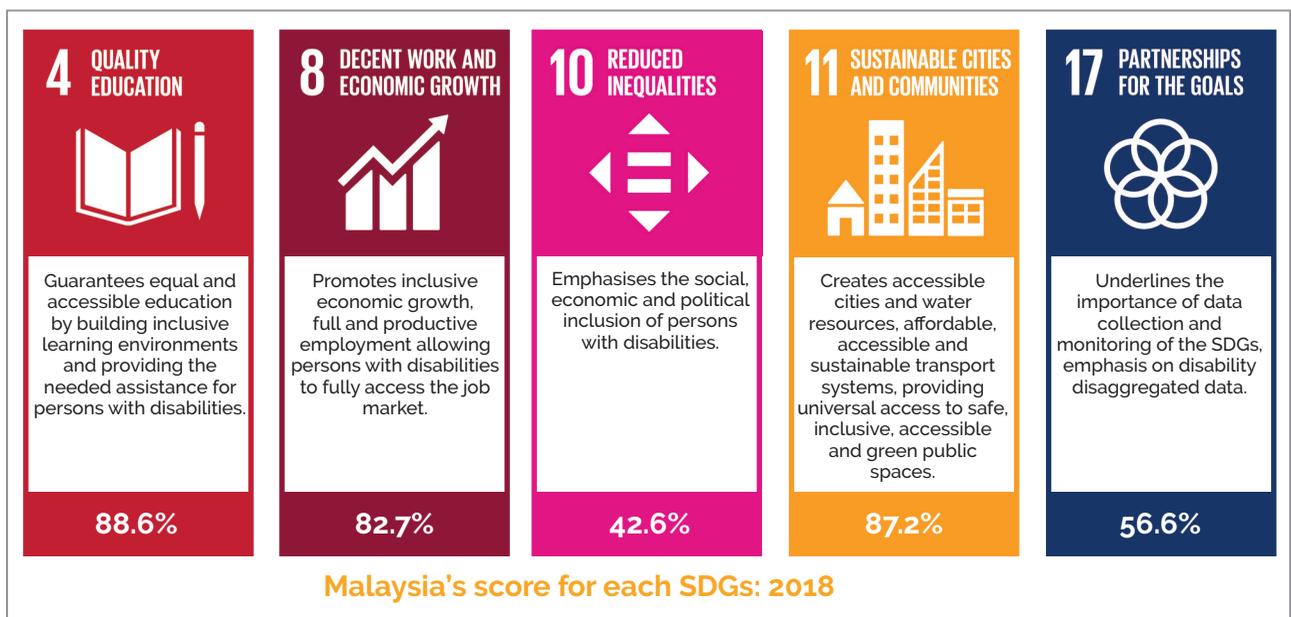


### Multiple disability

An individual who suffers from more than one disability and not suitable to be classified under any of the six (6) other categories such as an individual who suffers from 2 types of disabilities (sight and hearing disabilities).

Source: Department of Social Welfare

In September 2015, the General Assembly of the United Nations introduced the 2030 Agenda for Sustainable Development with 17 Sustainable Development Goals (SDGs). Building on the principle of "leaving no one behind", the new agenda emphasises a holistic approach in achieving sustainable development for everyone including the disabled, of which implementation ideas laid across touch 5 out of the 17 goals.



## Disability in Islam

In Islam, disability is seen as a challenge faced by an individual rather than as a form of punishment. It is part of the Maqasid doctrine (Islamic legal doctrine) where God’s law aims to benefit people regardless of their physical or mental state by protecting their religion, life, progeny, wealth and intellect. As such, according to the Qur’an, disabled people have the right to be respected (Surat al-Hujuraat: 11) and enjoy social justice. Another surah quoted that they need to be provided with basic needs such as food and clothes (Surat An-Nur: 61) as well as to receive treatment and rehabilitation. Moreover, the Quran also stated that certain religious duties such as Hajj and Salah are to be reduced or waived based on their condition, hence, allowing them to perform religious activities without burdening them. In countries where Sharia laws are in effect, there are provisions for disabled people to receive a portion of the zakat. In Malaysia, Dr. Maszlee Malik, the Education Minister proposed the idea of doing so through fisabilillah application (in the cause of Allah), though, the idea is yet to be accepted.

▶ There are 464, 672 registered disabled citizens in Malaysia

▶ Malaysia targets 1% of disabled people employment

▶ 5 out of 17 SDGs revolve around development of people with disabilities

### Accessibility features

**Berlin, Germany**

In 2013, Berlin won the EU City Access Award for creating a barrier-free environment and a highly accessible public transportation system. As such, trams and city bus services are entirely wheelchair-accessible throughout the city while the country’s two major metro rail systems, U-Bahn and S-Bahn are accessible in most stations. Moreover, the majority of movie theatres and restaurants in Berlin are handicapped accessible.



*Source link: <https://wheelchairtravel.org/berlin/public-transportation/>*

## How inclusive are they?

### Education

Inclusive education for people with disabilities is one of the world’s most pressing sustainable development goals.

#### What is inclusive education?

Inclusive education, in simple words is a situation where disabled children are placed alongside other children where they fully partake in mainstream classes—not in isolation such as integration or special classes or special schools for that matter. In an inclusive setting, students are not expected to work at grade level and “keep up” with other students. Instead, they are asked to “keep learning” and fully participate with other students. Inclusion is not about children with disabilities fitting in and meeting mainstream education targets but about the system adapting to include them.

## World overview

UNESCO carried out a study on the education of children with disabilities. It found out that:

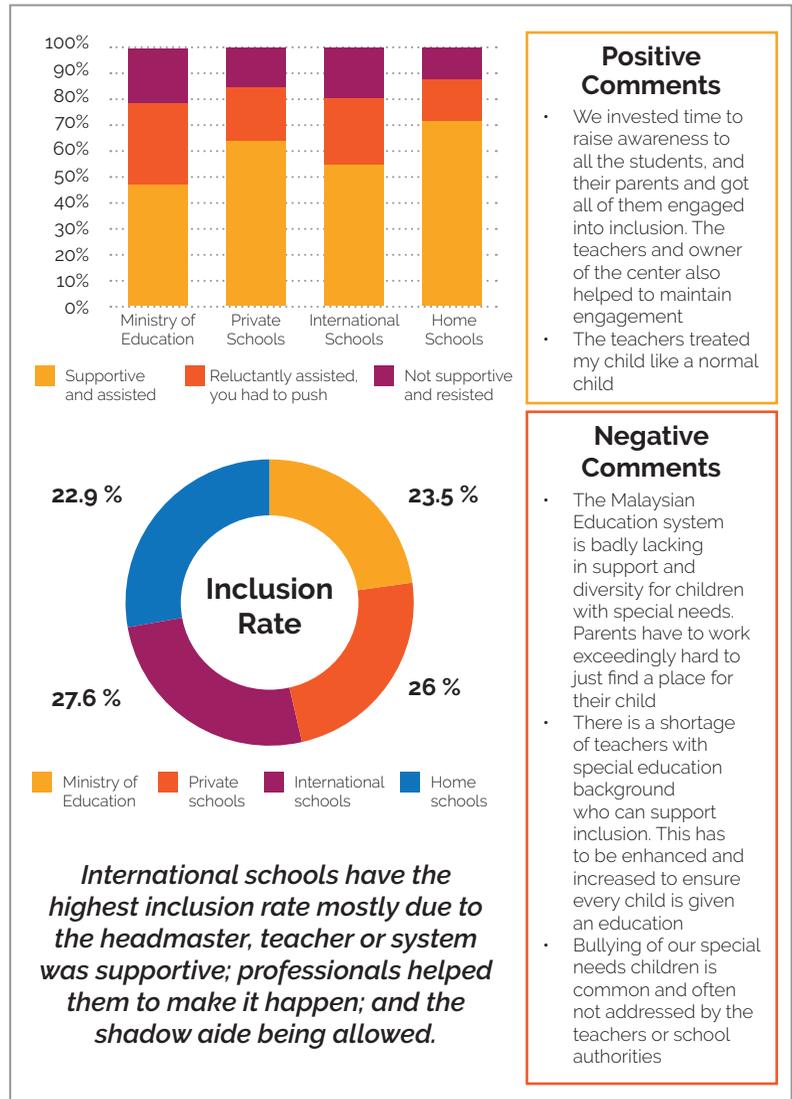
- On average, across 22 countries, people aged 25 years and older without disabilities have 7 years of schooling, compared to 4.8 years for those with disabilities.
- In 25 countries, the adult literacy rate for those with disabilities is lower than for other adults. The gap ranges from 5% in Mali to 41% in Indonesia, where the vast majority of adults without disabilities (93%) have basic literacy skills, compared to only half (52%) of adults with disabilities.

## Inclusive education in Malaysia

Article 28 of Malaysia's Persons with Disabilities Act 2008 affirms that special needs children are to be given the necessary support to facilitate their full and equal participation in education. Malaysia's National Education Blueprint has set a target of 75% of special needs students receiving basic education via the Inclusive Education Program (PPI) by 2023. In response, on December 2018, National Early Childhood Intervention Council (NECIC) conducted a survey on 406 parents of children with disabilities throughout Malaysia.

The participants comprised of those who studied in Ministry of Education (MOE) school (70%), private (14%), international (10%) and homeschool (6%). Below is the summary of the report.

By and large, the Minister of Education has promised to upgrade and improve the nation's special education schools. He has also directed every program sponsored by the Ministry of Education and Dewan Budaya dan Pustaka to include a sign language interpreter. The Ministry is also beginning to implement the Zero Reject Policy in 2019 to ensure special needs students get access to education. They will be upgrading schools throughout the country to become more OKU-friendly by allocating RM200,000 for each school.



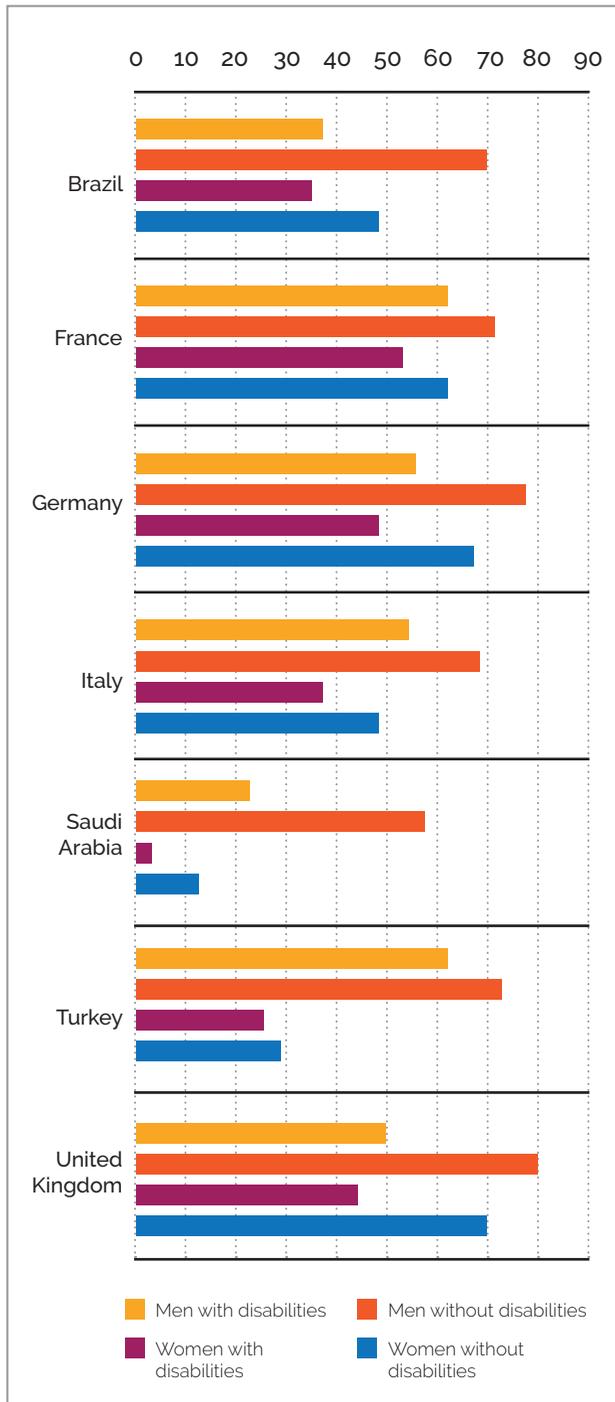
Source: Inclusive Education Experiences of Parents in Malaysia Report, NECIC, December 2018

## Employment

According to the UCLA analysis, there are nearly half a billion working age people with disabilities globally. However, most of them are unemployed. Some countries, like Japan and Montenegro require companies to employ a specified percentage of disabled workers or face a fine. However, the fines are usually low enough and some companies choose to just pay the fine. Peru meanwhile, has a quota system where employers are required to hire 5% of workers with disabilities in the public sector and 3% in the private sector.

Nevertheless, International Labour Organisation (ILO) Report 2018 reported that people with disabilities are still far less likely to be employed. The graph below shows the employment-to-population ratio for people with and without disabilities, by gender in 2010 for Brazil, France, Germany, Italy, Saudi Arabia, Turkey and United Kingdom.

The figure showed that people with disabilities had lower employment rate compared to those without disability. It also showed that women with or without disabilities had lower employment rate. In the United States, the unemployment rate in 2018 for people with disabilities was 8% compared to 3.7% for those without disability.



Source: ILO and OECD, 2018

### Employment of disabled people in Malaysia

Malaysia targets at least 1% of disabled people employment in public sectors according to Section 29 of the Disabled Persons Act 2008. Until 2018, 3,782 PWDs were reportedly employed by government agencies where the target is to reach 12,811 employment count. Deputy Women, Family and Community Development Minister stated that companies will get double tax deductions if they hire a disabled person. For instance, if they hire a disabled worker for RM 12,000 per year, their tax deductions would be RM 24,000.

On the other hand, for the disabled, the Department of Social Welfare Malaysia provides multitude facilities and services to assist them. As such, the Launching Grant program provides financial assistance for registered PWDs to participate in small business and entrepreneurship with seed money of RM2700. Apart from this, aid is also given for unemployed PWDs with a monthly allowance of RM200. All these aids and more are available on the Department of Social Welfare Malaysia's website. However, for the disabled, despite the hiring rate increasing, the need to have an accessible working environment that provides disabled-friendly facilities and services such as special transportation and ramps is vital.

### Perception toward the disabled

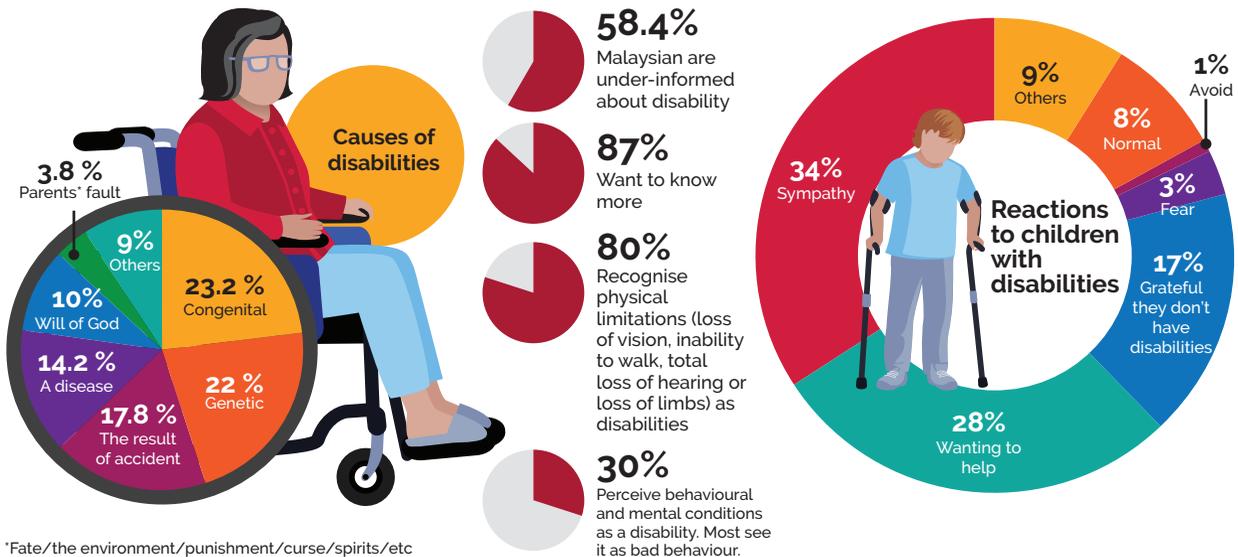
There are many stigmas and perceptions pertaining to people with disabilities. "Don't judge a book by its cover" is a fitting analogy in this respect. Below are some examples of discourteous behaviours toward people with disabilities:

- Stereotyping: People sometimes stereotype those with disabilities, assuming their quality of life is poor or that they are unhealthy because of their impairments.
- Stigma, prejudice, and discrimination: Within society, these attitudes may come from people's ideas related to disabilities. People may see disability as a personal tragedy, as something that needs to be cured or prevented, as a punishment for wrongdoing, or as an indication of the lack of ability to behave as expected in society.

### Malaysian's perception towards disability

UNICEF recently launched a study to gauge perceptions on childhood disabilities among Malaysians to which it revealed a slight discrimination against the group. A total of 756 participants from Selangor, Kelantan, Sabah and Sarawak took part in the study conducted between January and September 2016. The Star excerpt shown below is the recap of the results.

### How Malaysians understand disability



\*Fate/the environment/punishment/curse/spirits/etc

About **50%** of respondents don't want to live in the same neighbourhood as someone with a mental disability

**90%** don't mind living with someone with a physical disability

Less than **25%** would accept their child dating someone with a mental disability

**70%** don't mind if their child went out with someone with physical disability

**87%** won't accept their child marrying someone with a mental disability

**60%** won't mind if their child married someone with physical disabilities

Source link: <https://www.star2.com/people/2017/11/21/disability-prejudice-malaysia/>

From the results, it can be concluded that Malaysians in general still have low understanding of disability though most of them wished they knew more. Only a few were reported to know that mental illness was also considered as a disability. Hence, improving awareness across the board is a good idea to begin with. It is also crucial for people with disabilities in the country to understand and register as one. The Minister of Women, Family and Community Development suggested that some of the reasons that account for why some disabled citizens have not registered are not knowing what to do, unwilling to register or one simply does not know that he/she is disabled. Unfortunately, failing to register will prevent them from receiving many of the benefits that government can offer. The registration can be done on the Department of Social Welfare Malaysia's website.

### Final Words

Although people with disabilities are the largest minority group in the world, they can still contribute to the society. Delivering an inclusive education system would be a great start to promote better well-being for them. Therefore, the responsibility to cater to their unique needs should be viewed as an instrument that can provide a better life for the country's most deserving underprivileged group. In relation, Malaysia is currently attempting many efforts and strategies to create impact in order to realise all of its Sustainable Development Goals (SDGs). Individually, as Malaysians, we can collectively contribute to the cause by making more conscious effort to better understand their needs. "There is no greater disability in society than the inability to see a person as more" – Robert M. Hensel

#### References:

1. Disabled Persons Act 2008
2. "Childhood disability in Malaysia", November 2017, <https://www.unicef.org/malaysia/reports/childhood-disability-malaysia>
3. "Knowing your rights: PWD rights in Malaysia", <https://mind.org.my/article/knowing-your-rights-pwd-rights-in-malaysia/>
4. "Inclusive Education Experiences of Parents in Malaysia", December 2018, [http://www.necim Malaysia.org/view\\_file.cfm?fileid=357](http://www.necim Malaysia.org/view_file.cfm?fileid=357)
5. "Disability and work", <https://www.ilo.org/global/topics/disability-and-work/>
6. "Statistik Pekerjaan dan Perburuhan, Siri 20 Bil2/2019", [https://myhos.mohr.gov.my/ebook/istatistik2\\_2019/mobile/index.html#p-110](https://myhos.mohr.gov.my/ebook/istatistik2_2019/mobile/index.html#p-110)
7. "Registration of Persons with Disabilities", <http://www.jkm.gov.my/jkm/index.php?r=portal/left&id-UnN2U3dtUHhacVN4aHNPbUIPayt2QTo9>
8. "Labour market inclusion of people with disabilities", February 2018, [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_646041.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646041.pdf)

- Contents** ▶ Children in today's classrooms will most likely be digital natives ▶ Education of tomorrow will be led by tech-empowered teachers ▶ Using technology effectively can increase students' enthusiasm about knowledge. ▶ Machines simply won't replace teachers because they can't inspire students like a good teacher does.

# Education for digital natives: Humans vs machines



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...the teaching and learning modes must have an effect on students' understanding and its application in order to build human resources that are suitable for the Industrial Revolution 4.0



**YB Dr Maszlee Malik**  
Education Minister

**M**alaysia's newly minted Education Minister, Dr Maszlee Malik spared no time in outlining his directions to align education toward Industrial Revolution 4.0. This goes in line with today's era of digitalisation—the integration of digital technologies into everyday life by means of digitisation. In the context of rapid industry growth, digitalisation means computerisation of systems and job tasks to deliver better education to cater to the needs of today's digital natives.

**In Malaysia, it is emphasis to use 21st-century learning (PAK21) concepts to create a more conducive and more effective learning environment for the students.**

**Teachers should no longer be using just books and blackboards like during the early independence days.**

### Characteristics of digital natives

These days, one year old babies, despite not being able to walk or talk, are however savvy enough to operate a touch mobile screen to find the content they want to watch.

Whereas in schools, children in today's classrooms will most likely be digital natives. Kids who were born in the digital era and have used technology all their lives. They explore the world in an entirely new way. This generation of students grow up with technology (smart phones, Facebook, Instagram, etc.) that allows them to connect with the world instantly.

For higher education institutions, the digital demand is real. In order to stay relevant, colleges and universities must adapt their systems to meet the evolving needs of this new breed of learners. These students are more receptive to instructions involving technology. They are eager for information and are keen to learn beyond traditional subject boundaries (interdisciplinary approach). They see the world as one big network of connections.

Although the future of education is uncertain, the only certainty assures that it will be led by tech-empowered teachers. Surely these teachers hold huge potential and therefore, we need to ponder how to prepare the future generation by taking into account the following considerations:

- How do we provide them the tools they need to be successful for jobs that don't yet exist.
- Students are growing into adulthood in a totally different reality than that experienced by their teachers.
- Smart phones present a huge research resource at our fingertips yet are a constant power struggle in the classroom.

### How we can benefit from technology in the classroom

Integrating technology into the classroom is must. Rather than debating over allowing the use of smart phones, we should focus on the benefits of the technology. The introduction of applications in the education sector has led to the introduction of new learning methods.

- A savvy teacher might take advantage of smart phones as instructional tools. Using them successfully will increase students' enthusiasm about knowledge. There are fun games available on mobile applications that indulge students into a healthy thought process and help them understand things from a different perspective.
- Technology provides the ability to showcase creative work such as art and poetry on a global scale and the ability to connect with other people no matter the location. Students can therefore create their own pages and blogs to showcase their work to demonstrate their talent and abilities.
- Communication technology can be of great help in building enduring parent-teacher relationships beyond school walls. Mobile devices for example can help facilitate teachers to respond promptly to parents' queries and



Communication technology can be of great help in building enduring parent-teacher relationships beyond school walls.

promote higher transparency across the education sector.

- Students are generally very fond of online studies. It is easier for students to search for the appropriate study materials on mobile applications or search engines. It keeps them closer to the study materials and it helps them to segregate the materials.
- Various other student-related activities, such as online payment, school calendar information, timetables, forums, conferences, and social activities can be conveniently communicated via mobile.

## Case studies

Professor Sugata Mitra first introduced the project 'hole-in-the-wall' to introduce children in a Delhi slum to computers. He began the project while he was working for a software company. There, he decided to embed a computer into the wall of his office in Delhi facing the slum.

The children barely went to school. They barely knew any English words and had never seen a computer before and they just didn't know what the internet was. To his surprise, the children quickly figured out how to use the computer and access the internet.



Professor Sugata Mitra then repeated the experiment across India and noticed that children will learn to do what they want to do. He saw children teaching each other how to use the computer and picking up new skills. Subsequently, the experiments were repeated in many more places and gathered similar results. One group in Rajasthan, learnt how to record and play music on the computer within four hours of it arriving in their village.

The studies concluded that children can learn to use a computer on their own irrespective of who or where they are. His experiments then became more ambitious and global.

## What is the lacking from these findings?

The results achieved by these village children were facilitated with the aid of a mediator. Based on claims by Dr. Payal Arora, Associate Professor at the Department of Media and Communication of Erasmus University Rotterdam, disassociating learning from adult guidance can lead to uncritical acceptance of bad content and bad learning habits.

When Arora came across these two 'hole-in-the-wall' sites (Almora and Hawalbagh in northern India), she discovered not just the positive tales of self-directed learning but also its failures. One was vandalised and closed down within two months. The other was abandoned and, apparently, had been mostly used by boys to play games. A real problem was sustainability, as no one seemed responsible for the electricity and maintenance bills.

## Can AI robots replace teachers?

Nothing can be more boring than sitting in a classroom with a monotone, boring, non-humorous robot teaching us about the world we live in. Educational technologies are currently aiding teachers in their work, not completely taking over them. They are tools, not replacements. However, what are the key "human" skills and important elements of a teacher that can't be replaced by technology? Let's delve further.

- Teachers do more than just the one-way task of instructing students. They identify social cues that would be impossible for a machine to parse, especially non-verbal or invisible interactions, that affect the learning experience.
- Teachers help identify roadblocks for their students to overcome. This might be more personal or emotional in nature, that a machine cannot pick up on. Machines do not have the human ability to care of students or to understand each student as an individual, to empathise with each student's unique struggles and passion.
- Machines simply won't replace teachers because they can't inspire students like a good teacher does. Think back to your favourite teachers—did you enjoy their teaching because of their infallible library of knowledge or how they made the subjects they taught come alive for you?
- Teachers are invaluable at cultivating the skillsets their students need (collaboration, critical thinking, imagination, creativity, psychomotor, etc.). This is critically one area that machines lack and are not yet able to do.

- Machines are unable to create a culture of excellence. They are unable to push students to excel. Teachers help to contextualise lessons in real time, which might not be possible for a piece of machine to do. The human connection is necessary for something as key as the act of learning.



The most important thing is a person. A person who incites your curiosity and feeds your curiosity; and machines cannot do that in the same way that people can.



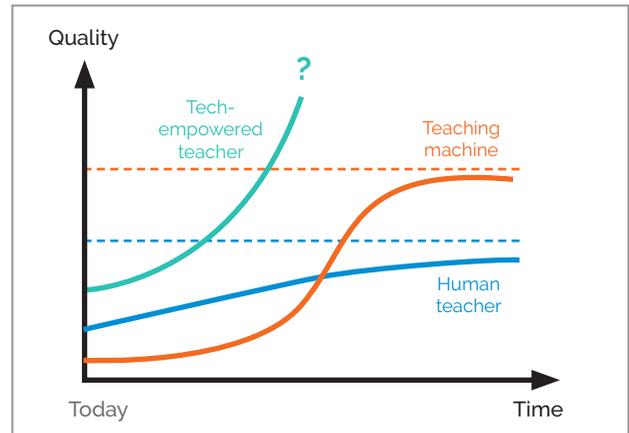
*Steve Jobs*

As the late psychologist Albert Bandura explains in the Bandura Theory, children learn in social environments by observing and imitating the behaviour and influence of others. Individuals need to feel a sense of belonging and have meaningful connections, all of which a machine cannot provide.

#### References:

1. [http://marcprensky.com/writing/Prensky-What\\_Isn't\\_Technology\\_Good\\_At-EDTECH-Sept-Oct-1012.pdf](http://marcprensky.com/writing/Prensky-What_Isn't_Technology_Good_At-EDTECH-Sept-Oct-1012.pdf)
2. <https://explorance.com/2016/03/digital-natives-4-ways-technology-changed-student/>
3. [http://blogs.edweek.org/edweek/education\\_futures/2016/06/how\\_to\\_teach\\_a\\_room\\_of\\_digital\\_natives.html](http://blogs.edweek.org/edweek/education_futures/2016/06/how_to_teach_a_room_of_digital_natives.html)
4. <http://inservice.ascd.org/teaching-digital-natives/>
5. <https://www.studyinternational.com/news/robot-teachers/>
6. <https://elearningindustry.com/mobile-apps-in-education-5-benefits>
7. <https://medium.com/@fjmubeen/charting-the-battle-of-man-vs-machine-in-education->
8. <https://www.linkedin.com/pulse/ten-reasons-robots-cant-teach-humans-ashiedu-jude/>
9. <https://www.bbc.com/news/technology-10663353>
10. <https://www.igi-global.com/dictionary/it-strategy-follows-digitalization/7748>
11. <https://learningspy.co.uk/myths/is-it-just-me-or-is-sugata-mitra-an-irresponsible-charlatan/>
12. <http://donaldclarkplanb.blogspot.com/2013/03/sugata-mitra-slum-chic-7-reasons-for.html>

## Conclusion



Instead of asking whether technology has reached a point where it can replace human teachers, we must instead ask ourselves what aspects of the job it can take over to make their lives easier. Teachers world over are overburdened. Instead of merely remembering them on a designated day, (Teacher's Day cards are appreciable for sure) we should perhaps be focusing on building technology to aid them in these efforts.

Education technologies can help enhance teaching methods by making existing content more dynamic or helping teachers create fresher content that was previously out of their reach due to budgetary and technological constraints. Technology must be built to enable teachers, not replace them. Technology will always remain a tool for teachers.

As we look to prepare our students for the world of tomorrow, holding on to our traditional teaching conventions may not be ideal in the long run. Advances in technology enable us to create a new human-machine symbiosis that can greatly improve how we deliver education to our kids. The heart and mind of every student can only be touched by an inspired teacher, one who takes time to understand their psychological dynamics and makes sure they are well positioned to excel.



I fear the day that technology will surpass our human interaction. The world will have a generation of idiots.

*Albert Einstein*



- ▶ **Contents** ▶ In the last 10 years, Malaysia has recorded a 20% rise in the number of PhD holders.
- ▶ By 2023, Malaysia aims to have 60,000 PhD candidates.
- ▶ Working candidates turn to education for career mobility.
- ▶ Human capital development is pivotal to achieve robust economic growth.

# PhD a “springboard” trend?



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Education is the most powerful weapon which you can use to change the world



*Nelson Mandela*

As the quote implies, education is the key to change people's lives and further economic growth. In essence, education holds the power to change people's minds and empower their behaviour. Taken together, this works to create a better community that can collectively contribute positively to a country's socioeconomic growth.

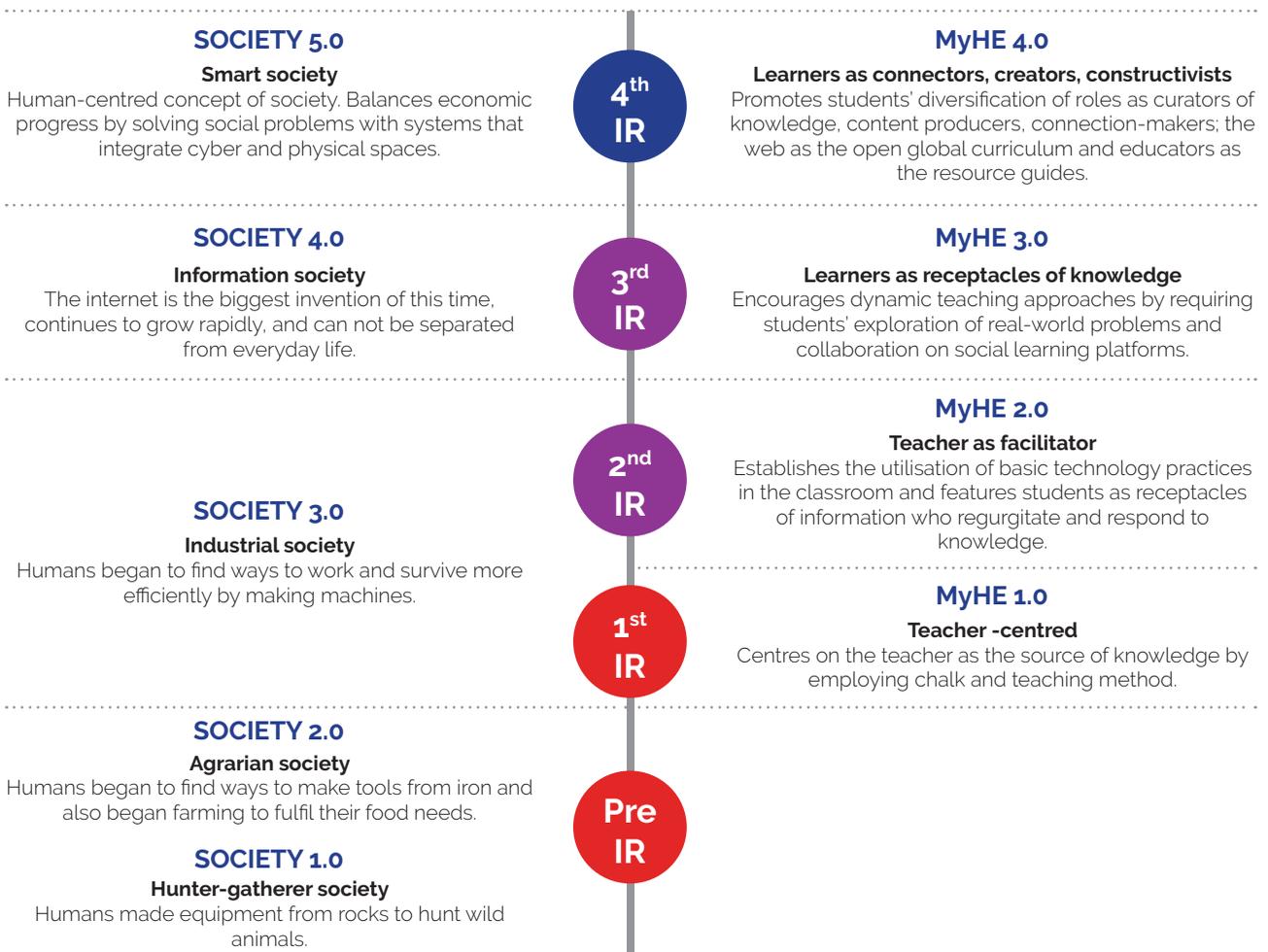
Therefore, it is important for any country to provide the best education support to develop its economy. A pool of highly skilled and educated people is pivotal to achieve robust economic growth.

Currently, the world is ushering in the era of the fourth industrial revolution (4IR). This revolution has changed the whole socioeconomic ecosystem on its head and now demands more dynamic skillsets from today's human capital. For instance, Japan has thoroughly defined what the change would mean to its people. In anticipation of global trends, Japan has outlined a plan toward society 5.0 to take full advantage of what current and future technologies have to offer to become a super smart society.

Meanwhile, for Malaysia, the 4IR has been translated into joint-efforts centred on framing Malaysia's higher education 4.0 framework. This framework aims to deliver high-quality tertiary education in order to produce quality graduates and promote a prosperous economy.

Toward this end, government actors are playing a key role to create a conducive educational environment to encourage creativity and innovation specifically on research and development (R&D). The level of R&D; one of the indicators of a country's innovativeness, can help to promote broad-ranging collaborative efforts between higher learning institutions and the industry. In what can be considered a sign of things to come, this will further stoke demand for academic experts who hold Ph.D. qualifications.

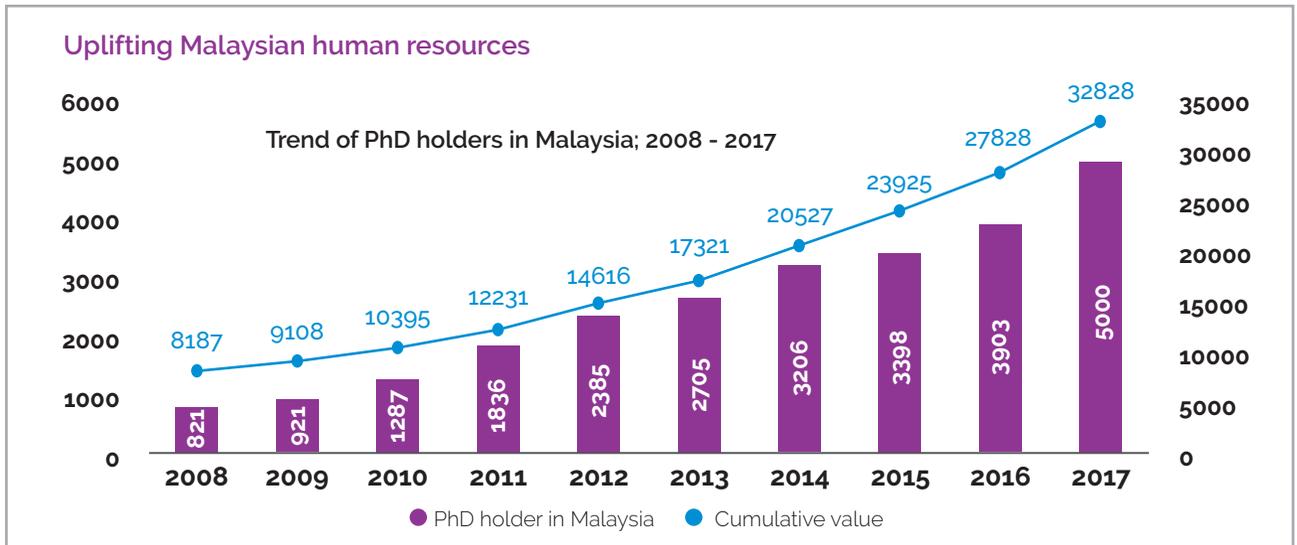
Alongside 4IR influence and the importance of R&D, will open up plentiful opportunities for industry experts and thereby, Malaysians are highly encouraged to take another look at education in view of long-term career development.



## Uplifting Malaysia's human resources

Malaysia aims to have 60,000 PhD candidates by 2023. For the past 10 years, Malaysia has recorded a 20% rise in the number of PhD holders. This growing trend indicates that the target is indeed achievable. In 2017 alone, Malaysia's PhD holders' cumulative count was approximately around 32,828 candidates.

The figure reflects the government's return on investment in human capital development through scholarships and aids. Largely, these instruments have successfully encouraged more Malaysians to take their academic qualification a step further. It is hoped that this measure will help lift the country's human capital development to boost the economy.

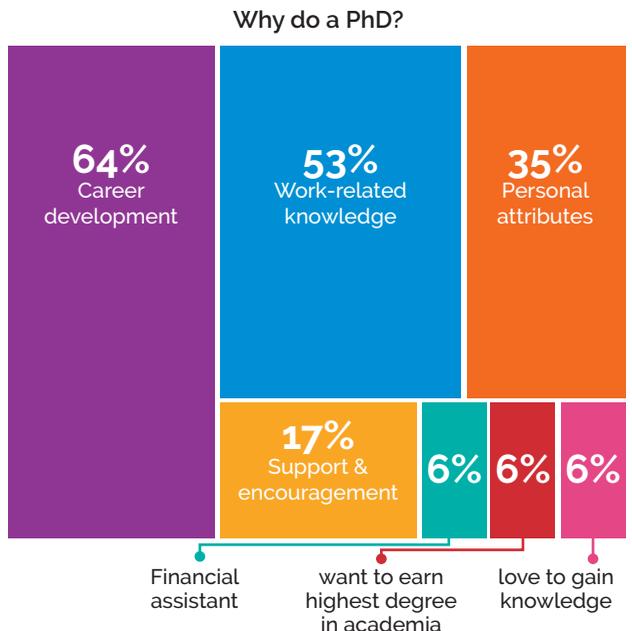


## Raising the career development

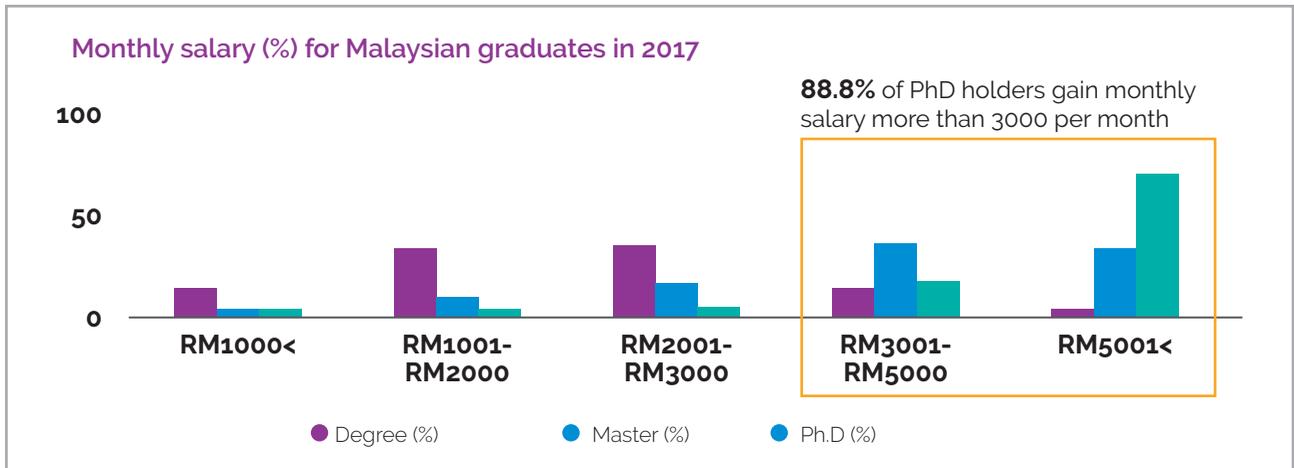
There are a lot of reasons why people choose to further study. A simple survey was recently conducted to find out what the reasons are. The idea was to gather collective reasons as to what encouraged PhD candidates to further their studies. Consequently, four main reasons came out on top; career development, work-related knowledge, personal attributes, and encouragement from friends and families. Each scored 64%, 53%, 35%, and 17%, respectively.

The highest score represented working candidates who turned to education to further their career development and gain more knowledge or to become experts in their fields. Hence, these PhD candidates appear to have better career opportunities and mobility with their PhD titles.

For instance, in terms of monthly salaries, PhD holders are paid higher compared to masters and degree holders. The study showed that 88% of PhD holders take home monthly salaries of more than RM3,000 a month. In addition, the statistics reported by MOE stated that from 2013 to 2018, on average, 94% of PhD holders were employed as permanent employees.



This figure shows the government investment on human capital development especially through scholarship help to encourage Malaysian to further their academic level and indirectly uplift the human resource skill to improve the national economy.



## Widening career options and opportunities

Given that the advantage of having a PhD opens up more opportunities for PhD holders, they can either pursue an academic or industry career. The options are getting wider because PhD holders are now considered experts in their fields. In addition, they are also viewed as well-rounded candidates who possess good interpersonal skills gained throughout the process of completing their PhD studies.

Below are some examples of career options for PhD holders:

### Academic line

Candidates can develop a career within the higher education sector for posts such as lecturers or researchers. Candidates can also specialise in a subject matter or a body of knowledge that differs from their core academic disciplines.

### Research, publishing and consultancy

Candidates can apply for posts such as lab researchers for public or private organisations that carry out research in their fields.

### Professional

Candidates can choose to venture out of their study fields and apply for project management roles at private companies. They can put their industry knowledge to good use to manage technology projects to push new innovative products and services out faster. For history and literature candidates however, interpersonal skills such as articulation will be counted upon.

### Others

Other options available for candidates to choose from for post-doctorate levels are research and publishing fields. On the contrary, candidates can opt to pursue their own entrepreneurial ideas by developing products and services that relate to their expertise.

## Conclusion

Clearly, pursuing a PhD can help map out a plan to connect Malaysia's talent pool with the best opportunities in the future. Firstly, the socioeconomic ecosystem is undergoing a major change as a result of advances in 4IR technologies. Against this backdrop, the government is offering a host of incentives to encourage more Malaysians to pursue PhD education in order to support the country's future economic growth. Secondly, opportunities for career development are wider for those who are already working across various sectors and last but not least, PhD qualifications offer broader career opportunities for holders. With this question out of the way, perhaps the next logical question that begs asking is, "Do I have the self-discipline to complete my PhD study?" The outlook for PhD holders is decidedly promising. Evidently, it is opening up new strategic choices of competing in the job market.

#### References:

- <http://graduan.moe.gov.my>
- <http://jobsontoast.com/phd-job-options/>
- <https://www.nst.com.my/education/2018/04/361452/way-forward-higher-education-4ir-era>
- <https://www.nst.com.my/opinion/columnists/2019/01/455085/lifelong-learning-must-4ir>
- <https://read.oecd-ilibrary.org/science-and-technology/>
- <https://www.weforum.org/agenda/2017/02/countries-with-most-doctoral-graduates/>

# What they say?

As family and career pressures grow, we have compiled key findings from seven related reports published over the last few years to help us better understand the future of family trends, well-being and social security.

Therefore, to provide public and private actors a strong benchmark case to analyse well-being development, the assessments below serve as a concise guideline.

## Family Report 2017

The Family Report 2017 provides information on both the attitudes and the circumstances of families in Germany, and the family policy measures that lend them assistance and support.

### Family way of life valued – diversity acknowledged



The number of single parents is considerably greater than it was in the early 1990s, with figures hovering around

**1.6 million** for the past several years.



**13 million**

children in Germany in 2015, **2.3 million** lived with a single parent.



The birth rate has risen significantly. In 2015, it was

**1.5 children per woman** the highest rate seen for 25 years.

Parents aged between 40 and 49 say an average

**2.2 children** are ideal

but in reality they have only

**1.9 children** on average

## State Of The Nation 2017 Report - Social Mobility In Great Britain

The years following school are critical for social mobility because this is when young people make key choices about their life.

School



Work

Those who struggle during the transition from school to work often face lifelong difficulties. Indeed, of those who do not make it into education, employment or training at 16, almost half will still be NEET (Not in Education, Employment, or Training) at age 17, and many will continue to feel the consequences of being NEET into adulthood.

While

**61%** of the latter cohort get two or more A-levels, this figure is just

**36%** for disadvantaged youngsters.

It drops to

**20%** in several coldspot areas.

Similarly, while

**41%**

of better-off young people attend university, only

**24%** of disadvantaged young people do.



## The Future of Families to 2030

The data suggest that the next 20 years are likely to see a continuation and even acceleration of changes in household and family structures.

The average household size in OECD countries fell from

**2.8 persons** in the mid-1980s



**2.6 persons** in the mid-2000s



Over the same period, marriage rates fell from over

**8 marriages** per 1000 people in 1970

to

**5 marriages** per 1000 people in 2009



and the average divorce rate doubled to **2.4 divorces** per 1000 people.

**10%**



Almost 10% of all children now live in reconstituted households, and nearly 15% in single-parent households



**15%**



One in 15 children live with their grandparents.



The last few decades have experienced social change on a remarkable scale.

In 1950, the total fertility rate (TFR), was **2.8**, but by 2007 the TFR had fallen to **1.6**, leaving many OECD countries well below the fertility rate of **2.1** per woman needed to replace the population at a constant level.

### Population projections

However, the absolute numbers of young people are forecast to decline between now and 2030:



Children aged up to 14 years old

**8.5%**



Young people aged 15 to 24

**12%**



Young adults aged 25 to 39

**15.6%**



In contrast, the numbers and share of the elderly will rise dramatically,

Elderly age 65-79 group **37%**

Elderly age 80+ group **54%**

Commission of the European Communities, 2006



## How's Life In 2017 Report

What makes for a good life? Today's well-being is achieved at the cost of depleting resources for the future.



Household income and average annual earnings have increased cumulatively by

**8% and 7% respectively since 2005**

yet this is roughly half the growth rate recorded between 1995 and 2005.

Inequalities can touch every aspect of people's lives.



For example, people in the top 20% income bracket are twice as likely as those in the bottom 20% to report high life satisfaction.



And people with high life satisfaction are 4X more likely to report being in good health when compared to those with low life satisfaction.



## How's Life In The Digital Age 2017

The arrival of the Internet in the early 1990s was another game-changer that led to some of the most transformative consequences of digitalisation for societal and individual wellbeing.



In 2017 **3.5 Billion** people worldwide used the Internet, including

**70%** of the world's young population (ITU, 2017).



Facebook, one of the most popular social media platforms, accounts for

**54%**

of users' online time globally.



The degree to which smartphones are becoming a necessary element of modern life is highlighted by a recent PEW Research Center study, which found that 46% of smartphone owners say they could not live without their phone (Smith et al., 2015).



In several countries, Internet access rates at home are now close to

**100%**

Still, on average, more than

**20%**

of individuals living in the OECD do not have Internet access at home.



According to estimations, the number of connected devices in and around people's homes in OECD countries will expand from

**1 Billion in 2016 to 14 Billion by 2022**

OECD, 2015a



## The Future of Social Protection OECD

Across the OECD on average,

**16%**

of all workers are self-employed, and a further

**13%**

of all dependent employees are on temporary employment contracts.



In 2016

**27.5%**

of the adult population were receiving an income support payment.

**76%**

of the population aged 65 and over and

**16%**

of the population of working age.



## Social Policy In Denmark

The public sector is responsible for the provision of social security benefits, social assistance benefits and services.



Denmark's total public expenditure represents about

**60%** of its GDP.



About half of this expenditure relates to public welfare schemes (health and social services sector and labour market), and the social sector accounts for about 17.5% of the GDP.

About **30%**

of the workforce is public-sector employees.

Of these, about **75%**

are in the employment of regions or local authorities.



Changes ahead following new family and career circumstances developing are shaking up the well-being of the entire world population. Therefore, the moderating role of governmental support is viewed as a crucial element to ease the pain points in the years to come.

### References:

1. OECD (2011) The Future of Families to 2030, OECD Publishing
2. Social Mobility Commission, UK (2017) State of the Nation 2017: Social Mobility in Great Britain
3. Federal Minister for Family Affairs, Senior Citizens, Women and Youth, Germany (2017) Family Report 2017, Benefits, Effects, Trends
4. OECD (2017), How's Life? 2017: Measuring Well-being, OECD Publishing, Paris. [http://dx.doi.org/10.1787/how\\_life-2017-en](http://dx.doi.org/10.1787/how_life-2017-en)
5. OECD (2019), How's Life in the Digital Age? Opportunities and Risks of the Digital Transformation for People's Well-being, OECD Publishing, Paris. <https://doi.org/10.1787/9789264311800-en>
6. Ministry of Social Affairs and Integration, Denmark, (2011) Social Policy in Denmark
7. OECD (2018), The Future of Social Protection: What Works for Non-standard Workers?, OECD Publishing, Paris. <https://doi.org/10.1787/9789264306943-en>



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- Contents**
- ▶ The world is greying and will undergo a massive demographic transition
  - ▶ Elderly population will outnumber the young much sooner
  - ▶ Sandwich generation adults need to work harder to cover high family overhead expenses
  - ▶ Shrinking family size will place a strain on tomorrow's sandwich generation

# Living in a sandwich generation



**E**ven if you've never heard the phrase "sandwich generation" before, chances are, the term could be describing you as you're reading along this article.

Today, many adults in their 40s, 50s and early 30s face a situation where they are caught up in the middle between financial commitment and family responsibilities.

These middle-aged adults, known as the "sandwich generation", find themselves in a double-bind to provide care for their aging parents while supporting their own children.

The term "sandwich generation" was first coined by social worker, Dorothy Miller back in 1981 to describe women in their 30s and 40s, who were "sandwiched" between young children and aging parents as the primary caregivers. However, a lot has changed since then. A couple of key factors have largely contributed to this:

- Delayed parenting. Voluntary postponement of childbearing is the new norm in today's society. Couples delay raising a family into their 30s.
- Increased life span. People are living longer as a result of better healthcare and technology.

People are now living longer, thanks to better medicine and widely available health care. However, over the years, healthcare cost has risen exponentially. The Department of Statistics Malaysia discloses that life expectancy has increased by 2.8 years since 2000. A new born baby will live longer to 75.0 years up from 72.2 years.

This makes sense as improvements in public healthcare such as cleaner drinking water, better sanitation, food security, protection against infectious diseases through widespread use of vaccines begin to decrease the number of deaths in early and middle life, leading to an increase in overall life expectancy.



**Nadia Sullivan**

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A newborn baby in **2018** is expected to live an average of **75.0** years until **2093**

### Life expectancy at birth

On the average, the gap in life expectancy between male and female is **4.9** years



**Male**  
72.7 years



**Female**  
77.6 years

### Life expectancy at birth

A newborn baby in 2018 is expected to live 2.8 years longer to 75.0 years, up from 72.2 years in 2000

72.2 years



**2000**

73.7 years



**2008**

75.0 years



**2018**

Source: Department of Statistics Malaysia

Source: Department of Statistics Malaysia

## You could be destined to be a sandwich generation. Here are a few things you might want to know.

If you're not in the "sandwich generation now", you might be counted among them soon. According to a survey by Pew Research Centre, nearly half of adults in their 40s and 50s count themselves as a member of this cohort, with a parent aged 65 or older and a child either living at home or being financially supported.

The significant increase in life expectancy and the reduction of the average number of children per couple imply a longer period in which adults have parents while at the same time they have fewer siblings with whom to share responsibilities.

Here are a few things that you might want to know about being a "sandwich generation":

### Beyond finances: Providing care and emotional support

Demographic change plays an important role in shaping society landscape especially in countries that have large numbers of elderly citizens outnumbering the young. As life expectancy increases and women showcase higher interests in entering the labour market, they tend to delay raising a family. However, although the challenges of providing for parents and children may have increased, most sandwich generation adults have a good sense of responsibility and feel that it's their obligation to take care of their ageing parents.

### Women of the sandwich generation

Although this terminology is still an unfamiliar term in the society, the "sandwich generation" is not a new development. Historically, able adults have always been obligated to contribute to the livelihood and care of their elderly parents.

Within the "sandwich generation", most of the burden of support rests on daughters. Women especially are responsible for assuming the caretaking needs of multiple generations as they are usually the ones who care for both parents (and/or in-laws) and children or grandchildren. Women in this category, are those who juggle work and family commitments, or in other words, they have to balance their roles not only as mothers but also working adults.

However, participation of men in providing care for their parents has also risen. This increase comes as a result of women working more time outside the house, the increase in men's life expectancy and the change in family structures.

### Education as top priority for children future's investment.

The sandwich generation is willing to pay handsomely for their children's education and at the same time fully commit to their elderly parents financially. The sandwich generation tends to spend more time and money caring for their children, not primarily on education alone but also other extra curricular activities such as tuition, sports and music.

### The need to have a strong social safety net.

Most sandwich generation adults are required to work hard to cover high family overhead expenses as a result of being "sandwiched". In many cases, elderly with lack of savings or access to public healthcare services shift care responsibilities to the sandwich generation to cover these expenses. However, in return, parents will normally assist the sandwich generation by providing caregiving for their children and other support.

### Tax advantages for sandwich generation caregivers

In Malaysia, there is an annual allowable deduction of up to RM5,000 for medical treatment, special needs or carer expenses incurred by an individual for his/her parents provided that they are Malaysia citizens, and the medical treatment and care are provided in Malaysia by a medical practitioner registered with the Malaysian Medical Council.

## Malaysia becoming an ageing nation

Malaysia is set to become an ageing nation. By 2030, 15% of its total population now will become senior citizens. Thus, Malaysia needs to be prepared to face the reality of being an ageing nation. The situation comes with its own distinct needs and challenges. For instance, as the Malaysian population grows older, this places job strain on ageing employees, in which they are required to work longer. However, baby boomers whose children are currently in their 30s, 40s and 50s, might presently be in their prime earning years and hold senior positions at work, and they could be a part of the sandwich generation.

Familial care for elderly parents in Malaysia has deteriorated somewhat due to several factors. The modernisation process and the effects of urbanisation and migration for work have created a situation where young adults live apart, thus affecting their ability to provide family care for their parents. Also, the decline in fertility and smaller family sizes have reduced the number of children to share both social and financial

responsibilities of care for elderly parents.

The future of elderly care in Malaysia depends on what we do now. Given this changing trend, policymakers need to look into institutional arrangements for providing formal care, which includes social security, health care and social services, for the elderly population.

## Are we prepared?

### A proper infrastructure set-up

As the elderly require more care and attention, it is important to have elderly friendly facilities. These facilities need to include housing, transportation, and recreation support, of which, appropriate restrooms with anti-slip floor, friendly access to religious houses, lifts and ramps in public areas are some thoughtful examples that the elderly need. Old folk's homes or nursing homes for long-term care will soon become a necessity, as the ageing phenomenon becomes more prevalent in Malaysia.

The decline in family as the primary caregiver for the elderly who need long-term care has created an increasing demand for institutional care. But this can be financially burdensome especially for those constrained by limited financial resources and those without insurance protection. Although the government has set up several homes to provide care for the elderly, the provision and accessibility to formal long-term care are still scarce between urban and rural areas.

### Safety net

Salaries have not risen in tandem with the increase in living cost. Furthermore, society's expectations as to what makes a good upbringing or comfortable retirement are placing additional pressure on this squeezed middle generation to provide the best for both their children and parents.

Safety net for the sandwiched generation is also a crucial factor as it will depend on how they are able to juggle the duty to take care of their family without having to sacrifice personal needs. Thus, considering the financial struggle most of them are facing, it is important for the sandwich generation to continue saving money for the sake of their own retirement.

### Skills

Caring for the elderly is a highly delicate job profession. Therefore, there is a pressing need to equip caregivers with the proper skills to take care of the elderly. As Malaysia is embarking on its reorganisation as an ageing nation, it is crucial to provide adequate training hours for caregivers who work in the health and social care industry.

To prepare for the future, physicians, nurses, allied health professionals, and home care workers require practical training to enable them to deliver a safe and effective system of health and social care for the elderly.

Thus, geriatric syllabus needs to be firmly embedded in undergraduate and postgraduate curricula across medical, nursing, and allied health courses so that current and future generations of health care professionals possess the necessary ability to assess and manage elderly patients.

### Turn to technology to help take care of aging parents

Technology makes caregiving roles easier. Fortunately, the sandwich generation is comfortable with technology. Technology is widely used in today's daily work and personal tasks.

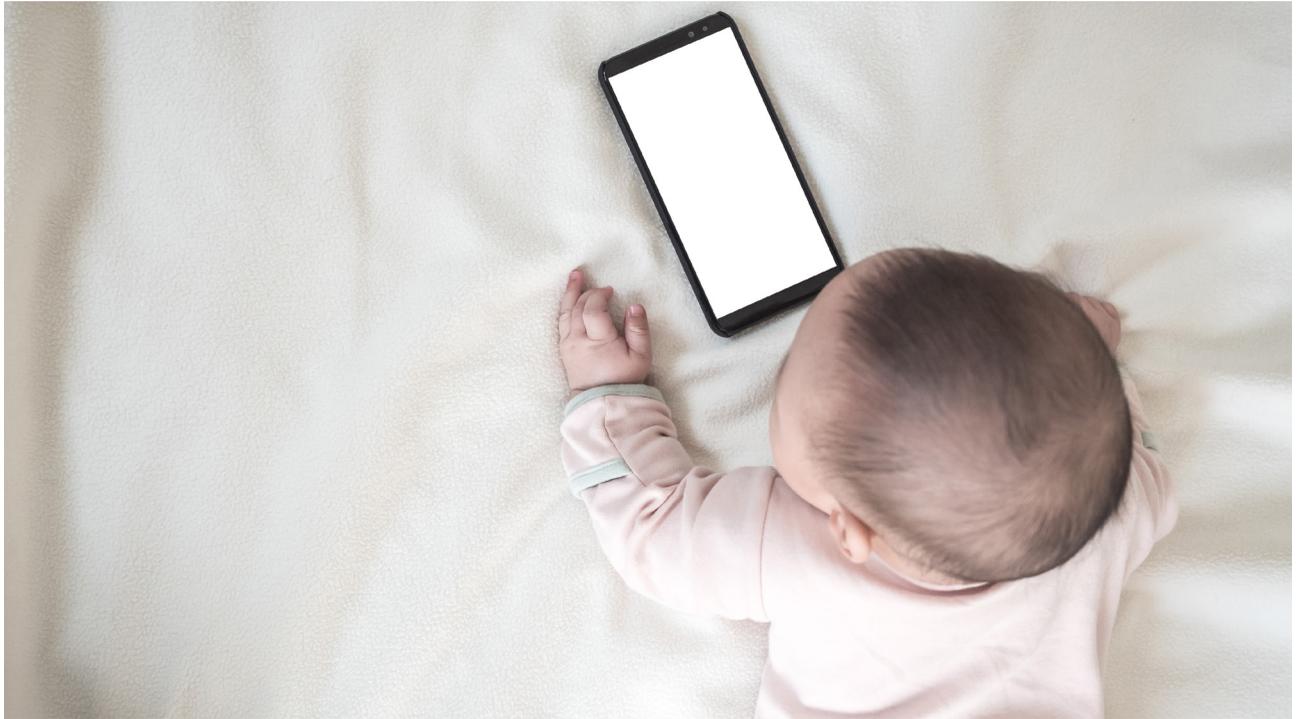
Therefore, it makes a lot of sense to turn to technology to help take care of the elderly. For various purposes such as communicating and monitoring, technology can make mundane tasks such as reminding the elderly to take their medicine on time or even turning the stove off less of a chore.

#### References:

1. <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=aDV6TWxoUoNINVBYN1hXM1YoL2Jadzog>
2. Wolkow, L. (2002). The Increase in Life-Expectancy and Its Effects on the Sandwich Generation: How Does It Affect Me? *Family and Knowledge*, 2, 54-57.
3. Economic Intelligent – Feeling the squeeze. *Asia's Sandwich Generation*
4. Services for older people in Malaysia: issues and challenges <http://ageing.oxfordjournals.org/content/33/5/444.full.pdf>
5. The Sandwich Generation— Information Needs and Benefit Awareness
6. The World Bank - A growing burden for women of the 'sandwich generation'
7. The caregiver's journey: a phenomenological study of the lived experience of leisure for caregivers in the sandwich generation who care for a parent with dementia
8. <https://www.forbes.com/sites/jeffbevis/2019/01/24/caring-for-the-sandwich-generation/#2f5444305db5>
9. <https://www.pwc.com/my/en/assets/press/141004-caring-for-our-elderly-population.pdf>
10. <https://www.reviewjournal.com/sponsor-old/sandwich-generation-turns-to-technology-to-help-take-care-of-aging-parents/>
11. How Should Malaysia Respond to its Ageing Society? [http://www.e-mjm.org/2009/v64n1/Ageing\\_Society.pdf](http://www.e-mjm.org/2009/v64n1/Ageing_Society.pdf)

- Contents** ▶ Gen Alpha is the most technologically supplied generation ever
- ▶ They began being born in 2010, the year the iPad was introduced
- ▶ In 2040, when Alphas join the workforce, many of today's outgoing jobs will no longer exist
- ▶ This is the most tech savvy generation to date, kick-starting their business ventures even before the age of 10

## 2040: Unlocking the minds of Generation Alpha



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### Why they matter?

While some teetering and babbling Alphas' otherworldly adoration makes them the apples of our eyes, many born in 2010 have already started schooling. Being raised by Millennials and Gen X, Generation Alpha, wholly born in the 21st century, is peculiarly used to big screens and mobile phones as pacifiers, entertainers and educational aids.

Although Generation Alpha is not born inherently different to Millennials or Generation Z, with the world on the brink of a rapid reorganisation, much of Generation Alpha's personalities, motivation and outlook will be shaped by this tectonic shift. To put things into perspective, many of the outgoing jobs today, will simply not exist in 2040 when Generation Alpha joins the workforce. They are definitely the start of something new, not a return to the old.



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Globally, this generation is expected to be the wealthiest, most formally educated and most technologically supplied generation ever. However, we need to reorient our long-held views to accommodate new behaviour that this entrepreneurial generation will catalyse.

Governments, education providers, businesses and city planners are among the key stakeholders that have to think and act now to cater to a new demographic sophistication (education modules, learning tools, technology adoption, content creation, etc.). In short, greater access to technology will lead to new ways of thinking and doing. And as the speed of technological change accelerates, this too will accelerate our changing expectations.

For example, a complete redesign of shopping malls might be needed to cater to a new retail experience for this generation. Understanding why they will behave the way they would is a crucial indicator to crack who they really are behind the skin.

Mobile and wearable devices feature heavily in Generation Alpha's lives. Growing up to the development of technology, Artificial Intelligence (AI) and sophisticated algorithms provide Generation Alpha new ways of communicating and interacting.

Perhaps this explains why many professional trend forecasters are trying to wrap their heads around this young cohort. The following is a general consensus about the demographic group, at least, analysing by the very little we know today can give us a head start in figuring out how this generation would tip the balance in the future. In no way this article intends to define the essence of Generation Alpha, but rather, we are trying to project a provisional generational identity onto what could be the most important generation of the 21st century.

## The technologies shaping Generation Alpha's social fabric

AI is a prevailing trend that's shaping Generation Alpha's technology outlook. To a substantial degree, some AI devices are already targeting Generation Alpha. These devices pair AI with image or voice-recognition technologies such as Mattel's Hello Barbie and last Christmas' must-have Hatchimals.

Further making inroads are AI assistants such as Amazon Echo and Google Home. These devices are slowly making their way into homes. All this could potentially create a shift in children's perception of intelligence. Another example is MIT Media Lab's recent study that revealed children find AI "agents" such as Amazon Echo Dot and Google Home friendly, trustworthy and even smarter than themselves. However, even at such tender ages, the children under study realised that they were not human and regarded them closer to animals or pets.

### Higher expectations of smart devices

Generation Alpha is a demanding lot. They want their physical play experiences to deliver more fun, interactions and responses. Nonetheless, Generation Alpha will likely have higher expectations of smart devices as they're exposed to them from a very young age. As a result, devices that interact with Generation Alpha will need to gain emotional intelligence to cater to Alphas' growing demands.

Cultivating this idea is a robotics company called Anki. The company is currently developing intelligent robots to be marketed as pets to Generation Alpha. Called the

Cozmo, the AI toy robot began life as a project to push the envelope of AI and robotics technologies. Anki's executives wanted to bring charming characters usually found in animation movies into the real world.

Instead of transmitting facts like Siri or Alexa, the little toy robot endears its owner with its big AI brain and personality. Although the Cozmo does not speak, it communicates through movements and expressions. Its "eyes" are displayed on a small screen and face-recognition technology allows the robot to recognise its owner and say their name using its distinctive voice tones.

### Voice recognition

Voice recognition technology is going to grow at a rapid rate. While screens put up a barrier between users and their environment, which oftentimes result in insular, singular user experience, voice-technology is quite the opposite. Making technology more accessible to younger children, interactive voice-recognition interfaces will affect Alphas play patterns in completely new ways.

To illustrate, voice-recognition technology provides a solution for young Alphas to interact with AI computers without needing the literacy to operate computer tools such as a keyboard. However, at present, an MIT study recently showed that voice-recognition systems are not yet ready and struggle to capture the real meaning of young children's talk. Despite this, voice-recognition technology will become a major technology platform that will rival interactive screens.

### Gestural control

Generation Alpha's interactions with technology will become more physical and gestural in the future. With the rise of Virtual Reality (VR) and Augmented Reality (AR), gestural interfaces allow people to interact with digital content using hand or body movements. These movements are synced to wearable devices and tracking sensors. Interestingly, as travelling becomes more expensive and difficult due to changing attitudes in response to climate change, AR will rack up wider applications as a means to explore new landscapes and destinations.

Data, smart devices and wearable technologies are fashioning highly personalised products and services to serve Generation Alpha consumers in the future. Based on feedback, machine-learning algorithms now have the ability to learn how consumers interact with a device over time and tailor the experience to their needs. This is a common theme that forward forecasts have identified to be a critical measure of Generation Alpha's growth.

## Future trends

By 2040, the eldest Alphas will be 40 and the population is predicted to reach 35 million. As with all generations, when and how they grow up will impact how they behave and the choices they make. Although forward forecasts tell us that Generation Alpha will be under strain with multiple trends and forces below buffeting their future, we can learn a fair bit about them by analysing some key areas to find out what makes them tick.

### A highly entrepreneurial generation

Every new generation is more entrepreneurial than the one that precedes it. Given that Generation Alpha will turn out to be the most sophisticated generation ever, it is no different. Higher access to information and resources will see a lot of Alphas starting-up their own business ventures before the tender age of ten. This early learning curve will greatly improve their chances of success as Alphas will grow up taking more chances than neither their Millennials, Gen X nor boomers family members ever did.

### Education

Generation Alpha obtains robust education from online learning. Although we understand that they will be in the education system longer, Alphas have their own way of keeping abreast of the knowledge they need. A huge percentage of them will forgo the higher education system altogether in favour of cheaper or free self-taught medium. Families of means however will be able to stretch support for their Alphas by investing heavily in education. When Generation Alpha eventually steps forward to the fore, the divide between the rich and the poor will become much greater.

### Tech savvy but isolated and heavily dependent on social networking platforms

As mentioned earlier, Alphas are introduced to mobile phones early in life. Alphas grow up learning by using technology in intertwined processes. Going into their teenage years, Alphas' mobile phones sport high levels of sophistication and they primarily use their mobile phones over laptops or desktop computers. The mobile platform is very important to visually-inclined Alphas. They gravitate more toward mobile-friendly applications that are easy to navigate and deliver engaging user interfaces. Significantly, Generation Alpha expects nothing less but everything to be customised to their individual needs. So, to tap into this demographic group, either for marketing or recruiting purposes, winning across the mobile platform is a critical imperative.

### Digitally-impaired?

Despite Millennials being considered digital natives, Alphas are one step ahead. It's telling when we take into account that their first babysitters were iPads! The first Alphas were born the year iPad was launched back in 2010. To most Alphas, a screen is more natural than a piece of paper having had one in their hands before they could barely talk.

However, being exposed to mobile devices so early in life has its toll on Alphas. Implications such as delays in speech and social development have been well documented over the years. With so many variables and split opinions, it's mounting up to be a huge challenge for educators to forecast how this will impact Alphas' learning and what they need to do to overcome this rampant ailment.

### A whole new retail experience

Generation Alpha primarily shops online and makes less human contact than previous generations. In a recent McKinsey study, 40% of employers said they were experiencing difficulties filling vacancies because younger workers lacked soft skills such as communication and teamwork. Despite being the most connected generation, Alphas spend considerably less time talking to each other. This is clearly one of Alphas' inherent shortcomings.

### They heavily take after their Gen X and Y parents

Alphas may have been born to much older parents by comparison with earlier generations. After all, this comes as a result of Gen Y deferring marriage and childbearing. Despite this, Alphas take after their parents a lot. Similarly, as Gen Y was always made to feel entitled, this too will carry over to Gen Z and Generation Alpha.

Alphas too will raise their kids how they were raised and much of their Gen X and Gen Y parents' influence will exert impact upon Alphas' decision-making well into their adulthood. Evidently, every new generation is getting more influenced by their parents more than their friends, influencers and the surrounding. To most Alphas, what their parents make of a product or a service is just as important as their own views.

## Bigger shoes to fill

In relative terms, Generation Alpha is more self-sufficient, better educated and is better positioned for success. However, like we mentioned earlier, Generation Alpha will have to face up to many of the world's most acute challenges. This includes global warming and economic deficit. In general, demographic experts hinted they won't

have much social security or safety net to fall back on, but will enjoy the benefits of healthcare programs such as Obama Care and the likes.

By looking into their demographic composition in Malaysia, future Generation Alpha parents can anticipate what types of future support Alphas may need in respect of their mental and financial well-being to help them reach their full potential.

# Gen α in 2040

**Born between 2010-2025**



2010 was the year both Instagram and the iPad got launched.

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**2040**  
Age: 15-29

**1st Generation** that are entirely born within the 21<sup>st</sup> century.

The wealthiest, most educated and most technologically connected generation



Might live up to **140 years**

This generation will prefer communicating via images and voice control over typing and texting.

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**Population**

**2040** this generation will reach a total of **2 billion** people worldwide by the time the youngest is born in **2025**

There are more than **2.5 million** Gen Alphas born globally every week.

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**Population in Malaysia 2040**

It is expected that the population of Alpha Gen in Malaysia in 2040 to be around



**8 millions of people**

**21%** From total population

**Generation Alpha's trend**

Have influence over their parents spending



of **8000** millennials parents said the habit of their **4-9 years old children** influenced their last purchase.

---

Highly rely on technologies in everything. Could lead to a lonely, detached and a life with less direct human contact.



Stay earlier and longer in school, thus stay at home longer with parents.




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Artificial Intelligence will be the norm for health maintenance.



The millennial parents might replace human caretaker with robot caretaker in the future.




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Rely on online shopping.



Virtual retail stores will become more abundant.

**Lifestyle**

With birthrates currently higher among ethnic minorities, Gen Alpha will be a more culturally diverse generation.




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They are born into technology. These children live in an open-book environment and a truly borderless world. They will always be just a few clicks away from any information.



They will live in the moment. They will have very little sense of the past and no concept of the future. Instant gratification is their only mantra.




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Many of them will be single children and may grow up ... a tad bit over-indulged by their millennial parents




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Fewer people from this generation may marry in the future.



**Family blend**



Gen X Grandparents    Gen Y Parents    Single-child families trend

---

Gen Alpha children are more likely to be an only-child.



Role of parents will span a longer duration.



It is likely that more than half of the Alphas will be living with their parents until late 20s.

**In school**

Gen Alphas learning method will lean more towards visual, hands-on method rather than the structured, auditory method.




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A percentage of alphas will avoid higher education system and opt for cheaper online learning system.



**Work**

Gen Alphas will change jobs more frequently.



Contracting and freelancing in specialist areas will be ubiquitous for them.

Take on jobs that don't yet exist today.

Sources: DOSM, McCrindle., Grant Thornton, Only Child Experience & Research, Pew Research Centre, Smart Brief, Flux Trends, Interesting Engineering, MIGHT

## The future job market, what does it mean to Alphas?

Many of today's jobs will not exist when Alphas (born between 2010-2022) begin to join the workforce. Some industry leaders believe that by 2040, AI with human level intelligence will be walking down the street and undertake much of the work we do today.

In 2040, not many of today's jobs will endure the test of time. Going back, between 2000 and 2010, it has been estimated that robots and automation have made redundant approximately 5 million manufacturing jobs in the US alone.

### Future skills & training

AI and automation have largely been at the centre of world discussions around the future of work. The Oxford Martin School for example estimated that approximately 50% of all US jobs today are in jeopardy of industry automation. McKinsey however stated that 60% of today's jobs comprise at least 30% of automatable activities.

This rapid reorganisation requires a complete overhaul of the skillsets that the vast population of today's workforce will pass down to their Alphas. The next generation requires all these skills to adequately explore, process, and use knowledge well beyond their own bounded knowledge and understanding.

In relation, the Partnership for the 21<sup>st</sup> Century Learning has identified four skills that should be emphasised to prepare children for the future of work: creativity, critical thinking, communication, and collaboration. These skills need to be put in place to help Alphas empower their knowledge to find an edge in a constantly changing world.

### Future classrooms

To prepare Alphas for the job market, today's schools must be equipped with high speed internet and embrace social platforms. Schools need to expose students to new technologies much faster. Technologies such as 3D printing, drones and robotics are the centrepiece of tomorrow's industries. In part, schools need to articulate what impact these new technologies could impose in the future.

Alongside technology, schools need to frame a global context across their teaching curriculum. Teaching staff too need to be trained with up to date strategies and teaching techniques to deliver enduring education that can help Alphas with their career outlook down the track.

Additionally, schools need to introduce new fields such as user experience design and the latest schools of thinking as a scaffold for project work. Not only that, schools need to form joint-efforts with international partners so that their students can benefit from wider industry linkages and networks.

Regardless of the field Alphas choose, the ability to think creatively and being quick on their feet are indispensable skillsets of the future. In view of increasing automation and demanding future workplace expectations as identified by the World Economic Forum, higher adoption of technology in schools is a must to promote career connected learning.

To illustrate, Pearson recently partnered with Nesta and the Oxford Martin School to predict which current jobs are most likely to see increased demand by 2030.

These jobs are clustered up into two fields: Service Providers, and Content Creators and Managers. Both clusters demonstrate jobs that require human's cognitive skills that are almost impossible to replicate with AI.



By 2040, AI with human level intelligence will undertake much of the work we do today.



By 2050, the eldest Alphas will be 40 and the population is predicted to reach 35 million.



In a recent McKinsey study, 40% of employers said the they were experiencing difficulties filling vacancies because younger workers lacked soft skills such as communication and teamwork.

### Service providers

Counsellors, therapists, and social workers

Teachers

Fitness professionals

Hospitality professionals

Legal professionals

Fashion and personal appearance professionals

### Content creators and managers

Artistic, literary and content creation professionals

Engineers

Entertainers

Entrepreneurs

Librarians and curators

Natural and social science professionals

## What does Generation Alpha support system look like?

Every stakeholder plays a crucial role to prepare Alphas ahead of time for their generation. Similarly, Malaysia needs a conducive environment to learning in order to fulfil our Generation Alpha's future promise.

### Government

To begin with, the working landscape and the economy in which Generation Alpha will navigate are a stark contrast to what they are today. In turn, we have to uphold equal rights and workers' rights legislations, and map them across the needs of the freelance economy.

Apart from legislation, any outstanding issues around the freedom of information in the digital age need to be put to bed to accelerate the economy. New protection instruments must find a way to co-exist, in the same way patents had done in the last century.

However, security and privacy concerns are ailments that may plague Generation Alpha. While AI tools and increased data collection allow personalised interactions, they also pose security and privacy risks. The increase in devices connected to the internet makes Generation Alpha more vulnerable to hacking.

In particular, it is quite difficult to legislate devices that collect data from children as they do not have the cognitive maturity to provide consent. For example, devices such as smart baby monitors and bracelets that parents use to track their babies' health stats or movement are collecting information about infants who have no knowledge of how their personal data is being used. By and large, this calls attention for the need to raise technological literacy among parents! However, will our policies be ready to meet these challenges?

#### References:

1. The Future of Families to 2030: A Synthesis Report ; OECD
2. Understanding Generation Alpha; WIRED Consulting
3. Department of Statistics Malaysia

### Industry

Innovation is the key to survival. Even more so, organisations must turn to technology to address tomorrow's economic expectations. The pace of technology adoption and the use of data are the drivers of tomorrow's economic efficiency and valuable business insights. While automation of processes promises to free up the workforce's roster in order to focus on more stimulating tasks, innovation will be crucial to retain Generation Alpha's customers and employees.

More than any youth generations that came before them, Generation Alpha will seek the 'latest' and the 'newest' and they'll have no qualms about switching products or services. Consequently, this will prompt shorter life cycles of brands and products. Brands can no longer afford to under invest as they have to make sure they have new products and services in the pipeline to continuously deliver. However, will our businesses be able to cope with the dynamic demands of Generation Alpha?

### Academia

Again, this is the most formally educated, the most technologically supplied and the most entrepreneurial generation ever. They are all too comfortable with the seamless integration between technology and everyday living. Likewise, Alpha students expect technology to be integrated into their curriculum too. By virtues of having higher and earlier access to technology, don't expect Alphas to wait around until college to kick-start their career learning or business ventures. Many Alphas will already have started their own companies when they enrol into university. However, will our universities be relevant in the future?



# Predicting the Unpredictable

## How trends of today impact society in the future

For eons, humankind have been attempting to predict the future. Our obsession has resulted in over 250 methods of divination ranging from observing animal behaviour to cosmic events, from using leaves to cards, sacrificing animals and conjuring spirits. One would think we would be able to predict the future from anything. Even with the advancements in technology and increase in education levels, humankind's fascination with knowing what will happen before it happens has never wavered. In fact, it has increased and has become a necessity in all aspects of our lives.



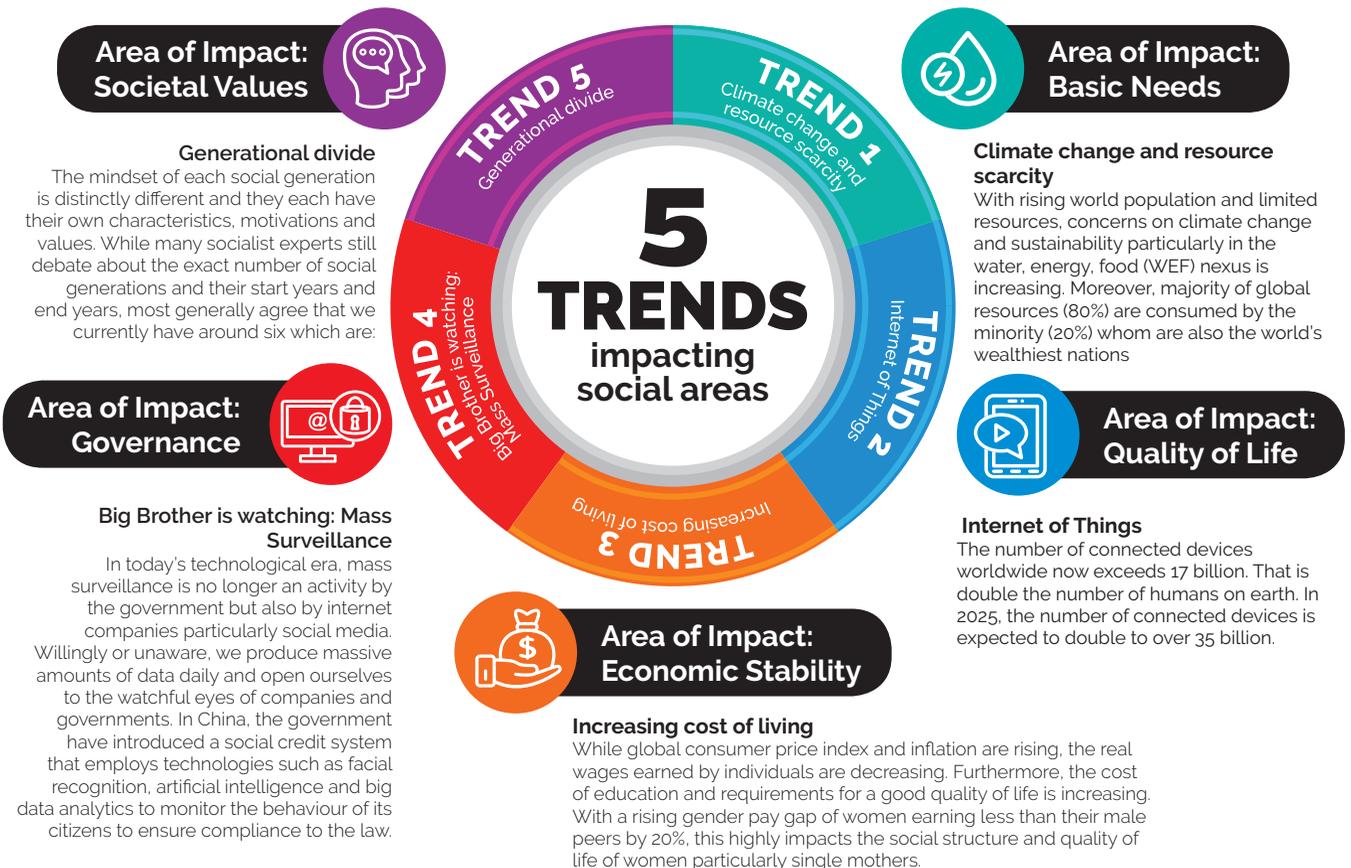
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Today, predicting the future is no longer solely associated with shamanism.

Instead, it is a methodological approach of preparing ahead to ensure higher rates of success and survivability. Futures thinking is about preparing ourselves for all future possibilities. Hence, when one of the possibilities comes knocking, we are ready to grab the opportunity. As they say, opportunity only comes to those who are prepared. Often, we see how true this is as organisations, businesses and governments hire planners, strategists, visionaries and futurists to help them prepare for what may arise in a volatile, uncertain, complex and ambiguous world.

How we predict the future to unfurl, opportunities that may arise and preparation that we undertake are often based on known trends that are conventionally a continuation of the information we have today. Here we present a glimpse of how today's trends will impact the future individual, family and community in five areas; basic needs, quality of life, economic stability, governance and societal values.





## TREND 1

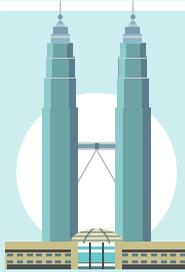
Climate change and resource scarcity

Area of Impact:  
Basic needs

### What we see in Malaysia



Individual



Malaysians on average, waste about 1kg of food daily. In total, that is enough to feed 12 million people a day. There is currently a move by the government to formulate the Food Waste Act.

Amount of avoidable food waste generated by Malaysians in

**18 DAYS**

is equivalent to the Petronas Twin Towers filled to the brim

### Possible future impact

Unless a change of mindset occurs, Malaysians will continue to overconsume. This will put more strain on our limited resources until a dystopian society akin to the movie Mad Max might occur.



Source: Mad Max (2015)



Family

With increasing life expectancy among the elderly and children growing up and needing continued care, increasing requirements for basic needs are creating a sandwich generation. This is causing stress among middle-age family members who have to support the basic needs of their ageing parents while providing for their children.

Malaysia's sandwich generation will continue to grow. With smaller families, most of the burden will fall on fewer siblings and this will require the future working society to work harder to earn more.



Community

While we often think of access to WEF nexus as a community's basic needs, broadband connectivity is rapidly becoming one of the most essential service and many claim a basic human right for the world's population. It is a tool for communication and opportunity to elevate communities through access to education, employment, and essential information and services.

Without proper management, the lack of connectivity will potentially create a larger disparity among rural and urban communities, developed and underdeveloped countries.

**In 2017** highest broadband penetration rate was

Kuala Lumpur at **225.2 per 100** inhabitants



while the lowest



Sabah at **64.5 per 100** inhabitants



Source: World Bank Development Indicators, 2008 | SWCorp, 2017 | MCMC, 2018



## TREND 2

Internet of Things

Area of Impact:  
Quality of life

### What we see in Malaysia



Individual

Malaysians spend an average of 8 hours a day on the internet, the fifth highest globally.

How we spend our day online:



Internet  
**8H 05M**



Social media  
**2H 58M**



Broadcast, streaming  
and video on demand  
**2H 52M**



Streaming music  
**1H 18M**

### Possible future impact

While we appear to be connected in the digital world, individuals are spending less time on face-to-face interactions and physical activities. This may result in physical social awkwardness and a sedentary lifestyle with its related illness. Social media is also known to create slacktivism and keyboard warriors that will push the social boundaries on freedom of speech.



Community

Many local communities are starting to reconnect and revive the spirit of neighbourliness with the introduction of social media and mass messaging apps. By subscribing to community platforms, many busy working individuals now have the chance to know what is happening within their neighbourhood as well as get to know their neighbours better. With 27.3 million users in Malaysia subscribing to WhatsApp, many of us have neighbourhood WhatsApp groups that allow us almost instantaneous access to the people surrounding us.

Increasing community vigilance and sense of belonging will tighten social cohesion among communities who are linked through the place they stay, work or have interests in. Notably, these feelings of presence and safety are hinged on acts of resistance and alienation towards strangers. Therefore, future communities might be leaning towards closed communities that will be wary of outsiders.

## What we see in Malaysia

Studies conducted in Malaysia on the impact of internet and social media towards family structure, showed that urban families are now becoming more individualistic, disconnected and threatening family values.



### Growing Up Too Fast: Malaysian Children Exposure to Sex

**80%** (10-17 years old) watch pornography intentionally.  
**89%** (13-17 years old) victims of online grooming.

However, there are some positives to the advent of technology. It has eased raising a family with two working parents, bridging the physical distance between ageing parents and distantly located children and connecting family members regardless of time and distance. In addition, the internet of household things has enabled better quality of life in terms of security, house upkeep and entertainment.

Source: IOT Analytics, 2018 | Global Web Index, 2018 | Malaysians Against Pornography 2018 survey

## Possible future impact

Families of the future will be increasingly digital and virtually connected. With introduction of cobots (collaborative robots) in the home space, it will not be long before we have robot helpers as part of the family.



Family



## TREND 3

Increasing cost of living

## Area of Impact: Economic Stability

## What we see in Malaysia

With escalating prices of goods and services, the government has increased minimum wage to RM1,100. However, based on a recent EPF study, a person that earns minimum wage would not be able to afford a reasonable standard of living in the Klang Valley.

If you live in the Klang Valley

### THIS IS HOW MUCH I NEED A MONTH



**SINGLE**  
(Public transport user)  
**RM1,870**



**MARRIED**  
(With one children)  
**RM5,730**



**SINGLE**  
(Car owner)  
**RM2,490**



**MARRIED**  
(With two children)  
**RM6,620**



**MARRIED**  
(Without children)  
**RM4,420**



**ELDERLY COUPLE**  
**RM3,090**



Individual

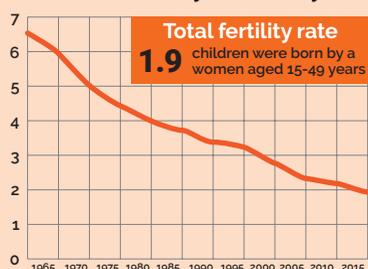
## Possible future impact

With increasing costs of living and low wages, Malaysians will be driven to migrate overseas to greener pastures to earn more and have a better quality of life.



The total cost of raising a child in Malaysia found that it ranged from RM400,000 to RM1.1 million. Hence, many couples are now opting for smaller families and even forgoing having children.

### Malaysia fertility rates are declining



### Average Household size

(The calculation of the average household size is based on population projections)



**4.06** persons  
**2017** → **4.03** persons  
**2018**

Malaysia's population will start shrinking due to a negative replacement level fertility. This will impact the labour force and bring concern to the dependency ratio as fewer working people will need to support a larger ageing population particularly for the cost of healthcare.



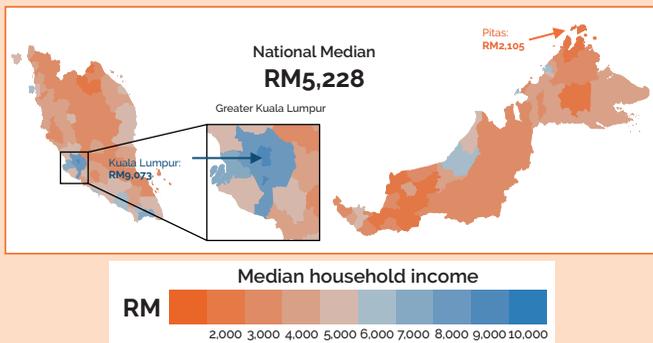
Family

## What we see in Malaysia

Malaysia is not only observing a rising cost of living but also a widening income gap between the higher income households and lower income households. While Malaysia's GINI coefficient has decreased, we are still more unequal than most of our regional neighbours, and 30% more unequal than advanced OECD countries

**Within Malaysia, difference in median household income can be quite stark**

**Median household income district, 2016**



Source: Department of Statistics Malaysia

## Possible future impact

In a survey, 77% of Malaysians think that the gap between the rich and poor is a big problem. To many people, it feels like the rich are getting richer while the poorer are getting poorer. With such strong levels of dissatisfaction in the community, this could lead to social tensions and conflicts.



Source: Global Wage Report, 2018 | EPF, 2019 | AIA, 2016 | DOSM, 2018 | Pew Global, 2014



## TREND 4

Big Brother is watching: Mass Surveillance

Area of Impact:  
Governance

## What we see in Malaysia

Post-truth culture appears to be the new norm among individuals where emotions rule and shape public opinion in decision-making regardless of factual evidence. Governing in this post-truth digital world littered with fake news and extremist views, Malaysia relies on the Communications and Multimedia Act 1998 and several other laws.

## Possible future impact

Post-truth news, media and politics appears to be gaining ground as it is becoming increasingly difficult for authorities to monitor and regulate the deluge of information on the internet. Without self-governance from individuals, this could lead to a divisive society, post-truth decision making and election of post-truth leaders.

Parents whom are increasingly concerned of their children's internet use are now relying on technology to monitor their behaviour, activity and exposure particularly in social media. Family governance now includes limiting screen time, monitoring technologies such as trackers to locate children whereabouts and shared social media access.

**How Malaysian parents govern their children's online usage**



Source: MCMC Internet Users Survey, 2018

Parental control on technology if understood and respected by all parties is a positive impact towards childhood development. It also brings realisation to many parents on the importance of being a part of their children activities and having an open communication. In the long run, this would probably bring upon a more positive communication channel and open family structure.



In 2018, the Malaysian police established the Malaysian Internet Crime Against Children Investigation Unit (MICAC) that is equipped with real-time mass internet surveillance software and is tasked with the monitoring of all Malaysian internet users, with a focus on pornography and child pornography. The system creates a "data library" of users which includes details such as IP addresses, websites, locations, duration and frequency of use and files uploaded and downloaded.

There will be an ongoing battle between different camps of society that believes the government needs and has the right to monitor its citizens versus those who believe that digital privacy is a right. With no clear winner in the near future, data will continue to be collected and possibly misused by technology companies.





# TREND 5

## Generational divide

## Area of Impact: Societal Values

CATEGORY	BUILDERS	BABY BOOMERS	GENERATION X	MILLENNIALS	GENERATION Z	GEN ALPHA
	<p><i>We prefer proper English if you please</i></p> <p>Born: &lt;1946 Age: 73+</p>	<p><i>Be cool</i> <i>Peace</i> <i>Groovy</i> <i>Way out</i></p> <p>Born: 1946-1964 Age: 54-74</p>	<p><i>Dude</i> <i>Ace</i> <i>Rad</i> <i>As if</i> <i>Wicked</i></p> <p>Born: 1965-1979 Age: 39-53</p>	<p><i>Bling</i> <i>Funky</i> <i>Doh</i> <i>Foshizz</i> <i>Whassup?</i></p> <p>Born: 1980-1994 Age: 24-38</p>	<p><i>Idk</i> <i>Legit</i> <i>Squad</i> <i>Totes</i> <i>Whateus</i></p> <p>Born: 1995-2009 Age: 9-23</p>	<p><i>Lit</i> <i>Fam</i> <i>Hundo</i> <i>Yas</i> <i>RN</i> <i>Lel</i></p> <p>Born: From 2010 Age: under 9</p>
Social markers	World War II 1939-1945	Moon landing 1969	Stock market crash 1987	September 11 2001	GFC 2008	Trump/Brexit 2016
Leadership style	 Controlling	 Directing	 Coordinating	 Guiding	 Empowering	 Inspiring
Ideal leader	Commander	Thinker	Doer	Supporter	Collaborator	Co-creator
Learning style	Formal	Structured	Participative	Interactive	Multi-modal	Virtual
Influence/advice	Officials	Expects	Practitioners	Peers	Forums	Robo-advice
Marketing	Print (traditional)	Broadcast (mass)	Direct (targeted)	Online (linked)	Digital (social)	In situ (real-time)

Source: McCrindle Research, 2019

### What we see in Malaysia

### Possible future impact



#### Individual

At work, individuals from each generation have different work attitudes and workspace preference. Many companies find it challenging to cater for all these and to ensure productivity while managers mostly from the Baby Boomers generation often find it difficult to manage the younger generations.

#### What Millennials think of their managers at work:



say their managers did not always understand the way they use technology at work



say that the older senior manager does not relate well

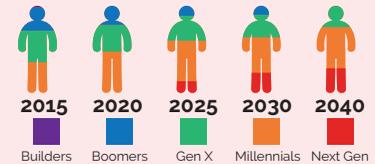


say that their personal drive is intimidating to older generations

Source: PWC, 2012

As more Millennials come of age, they form the majority of decision makers and societal values. Hence, many strategic parties ranging from politicians, retailers, companies are vying for their attention by appealing to their individual values and motivations.

#### World population by generation



Source: US Census Bureau



#### Family

Based on their own childhood experience, parents from each generation have a different perspective in life and philosophy of parenting.



*We want it to be easier for our kids than it was for us*

#### Baby Boomers parenting philosophy:

This philosophy, in turn, helped create and reinforce Millennials' sense of entitlement.



The generation effect has a strong impact on the societal values of the community. However, there are also other factors such as social, economic, educational, religious and technological differences that determines community values.



#### Community

As Millennials become the next generation of parents to Gen Alpha, this new generation will be the most technological-infused demographic to date and are considered to be digital natives as their tech-savvy parents expose them to technology early in their life. The future might then be even more dependent on technology and Gen Alphas will coexist harmoniously with cobots as their equals.

There is an increase in global exposure towards awareness of civic mindedness and sustainability issues. As more individuals in the community become more aware on how their behaviour has a larger impact towards the environment, society and children, as well as increasing internet vigilance on bad behaviour, people will start to behave better out of force and eventually from habit. In the future, mindfulness of others would become a norm and no longer a slogan.

By presenting a glimpse of how today's trends will have future impacts on our basic needs, quality of life, economic stability, governance and societal values, we are able to open our minds to different possibilities. In scenario planning and foresight, we often emphasise that the future that we foresee today is not singular but a possibility of many futures. Hence, these are just some possibilities to start your preparation for the future today.

## myForesight® in the news

### Making sense of 4th Industrial Revolution

*Dewan Serbaguna, Aras G, Ministry of Domestic Trade and Consumer Affairs (KPDNHEP)  
24<sup>th</sup> January 2019*



In a time of changing operations and global supply chains led by the Fourth Industrial Revolution (Industry 4.0), the Ministry of Domestic Trade and Consumer Affairs (KPDNHEP) aims to maximise the value of its joint-effort with key stakeholders to promote effective policymaking.

Significantly, Industry 4.0 has been identified as a key growth engine that will generate high-value economic and social development for the country and spur the country's digital-economy growth.

Hence, to ensure inclusivity in the formulation and implementation of the ministry's policies, programs and initiatives, a briefing session with KPDNHEP's senior management took place on the 24th of January 2019 at 9.30 am at Dewan Serbaguna, Aras G, KPDNHEP.

The session was delivered by MIGHT's Senior Vice President, En Rushdi Abdul Rahim with his presentation: Making Sense of the 4th Industrial Revolution.

### Sparking innovation in the public sector

*Phnom Penh, Cambodia  
4<sup>th</sup> March 2019*



The Royal Government of Cambodia and the UN Development Programme (UNDP) recently held a National Conference called the 'Public Sector in the Digital Era' to look at various ways to advance innovation in governance. In an effort to improve public sector delivery in the digital era, the conference brought together experts and civil servants from all over the region to deliberate on the topic.

To lift the conference's dialogue, in part, MIGHT and myForesight® were invited as panel members for the scene-setting session. In his presentation, myForesight® Director, Mr Rushdi Abdul Rahim, shared with conference attendees Malaysia's initiatives and noted the challenges posed by disruptive forces during his 'Future of Malaysia Public Service: Beyond 2020' slot.

Significantly, 25 policy directions have been identified and these forward actions will be deliberated by future decision makers in the formulation of policies and plans. However, to power the transformation, a local context will be key to Cambodia's public service delivery. It was envisaged that local experiments are crucial to carve out the solutions for local challenges.

The session was then followed by a breakout session. During the session, participants explored wide-ranging possibilities of digital technology adoption within the public sector to support Cambodia's Sustainable Development Goals (SDGs). In turn, this is hoped to strengthen Cambodians' trust in the governance system, as Cambodia takes another step toward improving its public services delivery.

## The future of jobs at the 1st ASLI-MSA thought leadership series on education policy

Sunway Lagoon Club, Selangor  
6<sup>th</sup> March 2019



How would the future of jobs impact the education of today? This was a question that myForesight-MIGHT were recently invited to answer and provide as a scene-setting to the 1st Asian Strategy and Leadership Institute (ASLI) and Malaysian Scientific Association (MSA) Thought Leadership Series on Education Policy – "From STEM to STREAM – Innovating Malaysian Education".

Based on myForesight-MIGHT previous work on the topic of Future of Work, Workforce and Workplace, a presentation by Dr Tan Shu Ying; Principal Analyst at myForesight-MIGHT, introduced the job and education revolution that is currently occurring as a result of the Fourth Industrial Revolution.



Touching on the top trends and emerging challenges shaping the future of jobs, she further emphasised on the volatile future that will require more human critical skills rather than just technical skills and the importance of life-long learning towards reskilling, unlearning and new learning. In line with the theme of the roundtable discussion, it is without a doubt that tomorrow's jobs will indeed require innovating Malaysia's Education system today.

*"To prepare our future generations for jobs that have yet to exist; the key is to liberate their minds. The empires of the future, are the empires of the mind"*

## Opening up new horizons – ForesightClub@UTHM 2019 series

MIGHT, Cyberjaya  
8<sup>th</sup> March 2019



In keeping with MIGHT's strategic intent to increase the nation's science communication reach, myForesight recently convened an engagement session with final year students from Universiti Tun Hussein Onn Malaysia (UTHM) to impart knowledge on Foresight thinking and methodologies.

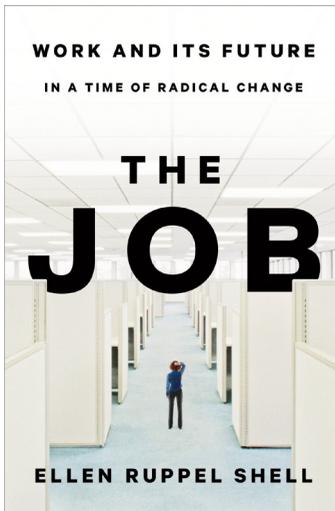
In effect, the session was aimed at equipping the final year students from various courses with hands-on knowledge on Foresight methodologies in order to help them plan their resources for long term horizons.

The session was facilitated by myForesight's Senior Research Analyst, Mr. Mohd Hasan Mohd Saaid. After touching on MIGHT's roles in respect of the nation's high-tech industry push, Mr Hasan shared a number of innovative Foresight tools to help participants bring new ideas and knowledge into impact in developing their final year projects.

The session took place at MIGHT's Cyberjaya headquarters on the 8th of March 2019. Next, group participants will gather again for another session where their work will be assessed by a panel of MIGHT's senior research analysts.

At the session, participants will receive advice and suggestions on how they can improve their final year project's feasibility and outcomes.

## myForesight® book club



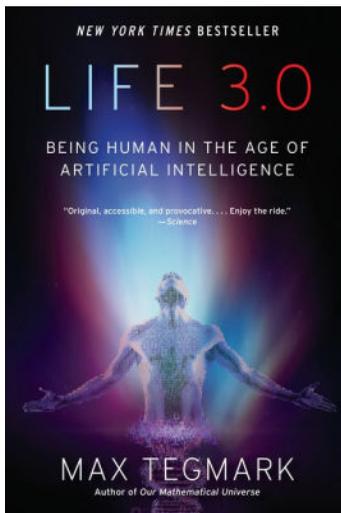
ISBN-10: 0451497252  
 ISBN-13: 978-0451497253  
 Author: Ellen Ruppel Shell  
 Publisher: Currency (October 23, 2018)

**The Job:****Work and its future in a time of radical change**

Critically acclaimed journalist Ellen Ruppel Shell uncovers the true cost--political, economic, social, and personal--of America's mounting anxiety over jobs, and what we can do to regain control over our working lives.

Since 1973, our productivity has grown almost six times faster than our wages. Most of us rank so far below the top earners in the country that the “winners” might as well inhabit another planet. But work is about much more than earning a living. Work gives us our identity, and a sense of purpose and place in this world. And yet, work as we know it is under siege.

Through exhaustive reporting and keen analysis, *The Job* reveals the startling truths and unveils the pervasive myths that have colored our thinking on one of the most urgent issues of our day: how to build good work in a globalised and digitalised world where middle class jobs seem to be slipping away. Traveling from deep in Appalachia to the heart of the Midwestern rust belt, from a struggling custom clothing maker in Massachusetts to a thriving co-working center in Minnesota, she marshals evidence from a wide range of disciplines to show how our educational system, our politics, and our very sense of self have been held captive to and distorted by outdated notions of what it means to get and keep a good job. We read stories of sausage makers, firefighters, zookeepers, hospital cleaners; we hear from economists, computer scientists, psychologists, and historians. The book's four sections take us from the challenges we face in scoring a good job today to work's infinite possibilities in the future. Work, in all its richness, complexity, rewards and pain, is essential for people to flourish. Ellen Ruppel Shell paints a compelling portrait of where we stand today, and points to a promising and hopeful way forward.



ISBN-10: 1101946598  
 ISBN-13: 978-1101946596  
 Author: Max Tegmark  
 Publisher: Knopf (August 29, 2017)

**Life 3.0:****Being human in the age of Artificial Intelligence**

New York Times best seller

How will Artificial Intelligence affect crime, war, justice, jobs, society and our very sense of being human? The rise of AI has the potential to transform our future more than any other technology—and there's nobody better qualified or situated to explore that future than Max Tegmark, an MIT professor who's helped mainstream research on how to keep AI beneficial.

How can we grow our prosperity through automation without leaving people lacking income or purpose? What career advice should we give today's kids? How can we make future AI systems more robust, so that they do what we want without crashing, malfunctioning or getting hacked? Should we fear an arms race in lethal autonomous weapons? Will machines eventually outsmart us at all tasks, replacing humans on the job market and perhaps altogether? Will AI help life flourish like never before or give us more power than we can handle?

What sort of future do you want? This book empowers you to join what may be the most important conversation of our time. It doesn't shy away from the full range of viewpoints or from the most controversial issues—from superintelligence to meaning, consciousness and the ultimate physical limits on life in the cosmos.

Produced and created by

**CHELTENHAM**  
**Festivals**

International Partner



Malaysian Partner



# Fame Lab

## TALKING SCIENCE

FameLab is a communications competition designed to engage and entertain by breaking down science, technology and engineering concepts into three-minute presentations. It is now the biggest science communication competition in the world, delivered in 30 countries. Contestants from around the world take part armed with their wits and a few props that they can carry onto stage – the result is an unpredictable, enlightening and exciting way to encourage your curiosity and find out about the latest research.

This column is dedicated to FameLab Malaysia Alumni to creatively share their ideas and thoughts.

More info at [www.britishcouncil.my/famelab](http://www.britishcouncil.my/famelab)



By **Sarah Adha Adam**

*My experience in FameLab so far has been nothing if not extraordinary. Overcoming my fears of stage fright and presenting in front of a panel of judges really made me positively change as a person. There is really nothing better than improving yourself and learning more than you already know. It is with FameLab that I find the concept of presenting topics in simple ways very fascinating and important to me, as everybody should have access to content that enables them to understand fast and easily. A life worth living is always a life filled with experience and knowledge. For the FameLab Central Heats, I took my previous speech and upgraded it, making NFC technology a topic people would want to hear. I wanted general audience to know that this technology has been existing for a very long time and that most of us are not even aware of its use in our phones in addition to what use it can bring to our lives.*

NFC stands for Near Field Communication. Imagine a QR code; there is a picture of random, squarish black and white shapes mixed together in a matrix-way. You need your phone to read the QR code, right? This is the same with NFC – you need your phone to scan the NFC item for a task to happen on your phone. The only difference is that for QR codes, they often lead you to a website. NFC ‘tags’ can enable your phone to turn on your flashlight, save a new contact number, turn on a YouTube video and even direct you to an application in the mobile application store.

But what do phones scan the NFC on? They are called NFC ‘tags’, which are very small, circular and plastic circuits that comes with a sticker for you to stick it on almost any surface, except metal. Metal surfaces make it difficult for you to scan anything on an NFC tag.

It is in almost every phone, Android especially. iPhones, however, are devices that can only read NFC but cannot write it. To put it simply, most Android phones can create NFC tasks on NFC tags as well as read them, but iPhones need an additional app to even have the ability to read them.

There are many mobile applications that enable you to create your own NFC tasks. Most common ones like saving a website or a contact number are easily found in these NFC applications. To do harder and more complex tasks such as set numerous alarms in just one NFC tag would mean you would have to learn and implement coding into your NFC tags.

It is in this era of technology and world of convenience that most people prefer living more convenient lives and making simple tasks simpler.

# Map the future

As a stakeholder and strategic policymaker, you can contribute by voicing out your opinion to help us map out the desired collective future for Malaysia.

This is an invitation by **myForesight**<sup>®</sup> to every member of the public. If you think we could have done better or perhaps you would like us to cover a specific topic in the study of Foresight or better yet, you would like to contribute an article, we would love to hear from you.

Send your feedback and get in touch with us at **foresight@might.org.my**

Website: [www.myforesight.my](http://www.myforesight.my)

We look forward to hearing from you.

**myForesight**<sup>®</sup> team

