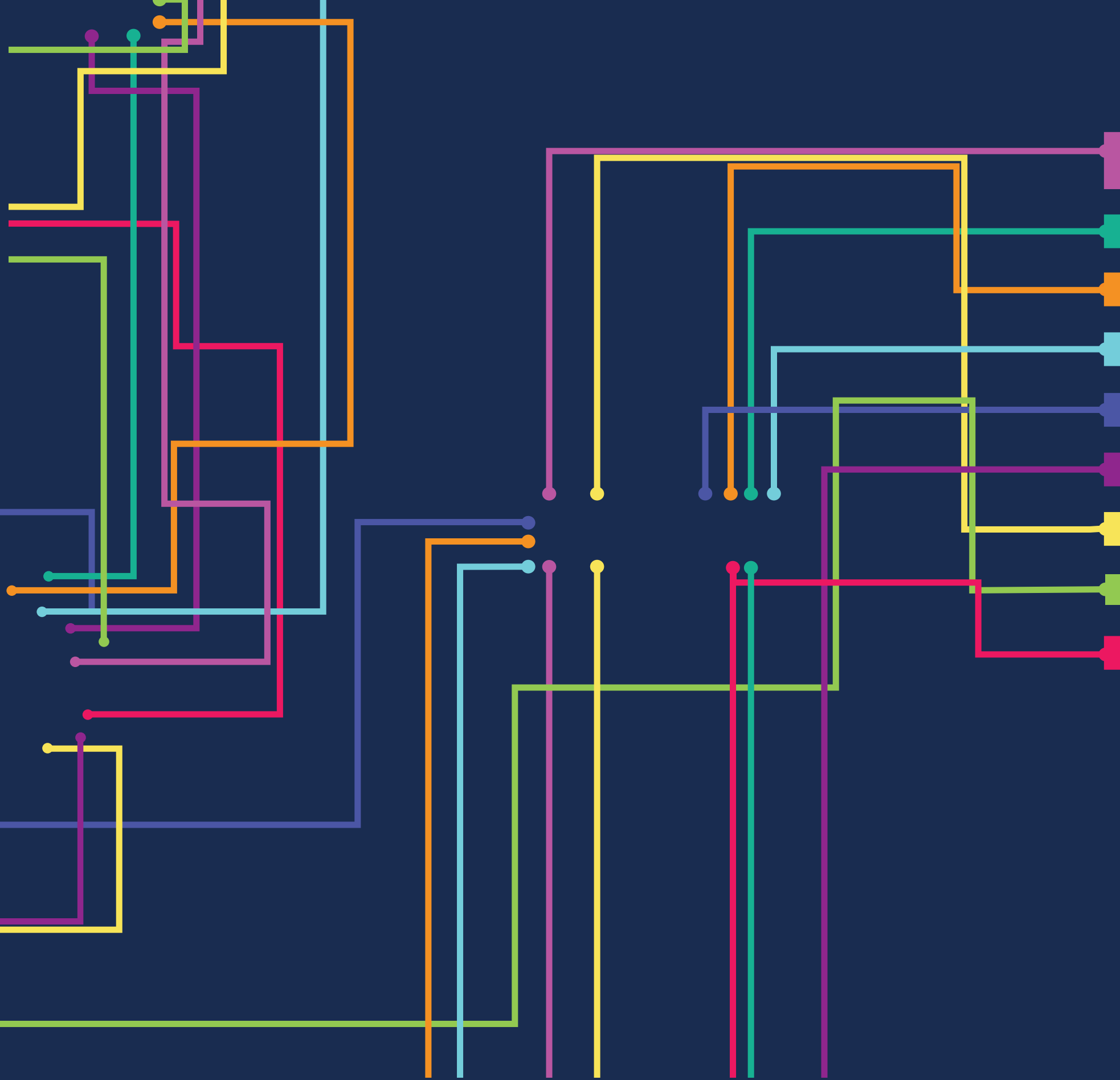




Envisioning Malaysia 2050

A Foresight Narrative

- ENVISION
- STRATEGISE
- RESPOND

Envisioning Malaysia 2050:

A Foresight Narrative



'A living narrative in which all the ideas will keep evolving over time.'
Progressive Malaysia 2050

Envisioning Malaysia 2050: A Foresight Narrative
A strategic foresight initiative for Malaysia's desired future

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Aspiration

Foresight provides a long-term, big picture view of how the future may unfold over a period of time.

It projects emerging needs, escalating risks and possible outcomes. This helps shape forward looking planning and coordination to prepare for the future.

The well-being of our people, success of our economy and sustainability of our development depend on advancing science, technology and innovation in Malaysia. We are also facing a new era of technological convergence whereby the internet of things (IoT), artificial intelligence, robots and life sciences are creating new values and redefining mobility, healthcare as well as safety and security of people.

Against such a backdrop, I dream of a Malaysia 2050 that is proficient in cutting-edge science, technology and innovation driven by world class talent for a better Malaysia for all.

YB Datuk Seri Panglima Wilfred Madius Tangau
Minister of Science, Technology and Innovation

Although the world has become more interconnected and interdependent, ironically the new norm is the elimination of human interaction. Less human contact has disabled the display of trust that spells out a threat to our harmony. Technology takeover is tearing apart the very fabric of society. Inequality and divides in various spheres plague our world. This compels us to reimagine our future based on Malaysia's unique people and values.

This Foresight narrative integrates the perspectives of science, technology and innovation, economics and finance, society and culture as well as geopolitics. Nine drivers of a Progressive Malaysia 2050 have been identified. Clearly, the cornerstone of all the drivers is PEOPLE and VALUES as this will make or break our vision. This is the reason we must chart our Malaysia 2050 journey on our terms, safeguarding our rich heritage and Malaysian values.

Ultimately, I wish to see the Malaysian people empowered to be the drivers of a Progressive Malaysia 2050 and custodians of our nation's harmony, prosperity and sustainability.

Professor Datuk Dr Asma Ismail FASc
President, Academy of Sciences Malaysia

Realisation



Peace and harmony: these are the two words that best express what we want in our lives, for our family and for our society. This message was repeated in numerous workshops and brainstorming sessions throughout the course of discussions leading to this Foresight.

Living in turbulent times driven by rapid changes in economy, society and culture does not detract people from recognising the true roots of prosperity and happiness. Science and technology may provide powerful tools that enable social transformation on an unprecedented scale. Yet there remains one constant: that we as human societies want to live a life of peace and harmony. Peace with ourselves and our fellow men. Peace with the natural world. And peace with our Maker.

The wisdom to build and maintain the delicate balance between the forces of change and the needs of society is the key that will unlock a future of harmony, prosperity and sustainability. This is the aspiration that I heard from our participants. I can only wish that Malaysia and its people will continue to cherish these ideals for all time to come.

YM Tengku Datuk Dr Mohd Azzman Shariffadeen FASc
Co-Chair, Envisioning Malaysia 2050

Values trump all.

This rallying call came up again and again during engagement sessions with diverse groups of stakeholders. It makes sense: if we valued social justice, ethics, integrity, the environment, our health, education, and our children's future, we would be empowered and act in ways that are best for fellow citizens as well as the country. With conviction and without coercion. Therefore, in this context, the one driver (of the nine identified in the study) that will have the biggest impact in realising our aspirations is us and our values (People and Values).

The sentiments expressed by stakeholders we engaged with have been compiled and analysed. From those views, four possible future scenarios were developed. To achieve the best depiction of the future, we have suggested transformational shifts in paradigms that involve strategic planning, prudent implementation schemes and intelligent policy choices.

The desired future that we present is what stakeholders have chosen. It is unique to meet our distinctive circumstances. To achieve them we must be true to our beliefs and altruistic values.

The initiation of the Progressive Malaysia 2050 Project is owed to Tan Sri Tajuddin Ali, former ASM President (2011-2016). His vision and foresight immediately saw the value of such an exercise; his ardent support and guidance ensured the successful completion of the project.

Academician Emerita Professor Datuk Dr Mazlan Othman FASc
Co-Chair, Envisioning Malaysia 2050

Acronyms

°C	Celsius
ACCA	Association of Chartered Certified Accountants
AD	Anno Domini
ADB	Asian Development Bank
AI	Artificial Intelligence
ASEAN	Association of Southeast Asian Nations
ASM	Academy of Sciences Malaysia
BEIC	British East India Company
BMI	Body Mass Index
BOP	Bottom-Of-Pyramid
C	Century
CAPES	Brazilian Federal Agency for the Support and Evaluation of Graduate Education
CCTV	Closed Circuit Television
CNN	Cable News Network
CNPq	National Council for Scientific and Technological Development
CO ₂	Carbon Dioxide
COP21	Conference of the Parties
CSM	CyberSecurity Malaysia
DFTZ	Digital Free Trade Zone
DOE	Department of Environment
DOSM	Department of Statistics Malaysia
EIA	Energy Information Administration
EIU	Economist Intelligence Unit
EPU	Economic Planning Unit
ESET	Emerging Science, Engineering and Technology
EU	European Union
FDI	Foreign Direct Investments
GDP	Gross Domestic Product
GDP in PPP	Gross Domestic Product in Purchasing Power Parity
GHG	Greenhouse Gases
GII	Global Innovation Index
GLAM	Galleries, Libraries, Archives & Museums
GMV	Gross Merchandise Value
GNI	Gross National Income
ICT	Information and Communications Technology
IEA	International Energy Agency
IKIM	Institute of Islamic Understanding Malaysia
IMF	International Monetary Fund
INTEGRITI	Malaysian Institute of Integrity
IoT	Internet of Things
ISIS	Institute of Strategic and International Studies
ITU	International Telecommunication Union
IYRES	Institute for Youth Research
KBS	Kementerian Belia dan Sukan / Ministry of Youth and Sports
KeTTHA	Kementerian Tenaga, Teknologi Hijau dan Air / Ministry of Energy, Green Technology and Water
Km	kilometre
KWAP	Kumpulan Wang Amanah Pencen / Retirement Fund Incorporated
LPWAN	Low-Power Wide-Area Network
MaGIC	Malaysian Global Innovation and Creativity Center
MAMPU	Malaysian Administrative Modernisation and Management Planning Unit
MASTIC	Malaysia Science and Technology Information Center
MCMC	Malaysian Communications and Multimedia Commission
MDEC	Malaysia Digital Economy Corp Sdn Bhd

MDG	Millennium Development Goals
MEF	Malaysian Employers Federation
MiGHT	Malaysian Industry-Government Group for High Technology
mil	million
MIMOS	Malaysian Institute of Microelectronic Systems
MITI	Ministry of Trade and Industry
MLD	Million Litres per Day
MOHE	Ministry of Higher Learning
MOSTE	Ministry of Science, Technology and Environment
MOSTI	Ministry of Science, Technology and Innovation
MPOB	Malaysian Palm Oil Board
MRT	Mass Rapid Transit
mya	million years ago
MyIPO	Intellectual Property Corporation of Malaysia
NAHRIM	National Hydraulic Research Institute of Malaysia
NASA	National Aeronautics and Space Administration
NEO	New Economic Opportunities
NGO	Non-governmental Organisation
NIP	National Integrity Plan
NPP-2	National Physical Plan 2
NRI	Network Readiness Index
OECD	Organisation for Economic Co-operation and Development
OTEC	Ocean Thermal Energy Conversion
PISA	Programme for International Student Assessment
PMO	Prime Minister's Office
PWC	PricewaterhouseCoopers
R&D	Research and Development
REHDA	Real Estate and Housing Developers' Association Malaysia
RM	Ringgit Malaysia (Malaysia currency)
S&T	Science and Technology
SEL	Social and Emotional Learning
SME	Small and Medium Enterprises
SPAD	Suruhanjaya Pengangkutan Awam DaratLand / Public Transport Commission
SSB	Sugar-Sweetened Beverage
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
SWOT	Strengths, Weaknesses, Opportunities and Threats
TN50	Transformasi Nasional 2050 / National Transformation 2050
TWh	Terawatt-hour
UKM	Universiti Kebangsaan Malaysia
UM	Universiti Malaya
UN	United Nation
UN DESA	United Nation Department of Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UPM	Universiti Putra Malaysia
USA	United States of America
USD	United States Dollar
USM	Universiti Sains Malaysia
UTM	Universiti Teknologi Malaysia
VPD	Vaccine-Preventable Diseases
WIPO	World Intellectual Property Organisation
WtE	Waste-to-Energy
ya	years ago



Framing the Challenge

We often ask ourselves: what does the future hold for us? We try to plan our future to the best of our abilities knowing that change is the only constant. Those who can adapt to these changes will be successful. As individuals, we have to learn, unlearn, relearn, and become resilient to these changes. As a society, we must come together to build a brighter future for the generations to come.

What does the future hold for Malaysia?

The future of our Nation affects each and every one of us, and its successes and challenges will be shared. How, then, do we encourage a nation to think about its future collectively and what are our individual roles in driving that future?

What future do we envision for our Nation? How do we face the challenges of the 21st Century where change is happening at a rapid pace, driven by globalisation, volatile geopolitics, economic crises, and disruptive technologies?

Because of the rate of changes and the magnitude of their impacts, we cannot take our future for granted. We need to quickly adapt to these changes or, better still, prepare ourselves to seize opportunities and mitigate risks as they arise. We must design the future that we desire and not leave it to chance. It is of the utmost importance that the success we want to achieve and the future that we want to design is based on our own model, charted on our terms, and takes into account our unique culture and values. We must never lose our Malaysian identity in the name of progress.

Against this backdrop, ASM embarked on the Foresight 2050 Initiative, which laid the foundation for the Malaysia 2050 Agenda. This Agenda was built on four pillars:

- identifying our current strengths and weaknesses;
- foresighting future opportunities and threats;
- recommending what needs to be institutionalised now and necessary changes to achieve common goals; and
- advocating knowledge generation and application of science and technology for our future success.

This framework should guide us on our bold journey to 2050.



The Foresight Initiative

The future is a landscape of possibilities. The most powerful idea in futures studies is the act of deciding to actively engage in foresighting in order to design the future we desire.

We can rally the Nation, enlist our common will and strategise our responses today to create better scenarios for our future. To achieve our aspirations, it is essential to not only have foresight but also to have hindsight and insight.



The ability to interpret and respond to our current situation based on Hindsight and where we want to be based on Foresight. Insight creates awareness and prepares us for action.



The ability to reflect and learn from our past successes and mistakes allowing a better understanding of our present.



The ability to predict and prepare for possible futures. Foresighting allows for calculated and rapid responses to future events

We have long sought a nation-building paradigm that fully recognises both the exciting and daunting prospects the future brings. History has shown that all successful nations have relied on a common set of national vision, values and aspirations to underpin mass coordination, leveraging on the strengths of the nation and harnessing indigenous knowledge to become agile, resilient and innovative. Hence, we need to ask some pertinent questions;

What is our common vision towards 2050?

What are our common aspirations towards 2050?

What can we do to be a driving force as individuals and as a Nation?

The Foresight Initiative is an inaugural effort by ASM to bring together various strategic partners to address the different facets of our Nation in addition to science and technology to include geopolitics, society and culture, and economy and finance. This Initiative presented an opportunity for stakeholders to think about our possible futures by embracing an imaginative yet realistic paradigm for strategic planning through the use of foresight or futures thinking.

In this book, you will learn the plausible scenarios of the future, key drivers and strategic implications developed by the Initiative. The envisioned desired future and how to achieve it will also be discussed. The Initiative recommends strategic interventions in the context of policy, and prioritisation of STI and development as a means to achieve the aspired future.



Foresight is an interdisciplinary field of knowledge for studying the future. It generates a number of plausible scenarios for us to decide on future course of action and is widely used as a tool for public policy-making. It involves the processes of anticipation that identifies opportunities and threats which may arise in mid-to-long-term versions of the future based on the data and trends of today. As a way of thinking, Foresight also engenders agility, innovation, strategic evaluation, and the proactive shaping of the future. Where traditional planning has sought to prevent failure, Foresight prioritizes resilience, namely, early detection and fast recovery.

A disciplined process of identifying, characterising, and anticipating the possible scenarios in Malaysia's future was adopted through a method in Foresight termed scenario planning. By taking into account different alternatives of our future in 2050, policy and decision makers, producers of goods and services, the community and STI influencers are able to put in place long term planning tools in anticipating and preparing for these plausible futures.

In particular, it enables the selection of a desired scenario that is conscious of our historical past and capitalises on our unique strengths while mitigating our weaknesses. Hence, we would be able to create the future that we desire that is based on our own Malaysian model that reflects our unique Malaysian identity.

To realise this, the Initiative seeks to answer five key questions:

Where are we now?

Where are we heading to?

What are the drivers of the future?

What could the future look like?

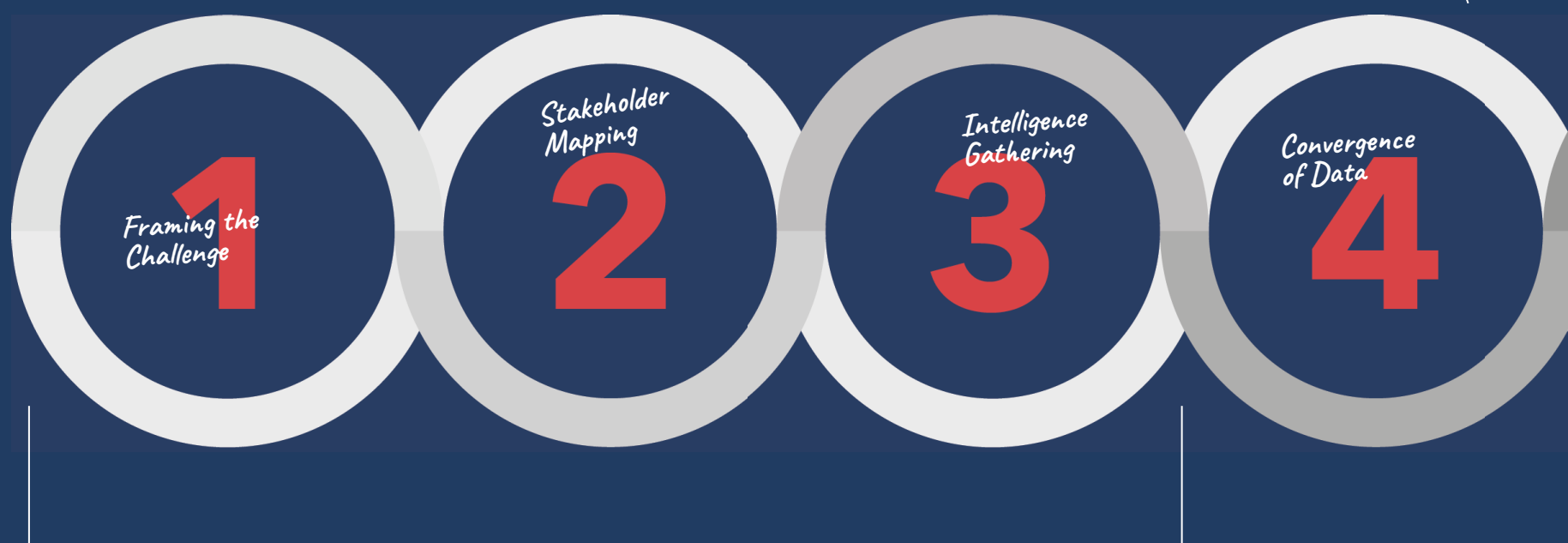
How do we achieve our desired future?

The Eight Stages and Its Deliverables

What are the drivers of the future?

Stages 4 – 5

Once the respective component reports were developed, the Foresight Initiative adopted a convergent thinking approach where the findings from the respective components was narrowed down based on commonalities, level of impact and degree of uncertainty. This was done to identify the key drivers of change and as the basis for scenario building.



Where are we now? Where are we heading to?

Stages 1-3

In the initial stages, we adopted a divergent thinking approach to generate multiple ideas by being inclusive in thinking and exploring a broad spectrum of the different facets of the nation to ensure the findings are comprehensive and inclusive. This was achieved through the collaborative partnership of the Foresight Alliance, where strategic partners addressed four different components:

Economy and Finance

Conducted by a team from the Faculty of Economics and Administration of the University of Malaya

Society and Culture

Conducted by a team from the Institute of Integrity Malaysia

Geopolitics

Conducted by a team from the Institute of Strategic and International Studies (ISIS) Malaysia

Science and Technology

Conducted by a team from the Academy of Sciences Malaysia (ASM)



What could the future look like?

Stages 6 – 7

With all the relevant data, trends and sentiments, an analytical thinking approach was adopted to build a number of plausible scenarios that are imaginative yet realistic for Malaysia towards 2050. In addition, we develop a common national vision, set of values, and aspirations to rally the nation towards our future success based on our own model which is charted on our terms and takes into account our unique culture and values. This way, we ensure that the future we desire is indeed a future distinctive to Malaysia.

How do we achieve the desired future?

Stage 8

Moving forward from the concepts derived from the plausible scenarios and common vision, a prescriptive thinking approach was adopted to develop strategic interventions to achieve our aspiration that will ensure extensive coordination, leverages the strengths of the nation, and harnesses indigenous knowledge to become agile, resilient and innovative.

The Four Components of Envisioning Malaysia 2050: Foresight Initiative



Economy & Finance

A strong economy is pivotal to our Nation's future, realising our aspirations and its ability to be among the world's best. It enables our Nation to provide for its citizens as wealth can be channelled to initiatives that ensure societal well-being. Oftentimes, a strong economy with equitable wealth distribution is seen as a true reflector of how stable and developed a nation is while the state of a nation's economy is seen as the 'health' of the nation.

What does it take for us to become a global economic leader and create a just society in which the wealth of the nation shall be equitably shared?

The Economy and Finance component report of the Foresight Initiative was conducted using an integrated cause-and-effect (causality) framework approach. This was based on the foundation that a projection of Malaysia's state of economy in 2050 must incorporate an understanding of the seismic shifts globally in geopolitical, economic and institutional terms in order to be meaningful and realistic.

First, a review of global economic shifts which will impact on the Malaysian economy was carried out. Then, a SWOT analysis to understand Malaysia's current strengths, weaknesses, opportunities and threats in each sector of the framework (demographics, finance, infrastructure, labour market, education and development of human capital) was analysed. Later, their contributing were incorporated into the final economic prospects and outlined strategies on how Malaysia can move her economy towards the desired future by 2050.



Society & Culture

A Nation's greatest strength is its citizens. While we often credit our success to our richness in natural resources, location, governance, and advancements in STI, it is actually the people, their knowledge and their interactions, that have been the key driver. A highly skilled, knowledgeable and united society, with behaviours determined by their culture, norms and values can impact many facets of a Nation, economically and politically. Moving towards 2050, each citizen will have a significant role to play in the overall outcome of the Nation.

What are our individual roles in driving the future we desire?

What do we need to do to ensure our social cohesion and achieve greater unity in the face of future challenges?

The Society and Culture component report is based on discussions held by thought leaders, academics, and leaders of civil society movements who met over a period of time to discuss the way forward for Malaysia.

From the Society and Culture perspective, the report looked into the global outlook towards 2050 and Malaysia's current position (social, economic, environment, politics and technological). Next, the study identified key drivers and enablers. Based on these, possible futures of Malaysia 2050 were developed and a set of strategic interventions for governance, citizen well-being, talent investment, holistic mental healthcare and green ecosystem aspects were identified.



Geopolitics

Since our prehistoric days, Geopolitics has long been a cornerstone in our Nation's development. This is evident in the rich history of our civilisation where the establishment and success of Bujang Valley (5th Century), Malacca (14th Century) and Malaysia today can be attributed to our geography and political relations. Therefore, the understanding of what is at stake in the current and future situation in geopolitics is key to a Nation's continued success in the global stage and to defend its sovereignty.

What will it take for us to maintain our democratic way of life and national sovereignty?

The Geopolitics component report of the Foresight Initiative was developed from horizon scanning pertaining to future studies and strategic trends at the national, regional and international policy arenas, and through discussions from forums, talks and conferences.

It emphasizes geographic or spatial relationships of the world's political agents in the organization of power in the next three decades. The architecture of the organization and interactions made by the world's political actors will eventually cascade down from the global scene to Malaysia's shores. Hence, the report focussed on the identification of global mega trends and its accompanying risks.

Subsequently, the study delved into Malaysia's current situation followed by the identification of key drivers and enablers that will influence our development trajectory as it moves through the forthcoming three decades. Rising from this, Malaysia's possible futures from the viewpoint of its political, social, economic and environmental facets were explored and strategic interventions to realise the desired future were identified.



Science & Technology

Science and Technology (S&T) influence the way we live, work, play, and learn. The rapid changes that we see in the emergence of disruptive technologies in the last decade are proceeding at an exponential pace compared to the years before. Hence, many recognise that the main driver and enabler towards our future is S&T, not just for its impact on our Nation's economic growth and competitiveness but also as solutions to ensure societal well-being.

How will we be impacted by disruptive science and technologies and leverage on them to become a progressive society?

The development of the S&T component report of the Foresight Initiative is based on five technology areas, namely biotechnology, digital technology, green technology, nanotechnology and neurotechnology. These five key mega technology areas are also recognised internationally as the most important for the future.

The S&T component adopted a technology foresight approach based on the existing biennial ASM Emerging Science, Engineering and Technology (ESET) study. The scope of this study encompasses the global outlook, Malaysia's positioning, and R&D needs assessment for Malaysia for each technology area. Strategic interventions were formulated based on a gap analysis for each technology area. From the study, emerging technologies in the five areas were identified to catalyse possible scenarios of the future and the needs of the society and Malaysia in 2050.

OT



Our Journey

Malaysia is a country unlike any other; full of promise and, yet, fragile. It is a multicultural, multilingual and multi-ethnic country, blessed with innumerable natural resources, bedecked with a rich heritage of traditional identities and a deep-rooted history.

Looking Back

Most of us are unaware of our glorious history. Our civilisation did not begin during the Malacca Sultanate around 400 years ago as many might believe. It can actually be traced back all the way to 1.83 million years ago.

Every year, millions of tourists flock to Southeast Asia to experience the combination of vivid cultures, tempting cuisine, white sandy beaches, and tropical jungles. However, most of the ground that they are stepping on most likely covers evidence of an ancient civilisation.

Long ago, there was a landmass that dwarfed the neighbouring Indian subcontinent. It is known as Sundaland and has a high level of biological diversity that can be attributed to its unique geography and geology. Sundaland was located between the Pacific and Indian Oceans, stretching from Burma to Borneo, bridging the continents of Australia and Asia. Malaysia, known for her tropical rainforests and coral reefs, is a part of this single mass of land, as well as the Gulf of Thailand, Java, Sumatra and their surrounding islands. In total, the area of Sundaland was equivalent to the size of modern-day Europe.

On the northern island of modern day Sumatra in Indonesia, there is a large beautiful lake called Lake Toba, also known as Danau Toba, which was once a massive volcano. More than 70,000 years ago, Mount Toba erupted with a force that changed the landscape. The eruption blackened the sky with a thick layer of ash, deposited in the ocean a blanket of volcanic debris, and blocked the sun across much of Asia which scientists believe caused a several years of volcanic winter globally. It is believed that this led to a population bottleneck in this region.

Another phenomenon that greatly affected Sundaland was sea level increase. Low sea-levels began to decrease resulting the appearance of land bridges between islands and continents, which has an enormous impact in human migration and development. The newly formed land bridges allowed humans to spread to new regions to seek more hospitable lands and sources of food from Asia to America, while Australia was only situated on the equator, Sundaland, which has always been warm in temperature, would have been an ideal real estate on Earth.

As temperatures rose and the ice melted, the area flooded and sank due to continued rising sea-levels. Our once whole Sundaland became submerged and divided into East and West Malaysia as you know it today. The lands of Malaysia we step foot on today are the 'unsunken' shelf of Sundaland.

Prehistoric Malaysia

Malaysia is rich in history which would instil in us a sense of pride for the Motherland. However, there is no written documents or records to tell us about human life millions of years ago. Did they wear animal skins and live in cave? Did they have tools? When did agriculture begin?

Archaeological discoveries have shown humans have been living in the region surrounding Malaysia since the Stone Age. The exact date for the Stone Age varies across the world, but in Malaysia, it is estimated to be 2.6 million to 5,000 years ago.

The dramatic discovery of 37,000-year-old human remains named 'Deep Skull' in Gua Niah, Sarawak, in 1958 convinced archaeologists that Malaysia had one of the oldest prehistoric human civilisations outside the African continent. The 1991 discovery of Perak Man's skeletal remains in Lembah Lenggong, Perak, strengthened the evidence of prehistoric presence in Malaysia. These areas were probably chosen as early settlement sites because they offered the natural resources needed to meet human needs for water from ancient lakes, making stone tools for hunting, and flora and fauna for food gathering.

During that era, there were only two main objectives of life: Protection from wild animals and Mother Nature. The hunter-gatherers obtained food by hunting animals and gathering wild plants and edibles of any kind. As a result, archaeologists speculate that the earliest Stone Age people lived in small tribes fit for a nomadic lifestyle, following the availability of water and food, and the climate.

These hunter-gatherers learned to use sharp-edge tools and to cultivate crops and domesticate animals, around 10,000 years ago, marking the end of the Palaeolithic period and the beginning of the Neolithic era. Farming both edible plants and animals was usually done in a small area of land, supporting the surrounding population. Humans ceased to be nomadic and began to settle in small groups. With farming, a more reliable food supply. Small tribes began to turn into big communities that sprawled across regions. Eventually, some of these communities would grow into cities.

The domestication of plants and animals is often interpreted as one of the most rapid and significant transitions in human history as it led to technological advances. Food surplus led to fewer people needed for meal preparation activities. They were able to expand the division of labour with some at liberty to dedicate themselves to other new skilled pursuits such as pottery-making, carpentry and tool-making. As the technology advances, human began to broaden their knowledge and experimented with metals. They learnt to control temperature exceeding 1000°C to facilitate the smelting of certain types of metal. Over time, as the knowledge of metallurgy developed, metal brought significant changes to daily life with technological advancements such as agriculture tools, weapons, and transport. Stone technology slowly became obsolete, signalling the end of the Stone Age and the birth of the Iron Age.

The adoption of iron and steel in tools and weapons, brought significant modifications to daily life, transforming the structure of society and making the production of food and goods, as well as agricultural procedures. The production of iron tools made the farming process easier and more efficient. Farmers could plough tougher soil and harvest new varieties of crops. This progress also meant more free time to produce extra supplies for trade, affecting both economic and political status. Since humans started to settle down into larger populations in towns or cities, the concept of producing everything from scratch by themselves began to fade. Instead, they can trade grain with meat. Trade also brought another advantage; human interaction and a network which are essential to cultural evolution.

Similar evolutions were also noted in other successful civilisations, such as Mesopotamia (modern day Middle East), the Indus Valley Civilisation (modern day South Asia), and Ancient Egypt. There is clear indication that prehistoric Malaysia was also part of the global change and underwent a similar process of technological evolution.

Glorious Empires of the Past

Most Malaysian are unaware of our glorious history outside the scope of the Malacca Sultanate. Although most parts of the archipelago are now territories of Indonesia and Philippines, the historical development of ancient Malay kingdoms should not be forgotten as this was one of the earliest geopolitical movements in the region.

Significant archaeological discoveries in Lembah Bujang, Kedah, have shown that, like Malacca, Kedah has a rich history as a trade and commerce centre in the 5th century. The civilisation then was producing and exporting iron and was renowned as makers of fine quality iron weapons. Both of the findings proved that there was international demand for iron in the local area. Existence of jetties and ancient shipwrecks confirmed the arrivals of merchants and traders from different parts of the world including Indians, Chinese, and Arabs through riverine routes. The region came under the influence of another dominant kingdom, Srivijaya, in the 7th century.

The Empire of Srivijaya did not have great armies to invade other lands but this empire thrived and lasted for centuries. How? Srivijaya was thalassocracy that controlled Straits of Melaka, the main trade routes from China to India. Like any other powerful maritime kingdom, it grew wealthy and resourceful through this control. Captivated by its glory, kingdoms like Khmer and Siamese tried to exert control over Srivijaya and by the 11th century, the empire became fragmented due to the power struggle of neighbouring regions and the invasion from a major competitor, the Chola dynasty.

In the 14th century, the new empire of Majapahit based in eastern Java conquered most of Peninsular Malaysia and the Malay Archipelago (including Sabah and Sarawak). Due to its strategic position on the spice trade route, the Majapahit Empire grew immensely wealthy by levying duties on goods shipped through its area of control.

Our journey in history continued with the rise of Melaka. In the beginning, it was just another quiet fishing village. However, with an organised governance system, it slowly became the meeting point of trading giants and among the richest ports in the world. Located strategically, Melaka is blessed with one of the world's greatest treasures – the Straits of Melaka. Since most of trade back then relied on ships, Melaka, which was shielded from the monsoons, served as transit for traders to wait for the changing winds. Located halfway between the main shipping route of China and India, it also acted as a point of collection for fresh supply from the archipelago, especially Indonesia, the island of spices. Many other products exported from Melaka came from other countries: Thailand with its rice and dried fish; Burma with stones and silver tools; and China with high quality textiles. Unfortunately, its importance and wealth eventually led to its downfall.

Colonial Era

Spice was one of the earliest drivers of European exploration and colonisation. Pepper, clove, turmeric powder and cinnamon were the catalyst for globalisation. Who would have thought that the entire course of our history was altered because of those tiny grains we sprinkle in cooking?

During the 15th century, Portuguese sailors initiated a series of expeditions to expand their territories and gained more knowledge beyond the limits of the world they knew. After their arrival in India, the Portuguese soon became aware of Malacca. With the desire to control spice trade, resources and strategic geopolitical locations, the Portuguese travelled to Malacca in 1509. Unfortunately, their initial plan failed, and many were captured and imprisoned. Not giving up, two years later, the Portuguese bombarded Melaka, terrifying everyone with their use of modern weapons. The attempt succeeded, marking the beginning of our colonial era.

The modern artillery and big cannon easily conquered Melaka, but it severely deterred merchants from continuing their trading. The failure of Portuguese to control the trade in Asia soon after it had colonised Melaka, resulted in Melaka not realising its full potential. By the end of 16th century, Melaka was attacked by Johor and Negeri Sembilan, and other neighbouring regions, such as Aceh, began to bloom. Portugal's day of glory came to an end. The Dutch with their local allies of Johor attacked and wrested Melaka from the Portuguese and after an eight-month siege in 1641, Melaka passed into Dutch hands, breaking the Portuguese supremacy. With the decline of Melaka, Johor began to develop as the dominant local power in the region.

From the late 18th century, the British began to expand their influence over the Malay Peninsula through trade. Its indirect rule in Malaya started when British East India Company (BEIC) obtained Penang in 1786. Penang was used as a harbour for their trading ships, and as a naval base to protect its interest in South East Asia. In 1824, the British and Dutch exchanged Bencoolen (Bengkulu City) with Melaka under the Anglo-Dutch Treaty, leaving the British as the sole colonial power in the peninsula. Soon, the Malay Sultans aligned themselves with the British Empire because of the benefits that came with it and the belief in a superior British civilisation. The British formally made Malaya a colony in 1867.

Separated by the South China Sea, Sabah (previously known as North Borneo before it joined the Malaysian Federation) and Sarawak are two states whose history is interwoven with the history of Brunei. Throughout the rise and fall of Melaka, new sultanates were emerging elsewhere in the Malay Archipelago. The Brunei Empire had its golden age from the 15th – 17th centuries and took over some of the trading functions of the Melaka Empire. The thalassocracy territory extended over Sabah, Sarawak, Sulu Archipelago and Manila in the north. In 1658, the Sultan of Brunei ceded part of North Borneo (Marudu Bay, Sabah) to the Sultanate of Sulu in compensation for their aid against a rebellion in Brunei.

Meanwhile in Sarawak, James Brooke, an English trader and adventurer, arrived in 1839. His appearance was timely as Sarawak was then a vassal of Brunei and in the midst of a local rebellion. However, Brunei was in decline and the Sultan was desperate. Brooke took the advantage and allied himself with the Sultan to suppress the revolt in exchange of sovereignty over Sarawak. Subsequently, Brooke became Rajah of Sarawak, where Kuching became the seat of the Brooke government and underwent remarkable changes.

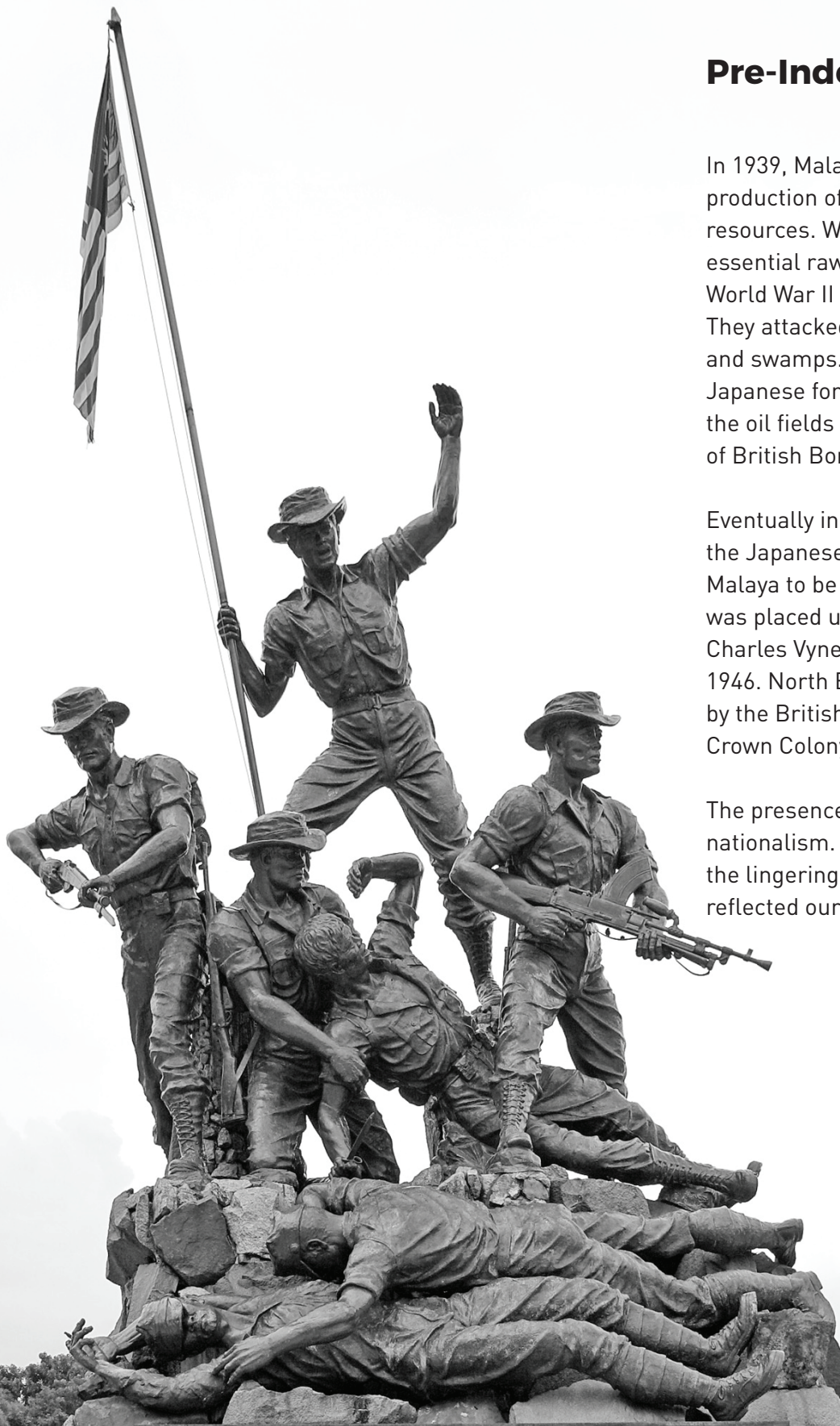
Over time, Brunei lost much of its vital territories to the White Rajahs and the British North Borneo Company through lease or invasion. The eastern part of North Borneo was given away to the Sultanate Sulu. In 1878, the Sultan of Sulu leased North Borneo to the British North Borneo Company. The British continued their control over North Borneo and Sarawak as these areas were strategically located along the trade routes and for defence purpose and the lands were suitable for agriculture, as well as rich in timber and minerals.

Pre-Independence

In 1939, Malaya's economy was flourishing with the production of tin and rubber, and Borneo with its oil resources. When America, Britain and Holland froze essential raw materials and oil supplies to Japan during World War II the Japanese turned their attention to Malaya. They attacked British positions from undefended jungles and swamps. After the fall of Malaya and Singapore, Japanese forces landed in Miri and Seria, quickly securing the oil fields and airstrips and continued to invade the rest of British Borneo.

Eventually in 1945, after three and a half years of cruel rule, the Japanese surrendered. Penang became the first state in Malaya to be liberated, followed by Kuala Lumpur. Sarawak was placed under Australian military administration until Charles Vyner Brooke decided to give it up to the British in 1946. North Borneo, on the other hand, was administered by the British Military Administration and became a British Crown Colony in 1946 until 1963.

The presence of foreign forces unleashed a strong sense of nationalism. While this period only lasted for a short time, the lingering resentment resulted in significant events that reflected our strong desire for independence.



DEDICATED TO
THE HEROIC FIGHTERS
IN THE CAUSE OF
PEACE AND FREEDOM

MAY THE BLESSING OF
ALLAH BE UPON THEM



مفرايشيا
فويرا غبرجولغ انتوق
منافدا كلمان دانك سين
مواع الله جوچو ركن
رحمة الله عليه

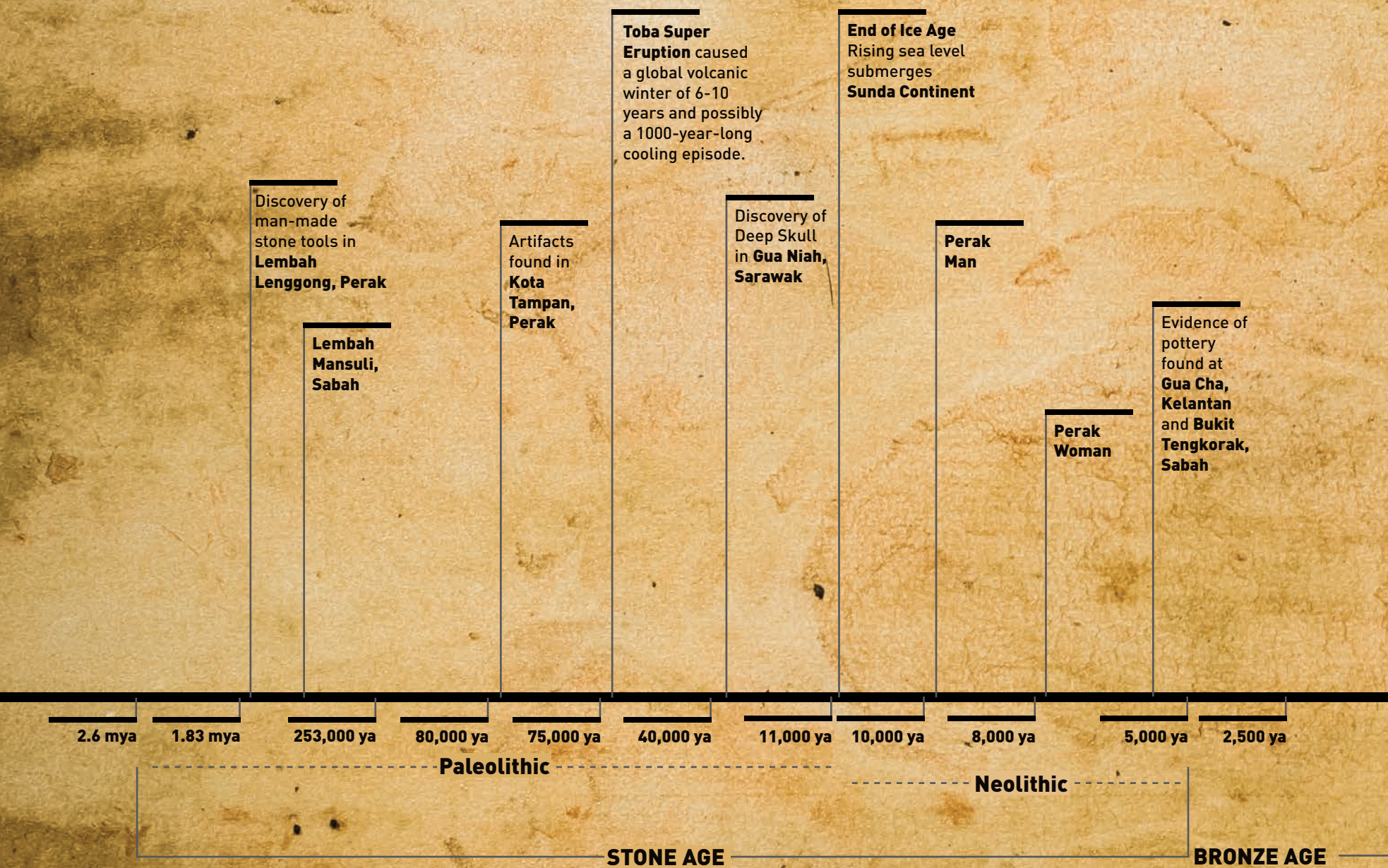
Independence and Formation of Malaysia

The struggle for Malaya's independence did not come on a silver platter. Malaya's freedom fighters realised that the best approach to gain independence was through diplomatic discussions with the colonial rulers and without bloodshed. The negotiation group presented the British with a proposal of multi-racial unity, peace and prosperity of Malaya. They spoke to the British in nuances they understood, using term and diplomatic language they were used to. Back home, some were still in disbelief that Malaya can gain independence. But, on 31st August 1957, Malaya witnessed the handover of power from the British to our first Prime Minister, Tunku Abdul Rahman. Tunku then read the Proclamation of Independence, and concluded with "...Persekutuan Tanah Melayu is and, with God's blessing, shall be forever a sovereign democratic and independent state founded upon the principles of liberty and justice and ever seeking the welfare and happiness of its people." With his right arm and open hand raised heavenward, Tunku shouted "**Merdeka!**", seven shouts that still resonate until this day.

In May 1961, Tunku Abdul Rahman officially announced the proposed formation of Malaysia, a wider federation which would include the territories of Malaya, Singapore, North Borneo, Sarawak and Brunei. The idea was supported by the British. Brunei, however, decided not to join the Federation and Singapore remained uncertain. After obtaining the viewpoints of the local communities through the Cobbold Commission, it was agreed that North Borneo, Sarawak, Singapore and Malaya would form Malaysia. On 16 September 1963, Malaysia was formally established. With the formation of Federal Malaysia, North Borneo's name was changed to Sabah. On 9 August 1965, Singapore separated from Malaysia to become an independent and sovereign state.



Historical Timeline





— IRON AGE EARLY KINGDOMS, MELAKA SULTANATE, COLONIAL ERA, WAR, EMERGENCY AND INDEPENDENCE

Here and Now

We have come a long way from our formative years to where we are today. Malaysia has become a flourishing country among the Southeast Asia nations. We were successful in leveraging our natural resources, geographical location, and technological advancements, through using human knowledge to continuously progress. Our socio-economic transformation has also been positive, resulting in a markedly better quality of life. With the renaissance of the Asian economy today Malaysia is well uniquely positioned at the centre of that growth.

Malaysia's abundant natural resources have been the backbone of our economy. One of the key factors that made Malaysia the coveted gem in the region was our mineral commodities (tin, gold, etc.), suitable climate for agriculture (cocoa, rubber, palm oil) and strategic location (trading route for East and West). Initially a commodity exporter of rubber and tin, our economy is more diversified now, with the inclusion of manufacturing and services sector. Palm oil, petroleum, and various natural commodities constitute Malaysia's rich portfolio of globally-recognisable and highly-demanded exports. Foreign Direct Investments (FDI) are also integral to our economy, leveraging on the country's robust manufacturing capacity for various sectors including electrical and electronics, and automotive.

“Our progressive nation-building is well demonstrated in its poverty eradication strategies, public healthcare system, synergy of monarchy with democracy, and non-partisan foreign policy.”

28 *The Future We Desire*

On the societal context, Malaysia's success in sustaining peace and stability among the 30 million population of diverse ethnicities, languages, cultures and religions garnered respect from its international counterparts. Our progressive nation-building is well demonstrated in its poverty eradication strategies, public healthcare system, synergy of monarchy with democracy, and non-partisan foreign policy.

However, our journey is also marked with periods of stagnation and struggle, as the nation grapple with economic crises, transboundary haze, increasing political and racial tensions, and the growing threat of international terrorism. At the grassroots level, issues such as socio-economic inequity, rising living costs, and corrosion in values, continue to shape the outlook of Malaysians on their overall well-being. Opinions over the state of education, job market, political process, investment opportunities, scientific progress, and leadership remain divided. The signs are clear that our survival in a global climate of intense competition, high uncertainty, precarious stability and disruptive trends cannot depend on its wealth of resources and peaceful existence alone, but rather through a delicate balance of key components of development.

Population and Demographics

Today, Malaysia's population stands at an estimated 32 million and is projected to increase at the rate of 1.5% annually (DOSM, 2017). With a largely youthful and remarkably diverse population, Malaysia has still room to grow in its journey to achieving developed status. The nation's life expectancy today is around 75 years, 10 years longer than previous statistic due to improved quality of life and achievements in healthcare (DOSM, 2017).

Well-Being

The people's well-being and prosperity are paramount in a nation's development. The World Happiness Report 2017 ranked Malaysia 42nd out of 155 countries, improvement from the 2016 report where Malaysia was ranked 47th. The World Happiness Report measures six variables for happiness, which are GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption.

Malaysia scored high in GDP per capita, which validates Malaysia's growing economy, but scored lowest in the perceptions of corruption. The perceptions of corruption variable relates to how individuals perceive corruption in both the government and businesses of their country. Even though crime rates have continued to decline and various anti-corruption initiatives have been taken, Malaysia's low score is an indicator that more needs to be done in changing the perceptions of the people in combating corruption.

In terms of social structure and support, Malaysia has demonstrated remarkable success in eradicating poverty over its short history as an independent nation. First, by achieving its UN Millennium Development Goal (MDG) to halve overall poverty rates by 2000, 15 years earlier than targeted, and followed by eradicating hard core poverty in 2010. Almost all Malaysians now enjoy access to potable water and electricity, following the successful deployment of utility services and infrastructure in both urban and rural zones. The 11th Malaysia Plan announced in 2016 reported gains in the average household monthly income, which is estimated at RM6,141 in 2014 compared to RM264 in 1970 (EPU, 2015). Income inequity, measured using the Gini coefficient, has also narrowed from 0.513 to 0.401 over the period between 1970 and 2014 (EPU, 2015).

Education and Knowledge

Education in Malaysia has been a basket of evolving approaches, frameworks, and outcomes. In terms of education attainment, the distribution of Malaysians above 25 years of age based on their lowest received education is as follows: primary level, 25%; lower secondary, 17.3%; upper secondary, 34.5%; and tertiary, 16.4%. Compared to their counterparts in South Korea and Japan, the population is still lower-qualified. While almost all Malaysians are now literate (94.6%), the level of aptitude among 15-year old Malaysians in reading, mathematics, and scientific literacy is still below the OECD average, as indicated by the PISA rankings published in 2012. This highlights a major gap in the delivery of education as a means of human development, capacity building and empowerment.

Public universities funded by the government comprise the majority of tertiary institutions in Malaysia, and this dependency on federal funds has been argued as a major obstacle to real growth. Government funding was reduced by 2014, and public universities were required to raise their own funds, beginning 2015. Research Universities raised a total of RM1.25 billion between 2007 and 2014 through partnership with industries (Malaysia Education Blueprint, MOHE, 2015).

In terms of skills and expertise development, Malaysian institutions still have a lot of catching up to do with international competitors. Students seeking high-calibre training and a world-class varsity experience still gravitate towards opportunities abroad or private institutions. The perception of local education as being mediocre, highly politicised and inadequate in producing marketable talent remains a strong sentiment that needs to be tackled urgently.

Urbanisation

The introduction of the National Physical Plan 2 (NPP-2) in 2010 presented a new development strategy to advance the urbanisation of Malaysia's landscape which was estimated to be 71% in 2010. The expansion of Malaysia's urban zones provides an opportunity for increased productivity in new parts of the country. Urban centres are often prime destinations for new, value-adding infrastructure such as mass transit systems, broadband connectivity, efficient services, and exciting new businesses. At the same time, the increasing density of people over an area would likely cause societal strains and environmental stress. Strategies that push for urbanisation must consider the cost of social backlashes and environmental impacts in determining the way forward.

Environment

Malaysia boasts a wealth of natural heritage and resources and was ranked among the top 12 mega-diverse countries (National Biodiversity Index, 2014). 67.5% of Malaysia's landmass remains under forest cover as per 2014, with 18.4% of the land gazetted as terrestrial protected areas (World Bank, 2015). Around 20% of marine environments around peninsular Malaysia are protected by the Department of Marine Parks. These natural assets offer tremendous value to Malaysia's portfolio, yet their existence remains under threat as conflicts of interest between conservation and development intensify.

Malaysia's stellar achievement on the Environmental Performance Index scorecard in 2006 (9th out of 133 countries) was overshadowed by its dismal record in 2016 (63rd out of 180 countries). Malaysia has been lauded previously for not falling into the resource curse trap, which often saw naturally wealthy nations plundering their natural reserves to exhaustion. However, in light of

its deteriorating performance in terms of environmental best practices, it appears that this might be an increasingly plausible future scenario. On the other hand, progressive signs of a more sustainable development are emerging, as demonstrated through Malaysia's commitment to the 2015 Paris Agreement (COP21) which is a legally binding framework to mitigate climate change impacts.

Economic Growth

Malaysia has one of the best economic growth records in Asia over the past five decades and has achieved a stable GDP growth of 6.2% per annum since 1970 (World Bank, 2015). Malaysia's productivity is due to a variety of sectors, with a strong focus on agriculture in the 1970s, moving on to manufacturing in the '80s, and modern services in the '90s. Incomes grew from the low bracket in the '70s to a high middle one by 1992, which the country has sustained ever since. With the 2014 national per capita income at USD10,796, - a 25-fold increase from 1970 statistics, - the nation appears to be on the right track to surpass the USD15,000 per annum threshold and qualify as a high income economy by 2020.

Malaysia's economic competitiveness has been recognised in a number of indices, such as the Global Competitiveness Index by the World Economic Forum which ranked it 25th out of 138 countries in 2016. In 2016, Malaysia was placed 23rd out of 190 countries by the World Bank in their Doing Business study, in addition to its 19th placement out of 61 countries surveyed for the World Competitiveness Yearbook. These milestones indicate the reputation Malaysia has built as a contender among the emerging economies, and demonstrate the tremendous potential for greater success in the future to come. In terms of human capital, Malaysia was placed in 42nd position among 130 nations in Human Capital Index 2016.

Science, Technology and Innovation

An economy which is powered by knowledge workers is achieved through an environment which is conducive for creativity and innovation. The World Intellectual Property Organisation (WIPO) ranked Malaysia 35th out of 128 countries in their Global Innovation Index (GII) report for 2016. According to the 2016 GI report, Malaysia is the second upper-middle income economy in the top 50 countries with China being the first and only upper-middle income economy in the top 25. However, the report also notes that Malaysia's 2016 ranking was a drop from 2015 due to a lack in innovation output. However, Malaysia has improved in terms of infrastructure and human capital in innovation. Malaysia recognises this challenge and has made strides in advancing STI capabilities and also investing in education. In research and development (R&D) expenditure, Malaysia has grown from 0.2% of GDP in 1996 to nearly 1.3% in 2014 (OECD Reviews of Innovation Policy, 2016).

In terms of ICT Development, Malaysia ranked second in Southeast Asia, eighth in the Asia Pacific and 61st globally out of 175 economies for the ICT Development Index. In addition, according to the Global Information Technology Report 2016, Malaysia's overall position in the Network Readiness Index (NRI) has remained largely stable in recent years, with the country climbing one spot to 31st position out of 130 countries in 2016. The NRI Index assessed the factors, policies, and institutions that enable a country to fully leverage information and communication technologies (ICTs) for increased competitiveness and well-being. This strong performance continues to be supported by a government that is fully committed to the digital agenda and that is seen to be ahead of its peers in terms of adopting the latest technologies.

While strong gains have been achieved over Malaysia's past trajectory, the multicultural and multi-religious nature of Malaysian society remains a complex challenge for nation building. Socio-economic disparities and polarisation along cultural, political, ideological, and economic lines significantly shape Malaysia's governance, public discourse, and outlook on the future.



Our Global Commitments

Today, Malaysia actively participates as a development partner and shares our knowledge and experience in economic and social development, regionally and globally. We are well-known for our unity in diversity stemming from our unique social contract between a multiracial and multicultural population. We have come a long way from being a recipient of official development assistance decades before to where we are now in a position to assist others.

In addition, Malaysia is a well-respected country with an amicable relationship with our neighbouring countries and globally. This is thanks to our pragmatic engagement and support of the multilateral system and open regionalism approach. As a member of United Nations, Malaysia is committed to multilateralism in advancing global peace, security and prosperity. This is seen through our participation in international development such as Millennium Development Goals, Sustainable Development Goals and Paris Agreement. Malaysia has made pledges over the years towards policies, treaties and agreements that are intended to further improve the development of the country. The aim of the pledged policies is to ensure that the development process of the country is holistic; taking into account the economic, social and environmental implications towards the country in the long-run.



Factsheet on Malaysia

Malaysia's Population and Demography

Total population (million)

(Source: DOSM)



1963
8.9

2017
32.0

Population growth rate

(Source: World Bank)

1964
3.1%

2016
1.5%

Male

1963
51.0%

2017
51.7%

Female

1963
49.0%

2017
48.3%

Urban population

(Source: DOSM)

1970
27%

2017
75%



Life expectancy

(Source: DOSM)



Male (years)

1966
63.1

2017
72.7

Female (years)

1966
66.0

2017
77.4

Malaysian's Well-Being

Poverty rate (Source: DOSM)



Education

Educational Attainment Attended school (Source: DOSM)

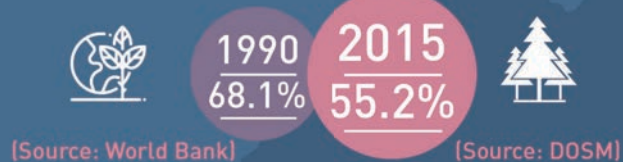


Literacy rate (Source: UNESCO)



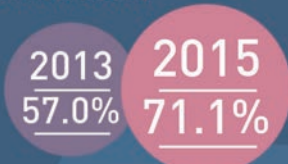
Environment

Forest area (% of land area)

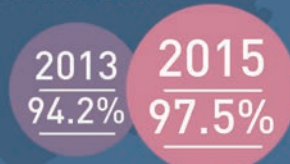


Digital connectivity

Internet users (Source: DOSM)



Mobile phone users (Source: DOSM)



Malaysia's Economy

Gross Domestic Product (GDP) (Source: DOSM)

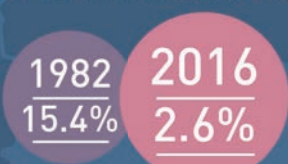


Monthly household income (not factoring inflation)

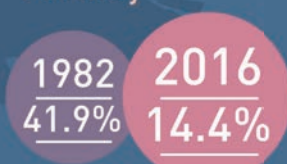


Education qualification (can put as pie chart) (Source: DOSM)

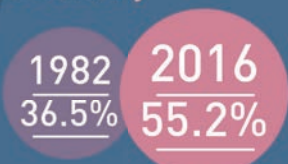
No formal education



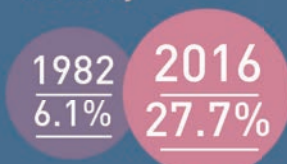
Primary



Secondary



Tertiary



STI Capacity and Competency (Source: MyIPO)

Number of patents



02



The World Moving Towards 2050

The world is what it is today, thanks to various influential events. Happenings of this nature will continue and will impact humankind in one way or another.





Megatrends

Humans have survived for eons by changing the way we deal with our surroundings. Equipped with a highly developed brain, humankind is tremendously adaptable to the environment. What we Malaysians make up of the Megatrends and how we deal with it ultimately determine how we progress into the future. Dubbed Megatrends, it is a visible pattern that massively affects the political, economic, social, technological, legal and environmental landscapes. Like a ripple effect, these occurrences may have happened locally, but they have a significant impact towards the whole world. The question is: *will we be able to continue progressing while we deal with these changes?*

Demographic and Social Change

Disruptive Technologies

Virtualisation is the New Globalisation

Shift in Global Power

Rapid Urbanisation

Sustainability

Demographic and Social Change

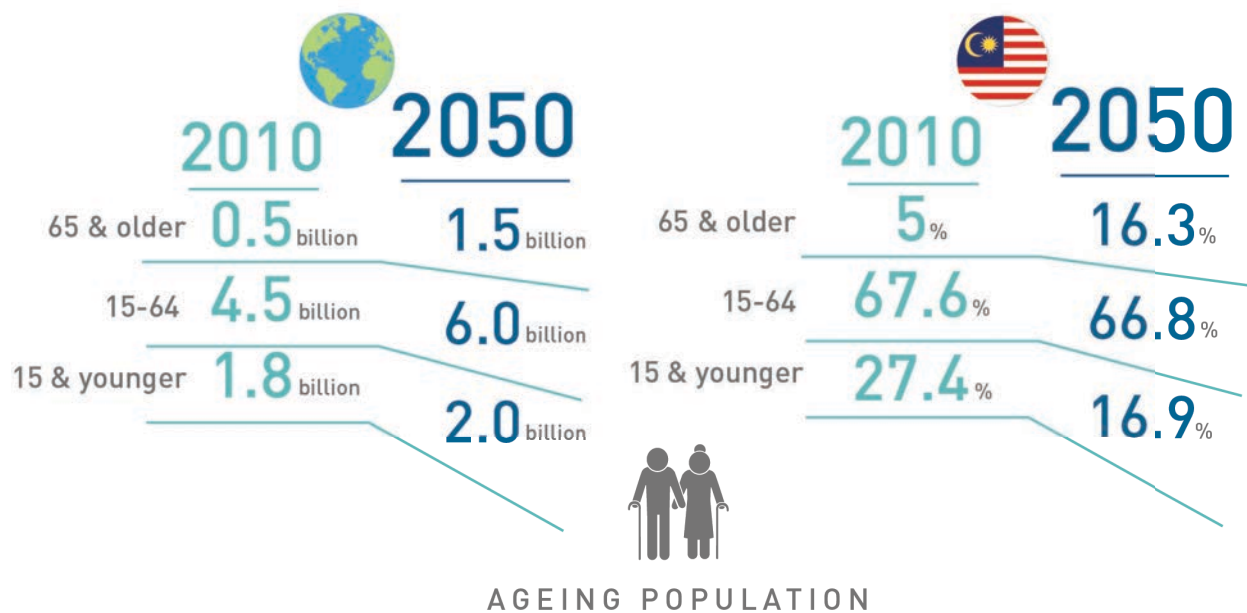
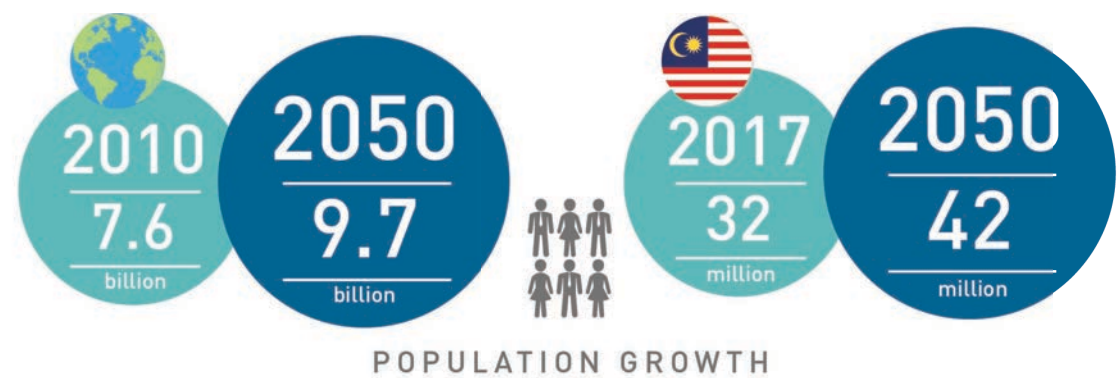
Living in the 1800s is vastly different from now. In the 18th century, we would be living in constant fear of dying. We will not know what will cause our untimely demise: could it be an infection arising from a splinter on our rickety bed frame? Could it be from a parasite that lives in our drinking water? Or could it just be fungus from the loaf of bread received from the friendly neighbour? Compared to today's living standards, living in the 1800s would be abhorrent - unhygienic living conditions and little access to effective medical care caused a lower life expectancy and high infant mortality rate. Poor hygiene paved the way for infections to flourish – even the smallest of wounds could send one to an early grave. Life would be a constant struggle to survive; it would be a massive achievement to live to the ripe old age of 30.

Over the course of time, increasing knowledge of healthcare and awareness of basic hygiene practices slowly lowered the mortality rate and increased life expectancy. With awareness towards better healthcare, coupled with the shift in social

standing, especially for women, society is now facing a downward trend of childbirth. Men and women alike are spending more time studying and working, emphasising less on the “traditional” idea of getting married and settling down with children. A low birth rate used to be attributed to higher child mortality; nowadays people are simply having fewer babies.

With these shifts toward an ageing society in Asia, Europe, and Latin America, a more diversified labour force that includes women and seniors is needed to address the pressures faced by working age members of society. An ageing population puts a great strain on the social fabric, owing to the limited opportunities that currently exist for seniors to participate meaningfully and be self-sustaining in society.

Apart from better healthcare, social turmoil due to disruptive technologies, geopolitical upheaval and economic crises dramatically change the fabric of society.



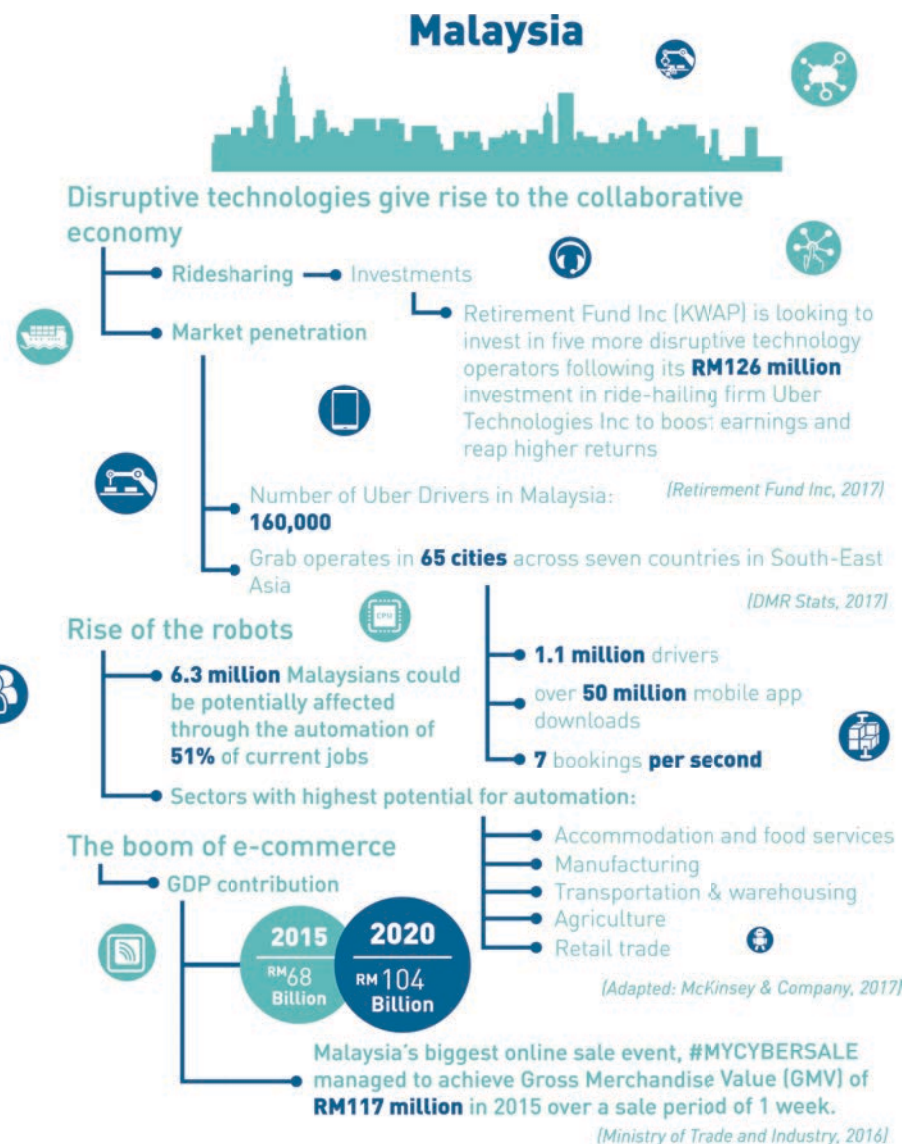
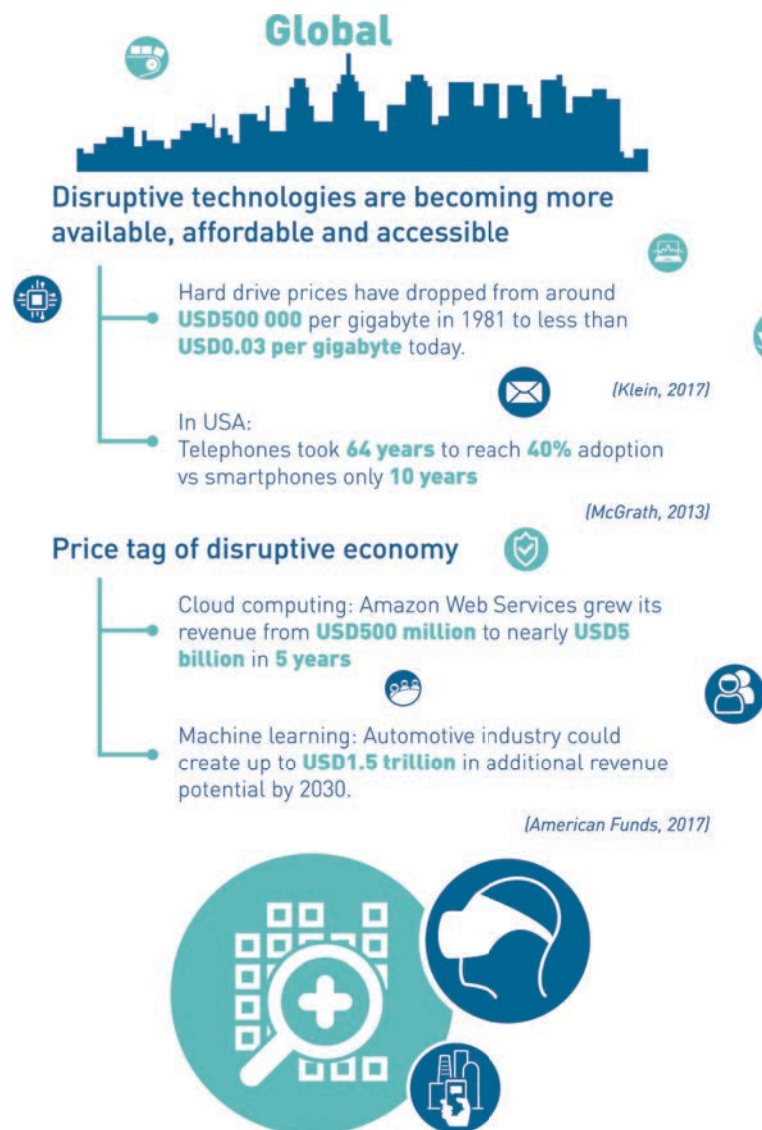
Disruptive Technologies

These days, most often a disruptive technology is a result of scientific or technological breakthrough and we have learnt to look out at the horizon for newer discoveries and continuously prepare for its impact.

Scientists believe that breakthrough discoveries in Gene Editing will radically change the way we think about healthcare and will likely eliminate hereditary cancers in the next two decades. The wrist watch of today has been transformed from being merely a timepiece to a 'health hub', giving us live feed on our heart's health and sugar levels. As a remedial effort to improve the transplant market, it will soon be likely to have 3D printed organs. 3D printing will make waves not only in healthcare but is expected to be a core part of the manufacturing and construction process.

Almost all of us have heard of Siri, the assistant in one's iPhone. This has been made possible by a common form of Artificial Intelligence (AI). To get all things connected by bridging the gap between physical and digital world is the new wave called Internet of Things (IoT). IoT together with AI will contribute to the much awaited driverless cars, smart homes and robots assisting in elderly care or even waiting tables.

Malaysia is not too far from joining the bandwagon to remain competitive and sustainable. The advent of disruptive technologies will improve our daily lives and productivity while leaving us a world full of imagination.



Virtualisation is the New Globalisation

Fuelled by the fast-paced growth of computing and communication technologies, the world is increasingly becoming highly connected with a seemingly unlimited supply of information. It is impossible to escape the touch of technology in anything we do; so ubiquitous is technology that it has a massive impact on economy, politics, culture, society, and of course, our own personal lives. Operations can now be expedited and done within a few hours or a few minutes.

Virtual learning, virtual shopping through e-commerce, virtual services such as healthcare remote diagnosis, virtual entertainment through AR and VR technologies, virtual financing through blockchain and bitcoins as well as virtual manufacturing are the trends to look forward to.

Governments are also jumping on the proverbial bandwagon by taking advantage of the marvels of digital technology to streamline public services. By utilising digital technology, governments are able to provide their services more efficiently. The digital networks could also serve as a new bridge to link governments to the people who can directly convey their compliments and woes via digital channels that drastically cut response time.

On the other hand, malicious users might abuse the breadth of information offered by the digital age by threatening cybersecurity. Therefore, it is imperative for us to beef up our cybersecurity to mitigate and prevent these threats from happening.

We are generating data faster

Today: If a byte of data were a litre of water, in only **40** seconds there would be enough data to fill an average house

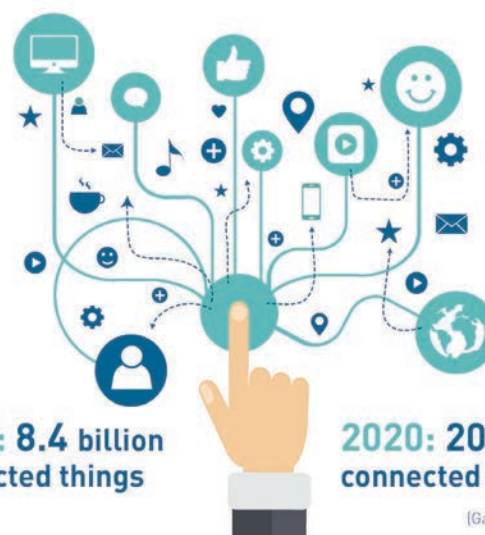


In 2020: It would only take **8** seconds!



[Versa Technology, 2017]

The connectivity of everything

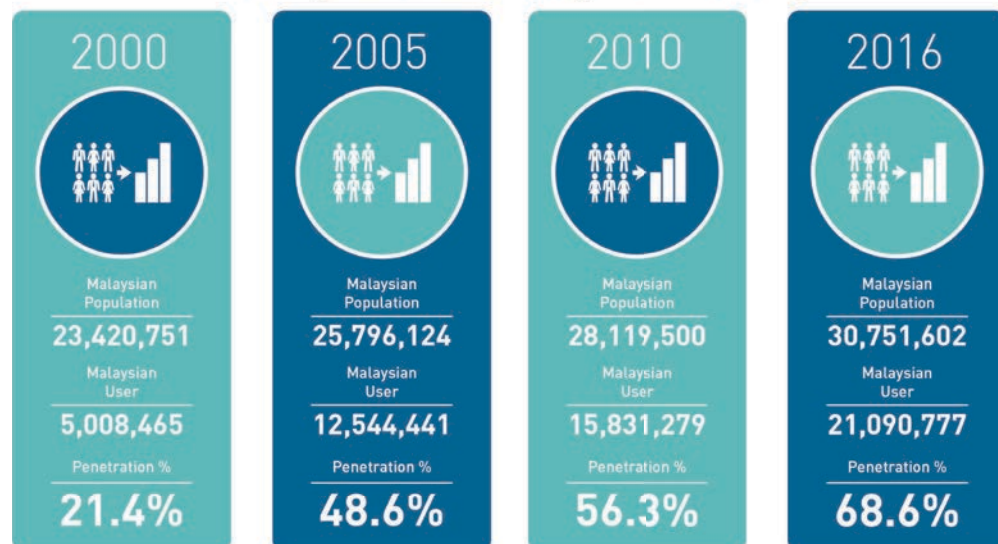


2017: 8.4 billion connected things

2020: 20.4 billion connected things

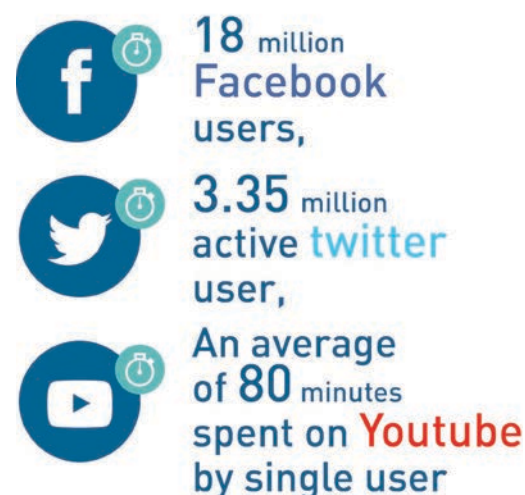
[Gartner, 2017]

Internet penetration in Malaysia is increasing



[International Telecommunication Union, 2016b]

In 2016, Malaysia has approximately;

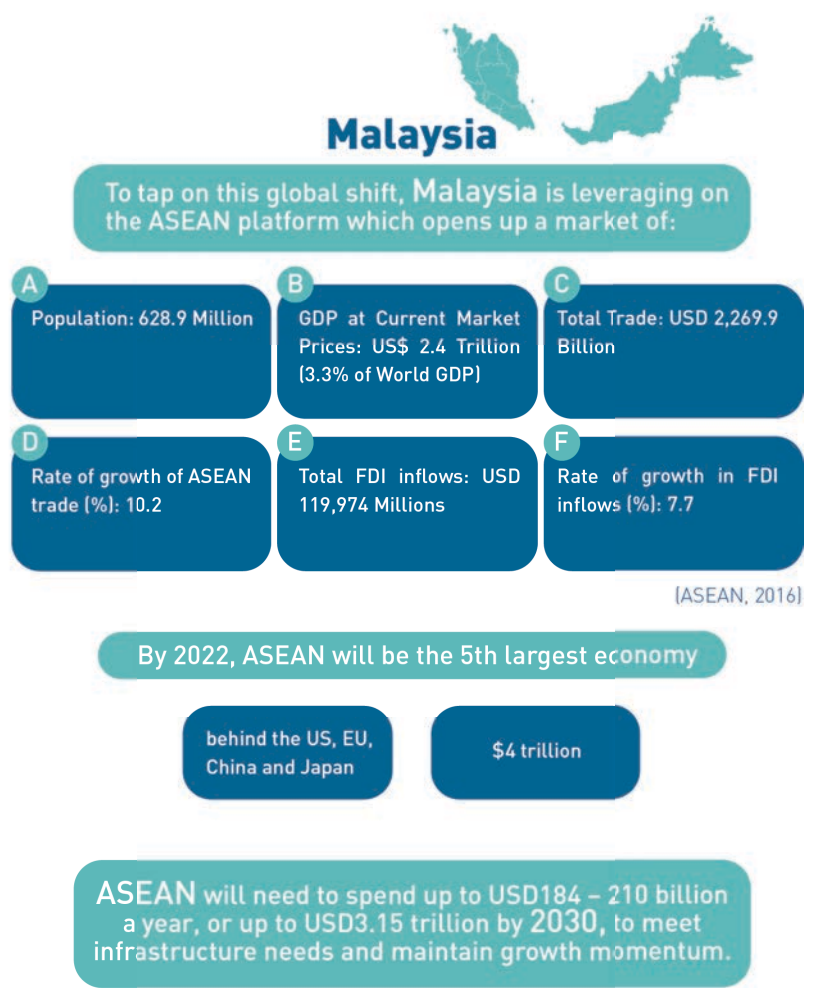
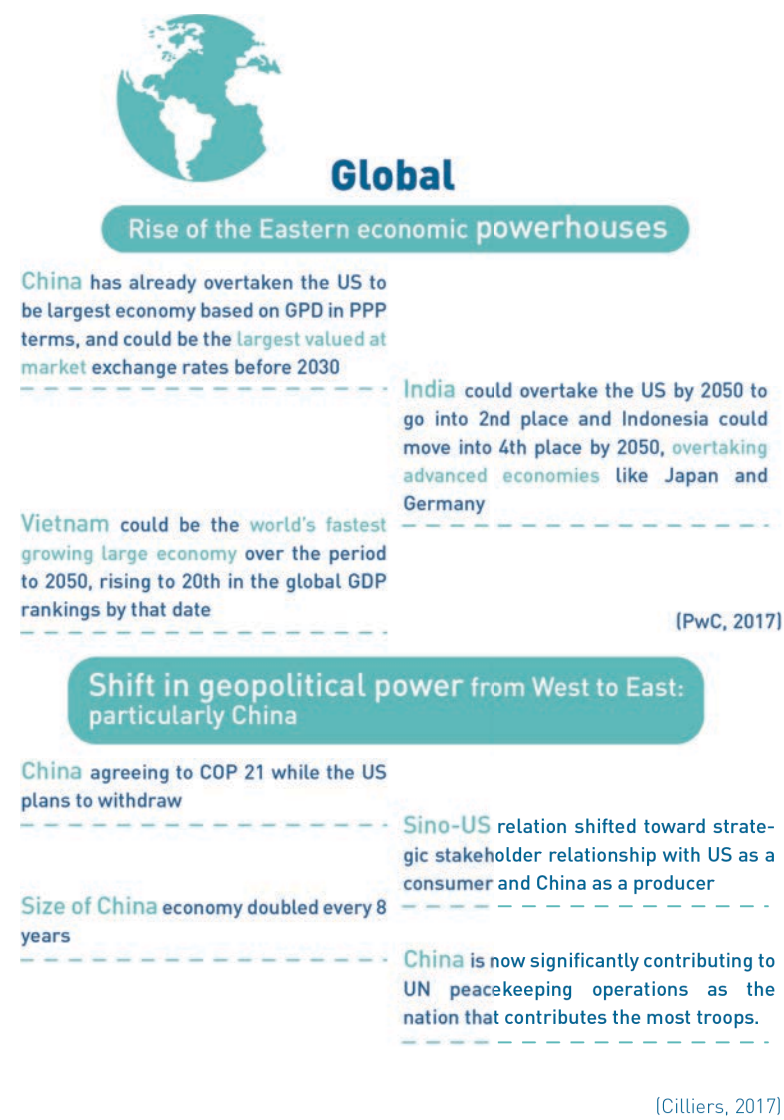


[Malaysian Digital Economy Corp Sdn. Bhd, 2117]

Shift in Global Power

Historically, Western countries have always been trend setters, determining the developments and decision-making of other continents. Europe almost ruled the majority of the world’s surface during the colonial times. However, this is changing slowly today. The main reason for this is the economic rise of Asia, especially over the last decades. Asia’s wealth has been rapidly increasing in the last few years, starting with Japan and South Korea, moving on to South East Asia. But the real transformation was when China is rapidly industrialised, with India close behind. The populations of China and India are the key factor behind the shift of the global economy axis, both making up to more than 2.5 billion people currently. It is expected that China and India will take first and second places in terms of economy by 2050.

Trends in higher education today show that the United States and United Kingdom are still dominating the rankings, but universities from countries such as China and Korea have gained momentum. This movement, along with the success of institutions based in Hong Kong and Singapore, is largely due to the continuing investment in higher education in Asia. It takes a lot of money and time to create an excellent global university, and as more money stays within Asia, Africa and Southern America, the universities’ profiles will rise. These trends will expedite the development of knowledge talents and with this trend, more innovation and creative businesses will increase in the East.



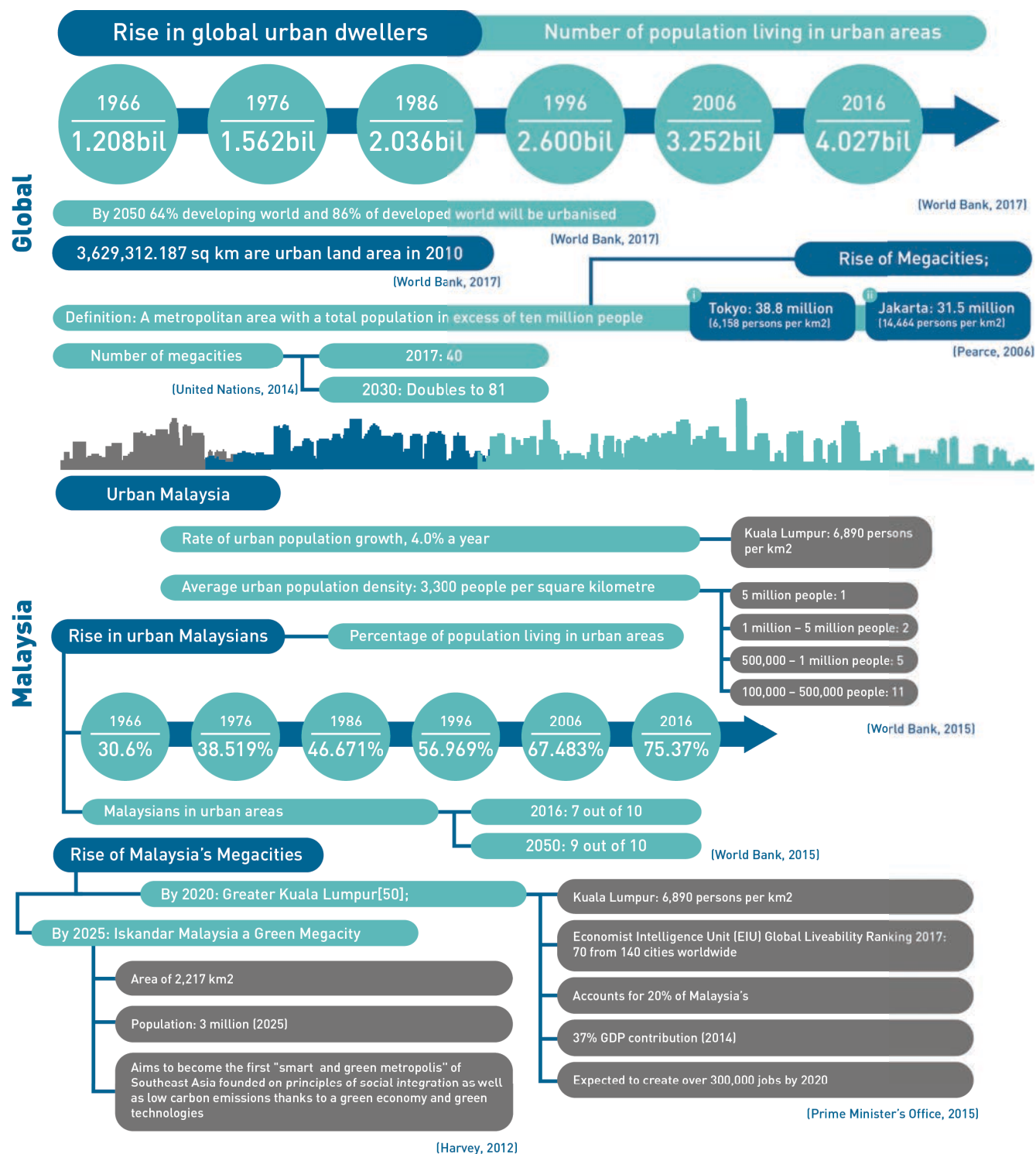
Rapid Urbanisation

The attraction of urban living is undeniable: numerous job opportunities, good avenues of education, well-developed transportation facilities, reliable medical and healthcare services, as well as ubiquity centres of entertainment and culture. On the other hand, urban areas are getting increasingly overpopulated. This places a stress on governance and resources as well as significantly changes the societal structure.

Despite occupying smaller land areas, urban areas are voracious consumers of resources which are consumed by the inhabitants as well as channelled towards infrastructure investments. The strain on the social fabric is also evident, as

the heated competition for resources compounded by climate change and a widening income gap can potentially create a perfect storm for conflict to happen.

More people moving to urban areas automatically transforms the area as a talent hub. Well-engineered urban environments have so far proven to be conducive for innovative enterprises, support a better quality of life, and facilitate the social and political mobilisation of people. Visions of the future need to bear in mind these promising aspects of urbanisation in addition to its pitfalls, especially when taking into account the additional disruptions posed by other megatrends.

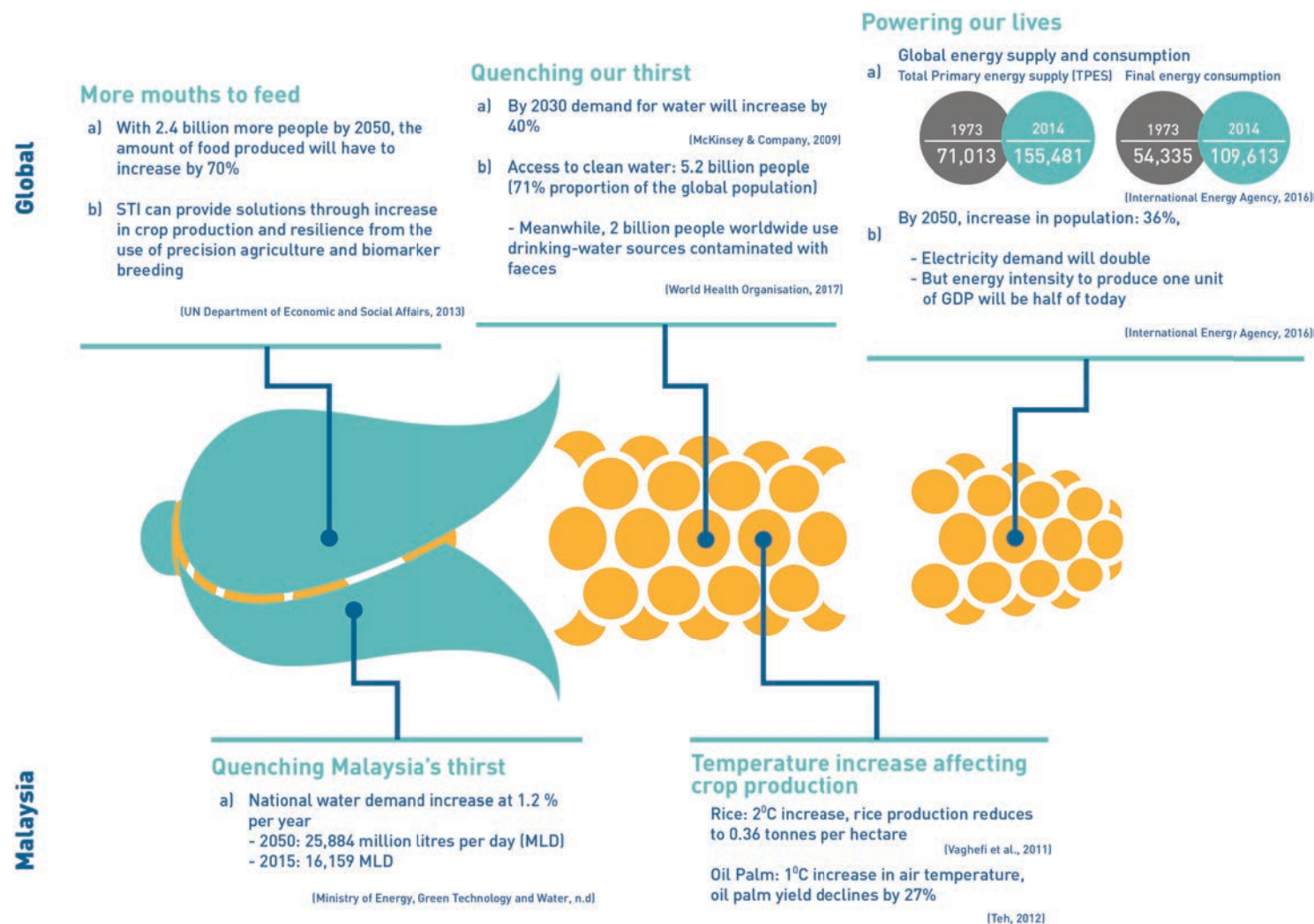


Sustainability

Human population is growing at an unprecedented rate thanks to various factors: better health and nutrition as well as lifespan-extending technologies, just to name a few. The expanding human population is creating a need for more resources to satiate its needs. Our current reliance on fossil fuels as our main source of energy needs to be changed to account for its dwindling amount, because based on current consumption levels, existing oil and gas supplies today can barely last us the next half a century. Developed countries have made many pacts and pledges to curb carbon emissions, mitigate climate change and tap into renewable resources to generate energy. However, is this an effort that is too little too late?

Global warming is causing a massive change in weather patterns across the globe. Heavier monsoons and longer droughts strike the most vulnerable communities around the world. Climate change has also drastically impacted the future of food, water and energy security. Crops require specific conditions to grow optimally but climate change which alters rainfall and temperature patterns that adversely impacts various crops across the world.

Climate change effect on food, water and energy security is apparent. Costs of these commodities are soaring, and conflict for these valuable resources will eventually happen. On the bright side, it has brought enlightenment for nations that embrace climate change and global resource scarcity. With innovative enterprises and forward-looking governments pioneering change in the way energy and resources are consumed, major headways are made in the sustainable development agenda through initiatives that wean the market off hydrocarbons, tap into renewable energy sources, prevent pollution, and reward commitment. Granted, such pioneering efforts come at a tremendous cost, given the more competitive price of conventional development. Nevertheless, decisions made with the future in mind must always account for the true cost of total, irreversible degradation of natural resources. Growing pains are expected in adopting renewable energy, but it pays itself off handsomely in the long run.







Threats

For some of us, when we look around we notice we are living very comfortably – a stable income, ample food to eat, access to running clean water, uninterrupted electricity and other facilities that make life easy. We are able to live what can be considered as the best time in our life. However, it is important to note that not everyone in current times is as fortunate as we are. There are still nations that have no access to clean water. There are nations that are stricken with diseases that have long been eradicated from developed nations. There are people living in war-torn nations. What if one day, because of our malaise and carelessness, we fall prey to these unfortunate circumstances?

The rapid pace that changes occur today and the magnitude of its impact means we cannot take our future for granted. Changes in our environment and responses toward those changes present both opportunities and risks. To mitigate the risks, it is important to understand the changes so that we are able to quickly adapt to these changes as they occur or even beforehand by preparing ourselves to seize the opportunities and mitigate the risks. Other global risks include collapse of major economies, terrorism, climate change, major natural disasters and others.

Terrorism

A Greater Digital Divide

Involuntary Migration

Forces of Nature

Massive Incidents of Data Fraud and Theft



Terrorism

The world almost came to a standstill with the destruction of the World Trade Centre in New York on September 11, 2001. Despite our distance from the locations, we empathetically felt the pain and anguish that the victims suffered during this incident as well as the recent London Subway, Mumbai and Paris bomb attacks.

It is, indeed, unfortunate that extremism in many forms are becoming frequent in today's society. It presents a worrying

trend that continuously affects the world long after it has occurred. Society and businesses in particular struggle to come to terms with the emotional and economic trauma. Tension in diplomatic relationship also increases as blocs supporting and opposing military actions to the terrorist stronghold continue to debate in finding a common agreeable solution. The risks of terror attacks will always shadow our development in near future as civil conflicts continue worldwide.

Global

- 1) September 11, 2001 attacks, **2,996** people were killed (including 19 terrorists) and more than **6,000** others wounded
(CNN, 2017)
- 2) From January to June 2017, there are approximately **779** terrorist attacks happening worldwide.
(Global Terrorism Database, 2017)



Malaysia

- 1) Since 2013, more than **340** terror suspects have already been detained in Malaysia with **101** suspects were convicted
- 2) **19** terror plots were foiled since 2013 - with only one minor attack at a pub last year, injuring **8** people.

(Royal Malaysia Police Counter-Terrorism Division, 2017)

A Greater Digital Divide

There is no doubt that an advanced mastery of science and technology (S&T) has brought about a multitude of conveniences in our lives, but there will always be a dark side to the glorious moments. An aspect of life that is growing more apparent is the gap between the digital haves and the have-nots. Income disparity arises because of the differences in access to science, technology and innovation (STI).

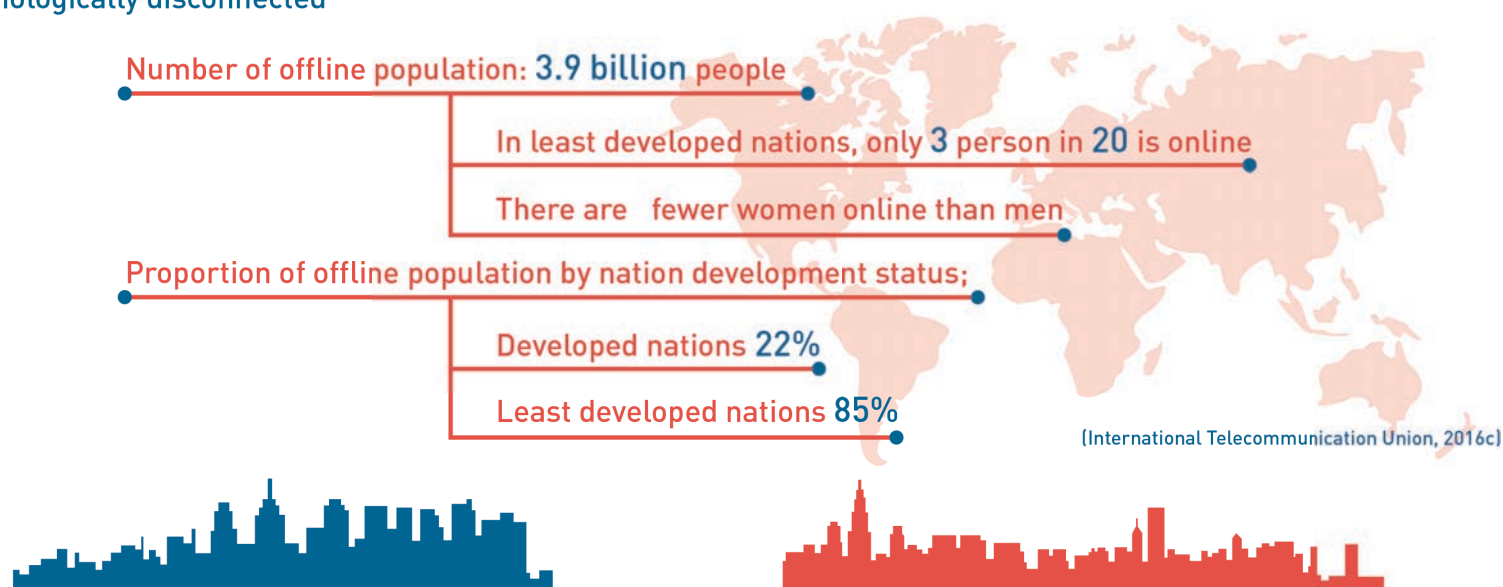
Limited access to technology could be caused by those in power that limit access to knowledge sources such as reading materials and internet limited to the privileged few. In addition, the limiting of knowledge could also arise due to

the cultural norms of some nations that still hold on to the belief that some levels of the population are deemed unworthy of information and knowledge. Furthermore, access to the vast repository of knowledge is further limited by the sparse coverage of technology.

It is not sufficient for a nation to have ample material wealth: a strong population powered by knowledge is increasingly becoming a commodity for a nation to truly prosper. In view of the democratisation of knowledge being en vogue, steps must be taken to ensure that a nation is enriched by knowledge in addition to being materially wealthy.

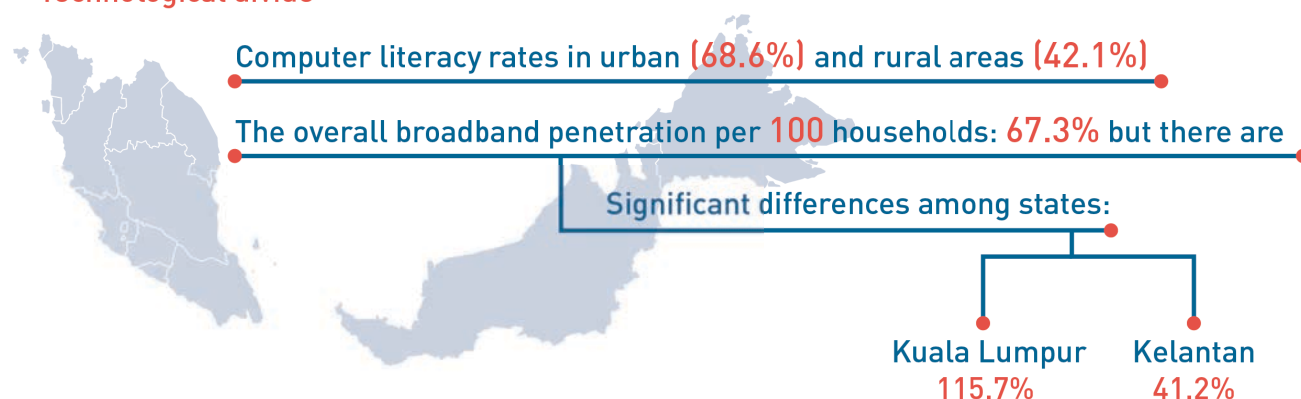
Global

Technologically disconnected



Malaysia

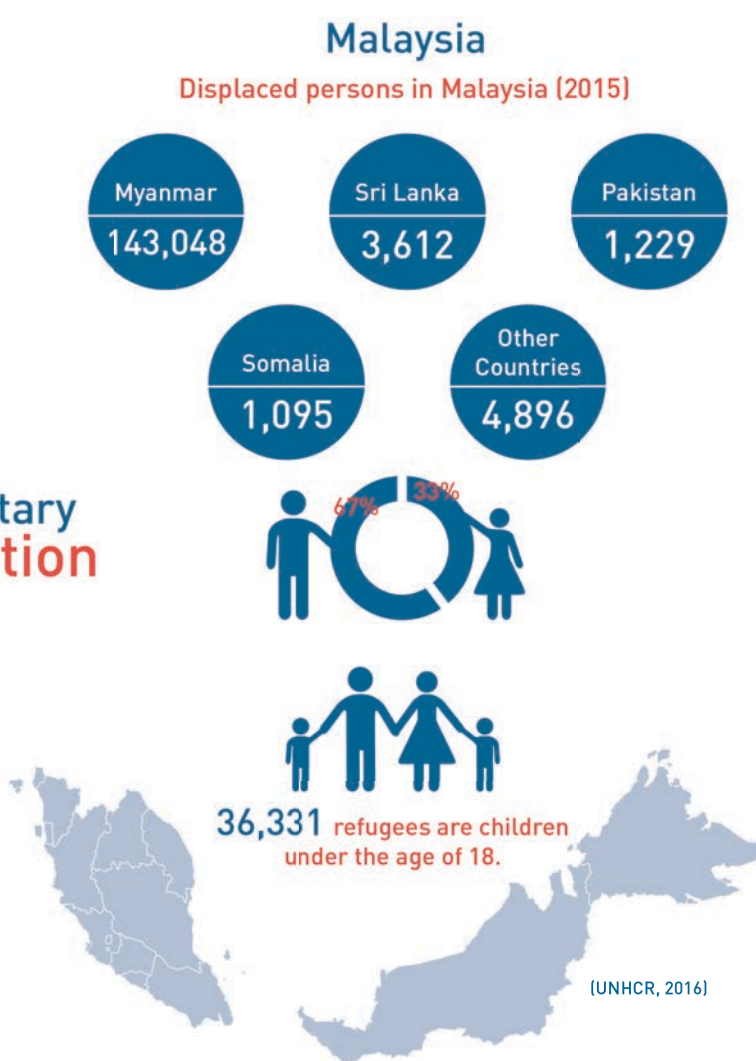
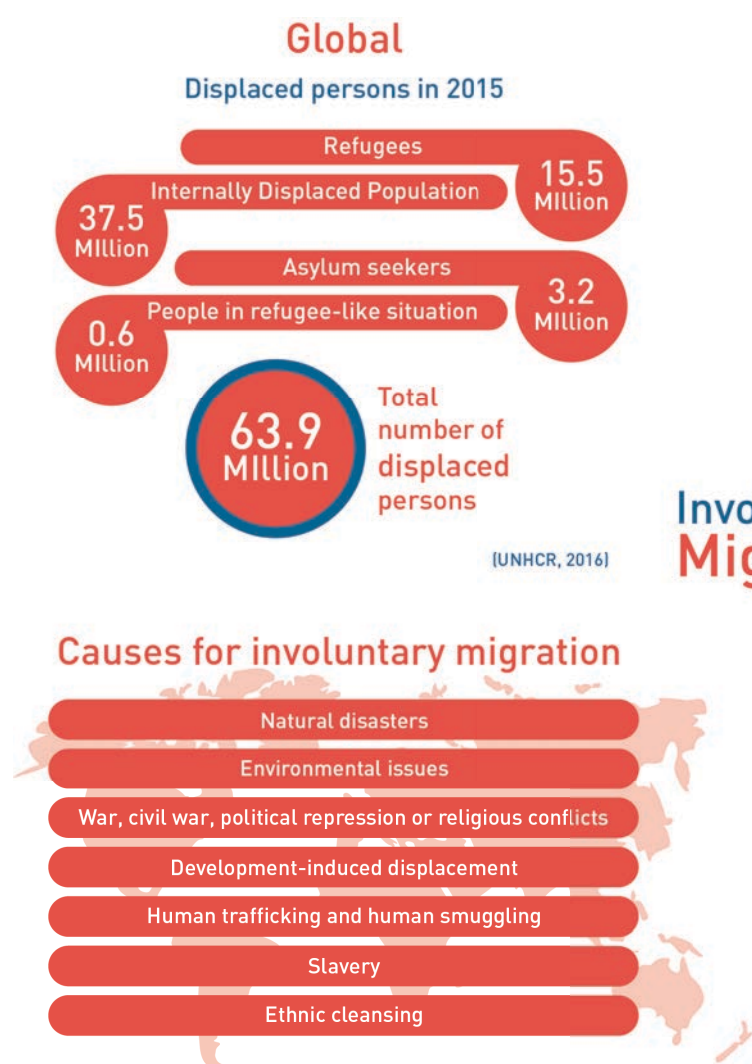
Technological divide



Involuntary Migration

We have glimpsed throughout the course of history that humankind has migrated to seek the best places and a steady source of water to settle in to ensure their survival. Humankind is still migrating to this day, albeit for a different reason: to escape persecution and national instability. As well as disruption due to climate change.

Due to civil unrest, a nation's population is forced to flee their homes. Limited by personal finance and manpower, the displaced population can only seek refuge in adjacent states, resulting in a strain in their own resources. Besides putting a strain on the host nation's resources, the involuntary migration also puts undue stress onto diplomatic ties and could also potentially drive racism, religious intolerance and extreme national idealism.



Forces of Nature

Extreme weather has been one of the most enduring themes for film makers. However, the dramatisation of natural disasters as told by these movies may no longer be a fictional. There is no denying that we are living in a time of unpredictable weather. Despite by humankind's mastery of science and technology, controlling the weather and climate is still beyond the grasp of even the most brilliant scientists. It can be inferred that human-induced global warming is the main cause of the recent increase in extreme weather events across the globe. As a result of the increase in global temperature, weather related events such as hurricanes, heatwaves and wildfires are happening with increased ferocity and frequency. Extreme weather events cause decline in the local economy, loss of lives and disruption in daily life. With global temperatures expected to increase, better mitigation mechanisms need to be developed.

Natural disasters such as floods, tornadoes, volcanic eruptions and earthquakes also causes major disruptions. The economic aftermath is sometimes even bigger with huge job losses. Other than direct damages, major natural disasters also causes secondary crisis. The Tohoku earthquake at Fukushima in 2011 caused a massive tsunami that disabled emergency generators which led to the nuclear meltdown of The Fukushima I Nuclear Power Plant. As an effect, several towns surrounding the power plant were evacuated and will not be occupied in the near future. The fear of what a disaster can do to nuclear power plants precipitated the decision by European governments to rely less on nuclear energy and to turn to renewable resources.

Global

Costs of Nature's Fury

Hurricane Katrina

- It cost **\$100 billion** in insurance and reconstruction of the city.

Fukushima Tohoku Earthquake

reconstruction and recovery costs USD250 billion.

- flooding over **500** square miles of land
- 15,894** deaths
- 300,000** people homeless
- Fukushima Nuclear Accident - three reactors at Tepco's Fukushima plant melted down
- USD15 billion** in clean-up over the next 20 years and over **USD60 billion** in refugee compensation

(Forbes, 2016)

Forces of Nature



Malaysia

2004 Indian Ocean Earthquake and Tsunami (2004 Boxing day tsunami)

- Cost around **RM1 billion**
- Number of deaths stands at **67** with **52** in Penang, **12** in Kedah, **2** in Perak and **1** in Selangor.

(Bernama, 2014)

2014 Malaysia Big Floods

- 15 December 2014 – 3 January 2015**
- More than **200,000 people** were affected while **21** were killed

(AsiaOne, 2014)

By 2050, potential **sea level rise of 0.5m** could submerge parts of Kedah, Kelantan, Sarawak and Sabah

(NAHRIM, 2013)

2015 Sabah Earthquake

- Repair costs around **RM100 million**
- Strongest earthquake to affect Malaysia since 1976: **6.0 on Richter scale**
- 18** deaths and **11** wounded on Mount Kinabalu
- Affected **61** building, **22** roads, **22** slopes and **200** families in Ranau and Kota Belud

(Straits Times, 2015)

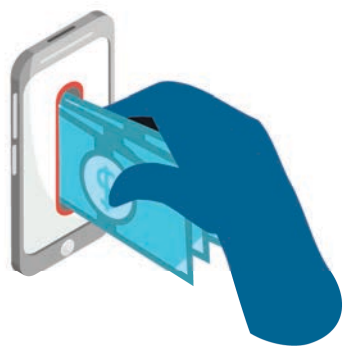
Massive Incident of Data Fraud and Theft

Advances in STI have enabled us to conduct various activities anywhere and anytime. Unfortunately, the information highway is indiscriminate: malicious users also take advantage of this convenience to cause havoc within cyberspace. Virtualisation of services has made life more convenient, but it also makes us vulnerable to threats such as data fraud and theft. The risks of data fraud and theft are increasing proportionally as governments and business move towards virtual transactions. More and better security infrastructure needs to be supplemented with the efforts to prevent our data from being compromised.

Global

Threats to businesses:

- 85% executive worldwide reported at least one cyber fraud or risk incident
- 44% are insiders as primary perpetrators
 - 20% former employees
 - 14% freelance or temporary staffs
 - 10% permanent employees



Threats to consumers;

- 15.4 million consumers were victims of identity theft or fraud in 2016
- In all, thieves stole \$16 billion

[Grant, 2017]

Malaysia

Malaysia 6th globally in terms of cybercrime threat risks, as the total cybercrime bill topped \$300 million (RM1.2 billion) (SOPHOS, 2014)

Threats to businesses:

- Highest number of fraud perpetrators:
 - Employees 50%
 - Customer 18%
 - Management 18%
 - Service providers 8%
 - Suppliers 6%
- Type of fraud:
 - Theft of outgoing funds 67%
 - Theft of physical assets 58%
 - Theft of incoming funds 34%



Threats to consumers;

- The most common types of fraud
 - Theft of cash and cash receipts (26%),
 - False invoicing (16%)
 - Theft of inventory (13%)

[Rohana et al., 2015]



Living in 2050

Urbanisation will continue and the countryside will be used for agriculture and outdoor activities. Cities will optimise logistics and be more connected through transportation methods. Digital experiences will be immersive (through virtual reality and other technologies) and we will be able to learn and experience nearly anything we wish from our home. Repetitive jobs will be given to robots and machines. Humans will spend more time serving other humans, taking care of the planet, and performing creative and artistic jobs. We will be enrolled in continuous education. Physical spaces will be customised and shared. Healthcare will become more preventive: we will be diagnosed remotely in countless ways to receive prescription for medication and supplements to offset negative developments. The following are glimpses of how we will live in 2050:

Madam Wong Suet Fah, 49, Homemaker

I am awakened by the series of gentle vibrations on my wrist. The curtains automatically part to allow a stream of sunlight to shine into our room. The window displays the temperature and weather forecast for the day. I take my smartphone off the wireless charging pad and scroll through the news feed that is tailored to my preferences. My husband walks out of the bathroom and wishes me good morning.

“Good morning, Mrs Wong.” Joy, our home AI greets me when she detects me entering the bathroom. As I brush my teeth, the heads-up display on my home physio-scanner starts scanning my body. A soft humming emanates from the small box on the wall, followed by a beep. “Mrs Wong, I have detected a deficiency of Vitamin D. I will inform Dr Wallace so he will prescribe some supplements for you.” I tap on the screen to agree to Joy’s recommendation, and it sends a message to our family doctor. Nanomaterials in the shower stream clean my body without the need for shower cream and shampoo. It also shortens my shower duration so less water is wasted. I step out of the shower, get dressed and proceed to my children’s rooms.

As I walk over to my children’s rooms, the lights slowly dim while the glass windows gradually become transparent, letting natural light to flood the hallway. I approach my son’s door and the display turns on. It shows that my son’s vital signs are normal. My daughter’s display on the door shows the same positive signs. I leave a voice note on the display and go downstairs to the kitchen.

I can smell the robust scent of coffee even before I reach the kitchen. My husband is already having his breakfast while reading his preferred news feed on his tablet. I walk over to the fridge to get myself a cup of orange juice. The fridge’s display shows we are running low on orange juice, milk, and meat as well as vegetables. This time I decide to forgo the delivery service to go buy the groceries myself. I prepare a breakfast of buckwheat noodles and pan-fried mackerel. It gives me peace of mind that my ingredients are obtained from sustainable sources.

My son and daughter walk down the stair and wish us good morning while my husband heads for work in his autonomous car. My daughter says her Biotechnology class today is cancelled due to a storm at the university that caused a signal disruption, but will proceed with her History of Art class from another university instead. My son finishes his breakfast and put the dishes in the washer. He’s going to commence his sports science course through the massive open online course (MOOC) platform after this.

I put a load of laundry into the washing machine. Nanoparticles released by the washing machine eliminate the need for detergents and softeners. Not long after that, I receive a notification from Joy that there is a drone at the door with a parcel. I go to the door to retrieve the Vitamin D supplement which has been automatically charged to my bank account. After I finish doing the laundry I go upstairs to get ready to go to the store. Going past my son’s room, I see that he is in the middle of emulating the correct exercise posture. The motion sensors detect his posture and gives feedback to improve it. That is good.

I proceed to my closet to get a change of outfit before heading to the supermarket. I choose a dress that is wrinkle-free and stain-resistant. I command Joy to import the shopping list from my fridge to my phone. I bid farewell to my children and head to the supermarket with brisk steps that will make up the 15,000 steps my fitness programme has prescribed.

Mr Ghazali Fuad, 26, Factory Supervisor

"Your next meeting is with the South Korean production team at 10:30," the car's digital assistant's voice reminds me of the meeting. I arrive at the factory and the car parks itself in the designated area. It has been a week since I came to the office since the hurricane that ravaged the district. Thanks to advances in engineering and construction materials, the factory is only minimally damaged. I holler to Suri to open my mails: a custom order for desks by a company in Pasir Putih, Kelantan just arrived.

I decide to get some breakfast. The whirl of the food machine seems to emanate throughout the office. It is 3D-printing my breakfast of sausage and eggs. I sip my coffee as I go through my daily news on my smartphone. A notification from the attendance machine informs me that my production team has arrived. I send them a text about the order. They say they will check to see if the design is feasible and the materials available, then they will check back with me to proceed with the production.

I sit down at my desk and put on a special visor. A heads-up display within the visor detects my identity and directs me to the right conference. One by one, members of the South Korean production team appears on the visor. I thank everyone for attending and proceed with the meeting. At the same time, language processing units in our respective visors help translate what we say into our preferred language. Once I have finished the meeting, I bid everyone farewell and remove the visor. The light on my glass wall glows and the production manager confirms design for the Pasir Putih order is feasible and we have sufficient materials to 3D print 500 desks. I give the greenlight to proceed.

After lunch I walk down to the production line to check on the Pasir Putih order. The table legs made from recycled aluminium gleamed while the surface which is made from high density fibreboards has a pleasing oak finish. Non-toxic solvents and glues put them together. A soft vibration in my pocket signals that my next meeting is coming up at 3:00 pm. The fast lift takes me back to my office in a few seconds.

Ms Lakshmi Alagaraisamy, 38, CEO

The silver sedan comes to a gradual halt just in front of me. The car senses that I have my hands full so it opens the door for me: I am bringing my nasi lemak bungkus into the back seat to enjoy on my trip to the office. Once I am properly settled into the back seat, the car's digital assistant greets me in a friendly voice, and announces that the ride will now begin.

I have just returned from a vacation with my family in Barbados. I am feeling refreshed and returning to the office to resume work. It certainly helps that the vacation trip was tremendously shortened, thanks to hyperloop trains. Along the way to the office there is a bump on the road and I spilled my chai latte. However, a nanocoating on the fabric of my outfit and the car's seat repels the potentially staining spillage. I take out a piece of tissue paper to soak up the beads of spilled drink. I am able to reach the office in a very short time, thanks to real-time traffic data fed into the car's GPS, allowing it to search for alternative routes and cut through unnecessary traffic congestion.

My staff greet me warmly as I enter the office. There is significantly less staff working in the office now: automation has eliminated the need for some tasks to be human-operated and some of my staff is working from home. I do work from home from time to time, but being in the office allows me to have more focus on the tasks at hand.

I enter my office to the singsong greeting of my robotic assistant, Nor. She serves me a glass of water and updates me on the events of the day. I opted for Nor because I found that talking to a disembodied voice in a room to be jarring. She finishes updating me on the work aspect and add that she detects a weird mole on my shoulder through a body scan. I instruct her to schedule a meeting with my dermatologist tomorrow.

The next order of business is a management meeting with my heads of staff. I send a reminder to them about the meeting which will start in ten minutes. In the meantime, the hologram projector beeps to signal it is starting up. Three holographic images of my heads of staff appear, followed by two more walking in. They take a seat and we commence our meeting. Our facilities department reports that there is a decrease in operating costs, thanks to our switch to solar energy. The human resources department reports a higher employee satisfaction rating due to the new flexible office hours. The IT department reports an attempt on company data breach and theft, but it has been swiftly prevented with the advanced cyber security measures we implemented.

Once the meeting is adjourned, I use my smartphone to order a vegetarian lunch for myself. It is my mother's birthday tomorrow so I decide to go to Kuantan after work today, a trip which will only take about 15 minutes.

03



A flock of seagulls is captured in flight against a clear, bright blue sky. The birds are white with dark-tipped wings and orange beaks and legs. They are scattered across the frame, with some in the foreground and others further back, creating a sense of depth and movement. The lighting is bright, suggesting a sunny day.

Envisioning Malaysia 2050

We now possess the knowledge to infer future events based on megatrends and from this prepare ourselves to mitigate the risks that come with the changes. How different would our life be in 2050? Many would see a future self that would be a better version of what we are today. So, let us go on a time travel to the future...

Global Perspectives towards 2050

Mahatma Gandhi once said, “Earth provides enough to satisfy every man’s needs, but not every man’s greed”.

Today, we have finally realised our recklessness in destroying the planet due to greed. While we cannot reverse the repercussions of overproduction, overconsumption and wastage, we are now learning and taking proactive measures towards safeguarding our planet and her sustainability. Every nation in the world wants progress, to ensure the well-being of its citizens, create wealth for a prosperous economy and maintain its sovereignty. But how do we ensure progress and yet balance our impacts on the planet?

In September 2015, the United Nations spearheaded the ‘Transforming Our World: the 2030 Agenda for Sustainable Development’ that brought together 193 nations to create the future we want through a set of 17 global goals with 169 targets. It was a wake-up call to the many unaware that in this day and age, there are still those living in poverty, hunger, and poor health, and are uneducated and gender discriminated, as well as have no access to clean water, sanitation, and electricity. The meeting reaffirmed the importance of sustainable national development in planning urban growth, responsible consumption and production as well as our climate, environmental and societal impacts.

The concern now is how to meet the ever increasing demands of an increasing number of people and industries while balancing the environmental impacts? Governments of many nations are developing long term visions and strategies up to 2050 towards sustainable development. In addition, research agencies, corporations, special interest groups and futurists are conducting foresight studies to understand the technological impacts and suggestions of grand aspirations towards 2050.

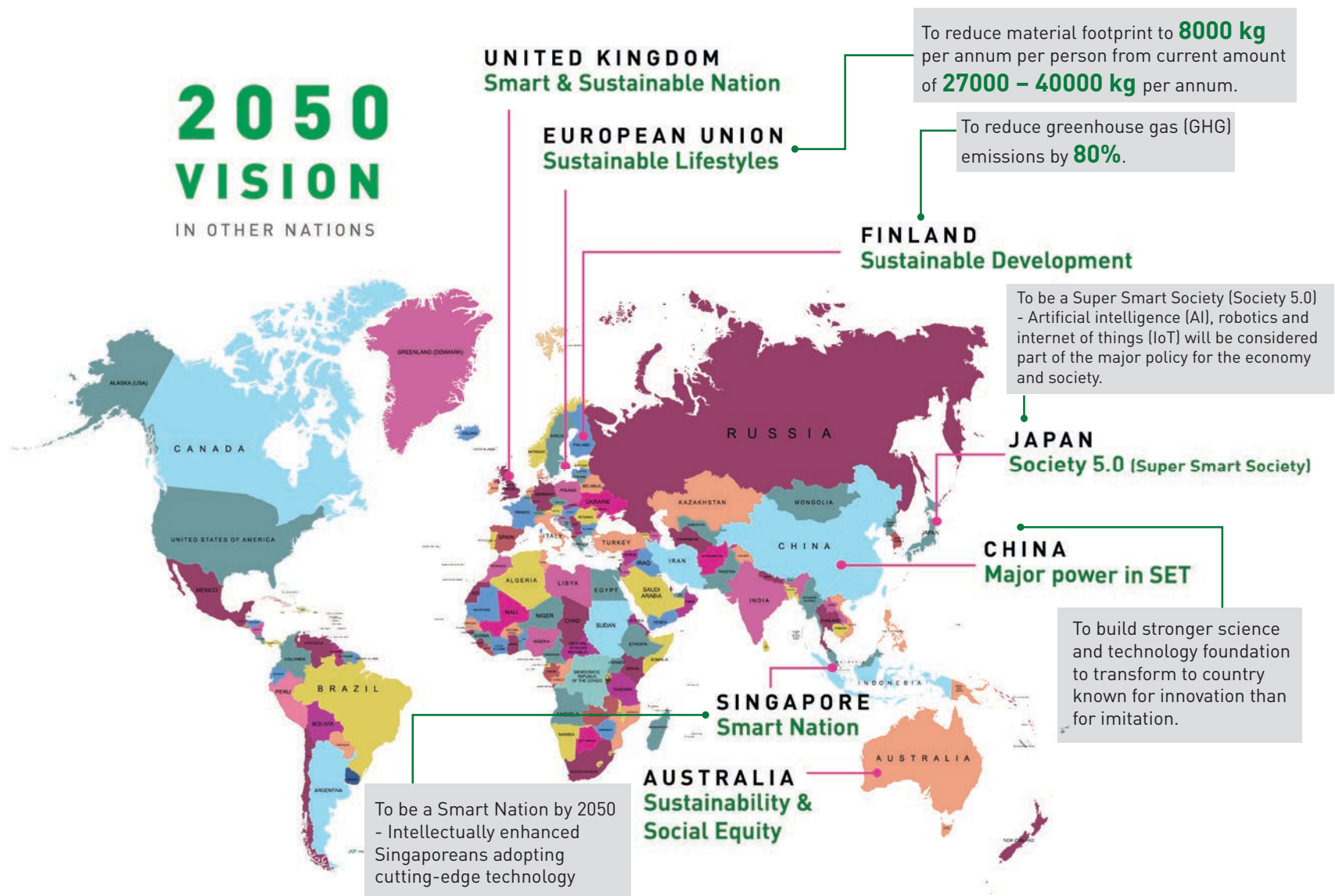
Why 2050 one might ask? What does this magic number signify? To many, it is the halfway point of the 21st century and it makes sense to peg long term plans towards a halfway mile. With 2050 about 30 years down the road, it is not too far to envision what might happen yet far enough that we make reasonable plans. Furthermore, with countless official projections pegged to 2050, it triggers a cascading effect as it makes good organisational sense for other interested parties to use the basis of that research to do the same for their future study.

1.3 billion
tonnes of the food
produced goes to
waste **ANNUALLY**

Malaysians
generate about
15,000 tonnes of
food **WASTE DAILY**

A child dies of
hunger **EVERY FIVE**
SECONDS





Common themes that can be noticed in the 2050 visions of most nations are sustainable development and the importance of STI in driving that desired future.

While the map just illustrates snapshots of some of the national visions of selected countries, there are many more efforts being taken up globally for sustainable development and technological advancements.

However, it is important to note that a noticeable key point in all the visions is the importance of people in driving it. Many of the envisioned scenarios towards 2050 inspect on the how the interplay between technology and human relationship can unfold in the sustainable futures. Society needs to have the desire to change and only then that technology, foresight and scenarios can better support the preparation of a sustainable way of living.

It is also important to note that the race towards 2050 is not a race against other countries, but a race against time. Like it or not, we have to continue sharing this planet in the future. Hence, it is indeed encouraging to see that many nations are united in the theme of a sustainable world and are of a similar belief that STI will indeed provide the solutions for present and future problems.

Our Vision

How about our Nation's vision towards 2050? Would it be similar to the rest of the world?

Let's imagine how different would Malaysia be in 2050 compared to today? Many of those whom we engaged throughout this study aspired for a better version of Malaysia.

So, how could we realise these aspirations?

The answer to this is a shared vision that could move our Nation holistically, through national planning that deploys resources, talent development and economic investments. Most importantly, this shared vision becomes the dream in all of us towards achieving Malaysia 2050. It is with this belief that we are able to envision a future that is exciting, meaningful, and impactful. Such a vision will automatically draw us to it and compel us to proactive move towards it.

As citizens we are the torchbearers of our predecessors' aspirations that run like an invisible thread that binds us together. It is our duty to strive for realising the Malaysian dream, not just for ourselves but for the future generations that is yet to come – our children, their children and the children after them. With us lies the responsibility to lay the framework for aspirations of a sovereign Nation, a globally recognised leader, a strong economy and most importantly a peaceful and united Malaysia. This can be seen reflected in all our national principles and we are responsible to practise this to utmost abilities.

Hence, it is important that Malaysia draws its own model of Malaysia 2050 taking into account our uniqueness in terms of culture and values. In line with this, we reviewed our Nation's history, culture, direction and sentiments from its citizens in developing a vision for Malaysia. From this, we propose that a vision of success in 2050 would be a Progressive Malaysia 2050 where we live in a harmonious, prosperous and sustainable milieu enabled by advanced science, technology and innovation and facilitated by agile governance.

Progressive

Upon reflection, the aspiration of being progressive is not alien to us. Our predecessors have long aspired for us to be a progressive nation, society and individual. Take for example our national principles or better known to all Malaysians as Rukun Negara. While the need for this came as a result of a dark day in our history, the ideology and aspirations behind the words that we all pledge to daily is hopeful and beautiful. It aspires for a harmonious and united Malaysia among its various races despite differences in socio-economic, cultural and beliefs. It sought to establish a common platform for all of Malaysia's diverse communities to live together on this land we call home.

Many of us might not even realise that the Rukun Negara is beyond merely the five principles. In fact, it carries our predecessors' ambitions. It is our inheritance today and our responsibility to continue championing a national ideology as noble and holistic as this. Hence, it came as no surprise when many of whom we engaged with throughout this study strongly believed in retaining and embracing the Rukun Negara. While the younger generation did not yet appreciate this ideology, when exposed to the full version and its basis they came a full circle and finally see it the way our forefathers had seen it in 1970. As the popular saying in Bahasa Malaysia goes, '*tak kenal maka tak cinta*' or similarly translated as 'to know is to love'.

*Bahawasanya Negara Kita Malaysia mendukung cita-cita hendak:
Mencapai perpaduan yang lebih erat di kalangan
seluruh masyarakatnya*

Memelihara satu cara hidup demokratik

*Mencipta satu masyarakat adil di mana kemakmuran Negara
akan dapat dinikmati bersama secara adil dan saksama*

*Menjamin satu cara liberal terhadap tradisi-tradisi
kebudayaannya yang kaya dan berbagai corak*

*Membina satu masyarakat progresif yang akan
menggunakan sains dan teknologi moden*

*MAKA KAMI, rakyat Malaysia, berikrar akan menumpukan
seluruh tenaga dan usaha kami untuk mencapai cita-cita
tersebut berdasarkan atas prinsip-prinsip yang berikut:*

KEPERCAYAAN KEPADA TUHAN

KESETIAAN KEPADA RAJA DAN NEGARA

KELUHURAN PERLEMBAGAAN

KEDAULATAN UNDANG-UNDANG

KESOPANAN DAN KESUSILAAN

Translated it means:

Whereas our country, Malaysia nurtures the ambitions of:
Achieving a greater unity amongst the whole of her society;
Preserving a democratic way of life;
Creating a just society where the prosperity of the country can be enjoyed together in a fair and equitable manner;
Guaranteeing a liberal approach towards her rich and varied cultural traditions; and
Building a progressive society that will use science and modern technology.

WE, her people, pledge our united efforts to attain these ends guided by these principles:

BELIEF IN GOD
LOYALTY TO KING AND COUNTRY
SUPREMACY OF THE CONSTITUTION
THE RULE OF LAW
GOOD BEHAVIOUR AND MORALITY

Most of us are aware of the basis of the formulation of our Rukun Negara, which is to achieve a greater unity among its people. But, it is a pleasant surprise to know that we had already long aspired to preserve a democratic way of life, creation of a just and equitable society, freedom to practise our cultural traditions and most importantly, to build a progressive society by leveraging on STI.

Back in 1991, Malaysia established a vision towards 2020 or better known as *Wawasan 2020*. Many lauded this move as visionary and an early example of foresight. The central theme of this vision was for Malaysia to be a fully developed country by 2020. Vision 2020 had nine challenges and they were:

1. Establishing a united Malaysian nation made up of one Bangsa Malaysia (Malaysian Race)
2. Creating a psychologically liberated, secured and developed Malaysian society
3. Fostering and developing a matured democratic society
4. Establishing a fully moral and ethical society
5. Establishing a matured liberal and tolerant society
6. Establishing a scientific and progressive society
7. Establishing a fully caring society
8. Ensuring an economically just society, in which there is a fair and equitable distribution of the wealth of the nation
9. Establishing a prosperous society with an economy that is fully competitive, dynamic, robust and resilient

Again, we noticed a recurring theme of a **united, democratic, moral and ethical, liberal and tolerant, just and equitable, prosperous, a scientific and progressive society.**

In 2016, with only four years to go to 2020, the government initiated a long term plan as a continuation of these aspirations, to navigate our path in a significantly different future and to signal the beginning of Malaysia's next chapter. This plan heading towards 2050 known as Transformasi Nasional 2050 (TN50), a bottom-up initiative to shape Malaysia into the Nation of its citizens' aspirations. This is in line with current generational attitudes and societal changes towards crowd thinking, collective intelligence and empowerment of the people. Furthermore, with the democratisation of knowledge enabled by digital technology; the wisdom throughout the whole of society is at a higher level compared to the 19th century where we were colonised, not only in terms of our land but also in our thinking, beliefs and the economy.

It is also important to note that TN50 too has a similar theme of building a progressive Nation according to the aspirations of the *Rakyat* (citizens). While it is still work in progress, it already has set the lofty targets for Malaysia to be among the world's top 20 nations, notably in terms of happiness, economic growth as well as creativity and innovation.

Leaders come and go, older generations give way to young upstarts and winds of change have seen Malaysia become an upper-middle income country, well set on the way to achieving developed status nation. We are indeed a force to be reckoned with on both regional and global fronts. Nonetheless, the foundational principles embodied in all our national initiatives that have withstood the test of time are immutable – it is for the success of Malaysia in our own mould, in our own words and in our own beliefs. Malaysia has already claimed its space on the world map; it is now time to leave an impression and to shine bright among the stars. It is the people who are the source of this energy.

Let us make Progressive Malaysia 2050 our vision and commit ourselves to it. A Progressive Malaysia 2050 is not just the progress of a piece of land but the progress of a Nation in terms of

- the people; their well-being and mindset,
- the economy; its sustainability and equitable distribution of the Nation's wealth, and
- the governance; its inclusiveness and effectiveness.

Traditionally, many indices measure a country's progress based on its economic prosperity. This is because a common trend observed is that richer nations are generally more progressive, not just in terms of their economy but also in its society and knowledge. Notable examples include the Scandinavian countries, Canada and Australia. However, there are notable exceptions to this which have debunked the correlation between economic development and

progressiveness. Examples include the United States, United Arab Emirates and Saudi Arabia. Furthermore, many experts are of the opinion that economic output is too narrow a gauge by which to measure the progress of nations. Hence, in recent times, there have been efforts to develop alternative indices that go 'beyond GDP'.

A useful index is the Social Progress Index (SPI) where Malaysia has a score of 71.14 out of 100 and is ranked 50 out of 128 countries in 2017. This index measures social progress in a systematic and comprehensive way, based on the capacity of a society to meet the basic human needs of its citizens; establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives; and create the conditions for all individuals to reach their full potential. It is evident that while Malaysia has progressed in several areas, we still have some way to go before we are among the top global leaders for social progress.

How would 'harmonious', 'prosperous' and 'sustainable' look like in Progressive Malaysia 2050?

A Malaysia that is harmonious is one that embraces social cohesion among its plural society through equitable distribution of national wealth, mutual respect and understanding.

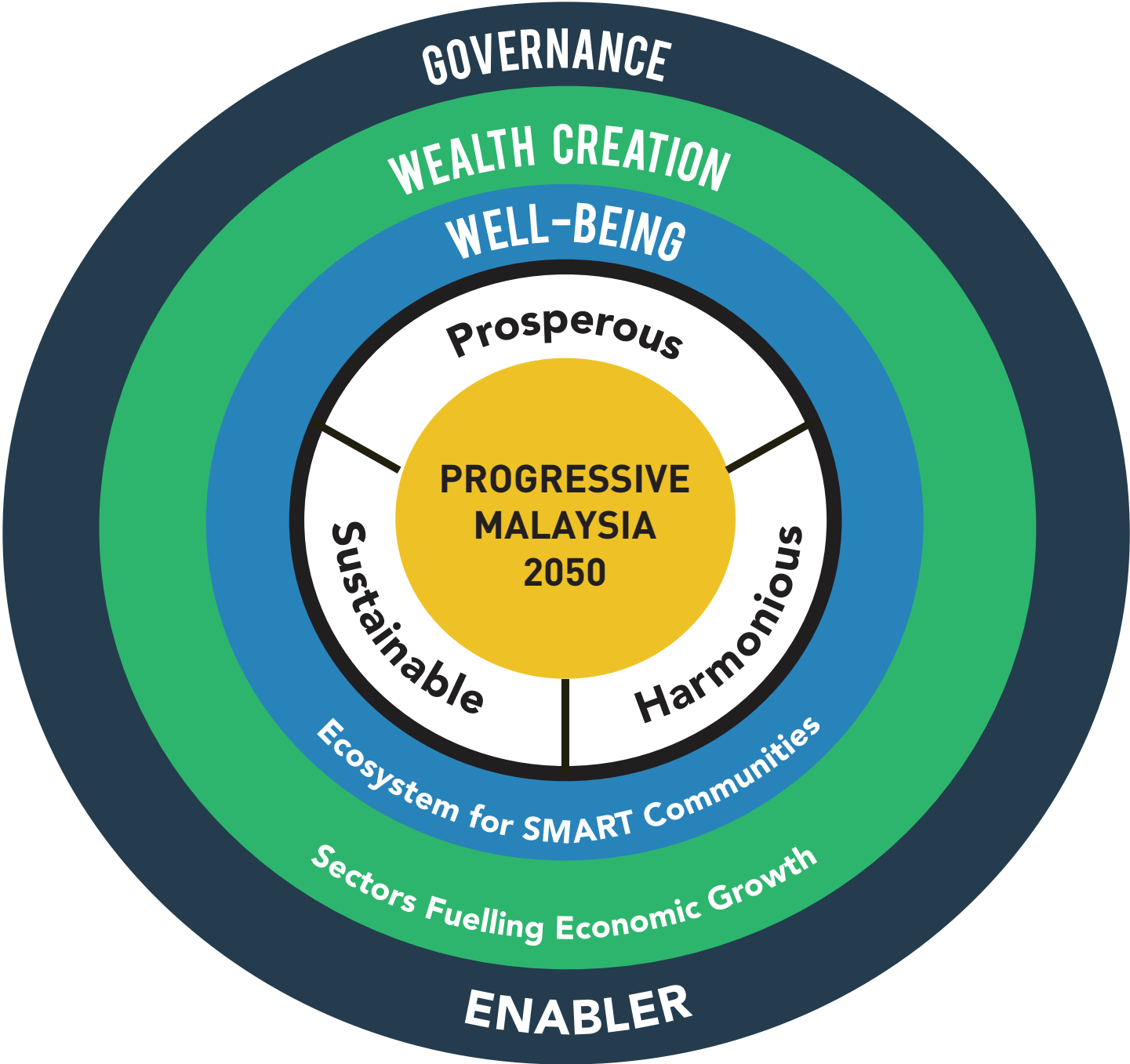
A Malaysia that is prosperous is founded on economic growth driven by sustainable industries that leverage on STI and the knowledge and innovativeness of its people and is also an economically just society where the wealth is equitably distributed and used for the development of whole of society.

A Malaysia that is sustainable is one where our environment, the public commons and its biodiversity are protected. Sustainability must also extend to the notions of harmony and prosperity through smart management of its resources and leveraging on opportunities enabled by the knowledge of its people.

It is clear that to achieve this vision, the adoption and development of advanced STI are essential. Moving towards 2050, a knowledgeable society will not only adopt the use of STI in their daily lives but will be innovative enough to adapt and develop endogenous STI as solutions for our societal problems and challenges as well as leverage on them for our Nation's progressiveness.

These will be facilitated by agile governance that will play its role as protector, provider and investor: firstly, in protecting the citizens, their aspirations and the sanctity of constitution; secondly, in providing goods and services that will satisfactorily meet the needs of the people; thirdly, investing in its people to help them achieve self-actualisation and platforms in which they would have opportunities to become progressive.

With all these, we would be able to realise our vision of a Progressive Malaysia 2050 where we live in a harmonious, prosperous and sustainable milieu enabled by advanced science, technology and innovation and facilitated by agile governance.



Key Drivers of Change

The journey of a nation and its trajectory forward has always hinged on several fundamental drivers. These are key drivers which have brought about significant changes in our journey thus far and have the potential to create profound impacts. These drivers of change, the trends and issues that they underpin and how they unravel are important contextual elements in envisioning our possible future.

What are the fundamental key drivers of change that would get us to 2050? What are their impact and uncertainty moving towards 2050? What are the trends and issues that these drivers underpin?

Through the process of foresight and stakeholder engagements, nine key drivers (see Figure 3.3) of change towards Malaysia's nation building were identified based on their potential impact and uncertainty. The evolution and interplay of these drivers will be a significant influence on our journey towards Malaysia 2050 and can potentially give rise to different possible future.



Leadership and governance

Leadership and governance have and will be fundamental drivers of a nation's journey. They often set the tone of a nation's direction and determined how decisions are made, cascaded and implemented to achieve commonly accepted goals. Their potential impact on a nation's journey can leave a lasting impression on generations to come. Take for example on how Malaysia came to be. Recovering from harrowing armed conflicts, our predecessors saw fit that independence and unity needed to be gained in a peaceful and collaborative manner. The decisions of our past leaders to focus on power sharing and democratic as well as diplomatic approaches are still ingrained in our systems today.

Likened to two sides of the same coin, leadership and governance are inseparable and one directly affects the other. It is with good governance that we get good leadership and vice versa. However, it is important to note that it is not just governments that govern and elected leaders that lead. In fact, all of us practise leadership and governance in our own right; within ourselves, in our families, society and then on to a national and international level. We seem to have forgotten this as we emphasise superficial ideas and practice of leadership according to the popularity ratings and idol-worship of individuals.

Moving towards 2050, it becomes easier and faster to evaluate the performance of leaders and the governance of governments and organisations as civil society are becoming more empowered through knowledge and technology. As with the case of American politics, the world witnessed how Trump won the elections with the aid of big data analytics (BDA) and sentiment analysis but is now witnessing a downtrend of his popularity. We also see how policies can be overturned or successfully implemented due to the governance in place with the aid of real-time monitoring and quantifiable data. We also take note of the importance of corporate governance to keep the greed of corporations and unscrupulous actors, with whistle-blowers and social media players acting as citizen journalists. Through social media, we also witness the rise in participation of civil society in leadership and governance, with unofficial leaders becoming the voice of society due to their large base of followers and the increase in participatory decision-making.

Hence, the world of leadership and governance is rapidly becoming more transparent and instantaneous with the involvement of whole of society and not just exclusive to the elites. Therefore, how Malaysia 2050 will unravel will be partly determined by:

- Our leadership qualities and visionary decisions
- The mechanisms that we put in place to ensure accountability, efficiency and effectiveness in all levels of governance



Economic growth and equitable distribution

Economic growth and equitable distribution of wealth and opportunities are the bedrock for a nation's harmony, prosperity and sustainability as they not only fuel the initiatives that meet the people's needs but also sustain the competitiveness of a nation. Malaysia's economic performance has been one of the best regionally, with an annual growth in real GDP of 6.3% on average since our formation. However, we must never be complacent in our success as the financial market is as uncertain. Take, for example, the 1998 Asian financial crisis which saw Malaysia's GDP growth plummeting from 7.3% into the red of -7.4% in just a span of a year. This created a lot of anguish as many Malaysians lost their savings, employment, education opportunities, and others.

While we have seen how economic prosperity contributes to harmony, it is also important to note that the prosperity must be enjoyed by all. A nation's prosperity is seen distributed equitably when the needs of all its citizens are met and everyone have equal opportunities to benefit from the wealth of the nation. This is translated into the goods and services provided in the areas of security, health, education and others. While we have seen Malaysia's Gini coefficient reduce from 0.53 in 1969 to 0.40 in 2014, marking our success in bridging the inequality divide, there are still some ways to go to ensure a more equal society towards 2050.

It is projected that in 2050, Malaysia's GDP (PPP) will be at USD 2.8 trillion compared to the 2016 level of USD 0.9 trillion. The irony of this projection is that while it appears that Malaysia's economy would be on an upward trend, however by 2050, the economies of Bangladesh, Vietnam and Philippines would have outperformed ours. Hence, knowing this information, what proactive action can we take to ensure Malaysia's economic growth is not only progressive in terms of economic numbers but also in terms of our global competitiveness and equitable wealth distribution?

The government and the private sector are the key players in the Malaysian economic ecosystem. Together they shape the nation's outlook in terms of revenue generation, investments, and expenditure. With sustained growth of Malaysia's economy, we would be able to attain our aspirations to become a high income nation, with its society enjoying in high quality of life and living in harmony.



Education and Training

The greatest investment any nation can make is in its citizens' education. As Nelson Mandela once said, "No country can really develop unless its citizens are educated. Any nation that is progressive is led by people who have had the privilege of studying." Hence, it is without a doubt that to achieve a Progressive Malaysia 2050, education and training of the present and future generations will be essential. Through education, we can unleash the potential of each person and provide him or her a world of opportunities.

Education encompasses the training and development process undergone by Malaysians across their lives, with particular focus on the fundamental stages (early childhood through young adulthood). The discussion on education and training is not limited to only formal institutions such as schools, colleges and universities - rather, it recognizes the diversity of avenues that now constitute the educational infrastructure. This also reflects the holistic education that not only focuses on intellect, but also character-building and value-based education.

However, education can also create inequality if opportunities are not shared equally. The emphasis on paper qualifications in today's society makes it much harder for people with low levels of education to have better social mobility. While we read about successful people who were school dropouts such as Sir Richard Branson whose net worth of USD 4.9 billion is the equivalent to Fiji's national economy, these are the rare cases. In fact, it is more common for the uneducated to be denied opportunities for employment, financing and other opportunities. In Malaysia, while literacy rate has increased from 76% in 1970 to 94.6% in 2015. The rest are trapped in a vicious cycle of poverty and struggle to be self-sufficient. This is clearly evident in our minority indigenous communities where over 8000 indigenous children have never been to school while those who have, only six out of 100 complete their Form Five education.

Moving towards 2050, with greater emphasis on access to education and its delivery, we need to be more agile in our learning. Learning is no longer limited to schooling years but is towards life-long learning. The democratisation of knowledge will lead to equal opportunity to education. In the future, we will witness on-demand learning replacing curriculum-based education where we learn whatever, whenever and however we want. Today, education has gone from a reliance on physical textbooks to digital content, with an increase of computer literacy and connectivity. Soon, we will be witnessing holographic teachers as well as augmented and virtual reality classrooms.



STI Capacity and Competency

The disruptive changes that we see today are mainly attributed to the rapid advancements in STI. As Malaysia stands on the cusp of a major technological revolution that will fundamentally change the way we live, work and learn, we have to ask ourselves if we are ready to embrace these changes and ride the waves or fight them but in the end drown. In terms of readiness, we have to look inwards and determine if our current local STI capacity and competency are at par with the global situation.

Tomorrow's world will not be about which nations are rich in resources but about those who would be able to innovate the most with few resources. This is only feasible if we rely on the STI capacity and competency in creating new solutions to solve problems or to create new goods and services that will be of global demand. Hence, we can see how a nation's STI capacity and competency can be the determining factor for its future competitiveness. Countries like Japan, South Korea and Switzerland are natural-resource poor but economically rich because of their citizen's innovativeness and application of STI. A classic example would be imported lower-valued products are re-exported as higher valued goods and services.

We have also witnessed how Malaysia's technological advancements have made us competitive. Take for example Malaysia's lead in the rubber industry and its subsequent latex products. While initially starting out as just a mere plantation product for the British, we have taken our rubber industry to the next level by using STI interventions to increase its quality and production in the downstream segment. We also further created value-add upstream segments that contribute a total of RM33.3 billion to Malaysia's total exports in 2016.

At its best, STI can be adopted in the promotion of societal well-being, advancing wealth creation and as an enabler in delivering effective and efficient governance. To realise this, there is a need to elevate our current local capacity to generate scientific knowledge, develop cutting edge solutions and deliver impact to the greater global community. Hence, our progressiveness towards Malaysia 2050 will hinge on our decisions in how we develop our STI capacity and competency.



People and Values

It is undeniable that a nation's strength lies in its people. While we often emphasise on the people and values of an organisation in our day-to-day life, it is even more important that a nation whose strength are its people, places high emphasis on the values of each of its citizens. Essentially, people and the values that are imbued in each of them are the key drivers of change towards achieving the Malaysian vision going forth to 2050. We have seen how people can drive change once they believe in it and share a common vision towards it. The independence of Malaya together with the nation building efforts that followed it have long proven that to inspire a country, we need to move its people and the values they hold dear.

The adoption of the Rukun Negara as pillars of the national philosophy and outlook represents an effort to base national unity on certain concepts which are acceptable to all citizens of Malaysia, regardless of their ethnic origin or religious affiliation. Every Malaysian citizen should appreciate and practice the principles of Rukun Negara in their daily life to enhance unity and nation building. Rukun Negara was formulated to cultivate noble values such as religious values, loyalty to King and country, upholding the Constitution, abide by the rule of the law and also moulding a highly courteous Malaysian society. The principles of the Rukun Negara clearly serve to bond a multi-racial society in this country towards the promotion and preservation of harmony for the sake of Malaysia's success and stability. Source: Rukun Negara (English Version), Department of Information Malaysia

Today, the older generations talk of old times when Malaysian were more united. Many today feel that we are now more divided as we focus more on what differentiates us rather than what binds us. They feel that we have become more individualistic in this fast paced and materialistic world that separates the haves from the have-nots. Indeed, this is a worrying trend. Throughout our stakeholder engagements, the one point that has been voiced out strongly and frequently by people from all walks of life is that if we imbued the right values into all Malaysians, there will be less conflicts and high level of acceptance and respect for each other. Hence we would be able to make the changes that we aspire.



Talents

Talents are the heartbeat of a nation to ensure sustained economic progress and innovative solutions to societal problems. Talents are the citizens who can make a difference to a nation's performance either through their immediate contribution or in the long-term, by demonstrating the highest levels of potential. In return, it is the role of a nation to invest in its talents to ensure they are able to self-actualise their highest potential.

We often consider talents as the direct result of our education system. However, talents are a result of more than that. It also embodies the social culture and values, leadership qualities and soft skills that are often polished by one's upbringing. As the saying goes, it takes a village to raise a child. In this case, it takes a nation to raise the talent in its citizens.

How talents are nurtured today will definitely determine the outcome of our talent pool tomorrow. However, it is important to realize that the requirements for talents yesterday, today and tomorrow will be different considering the rapid changes taking place. It is expected that talents of the future are able to adapt to these changes by learning, unlearning, relearning, and co-learning. As artificial intelligence and deep learning become more advanced, our routine tasks will be undertaken by robots that never tire. Hence, we need to be constantly searching for our next learning curve to ensure humanity remains relevant.

Furthermore, aided by virtualisation and advancements in transportation, we see a rise in the ease of global knowledge flows and talent mobility in today's world and even more so in the future via a virtual workspace. Hence, we need to ensure that Malaysia benefits from this brain gain and not suffer the debilitating effects of a brain drain. At the moment, Malaysia's talent loss is indeed alarming as we suffer from brain drain of highly skilled talent only to be replaced by a brain gain of low-skilled talents to support the commodity sector. To put it in perspective, in 2013, out of Malaysia's population of 30 million, there were 2 million foreigners in Malaysia and 95% of them were low-skilled. In 2012, the World Bank reported that Malaysia had an annual remittance inflow of USDPPP1.27 billion, and an outflow of USDPPP 7.25 billion. This means that while emigration of talents can be a nation's economic contributor through remittances, in Malaysia's case, there is a net outflow of USDPPP 5.98 billion.

A Progressive Malaysia 2050 will depend on the ability of our talents to remain relevant in the future workforce, our ability to nurture, retain and attract such talent, at the same time ensure that our people are leveraging on technology and not being made irrelevant by it.



Urbanisation and Rise of Megacities

Throughout human history, people have always been attracted to certain geographical locations due to their strategic access to certain resources and a way of life. Take for example the rise of early civilisations and 'megacities' of historic times in Malaysia such as Lenggong Valley, Kedah Tua and Melaka. Due to their strategic locations, they became successful cities because it enabled people to access facilities that were needed in the way they lived and traded. Today, we still see a similar trend as people shift from rural, remote or less developed areas to urban centres due to the access in education, job opportunities and a better quality of life.

These strategic locations and magnet for human activity are quickly becoming megacities which by definition are cities that have a population of more than 10 million. In Malaysia we project that this will soon take place for Greater Klang Valley which has a current population of 7.2 million while another megacity in the planning is Iskandar, Johor. Nonetheless, for the other cities, a high rate of urbanisation is also expected with projections of 90% by 2050. This means that 9 out of 10 Malaysians will be living in an urban area. With this increase, how will we be able to ensure a good quality of life and at an affordable price for a huge number of people confined within a smaller space?

Along with this increase in population density, strains on the many facets of harmony, prosperity and sustainability arise, because of the impact on society, economy, environment and governance. The growing demand for resources places a strain on urban centres. Issues relating to social cohesion, economic well-being, public health, safety and security, and sustainability become more pressing. Developing infrastructure developments that is safe, clean, and green becomes more critical.



Green and Sustainable Practices

Malaysia has indeed been blessed with a green environment and abundant natural resources. However, we now see signs of our greed and recklessness through a degradation of the environment and extinction of biodiversity against a backdrop of impending climate change and uncontrollable forces of nature. While recognizing our need to explore the planet for resources to sustain our current way of life and economic wealth, we need to be mindful in the way we tap and replenish them if we wish for them to last for future generations.

Malaysia appears to be on the right track on this key driver at least in terms of carbon emissions as we have pledged to a 45% reduction by 2030 in our bid to mitigate climate change. We are a country that is reliant on agriculture and natural resources, hence, the impacts of climate change can indeed be far reaching and our success will depend on how resilient our nation and its people will be moving towards 2050.

Unfortunately, our current development practices traditionally disregard the true cost of sacrificing the non-renewable natural capital and ecosystem services, often with dramatic consequences. Our economy is one that is linear rather than circular or closed-loop. In our linear economy, we see the creation of wastes in every process of the economic value chain from producer to consumer. Needless to say, without an innovative society and governance to regulate activities, these wastes are just left to accumulate in landfills. Not many realise the economic potential, let alone the negative impact, of these wastes. Take as an example the palm oil sector. While the oil palm industry contributes 5 to 6% to Malaysia's GDP, it generates 168 million tonnes of green waste annually. These palm biomass waste could potentially contribute RM30 billion to the gross national income (GNI) by 2020 if properly managed using STI interventions but are currently left to rot.

Considering that many of the resources from which we generate our wealth are non-renewables such as fossil fuels, how will we ensure our competitiveness in the face of resource scarcity? In addition, how do we ensure a good quality of life in the face of threats to the environment? These are key question that will determine our ability to be harmonious, prosperous and sustainable in a Progressive Malaysia 2050.



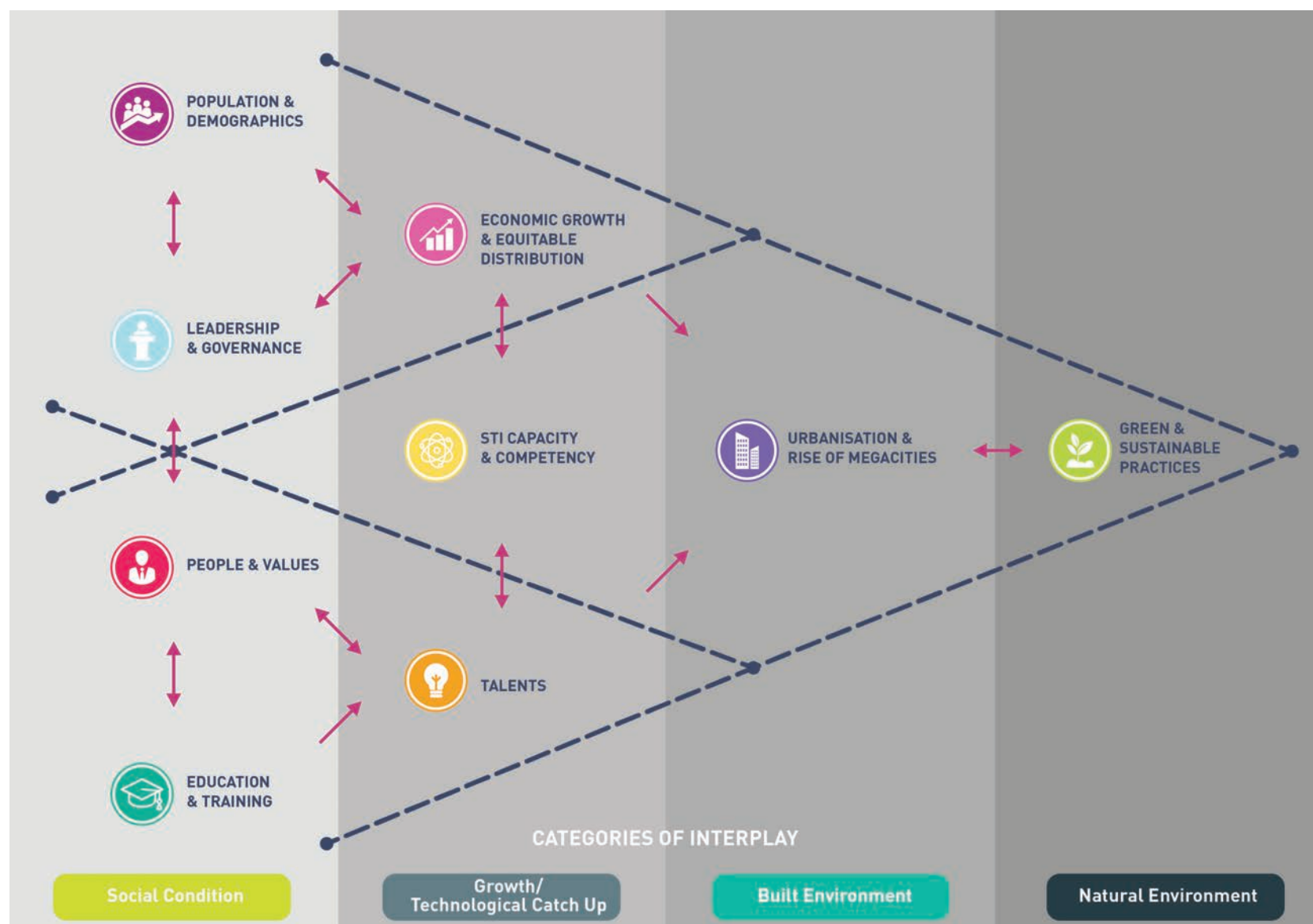
Population and Demographics

The Malaysian population will rise from 32 million today to 40 million by 2050. While it may not be not a drastic increase, it is important to note that the demographics will be markedly different from what we have today. While we currently have 69.7% of people aged between 15-64 years old, in 2050 that percentage will shrink, leading to a smaller workforce. This projection alerts us to the rise in the dependency ratio and its related risks. Our response in preparation for such a certain trend will partly determine the outcome of the realisation of a harmonious, prosperous and sustainable nation.

Another important trend would be the total fertility rate in Malaysia. As observed, there has been a decreasing trend in the number of Malaysians born and this coincides with the trends of late marriages and smaller families. Hence, it could also be projected that our population replacement level would be decreasing and Malaysia would soon be facing a shrinking population akin to what is happening in Japan currently.

Interplay of Drivers

It is important to note that the impacts of the nine key drivers of change that have been discussed cannot be considered in silo. In fact, the interplay of these drivers, i.e. one will affect the other, and can magnify an impact, making some drivers more critical in the unravelling of different possible futures for Malaysia towards 2050.



Let's take for example how the investment in a holistic education and learning system in Malaysia can give rise to knowledgeable talents with more relevant and agile skillsets to brace for the rapid changes moving towards 2050. This will also lead to a higher STI capacity and competency to ensure our economic prosperity and global competitiveness as well as innovative solutions for a sustainable future. In addition, the holistic education will instil and propagate in all citizens the desired societal values that will give rise to a more transparent, ethical and civic-minded leadership which in turn benefits the cohesion of our social fabric.

While we can plan and hope for positive cascading effects, it is important to take into account that problems can quickly compound and negative impacts will be magnified.

PROGRESSIVE MALAYSIA 2050: TRENDS AND ATTRIBUTES MAP

TODAY
2015-2020

TOMORROW
2021-2035

THEREAFTER
2036-2050

KEY DRIVERS



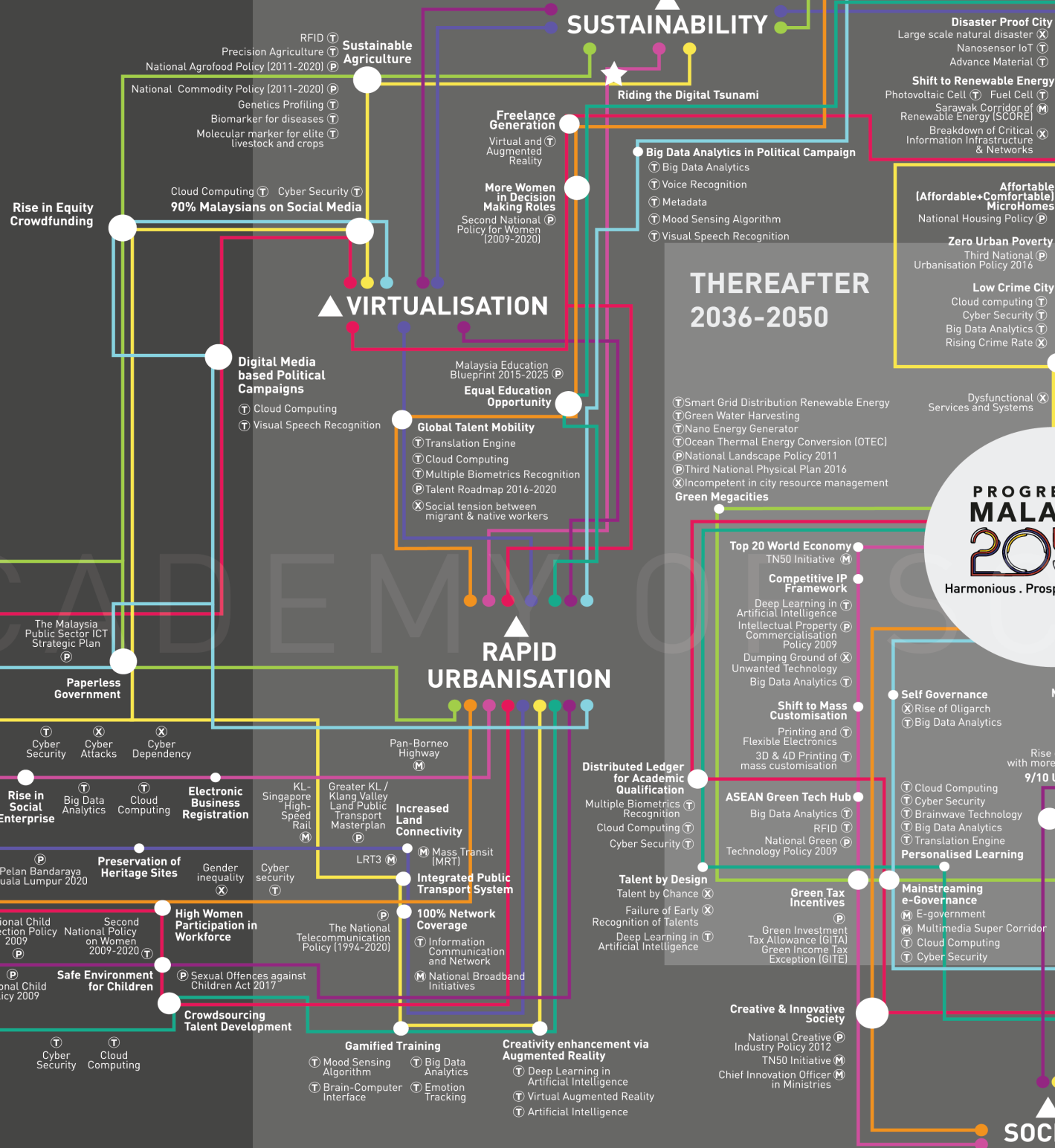
Journey towards 2050

To map our path to the future, we have chosen several megatrends that would most affect the journey: Sustainability; Rapid urbanisation; Virtualisation; Social change; Global shift from West to East, and Disruptive Technology. The nine drivers as previously described are depicted as forces that singly or collectively control, guide and lead us to our final destination of being a Progressive Malaysia that is Harmonious, Prosperous and Sustainable.

The map has been delineated into three periods:

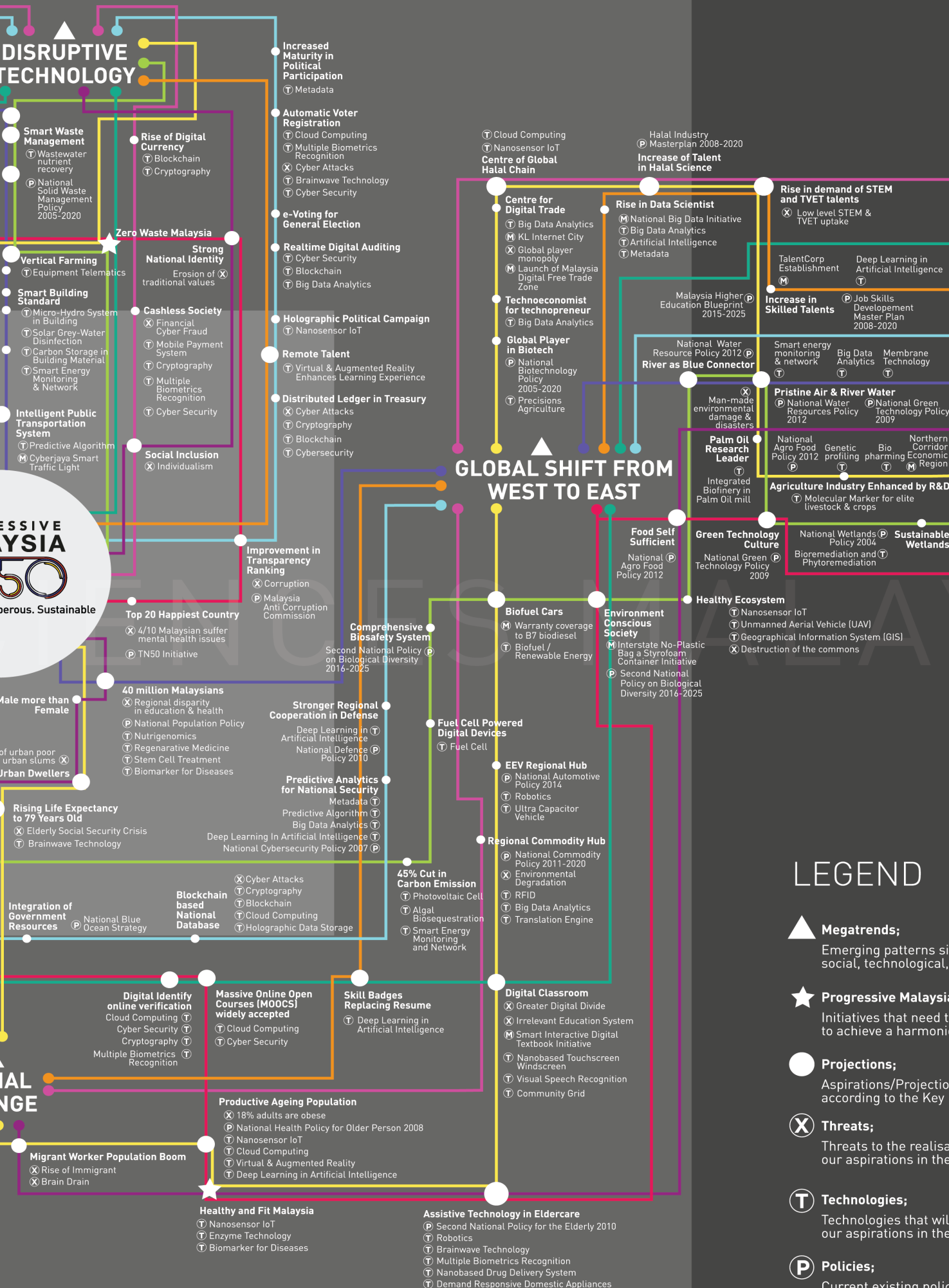
• Today: 2015 – 2020 • Tomorrow: 2021 – 2035 • Thereafter: 2036 – 2050

Moving inwards is a journey forward in time. We trace the lines according to the nine key drivers of change and bear witness to their evolution and interplay. Serving its purpose as a navigational chart, the map allows us to explore our possible futures and offers us insight into plausible timescales of significant milestones. By being aware of such information, it can assist us in leveraging on future opportunities and mitigate the possible risks.



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Education & Training

Talent

Leadership & Governance

Urbanisation & Rise of Megacities

Population & Demographics

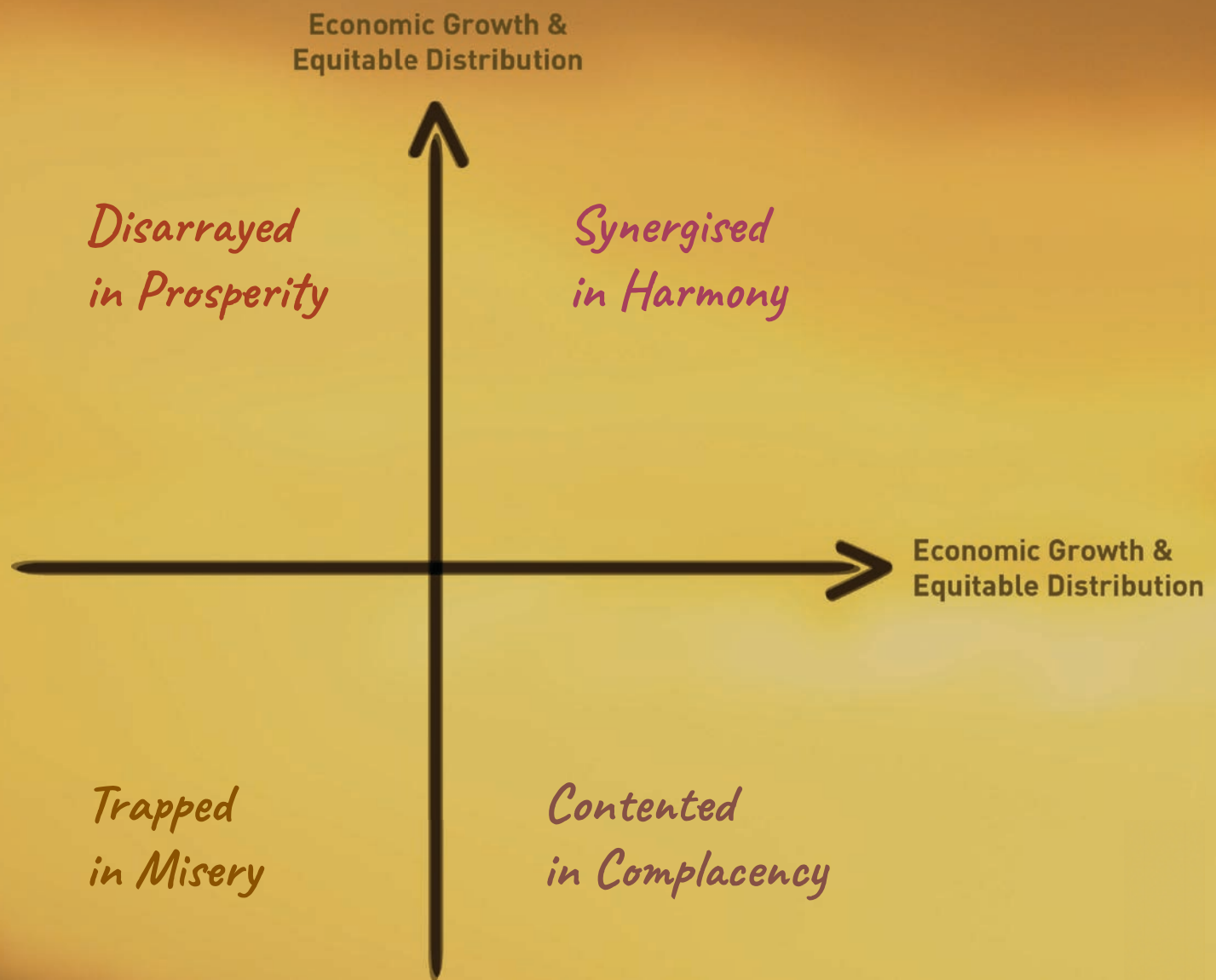
STI Capacity & Competency

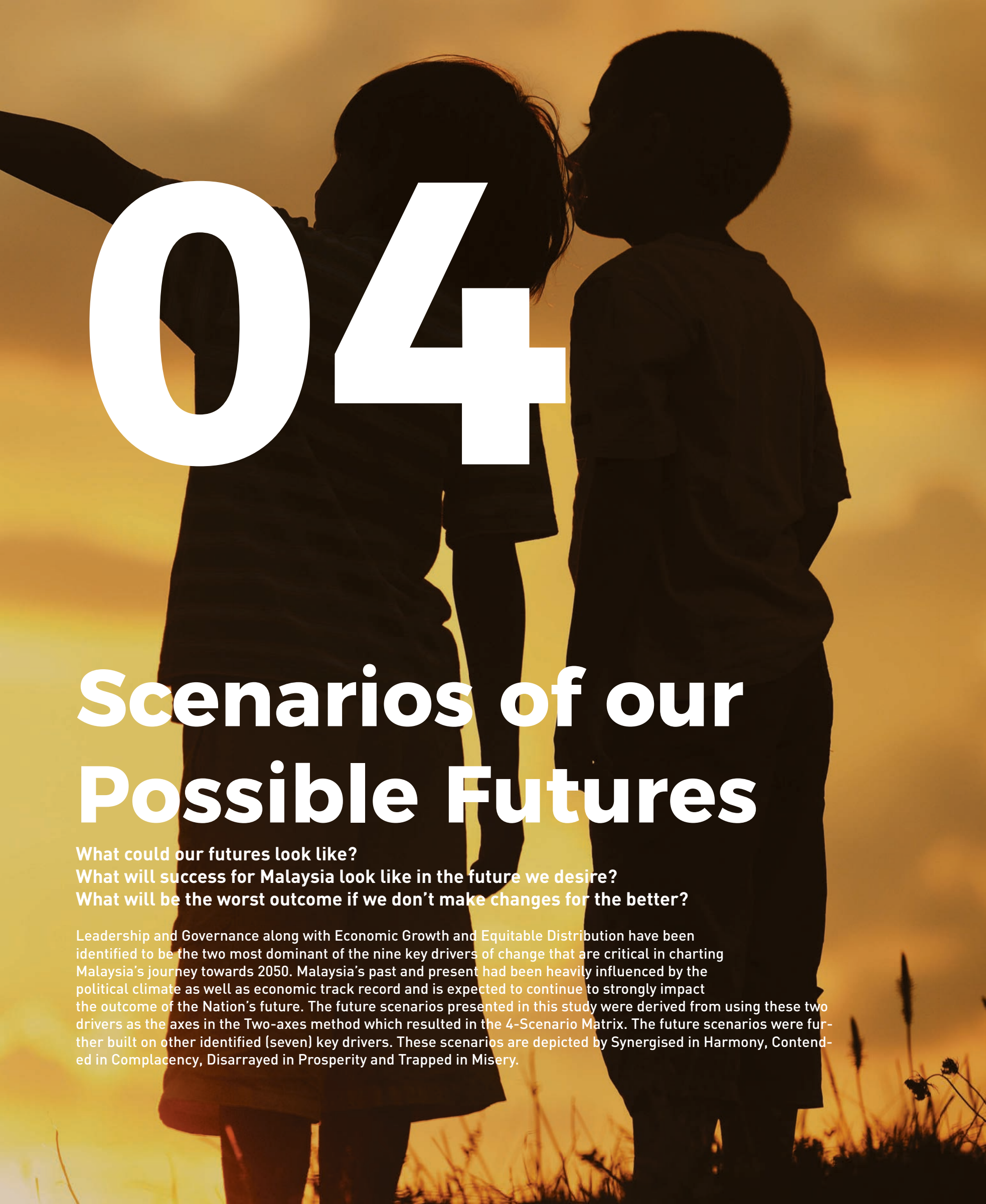
Green & Sustainable Practices

People & Values

LEGEND

- Megatrends;**
Emerging patterns significantly impacting political, economic, social, technological, legal, and environmental arenas globally
- Progressive Malaysia 2050; Big Impact Initiatives**
Initiatives that need to be addressed in the next 5 to 10 years to achieve a harmonious, prosperous and sustainable Malaysia
- Projections;**
Aspirations/Projections of Progressive Malaysia 2050 according to the Key Drivers
- Threats;**
Threats to the realisation of our aspirations in the Key Drivers
- Technologies;**
Technologies that will enable us to realise our aspirations in the Key Drivers
- Policies;**
Current existing policies that will allow us to achieve our aspirations in the Key Drivers
- Malaysian Government Initiatives & Projects;**
Malaysian Government Initiatives & Projects in line with our aspirations in the Key Drivers



A full-page background image showing the silhouettes of a man and a woman standing in a field, looking towards a bright, hazy sunset. The man is on the left, with his arm raised, and the woman is on the right. The large number '04' is overlaid on the left side of the image.

04

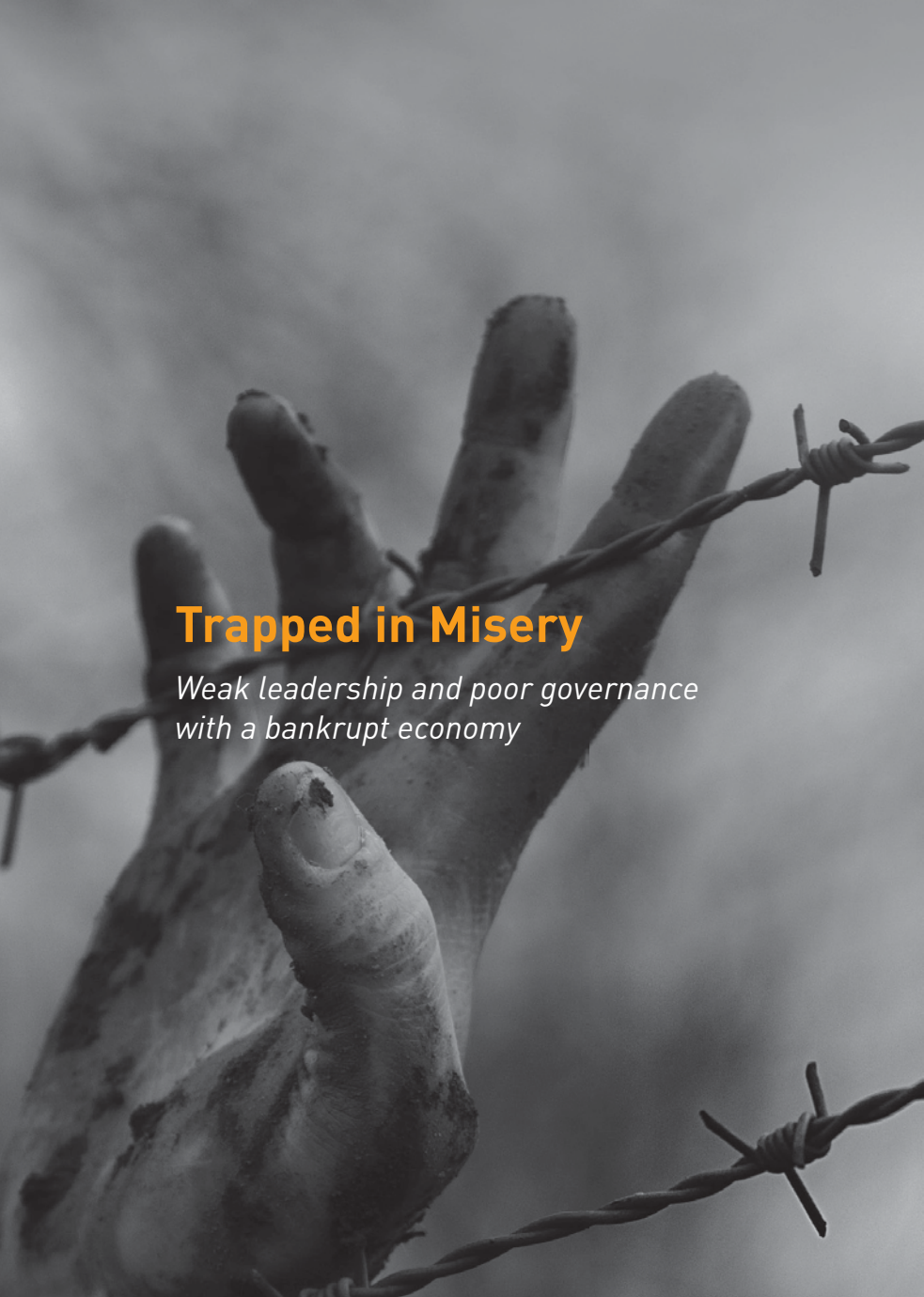
Scenarios of our Possible Futures

What could our futures look like?

What will success for Malaysia look like in the future we desire?

What will be the worst outcome if we don't make changes for the better?

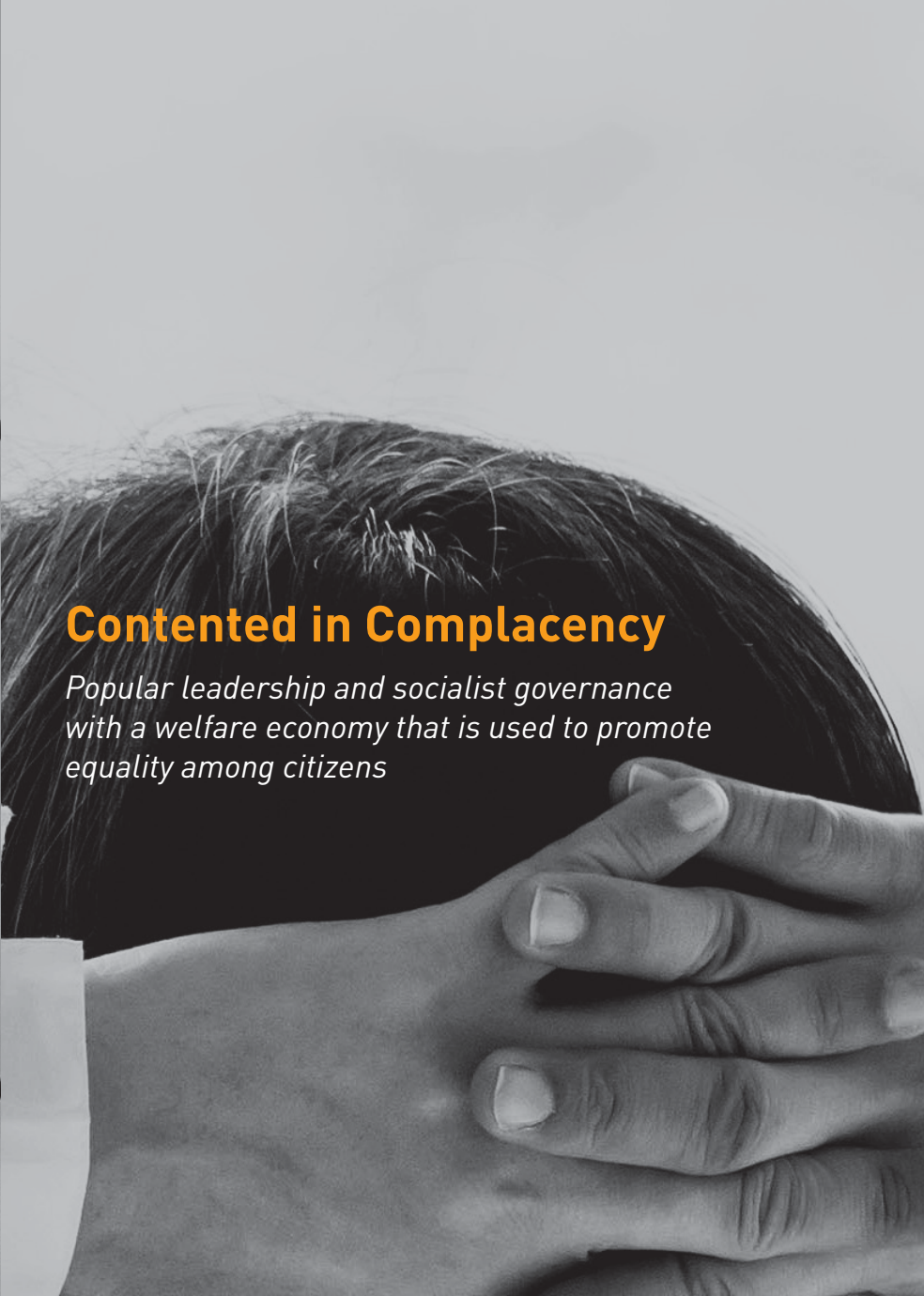
Leadership and Governance along with Economic Growth and Equitable Distribution have been identified to be the two most dominant of the nine key drivers of change that are critical in charting Malaysia's journey towards 2050. Malaysia's past and present had been heavily influenced by the political climate as well as economic track record and is expected to continue to strongly impact the outcome of the Nation's future. The future scenarios presented in this study were derived from using these two drivers as the axes in the Two-axes method which resulted in the 4-Scenario Matrix. The future scenarios were further built on other identified (seven) key drivers. These scenarios are depicted by Synergised in Harmony, Contended in Complacency, Disarrayed in Prosperity and Trapped in Misery.



Trapped in Misery

*Weak leadership and poor governance
with a bankrupt economy*

Triggered by our over-dependence on non-renewable resources, Malaysia's economy eventually collapses creating a wide income disparity among its people resulting in rife social discord. With 23% of our population 60 years and above, they are the most vulnerable as they have no social protection. Added with our inability to be resilient to extreme weather events, we continue to be trapped in our self-created misery with no way out.



Contented in Complacency

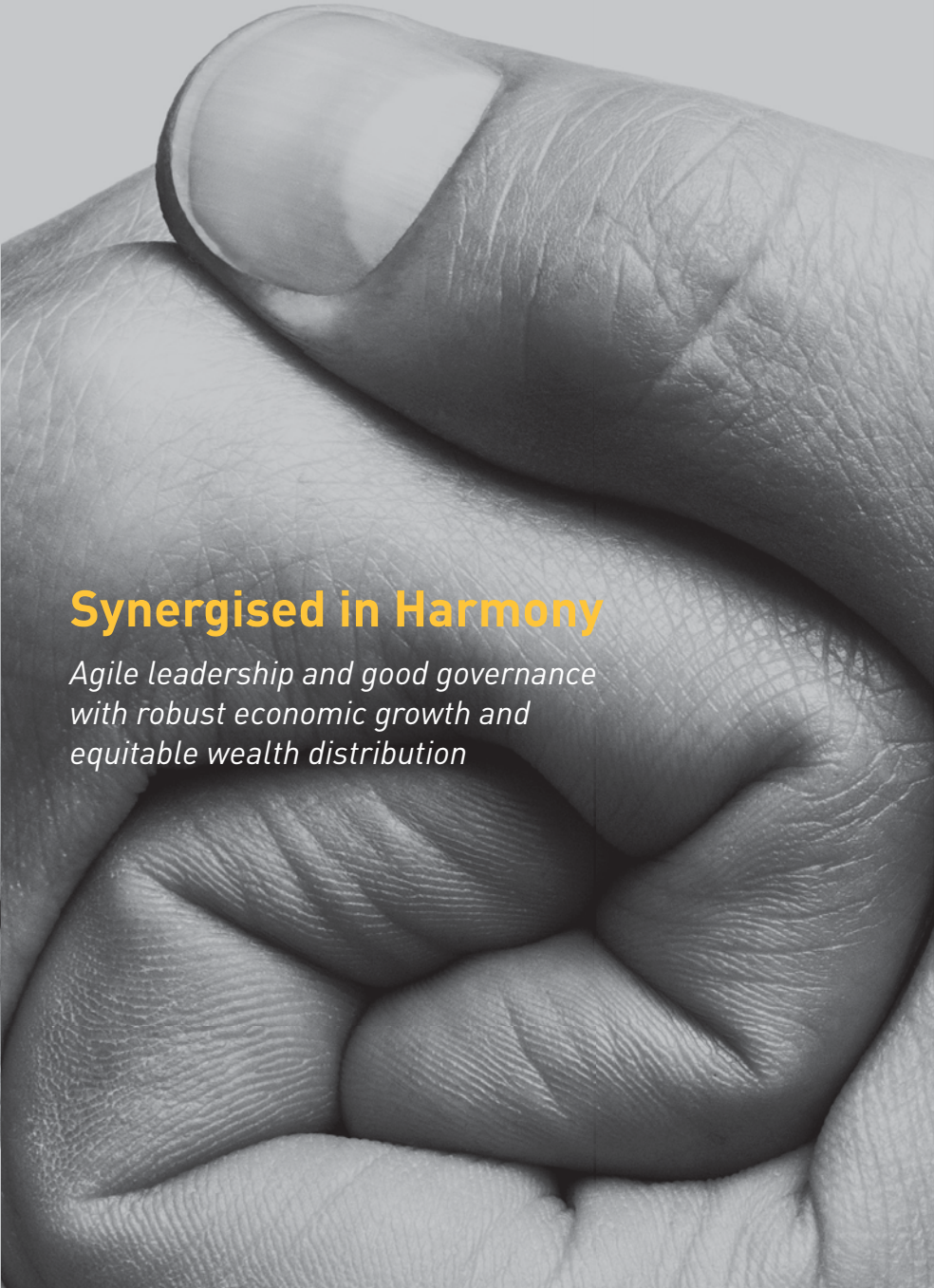
*Popular leadership and socialist governance
with a welfare economy that is used to promote
equality among citizens*

With a caring government that takes care of all its citizen's needs, we are over-dependent on government interventions leading to a low innovation society. However, high government spending leads to debt. Coupled with weak private sector participation and low-value manufacturing focused on domestic consumption, Malaysia has little economic growth. Nonetheless, we remain complacent and easily contented.



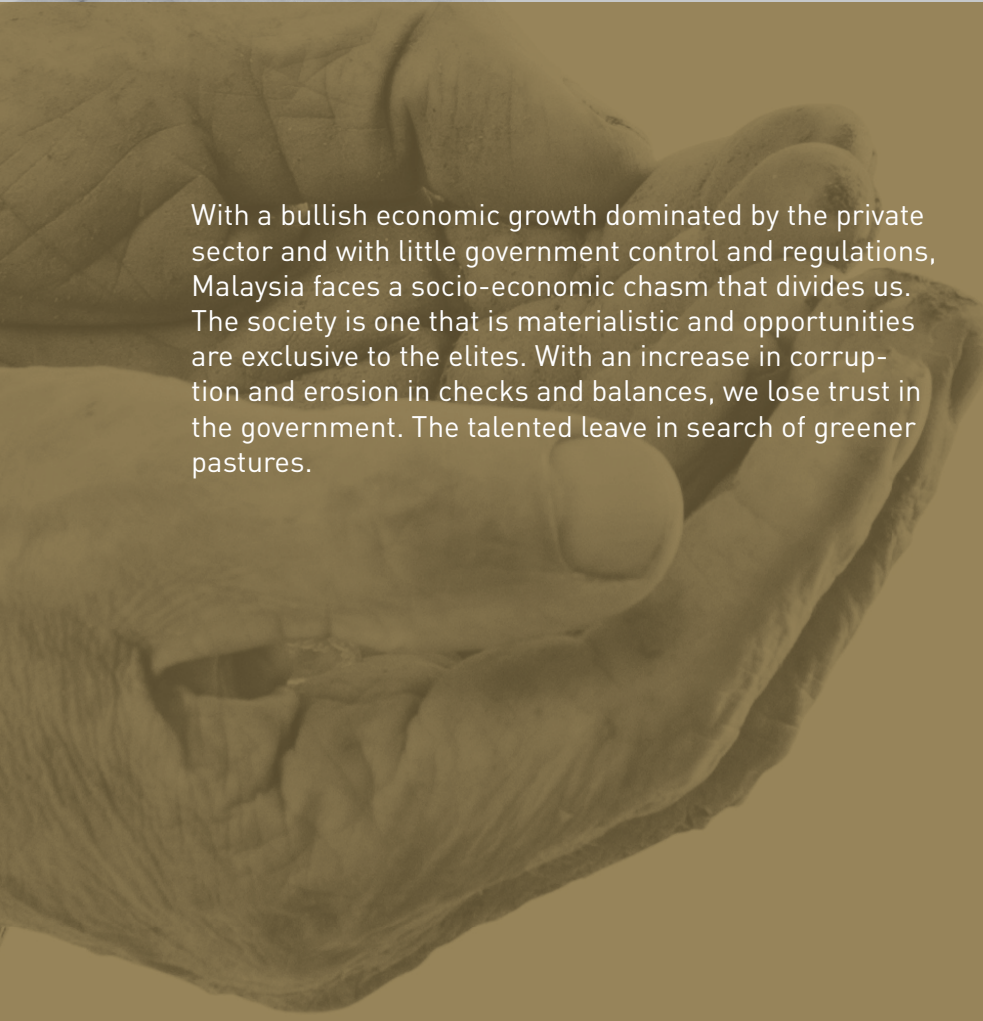
Disarrayed in Prosperity

Weak leadership and corporatocracy governance; with a strong economy but wide socio-economic chasm



Synergised in Harmony

Agile leadership and good governance with robust economic growth and equitable wealth distribution



With a bullish economic growth dominated by the private sector and with little government control and regulations, Malaysia faces a socio-economic chasm that divides us. The society is one that is materialistic and opportunities are exclusive to the elites. With an increase in corruption and erosion in checks and balances, we lose trust in the government. The talented leave in search of greener pastures.



With our key drivers of change in synergy, we realise our aspirations of a Progressive Malaysia. We are a socially cohesive society that is harmonious with pervasive green and sustainable practices. The rise of responsible and proactive Malaysians is marked by the increase in strong moral and community values, giving rise to self-governance fueled by a prosperous economy with equitable wealth distribution.

A Nation Trapped in Misery

Destitute Economy

Non-renewable resources take millions of years to redevelop and now we have none - the huge reserve of natural gas and crude oil had depleted. Why did we not find alternative sources? We were once the second largest exporter contributing billions in the forms of royalties and taxes, now not only caused a dent into the government's coffers but has also caused hundreds of thousands of people related to the oil and gas industry, jobless. Along the way, great talent emigrated leaving behind in large numbers - mere general workers.

The once prominent ASEAN tiger - has officially retired from being the leader of the pack to just part of the herd. Promising new players like Vietnam, Philippines and Bangladesh all with more robust human capital, mature reserves of natural resources, and fluid economy offer much more than the senescent tiger can keep up with. Malaysia had lost her charm. Foreign investors sensed an inevitable decline in local productivity and had long since pulled out, in favour of more robust neighbouring markets in the region. After almost a century of independence, the nation now finds itself surrendering to the dreaded 'resource curse' that has previously afflicted other naturally-wealthy emerging economies.

The looming threat of economic collapse and bankruptcy proves too much for the federal government, who has finally succumbed under its own weight. Consequently, state governments now guard their terrestrial and maritime resources in ensuring their survival. To add insult to injury, a number of key economic hubs, such as Klang, Penang, Johor Bharu, Kota Kinabalu and Labuan, submerging most of their infrastructure underwater, and displacing millions due to nature's wrath which was felt all over the world with rise in sea levels due to melting glaciers, heatwaves, major floods, and some of the most powerful hurricanes the Atlantic has ever experienced before.

Despite all the flood waters, water rationing is a norm - the rainwater harvesting just did not take off and we have access to clean water JUST three times a week! The government had to revert to aggressive cost cutting and austerity measures where massive cuts on infrastructure spending and eager move to privatise formerly free public sector services such as education and healthcare were seen. Quality of life across society took nose-dive to dangerous levels as access to commodities got increasingly restricted in this unforgiving economic climate, pushing more than a few segments of society through the cracks. And, these turn of events wilted her people.

Rife Discord in Society

The population, now past the 42 million mark with high percentage of urban poor, living almost entirely on food imported at a premium from regional and distant neighbours. The agricultural sector in particular struggles to survive in the face of intense floods, long droughts and heavily contaminated landscapes that wreak havoc on food security. With unbridled inflation driving up prices of food, goods, and services such as transport, healthcare and utilities, households across the country grows increasingly restless and desperate for any means to tighten their belts.

In this sad turn of events, the 14.7 million ageing Malaysians are without a social safety net to absorb the impact of declining health and soaring medical bills. They find themselves physically and economically vulnerable upon retirement. In an ideal world, there would have been much to be offered by these folks but in this grey reality they are seen as unwanted competitors to the depleting source of oxygen.

Thanks to inflation, Malaysians on the other side of the age spectrum are no better off, with only a fortunate minority aged between 25 and 50 able to afford assets, while the rest continue to be rent-seekers and heavily in debt. A phenomenon of more and more Malaysians declared bankrupt before age 40 has taken hold over the past decade, primarily due to the annual growth in household debts. With the government seizing control of most businesses and monopolising various sectors, job security, social mobility, and economic opportunities grew increasingly restricted for most Malaysians. Wealth distribution thus become exclusive to those with political influence, who got rewarded for allegiances rather than genuine merit. The rise of this oligarchy left many working-age Malaysians in the lurch - disadvantaged against more cost-efficient automation and imported labour. Without regulations designed in their interest, these citizens now face depressingly bleak prospects of becoming marginalized on their own home front. And this is a perfect concoction for major social upheaval and conflicts!

The world of the past did see dramatic progress catalysed by educated people. Today however, illiteracy is widespread. Higher education is now languishing as the government pulls the plug on various institutions as part of the austerity campaign. Public institutions of higher learning can no longer compete with their private or foreign counterparts that have moved in to fill the gap, and are fast losing relevance in an intensely competitive world. While living in such a dire state of declining buying power, most can't afford private education.

On the other hand, those that could afford education faced different challenges. Despite the rising phenomenon of automation and artificial intelligence in the workforce, academic and training institutions in the country remained archaic—still fixated on developing downstream-oriented skills rather than nurturing potential technology producers and upstream value providers. Due to lack of funding most research agencies shut down impacting decreasing innovation of technology which resulted in over dependence of non-renewable resources. In this withered country, STEM based careers are no longer a rational choice.

Unsustainable Nation

Brain-drain is a major issue! Those with STEM based skills move to well-established science powerhouses like Singapore, Japan and Western Europe, or emerging economies like Indonesia and Thailand whose science policies are better refined over the years. Graduates who find themselves unable to migrate - resign themselves to mundane jobs that offer little in the way of remuneration or growth.

Despite this regressive outlook on Malaysia's STI landscape, we continue to consume technology widely, particularly digital technology platforms offering powerful communication, information, and entertainment. Nevertheless, technological literacy remains low to moderate among users, limiting their engagement from translating further into real gains in social and economic mobility. Many still fall prey to abuses taking place across the powerful technology platforms, such as in the case of fake news, identity thefts, financial scams, invasion of privacy, and trafficking of illicit materials.

The penetration of technology into a broad range of human affairs also helps the government expand its influence over every citizen, making sure that everyone pays their due to the national coffers and pledges allegiance to the system governing them. Citizens are closely monitored over the information they demand and receive over the World Wide Web, the ideas they express, and their movement across the country and beyond. This heightened sense of paternalism is born out of the past decades' experience of handling mounting terrorist influences and attacks in several countries across the globe and rising civil unrest from within. Authoritarianism is suffocating!

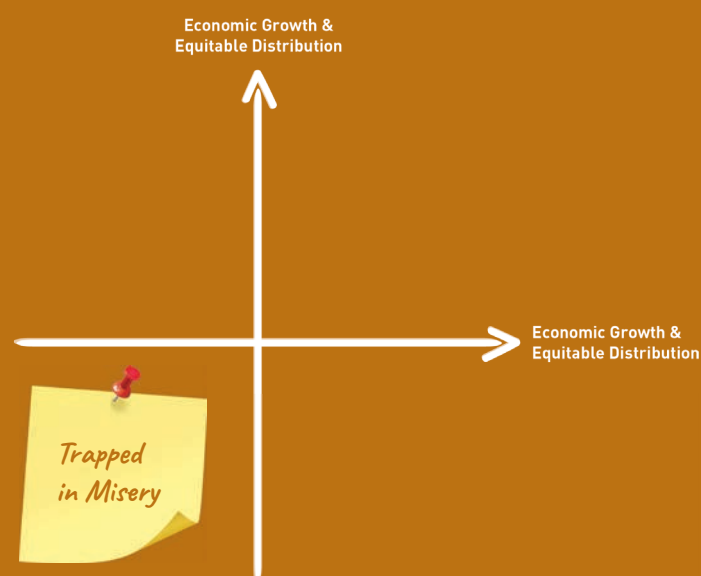
Early days prior of the formation of Malaya, divide and rule was the colonial masters' dictum. Slowly but steadily the political climate changed after independence. Acceptance sunk in, the people of Malaysia embraced diversity and a Bangsa Malaysia was born. That equilibrium however eroded by time, as communities consequently grew increasingly strained, as the different demographics resentfully regard each other in their struggle to eke out a living. Streets are rife with emboldened criminals and violent spats over socio-economic inequity (both real and perceived) as well as political allegiances. As a consequence, communities gradually turn insular and xenophobic out of fear and distrust. High walls separating gentrified neighbourhoods from congested slums, and vigilante surveillance along community borders are the new norm across the landscape.

Rather than creating safe enclaves for society to grow, these communal barricades breed a generation of disenfranchised Malaysians who are out of touch with plural values, heavily polarized, and easy prey to seditious, divisive politics. Grassroot racism has also come to a head, with even the youngest children in preschool and kindergarten echoing slurs adults use with no remorse. Contemporary society is wracked by a pervasive culture of privacy hacking, harassment and vulgar speech amplified by widespread technology. Little to no political will is demonstrated in addressing this threat, as political players are either equally guilty of similar gutter tactics, or more inclined to exploit these negative sentiments to assert their political relevance. The situation worsened by wide socio-economic statuses jostling for shrinking economic opportunities and extremely thin-stretched resources. Being constantly monitored and suppressed, unable to voice out frustrations, and the ethnic spats all now dangerously elevated - we may see a repeat of May 13, 1969!

In such socio-economic depression, the leaders did not step back from the race for rampant development, rapidly clearing the lands and, in return inviting the wrath of Mother Nature. The majestic Rajang and Kinabatangan are now shallow streams without any fauna surviving in it. With concrete and bitumen flooring over porous sand, floods are our 'unwelcomed guests'. Not many own vehicles today as it has become too expensive to maintain after each flood episodes. Unplanned over-development also caused imbalance atmospheric electricity - thunderstorms, which create lightning happens so often, surge protectors are in overdrive! With not much green lungs left, the weather has been at extreme ends of an invisible bar – too wet or too 'draught-causing' hot.

Although Malaysia ratified the Paris Agreement in 2016, unenthusiastic governance in the later years failed to comply with the Accord. A known fact by now - Malaysia today is barren from most of its green and natural resources. These past decades had seen unprecedented levels of deforestation, extensive degradation of terrestrial and marine ecosystems and strip-mining across Malaysia's remaining rainforests and hills in a frantic bid to jumpstart diminishing revenues from palm oil and mineral exports. Speaking of palm oil, Green Peace activists had blamed Malaysia for killing the Orang Utans and as a result many larger economies have boycotted Malaysia's Oil Palm and its produce. Malaysia has little option but to tighten its grip on existing resources, desperately scraping the bottom of the barrel to secure its survival.

We have lost the ability to respond positively. This toxic mix of circumstances – weak economy and governance - gives rise to widespread resentment towards the country's leadership. The faltering confidence and overpowering hopelessness in our future compel us to disengage from what they see as a failed state, and rebuild their lives somewhere else. For those who still call Malaysia our home, too poor to migrate, not competitive to apply job elsewhere in the world, we feel cornered and weathered – ***trapped in misery!***





How Did We Get Here?

Failure Modes

What threatened our future?

Climate Change. A natural phenomenon that will eventually impact people around the world. Without good initiatives and efforts, this may become a major factor of downside to Malaysia. Low innovations and technologies to tackle the climate change problem may threaten the water, energy and food security.

Rising Cost of Living. The rise of housing, food, taxes, health care and other services cost may cause a big turmoil among citizen resulting a fierce competition among citizen in order to survive. This may also increase the numbers of urban poor.

Low Annual Wage Index. In addition of rising cost of living, low annual wage index impact heavily the common citizen. It will also widen the gap between the rich and the common.

Outdated Education System. Education system failed to keep up with current changes, hence talents developed are lacking in cutting-edge skills indirectly affects the innovation ecosystem. Thus, Malaysia's heavily depends on non-renewable resources as an avenue to generate the country's wealth.

Privatisation of public infrastructure. Public infrastructures that used to be free for rakyat becomes privatised due to government unable continue subsidises these infrastructures which makes only the rich become users of these facilities as they can afford and the poor left in the lurch.

Gatekeepers

Who's positioned to be a pain source/remover?

Whose Yes/No can change outcomes?

Leadership & Government. The inept and morally-bankrupt nature of the government of the day contributes to a shaky outlook for Malaysia. Uncertainties abound as leaders struggle to exert control and contain various economic, political, social and environmental crises. Waning trust and confidence in the leadership results in dramatic backlashes, with investors pulling out of the country, deteriorating socioeconomic conditions, and widespread rioting.

Businesses and corporations. The private sector features as job providers in the market and drivers of prosperity. However, with the decline in the private sector due to economic and political uncertainties, employees and consumers are at risk of losing their livelihood, and access to quality products and services. Commodities and resources become hotly contested as the economic pie shrinks further, and the population struggles to survive. Some opportunistic players may take advantage of the dysfunctional situation, such as utility companies, security and insurance firms, and dealers of firearms and illicit substances.

Community champions. With growing resentment among the populace, self-appointed champions of different communities incite ethnocentric, communal sentiments to legitimize radical actions. These substitute leaders exploit the vacuum left by inept politicians to serve their own agenda, and wield tremendous influence over their followers. Clashes between different political, cultural or religious factions are often triggered by rousing campaigns led by these champions who expertly harness media platforms.

Big Data custodians. These entities comprising communications companies and media agencies set the agenda of the day, as millions tap their pervasive networks every single minute. Their wealth of intimate data detailing everybody's behaviour patterns makes them an invaluable ally to the government and businesses interested in exploiting them. The highly engaging atmosphere of the new information era also proves to be toxic, as unscrupulous parties take control of the public consciousness via vulgar entertainment, divisive rumour-mongering, seditious journalism and propaganda.



Signposts

Early indicators of this future

"The ringgit led a decline in Asian currencies as slumping oil prices dim the prospects for Malaysia's export earnings. Malaysia loses RM450mil (US\$111mil) in annual income for every US\$1 drop in oil and the nation derives about a fifth of its revenue from energy-related sources." - *The Star*, "Ringgit sinks as crude's tumble bodes ill for Malaysia finances" (2 August 2016)

"Police are actively monitoring the distribution of a Malay-language newspaper which aims to spread deviant and militant ideology in Malaysia. Deputy Prime Minister Datuk Seri Dr Ahmad Zahid Hamidi said stern action will be taken against those caught distributing the publication...believed to be published by the Daesh (Islamic State) militant group as a means to recruit fresh followers among the younger generation." - *The New Straits Times*, "Zahid: Police monitoring distribution of militant newspaper in Malaysia" (12 July 2016)

"Australia issues only 100 working holiday visas to Malaysians each year, but evidence suggests there are many thousands working on farms and in other sectors across the nation. Most pay a fixer in Malaysia or Australia. These funds financed an expensive lie...(A Malaysian labourer) says that up to 25 workers employed by (a contractor) live in the run-down house on a dirt road nestled between two orchards...'It is very difficult to cook and to shower. It is very difficult to live there,' the Malaysian man explains in broken English. But this worker can't leave because (the contractor) is withholding his pay. He earns just \$80 a day, minus a 13 per cent commission pocketed by (the contractor) and a \$10-per-day rent payment." - *The Sydney Morning Herald*, "Fruits of their labour: Investigation into exploitation of migrant fruit picking workers in Australia" (14 November 2016)

"Deputy Home Minister Datuk Nur Jazlan Mohamed told the New Straits Times that industry players should brace for further rebuff from...foreigners, who found Malaysia no longer attractive as an employment destination. 'Last year, we had 2.135 million foreign workers. As of March 31 this year, the number has dipped to 1.993 million.' (Apart) from the drop in the ringgit, the expiration of the workers' contracts and their unwillingness to renew them, as well as health issues were among the reasons for them leaving...Nur Jazlan said employers' failure to reduce their dependency on foreign workers would force the government to hire unskilled workers, who would then leave once they had acquired the necessary skills." - *The New Straits Times*, "Foreign workers leaving Malaysia" (24 May 2016)

"Malaysia's recent spate of murders where victims were gunned down in public has heightened fears over the apparent ease in getting firearms and concerns that innocent people could also get hurt. Since January, there have been at least 11 such shooting cases nationwide, with eight people killed. The gangland-style assassinations all targeted individuals, with several carried out in broad daylight." - *The Straits Times*, "Street killings spark fears in Malaysia" (8 August 2016)

"In 2013, growth decelerated in what was once one of the fastest-growing economies in the world; in 2014, it all but stopped. Over the past year, the resulting cuts to federal and state science funding have paralysed research...but with Brazil's economy showing no signs of recovery, many fear that the worst is yet to come. After further cuts were announced on 14 September, reports emerged that the government wants to merge the National Council for Scientific and Technological Development (CNPq) with CAPES, the Brazilian Federal Agency for the Support and Evaluation of Graduate Education, which is funded by the education ministry. The Brazilian Academy of Sciences and the Brazilian Society for the Advancement of Science, among others, came out strongly against such a move in a letter to the president, citing the agencies' 'clear and complementary missions'" - *Nature News*, "Brazilian science paralysed by economic slump" (1 October 2015)

A Nation Contented in Complacency

Contented Society

Unfortunately, as one goes complacent, negativity slowly gains momentum. It is a silent monster a passive contentment, but easily disturbed. We are happy to live with a certain sense of security and comfort with the status quo. Sure, to be comfortable and secure is not the worst thing in the world. It means we are doing something right, and we should stay on that path. Or, we could be wrong. Think again. Not wanting to move forward in life and advance ourselves is the most common and detrimental mistake that we can make in today's world. What do we actually create more importantly what do YOU create? Really think about it. What is your contribution? How do you apply your knowledge for the betterment of your life and your community? How do you spend your money? What about your time? More often than not, even though none of us are willing to admit it, we no longer create anything but time for us to relax and enjoy. We are satisfied with what we have. "Malaysia is okay-lah, can't complain". "At least, we have food on our table. If not, there are still instant noodles somewhere in the cupboard". Our laid back '*tidak apa*' (can't be bothered) attitude shape the society we are in today.

The cold wind of nationalism and parochialism is blowing across Malaysia. Nationalism, if properly understood, can be powerful and positive glue that holds folks together in defending ourselves against external force, securing a competent government, and building a decent society. It was a driving force behind our grandfathers seeking independence from British. However, in today's world, many of us have taken nationalism to the extreme that may cause a damaging effect on humanity. It creates unhealthy competition and affects the way we treat people from other nations. Nationalism is common; so does racism.

Unity is the strength of people in Malaysia. The irony is, although we try to deny it, parochialism in Malaysia is still very much alive. We no longer hear the commonality of Malaysians anymore. Slogans and initiatives are made to look inclusive but in reality it is not rooted to build a strong Bangsa Malaysia that we can own and be proud of. We find ourselves arguing about privilege rather than arguing who's going to help whom. This derives to a divided society which results in us competing with each other instead of being united regardless of race. We seem happy protecting our turfs hiding behind the philosophy of tolerance. We talk less and less about the loyalty under one flag, but more of our race and religion, even of our parochial and provincial interests. The term '*bangsa*' that once defined an open community, is now relating to region or territory.



Precarious Sustainability

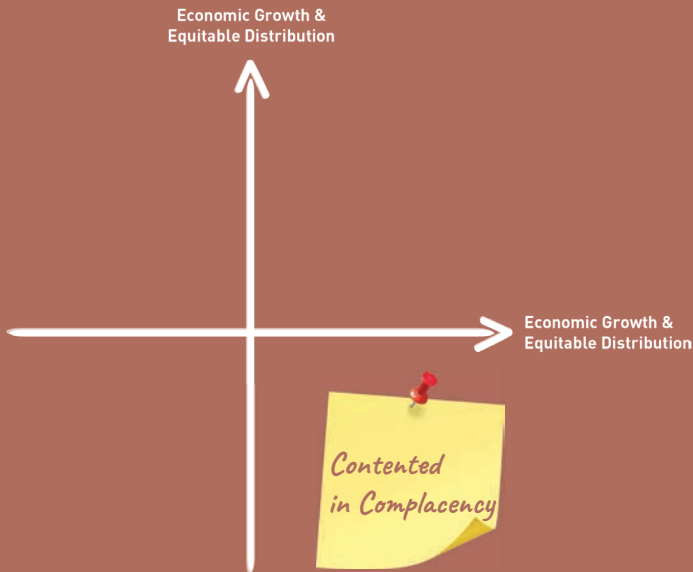
Satisfaction is the killer of desire to work hard, to learn and discover more, to innovate, to create, to contribute. We often find ourselves to have a government that fulfils our most basic needs and offers practical support in securing our livelihood. Sadly, we have condoned to the culture of depending on the government. We depend on subsidies to meet our need, instead of pulling together our own skillset, strength and talents. Government is always in a dilemma to balance resources between subsidies and infrastructure development for its people. But, raising prices is a burden to the lower income group. Some deny the fact that we are a welfare state ignoring the fact that we need to be more proactive. Compared to our regional peers, our purchasing power is low since everyone is waiting for subsidies. It has rendered Malaysia's economy comparatively uncompetitive and vulnerable to price shocks. Since we have always been dependent on subsidies, we fail to realise that a ringgit spent on public infrastructures generates more private investments, productions and consumption than a ringgit spent on subsidising, petrol, for example. Infrastructure is supposed to facilitate and spur our economic growth, but at this rate, maintaining the current economic output is the only choice government has.

With support from the government in the form of basic facilities and utilities that reach further into the heartlands, a growing number of Malaysians now resort to homesteading in newly established rural settlements. This shift in lifestyle affords many Malaysian households what is seen as a better quality of life, with its modest cost of living, reduced congestion, and better livelihood prospects through farming, fishing, and cottage enterprises. Households that are also remittance recipients benefit the most from this arrangement, as seen in the successful eradication of poverty in many segments. However, the wave of reverse migration gradually harms the development of Malaysia. The reason is simple; population growth and urbanisation go together, and economic development is closely correlated with urbanisation. No country has ever reached high-income level with slow urbanisation. Besides that, urbanisation and education reinforce each other; going to the opposite direction has brought back the traditional education system that does not serve the modern needs, much less the demands of the next. This could be one of the reasons as to why Malaysia is referred to as a 'nanny state' as the government is regarded as an overprotective one, interfering unduly with personal choice. Some of us might be ready for progressive attitude; unfortunately, the majority remain wedded to more loyal 'followership' perspectives. We might not realise it, but this makes us vulnerable to manipulation.

Sluggish Economy

Although the government does a good job maintaining public order and drumming up national pride among the pluralistic Malaysian society, the prevailing delusion of stability, progress and success continues to stand in the way of wholesome nation-building. In this scenario, nation-building becomes an exclusive process led by a paternalistic oligarchy, with little to no public participation. Malaysians are largely satisfied to remain passive users of existing solutions, rather than pioneering new, innovative ideas. This reflects the conservative attitudes of the day, where the people now prefer their affairs to be much simpler and unchanging rather than be preoccupied with complex and more dynamic concerns. Coupled further with the lack of political will to pursue meaningful socioeconomic reforms, and the steady (but modest) gains from the human capital industry, electric and electronic exports, and tourism, Malaysia remains a country that is stable, but unfortunately deprived of brighter long-term prospects.

Economic growth is low; government is not formulating better policies to improve the situation. High technology industries are not developing resulting in less creation of job opportunities causing knowledge workers to migrate. Malaysians overseas, occupy various job niches ranging from nursing, manufacturing, farm operations, retail and even shale oil extraction. The numbers are alarmingly large, but of even greater concern, is the loss of their skills profile, which subsequently leads to the loss of ideas, loss of tax revenue and reduction in the nation's budget. When these brilliant minds flee, we lose an educated and energetic society that would bring transformation to the nation.



How Did We Get Here?

Failure Modes

What threatened our future?

Heavily reliant on natural resources. Due to lack of innovation, Malaysia had to scrap every natural resource we had to survive. This has pushed Malaysia to find a new major economic sector which lead Malaysia becoming a major labour exporter.

Success Modes

What spurred our future?

Malaysia as Labour Exporter. As a major labour exporter, Malaysia's GDP mostly consist of revenue in the form of remittances from overseas Malaysians.

Welfare state. As a major exporter of labour with talents equipped with skills required by overseas markets, Malaysia's education sector is highly subsidised to continuously produce these talents for export purpose.

High Nationalism. Malaysia remains harmonious because of the high nationalism and contented feelings among citizens. The rise of "made in Malaysia" products is one of the reasons small and medium-sized enterprises able to sustain their businesses locally.

Gatekeepers

Who's positioned to be a pain source/remover?

Whose Yes/No can change outcomes?

Government and public sector. Top down administrator overseeing key industries like human capital, renewable energy and tourism export. Also largest employer in the country, with extensive bureaucratic machinery governing affairs from education, healthcare, social security and talent migration - however, hiring practices are not entirely meritocratic and influenced by nationalistic, ethnocentric agenda. The pervasiveness of government involvement in the marketplace crowds out private sector investors and threatens capital inflow into the economy.

Recruitment and remittance agencies. These constitute business players capitalizing on the phenomenon of Malaysian diaspora, linking desperate job-seeking Malaysians from diverse specializations to opportunities worldwide and facilitating transfer of overseas funds into the country. Also rife with scandals of labor exploitation and opportunistic practices.

Educational institutions. As the incubators for human capital, these institutions determine the capacity and quality of new talent. With direct and robust investment by the government, the education sector grows to reach more Malaysians and elevate core competencies - however, the top down governance mechanism restricts the freedom to diversify areas of training and pursue new frontiers of knowledge.

Nationalist champions. Influential leaders representing different communities capitalize on the Diaspora phenomenon, playing up sentiments of nationalism and ethnocentrism among those at home and overseas. They dictate the agenda of discourse by banking on identity politics such as race, religion, class and locality. This results in shallow aspirations and diminishing solidarity among the plural, insecure Malaysian society.

Government-linked and provincial businesses and corporations. Control of resources and commodities via monopoly and diminished competition, due to a protectionist and biased regulatory framework. These local players determine the business ecosystem and influence quality of life and livelihood on the home front.



Signposts

Early indicators of this future

"Some 83% of (Malaysians) in (the finance sector) say they want to try working in a different country or region in a recent study carried out by the Association of Chartered Certified Accountants (ACCA)...Almost half of young Malaysians in the accounting line also plan to work overseas and more than 80% plan to start their own business...The Malaysian Medical Association and Malaysian Employers Federation acknowledge that many young Malaysians from other disciplines are also looking to expand their horizons in other countries.

A World Bank report in 2015 showed that many Malaysians in four key countries – Australia, Britain, Canada and the United States – are working in sectors like manufacturing, healthcare, and scientific and technical services." - *The Star*, "Finding fortunes in foreign lands" (22 January 2017)

"The National Council for Scientific Research and Development estimates that Malaysia will need 493,830 scientists and engineers by 2020. However, the Ministry of Science, Technology and Innovation estimates that there will be a shortfall of 236,000 technical personnel, (Institution of Engineers Malaysia president Datuk Lim Chow Hock) adds... In September last year, the Academy of Sciences Malaysia warned that Malaysia faces a bleak future with only 21% of those in upper secondary choosing to study science subjects in 2014, *The Star* reported..."Follow-up on policies is lacking. Some STEM graduates can't find employment. Meanwhile, most of those who excel in science and mathematics are working overseas," (Malaysian Employers Federation (MEF) executive director Datuk Shamsuddin Bardan) says, citing aircraft maintenance graduates as an example." - *The Star*, "Nation builders wanted" (28 February 2016)

"During the past three years, the Indonesian economy (has) been growing at a faster rate. As recently as the second quarter of 2014, Indonesia's gross domestic product expanded at an annual rate of 1.56 percentage points less than Malaysia's. Today, the trends are reversed, with Indonesia's GDP advancing 0.71 percent faster than the Malaysian economy...The divergent growth rates are reflected in the stock market, where the 539 companies in the Jakarta Stock Exchange Composite Index gained 287 percent during the past 10 years, according to Bloomberg data. (That) amounts to Indonesia outperforming Malaysia by 7.6 percent each year. The gap has grown more pronounced since 2014, as the Indonesia market has outperformed Malaysia's by 9.3 percent annually...The inferior performance of Malaysia's debt is reflected in the country's deteriorating fiscal outlook during the past two decades. Since 1997, when both countries saw their surpluses transformed into deficits, Indonesia kept its budget close to balanced with an average annual deficit of 1.32 percent of its GDP, according to data compiled by Bloomberg." - *Bloomberg View*, "Where Crony Capitalism Rose and Prosperity Fell (and Vice Versa)" (20 February 2017)

"USD 1.62 billion in remittances was sent to Malaysia from other countries in 2015" - Pew Research Center, "Remittance Flows Worldwide in 2015" (31 August 2016)

A Nation Disarrayed in Prosperity

Divided Society

The weak governance was complacent with the proportion that was being raked in by the enterprises to sustain the economy and not much was done for those in the heartlands. The poor sacrifices the most basic level of education as it become unaffordable and inaccessible. Education institutions grow to be more exclusive to the middle and upper-tier citizens and, the expatriates. The human capital development in Malaysia appear skewed socioeconomically. Non-high achievers were marginalised. Private institutions have larger autonomy in deciding syllabus and in hiring quality education personnel thus; such institutions became the gold standard of quality education in years beyond 2050.

The public education began haemorrhaging; best academic personnel move to private institutions for better remuneration and academic freedom. Public education is in a crisis – the rich opt for private education instead. With demand the cost of quality private education soars upwards. Thus education becomes a symbol of social hierarchy, a sign of social segregation.

Communities that gained from this thriving economy continue to grow more prosperous and enjoyed greater power; they had also grown more entitled and fixated on personal gratification leading to a materialistic society at the expense of positive communal and civic values. These eroding civic values threatened the check and balance in the society; with integrity being lost indirectly led to increased level of corruption both in official governance organisation and institutions at large.





Socio-Economic Chasm

Malaysia undergoes a radical journey towards economic liberation driven by extreme shifts in global power and disruptive market trends. Business entities were thriving with greater autonomy and control over the playing field. Innovations were better commercialised and industries grew exponentially from innovative products. The governance is supportive and encouraging of its industries through favourable national policies and diverse incentives to assist its people at all levels of the value-chain. Malaysia witnesses its innovative society and industry driving the economy and maximising profit for businesses.

Following the initial years of the changes in policies, sectors like manufacturing, energy and agriculture shows unprecedented growth thanks to the removal of various protectionist frameworks that had stifled competition on the ground, particularly involving multinational corporations. These sectors are evolving to be more sophisticated in technology adoption. Such sophistication give rise to our very own science and technology revolution.

The business scene is colourful and vibrant; the job market is expanding, creating wide employment prospects for Malaysians. Industry leaders seeing the potential in Malaysia's talent portfolio keenly explored the landscape of universities and research institutions for innovative partnerships. The initial apprehension over the fate of frontier research in this market-driven revolution, was soon settled when Malaysia's science, technology and innovation (STI) scene featuring numerous success stories in the realm of applied sciences and her STI capacity and capabilities were recognised and acknowledged in the fields of computing, fintech, biotechnology and renewable energy. Malaysia cherishes the strengthened economic posturing and kept up with thriving neighbours in the region like Singapore, South Korea, China and Japan.

A flourishing economy, no longer hindered by lacklustre politics and crippling regulations saw a massive influx of imported goods, services and talent into the country. This sea of change brought by the intensified competition from the local and multinational companies helped accelerate the rise in living standards – there were many more middle income Malaysians; they could now afford greater access to world class commodities from consumer products, technologies, infrastructures and even high-end housing.

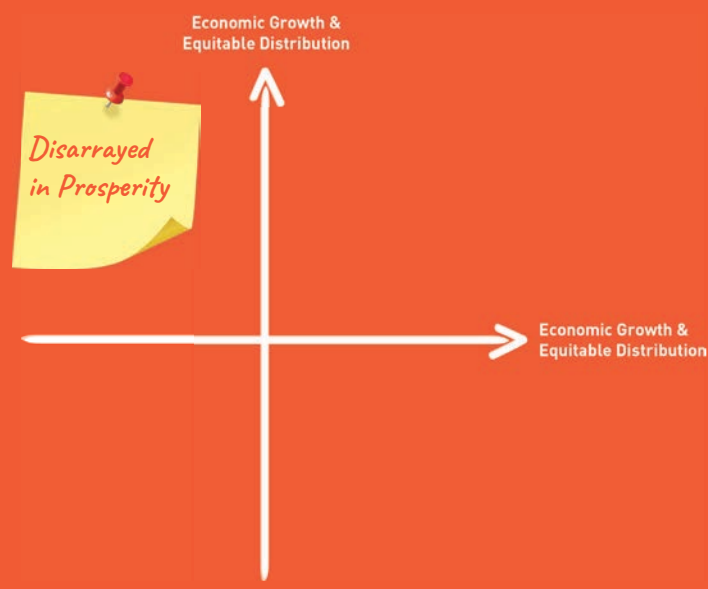
However, like the weather; change is unpredictable. While the upper middle income Malaysians were moving towards a better quality of life, those at the bottom-of-pyramid (BOP) were losing out in this race. The aggressive forces shaping the marketplace amidst a shrinking government presence drove the weaker domestic players to extinction and further widened the opportunity gap between these two divides. Without public policies safeguarding their interests, the BOP segment - with their limited opportunities for social mobility - remained grossly disadvantaged in this new economic order. Being no longer competitive they loss to their more privileged counterparts and expatriate talents and cheaper foreign labour. The disparity in wages and geographical distance from the centre of economic activities only made matters worse.

Favoured Sustainability

Increased levels of corruption resulted in the society deciding on self-governance both socially and economically; the faith in official governance organisation and institution lost with each dawn. Along this degradation, deregulation of the marketplace although was fraught with controversies happened – opposite poles of the discourse hotly debated the decision to relinquish government control over the nation’s wealth creation.

Prices of medicine, healthcare, basic education, utilities, transportation and housing continued to rise; underprivileged Malaysians were now living from hand to mouth and, at the mercy of fickle market trends. Basic infrastructure and services such as clinics, schools, mass transit, water and electricity were now privatized a stark contrast of geographical and demographic divide among the haves and the have-nots. Infrastructure and services were mainly built for the middle and top income earners for larger profit margin. Land and property leases were offered to wealthy investors and private enterprises. Corruption, morality decay, deregulation of the market place and weak governance led to a nation imprisoned by private enterprises.

Malaysia emerged as a high-achieving economy, but was afflicted by the insidious effects of a rapidly eroding identity, incapacitated leadership, and a selfish society rife with contradictions, disunity and apathy.





How Did We Get Here?

Success Modes

What spurred our future?

Greater business autonomy. Business reforms allow greater autonomy for businesses in self-governing their resources and procedures. Businesses can put their best interest first in maximizing profits and supports the blooming of economy.

Sophistication in technology adoption. To make business competitive in the global market, businesses and industries need to ensure their products are up to international standard. This can be achieved by the sophistication in technology adoption where we can adopt latest technologies into our industries. It shortens the time which normally needed for new innovation products with similar quality.

Intensified competition helped accelerate the rise in living standards. Individuals aim to better themselves in increasing their living standards. As a result, competitions between individuals accelerate the process aided by the advancement in technology.

Failure Modes

What threatened our future?

Widened the opportunity gap. Individuals with better economic background tend to do better in life compared to those with challenging backgrounds. People with better economic stability have more opportunities in education, resources and public services.

Social segregation. Individuals seeking personal gratification are making isolated and individualistic lifestyle a norm and no longer conform to the traditional communal and civic lifestyle. This lead to breakdown in society as economic and social efforts is made due to self-interest.

Gatekeepers

Who's positioned to be a pain source/remover?

Whose Yes/No can change outcomes?

Private sector and foreign businesses. Players such as corporations and industrial giants dominate the scene as they wield tremendous influence over consumers. With government regulations on the decline, they embrace their freedom to dictate marketplace trends and practices by harnessing high value assets, talent and cutting edge technology.

Government. While the leadership still remains democratic, it is vulnerable to lobbying by business entities and foreign actors in a feeble attempt to maintain relevance in the nation's affairs. Political will is lacking towards efforts to exert sovereignty in critically important matters, resulting in fickle market forces chipping away valued identities, traditions, and principles.

Media and information services. The rise of an educated, affluent and privileged middle class is characterized by the growing demand for information and entertainment. To capitalize on this, media and information providers seize control of the public consciousness and shape human behavior via intuitive and invasive marketing of news, opinions and dubious information.

Advocacy groups and lobbies. Empowered by the democratization of information, and emboldened by the decline of the central government, various influential entities emerge to fill in the vacuum left by elected politicians. These lobby groups exert considerable pressure on Malaysia's leadership in various affairs e.g. mandatory vaccination, nature conservation, and education to the detriment of public interest.



Signposts

Early indicators of this future

“Despite concerns of higher cost of living, Malaysia has one of the highest motorisation rates in the world as well as steadily increasing ownership of luxury cars.

According to the Khazanah Research Institute’s State of the Households II report, Mercedes-Benz leads the pack with 10,859 vehicles, making up about one third of new luxury car sales in the country...In tandem with improvements in household incomes, vehicle ownership across all types increased, with the percentage of Malaysian households owning cars jumping from 77.8 per cent to 83.9 per cent between 2012 and 2014.” - *New Straits Times*, “More Malaysians owning luxury cars, Mercedes leads the pack” (29 August 2016)

“Ironically, while one would assume that children in remote rural areas are the ones falling off the radar, there appears to be a growing number of urban children who are not being immunised, said director-general of Health Datuk Dr Noor Hisham Abdullah.

According to official statistics, the number of parents refusing to immunise their children has tripled in the last three years, from 470 to 1,282.

They have largely been influenced by anti-vaccination groups (who blame vaccines for a range of health problems), opting instead for traditional or alternative medicine for their children.

(The director-general) said the majority of the younger generation had not seen cases of childhood vaccine-preventable diseases such as polio, pertussis and diphtheria, but since people travelled a lot nowadays, including to and from countries where many VPD were relatively common, it posed a risk to children who were not immunised.” - *New Straits Times*, “The vaccination dilemma” (17 January 2016)

“KUALA LUMPUR - Malaysia is studying deregulation of the taxi industry in a bid to provide an equal platform for traditional operators and their technologically empowered ride-sharing rivals, local media reported on Friday.

The government authorized the Land Public Transport Commission, known by its Malay initials as SPAD, to draft a comprehensive plan for the sector, including the use of ride-sharing platforms by taxi drivers, according to Transport Ministry officials. Legislation legalizing ride-sharing platforms such as U.S.-based Uber and Malaysia’s Grab could be presented to parliament as early as November.

Drivers of traditional taxis have become increasingly hostile to mobile app-based platforms such as Uber and Grab, with some clashes leading to physical violence. Protests have been held this year in Kuala Lumpur and Penang, and in December 2015 more than 100 taxi drivers filed a legal action against SPAD seeking to have Uber, Grab and BlackLane, another ride-sharing service, declared illegal.” - *Nikkei Asian Review*, “Malaysia mulls taxi sector deregulation” (12 August 2016)

“KUALA LUMPUR, Oct 18 — As academics and economists continue to warn policymakers of an imminent housing crisis should they fail to address the grave mismatch in supply-and-demand in affordable housing, complaints persist that the entire housing industry has yet to respond to accordingly.

Private developers continue to focus on building homes most Malaysians can’t afford; last month the Real Estate and Housing Developers’ Association Malaysia (Rehda) showed close to half (49 per cent) of their new launches for 2016 were those priced above RM500,000 compared to 37 per cent of launches in the affordable segment (RM250,000 to RM450,000).

This has been more or less the situation for the past 10 years, the period where the compounded annual growth rate of house prices jumped by almost 300 times to 10.1 per cent from an average of just 3.1 per cent in the previous decade. In 2012, the average residential property price was RM248,000 but it shot up to RM330,000 just two years after, according to official data.” - *The Malay Mail Online*, “How a skewed system keeps house prices high and developers rich” (18 October 2016)



A Nation Synergised in Harmony

Prosperous Economy & Equitable Wealth

The ways in which Malaysia have changed due to technology are insurmountable. Malaysia is now a great country, customised around people's and environment's needs. Today, Malaysia is one of the great Asian success stories. It has a burgeoning economy centred around its rich natural resources and continues to enjoy a stable growth rate. The fruits of prosperity are everywhere to be seen, from the magnificent architectures to the world-class infrastructures and facilities and the efforts for persevering biodiversity and heritage. Nonetheless, our achievement is not obtained overnight. Good and responsive governance is considered a prominent variable in establishing the pace of Malaysian economic development. Effective, reasonable and responsive governance provides untold benefits. Government exists to serve the rakyat and not those who are in the government sector only. It also aims in ensuring the well-being of the society. People now are confident with the local government's decisions that are proven to be transparent and accountable. This makes people believe that local government will act according to community's overall interest, regardless of differing opinions. Another variable that spur Malaysian economic growth is equitable wealth distribution. Pockets of prosperity cannot survive in oceans of poverty; therefore, the wealth remains in circulation amongst all the members of the community meeting the genuine needs of all. Tax policy plays a crucial role for raising revenues to finance public expenditure, such as healthcare, education, public transportations, and other infrastructures. This tends to favour low-income earners while at the same time benefits the infrastructure and facilities. Furthermore, it allows Malaysians the ability to access opportunities to generate wealth. A fair and equitable distribution of wealth helps bolstering peace, well-being and ultimate prosperity for Malaysia.

Malaysia keeps progressing each and every day. From having to walk to school, students can now stay in their room with access to learning and collaborating, both locally and globally. Gone are the days of chalkboards and teacher screaming on top of their lung; students now learn independently with their own method. This way, they learn and explore more than if they are being taught. Not restricted only to the youth, Malaysian from all life stages now can enjoy the opportunity to grow and upskill via learning platforms powered by intuitive, robust technologies. With the advance in education coupled with rapid technology development, the entire process of learning, discovering and innovating become very prominent gears in Malaysia's economic engine. If these gears are well managed, it can create wealth, development, and social progress; showing how good a nation can be, how happy the citizens are, how sustainable the country will be. When government realised the power of education for a better future, the officials did not stay still without any initiatives. With their hard work, support from citizens, and cooperation from both sides, Malaysia blooms as one of the powerful countries despite its size on the world map.

Sustainable Nation

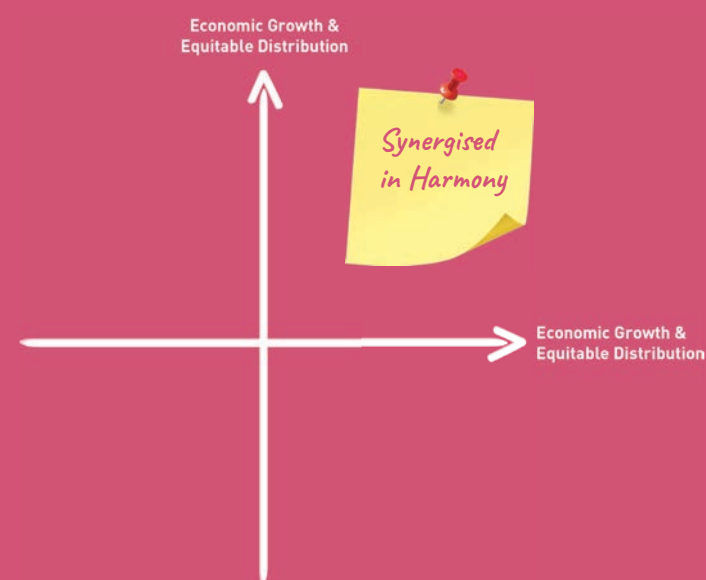
The desire to live in a beautiful and green city forces each of us to work for sustainable nation. 'Green' can't just be a status symbol; social inclusion is a must. The sight of floating plastic islands, open burning, the traffic congestion, and factories that harm the environment are long vanished. Malaysia now is a cleaner, quieter, safer, and healthier country. Public transportation is the cheapest and easiest option for travel, cutting down on the unnecessary use of personal automobiles to eliminate the congestion and pollution they bring. The walkability city promotes walking as an enjoyable exercise to do, align with the goal towards a healthier community. Malaysian healthcare maintains its ranking in the top five globally where healthcare is easily accessible, and are often at the low cost with excellent and comprehensive service. Due to the extensive support from the government and high investment in medical's facilities, Malaysian healthcare keeps improving on par with our country status as a well-developed nation. Besides that, the top-notch sewer system and waste service are a priority in avoiding sanitation and health crisis. The existence of a coherent sewer system influences the quality of our country environment and thus of our life. On the other hand, cameras and radars are functioning 24/7 to monitor crime acts. The relevant data, which are not breaching people's privacy, are then sent to the control centres to keep everyone safe and sound.

Green space is widely recognised as useful for reducing the consequences of climate change. People live with nature harmoniously, enthusiasm for urban greening is at a high point, thus making cities more desirable place to live and work.

The stunning view of the floating megapolis, farmscrapers, and flying electric automobiles is stealing glances each and every day. The architecture of a smart city uses technology to put people first. In the era of connected technologies, smart cities let us focus on the personal connections that make city life vibrant and full of purpose. 9 out of 10 Malaysians are based in urban areas, thriving in the zone of intensive economic activity, multicultural environment, super-efficient services, rapid turnover of resources, and dynamic life. Urbanisation is important for economic growth; however, it brings countless weighty problems. Thanks to 2050 vision back then, Malaysian government, architects, and city planners looked beyond the traditional confines of the city, and began to build affordable residency on water as one of the answers for urban overcrowding. The floating settlements are interlinked yet economically, culturally, and administratively independent. Floating architecture is nothing new in Southeast Asia. Traditional floating villages were a common sight back then, but today, it is more sophisticated. With 360° views of the surrounding ocean scenery, people are also enjoying close proximity to world class facilities and public services. These smart cities are designed to be intelligently-adapted to their unique circumstances. The feature enhances their resilience to threats ranging from economic slowdown, to natural disasters, water-food-energy bottlenecks, and even organised crime. These aquacities never sleep; they are fully connected where embedded intelligent sensors are busy collecting information and will instantly warn of any slight sign of natural disasters. During nice calm weather, it will float without any shaking and it will automatically submerge when the weather gets a bit rough.

Harmonious Society

The human soul is essentially one; no one can establish distinctions solely based on the external appearance of people. This has been the belief that glued Malaysians together, in peace and harmony. Malaysian culture is a *mélange* of three major races; Indian, Malay and Chinese influences. Not only that, globalisation has brought different nationalities and culture in Malaysia. As distinct as the culture of each race may be, the intermingling of the population also gives rise to a special blend of culture that Malaysia is so famous for. The dialect and spoken language of one state is quite different from the other. Different races celebrate different festivals and perform religious rites. Everyone accepts and celebrate the uniqueness of Malaysia that comes with numerous races, religions, faiths, and languages. There is no more ethnic and race heroes; people who were once trying to tolerate, now are building bridge and narrowing the gap among each other to neutralise politics of hatred or racial exclusiveness. Malaysians understand their responsibilities to stand firm against forces that can tear social fabric and disunity in Malaysia. Each city functions as a melting pot for people with different cultural backgrounds, religions, interests, and social statuses. As a result, cities are not only growing in population, but are also becoming increasingly diverse. The spirit of unity in diversity, the prime key to social harmony in Malaysia, contributes to our social enhancement. No society can really achieve economic, social and political success if it lacks the elements of peace, harmony and positive social development. With this realisation, Malaysians establish a peaceful co-existence society where everyone lives as one big family. No one is getting hurt by the features they cannot change about themselves. Equal opportunities among races are not a news headline. Malaysia's synergy of refined cultural values with progressive education propels it to become an exemplary home for creative, innovative and impactful ideas.



How Did We Get Here?

Success Modes

What spurred our future?

An agile and responsive governance infrastructure.

Agile and responsive governance infrastructure allows the country to adapt to the various rapid changes brought upon by globalisation. Agility in governance infrastructure is important in leveraging and mitigating the risks of technology advancement.

A vibrant and secure economic ecosystem. Vibrant and secure economic ecosystem attracts dedicated investments from abroad as well as increasing opportunities for local entrepreneurs and businesses. It encourages more for innovation as businesses are looking outwards in making their products better to expand their line. Boom in economy also meant increase in business taxes which provide stable revenues to government for socio-economic developments.

A politically-matured, highly-skilled and sophisticated society. By being politically mature, the society understands and respect differences in political opinion or any debated issues at the time. Added with being high-skilled society and sophisticated society, they understands their value in the society and work together towards being better every day. All these are important in building a harmonious society.

Leverages the sheer capacity of Big Data technologies.

As the world in 2050 evolves around technologies and digitization, leveraging on big data technology is important in every aspect of life. It is important in making informed and evidence-based decisions as well as important in laws and regulation for the best interest of the society.



Gatekeepers

Who's positioned to be a pain source/remover?

Whose Yes/No can change outcomes?

Leadership & government. Those in the position of oversight serve as the highest decision maker at their respective levels. While they possess authority over matters of regulation, their operation is transparent and processes are open to public scrutiny. Their regulatory roles restrict their involvement in business domain, promoting efficient institution to focus on public services and safeguarding national interests.

Big Data custodians. As gatekeepers to the flow of insight, they make strong allies to the public sector in galvanising political action, combating crime and terrorism, monitoring public, economic and environmental health threats, as well as advancing local science, technology and innovation.

Populace. As suppliers and originators of data to business-run analytics, the public now possess formidable agency in driving businesses to be more trustworthy and transparent. Their agency emphasises evidence-based decision making in politics, leading to more accountable and participatory forms of governance.

Citizen scientists, analytical user base. Members of this class are citizen scientists, analysts, journalists and prosumers who actively gather data using their own devices towards delivering grassroots solutions, independent journalism, or even novel business ideas for the marketplace. Citizen scientists in particular offer tremendous value to R&D in areas to improve quality of life, by complementing lab-based investigations with their own field data.

Innovators. Innovators rise as gamechangers with an ability to recognise opportunities and resources. Their solid design thinking and sharp business acumen can yield ideas that can dramatically disrupt the marketplace.

Education system. Cultivation of skills, progressive values and brilliant ideas across the generations now happens in a diverse ecosystem. Countless options offering lifelong learning exist across the landscape, functioning autonomously with the freedom to pursue their unique philosophies, revenue-generation models, and productive collaborations.



Signposts

Early indicators of this future

"New city-wide networks are being built in the country that will enable the entry of the 'Internet of Things' or IoT type applications. International Data Corp has forecast the global IoT market to be worth US\$1.7 trillion by 2020...Both Atilze Digital and Telekom Malaysia are planning to roll out networks based on 'LoRa' technology. LoRa network would support applications that include smart car parking, intelligent street lighting, agriculture as well as water and electric meter reading, among others." - *The Star*, "Race on for 'Internet of Things' (IoT) networks" (11 July 2016)

"MIMOS has provided free WiFi and built an app to send safety alerts to residents. When the river level reaches a "critical" level, they get notified on the app. They can also monitor live feeds from the cameras across the village. The agency will plant more sensors and use video analytics, turning the riverside settlement into a smart village. 'We have developed a lot of things that have already launched in the market, for example, our sensor for aquaculture...' Meanwhile, sensors in the soil can measure the nutrient level and moisture, allowing farmers to make better use of fertilisers and water. What is significant about this is that farmers will be able to continuously monitor their crops with the real-time data." - *GovInsider*, "Inside Malaysia's smart villages" (9 March 2016)

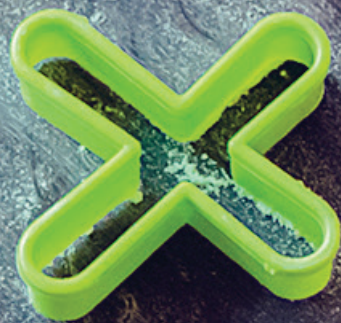
"...between 2007 and 2012, more than RM1.25 billion ringgit was generated by our five Research Universities (UM, USM, UTM, UKM and UPM), by acting as solution providers to industry, NGOs and agencies...our universities are a reservoir of knowledge with many highly capable experts." - *The Star*, "Public university funding: Strength in numbers" (12 November 2015)

"Malaysia – a country of 30 million people – figured prominently on investors' radar, thanks to the initiatives of government agency Malaysian Global Innovation and Creativity Center (MaGIC). Also, last year saw one of the largest acquisitions of a Southeast Asian internet company after the REA Group bought Malaysia's iProperty...Despite the upheavals, Malaysian startups have shown their resilience, and some have even proven themselves to be a cut above the rest." - *TechinAsia*, "14 Malaysian startups poised for breakout in 2016" (23 February 2016)

"Malaysia has created a new digital government strategy, looking to transform public service delivery by 2020. The Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) outlines key goals in digital, data, cloud and cyber security in the Public Sector ICT Strategic Plan 2016-2020. Over the next two years, it will build a platform to allow citizens to provide feedback on policies and government services, MAMPU added. It will also work with developer communities to build services. Services will be clustered around key moments in citizens' lives, rather than structured around government agencies, and will be available from a single government portal." - *GovInsider*, "Malaysia releases digital government plan for 2020" (10 March 2016)

"Children need to learn social and emotional skills if they are to thrive in the workplace of the future, a World Economic Forum report has found. The new research shows that as the digital economy transforms the workplace, Social and Emotional Learning (SEL) skills such as collaboration, communication and problem solving will become ever more important as more traditional roles are mechanized... Investors are increasingly interested in the potential of education technology. Private investment in ed-tech for all age groups globally has increased at a 32% average annual pace, from \$1.5 billion in 2011 to \$4.5 billion in 2015." - *World Economic Forum*, "5 charts that explain the future of education" (18 May 2016)

05



A close-up photograph of a child's hands rolling out a piece of brown dough on a dark, textured surface. The child is using a red rolling pin. Several colorful plastic cookie cutters in various shapes (heart, star, flower, etc.) are scattered around the dough. The scene is lit with warm, soft light, creating a cozy and creative atmosphere.

Shaping Our Desired Future

By now, we would have a picture in our mind of how Malaysia's possible futures can unravel. Indeed it is an eye-opener to us. A realisation of our vision for a Progressive Malaysia 2050 where we live in a harmonious, prosperous and sustainable milieu enabled by advanced STI and facilitated by agile governance is indeed a rosy and desired future. So, how do we achieve this future we desire?

Committing to Our Future

To achieve the desired future of a Progressive Malaysia 2050 that is 'Synergised in Harmony', it is imperative that we commit ourselves to decisions and actions that need to be taken today. With a shared vision of our future destination, a depiction of what success will look like, and means to achieve it, our planning can become more targeted. Constant monitoring on the implementation of these actions is also important in ensuring the success of achieving a harmonious, prosperous and sustainable Nation by 2050.

These are steps that Malaysians can take together:

Vision: Smart Citizens

End State: Harmonious Society

Malaysia has long been a melting pot of diverse ethnicities, cultural values and religious beliefs. To create a harmonious society, we have to realise our worth and cherish our different racial, cultural and religious backgrounds to become informed smart citizens that are able to hold on to our national identity whilst progressing towards 2050.

We need to embrace and propagate our values of acceptance and respect of multiracial, multicultural, multi-ethnic and multi-faith communities. Our Nation's strength and uniqueness as a nation lies in our rich diversity. Unity can be reached by focusing on the ties that bind us, instead of differences that divide.

We need to retain our cultural identity and moral values to achieve "Bangsa Malaysia". In the pursuit of globalisation against a backdrop of dominant western practices and cultures, we would face a risk of losing our national identity in the process. We have to realise that our own culture is neither inferior nor irrelevant compared to others.

We need to guarantee a social safety net for those vulnerable, and this calls for the development and implementation of robust policies and programmes that reduce poverty and other vulnerabilities. Along with embracing our national identity, the safety and welfare of the people must also be taken into account.

We need to increase the participation of our civil society to drive nation building. The community should not be too reliant on authorities to ensure the welfare and safety of the community. The community needs to be a proactive entity and be a platform for citizens to share values, discuss solutions and find ways to enhance quality of life.

We need to upgrade our infrastructure and services to support the ageing population and to ensure better healthcare delivery. In our move towards becoming a progressive nation, better infrastructures and services would maximise access to infirmed citizens. These improvements are not limited to physical structure upgrades but also to harness digitalisation and technology to make a multitude of services available to everyone regardless of mobility. Healthcare services must receive an overhaul to optimise delivery to all members of society. With the digitalisation of information, an extensive database of patients is one good example towards making healthcare delivery more efficient

Vision: Smart Citizens

End State: Harmonious Society

A harmonious society needs a healthy and comfortable environment to live in. Therefore, towards reaching our goal of a sustainable nation come 2050, we need to ensure that the environment is clean, healthy and well-conserved by implementing an environmentally friendly approach to living.

We need to shift our current lifestyle behaviours towards green and sustainable practices. There are a multitude of green and sustainable practices that can be implemented by the society; it ranges from the simple act of reducing, reusing and recycling waste to the installation of solar panels to generate energy for the home. Done consistently and collectively, every act of green living helps the nation move a step closer towards a sustainable nation by the year 2050.

We need to gazette more of our lands as national parks and create green lungs in our urban areas. Amidst the concrete and glass facades of today, we long for a cool breeze blowing, the rustling of lush foliage of trees, and seeing vast expanses of green grass and peaceful bodies of water. The nation's urban development does not need to entail the reckless destruction of the natural environment. Green lungs are great spots for alleviating stress; it helps purify the air and reduce the heat island effect that is prevalent to urban areas.

We need to support our industries that adopt sustainable practices such as closed loop technologies. Industries need to step up and be responsible for their actions towards the environment. Aside from being one of the major contributors of environmental pollution, their move towards sustainable practices could potentially be one of the most powerful agents of change towards a sustainable environment.

We need to build our resilience to climate change which is slated to change for the worse as we get closer to 2050. The unpredictability of the climate necessitates a well-informed nation that is capable of adapting to these changes. Enculturing the society to climate change as well as developing extreme weather resilient infrastructure ensures preparedness. With the right knowledge, we could be empowered to create solutions to reduce and prevent risks associated with climate change.

Vision: Smart Governance

End State: Enabling Agile Governance

Governance of the future is predicted to be one that brings security, transparency, and efficiency in various aspects. Various steps can be taken today towards creating a smart governance in 2050.

We need to institutionalise foresight as part of the planning. Strategic planning is no longer limited to reviewing the past and learning from history; foresight must be incorporated as an essential part. An example would be incorporating big data analytics as a foresight tool that can be coupled with case studies to determine the best way forward for a nation.

We need to improve the efficiency and transparency of our public service delivery through the digitisation of our government services. A Progressive Malaysia in 2050 should no longer have to put up with inefficiency and discrimination in its public service delivery. Therefore, we must incorporate elements that will enhance the efficiency and transparency of our public service delivery. Digitisation of government services ensures that the whole nation is able to access its services. But we must be mindful to put in place a connecting infrastructure that is inclusive. Aside from being a streamlined system, it also extends its reach to outliers of society such as those who are infirm or living in rural areas.

We need to strengthen the security and resilience of our critical national information ecosystem through the coordination of our relevant cybersecurity policies and authoritative bodies. A move towards digitisation requires a system that ensures the safety and security of personal data. It is imperative to safeguard our critical national information ecosystem. Education can also empower the nation by producing more local talents that specialise in the protection of our national information.

We need to increase the transparency of our governance by strengthening checks and balances. Good governance includes competent human resource with high morals and ethics, equipped with the right technologies, and helmed by a strong principled leader. Clear and audited records of decisions and adopted policies ensure that the public is privy to its actions.

As policy and decision makers, we need to inculcate responsive leadership that serves our nation and citizen's interest. As an active member of society, we have a hand in ensuring our leadership is held accountable and responsible for their actions.

We need to empower our local and state governments to increase government responsiveness to public needs. By allowing a certain degree of autonomy to local and state government, decisions that are tailored to certain jurisdictions can be made swiftly without unnecessary interventions from other states. This also reduces the latency in which decisions are made and policies are adopted.

We need to leverage on big data to increase the government's responsiveness in developing evidence-based public policies. Starting from now, we need to realise that big data analytics is an essential tool to energise our governance. Data can be collected in various ways such as polls and questionnaires to inform the government on what is required by the people so that it can act accordingly.

Vision: Smart Governance

End State: Sustainable Urbanisation

Moving towards a progressive nation in 2050 includes preparing the Nation to support rapid urban growth which encompasses the development of physical as well as digital connectivity. These two aspects must also be interlinked to ensure a seamless development on all aspects.

We need to develop a systematic and integrated planning of our urban development. We stand to benefit from improvements in areas such as transportation, housing, infrastructure, water management, and security in anticipation of a massively urban Malaysia in 2050. Mastery of various technologies and an agile governance help to create a solid framework for improving the Nation's urban areas.

We need to leverage on technologies like IoT, AI and big data to connect our infrastructure, communities and government. Aside from physical development, digital connectivity needs to be improved in anticipation of a highly connected Malaysia.

Vision: Smart Growth
End State: Economic prosperity

A prosperous economy is not only one that sees the dollars and cents in GDP growth but the growth of entrepreneurship and business opportunities, good governance, inclusive education, health, safety and security, personal freedom, and social capital. This is to ensure that a sustainable ecosystem is constantly nurtured for a prosperous economy for generations to come and not only just for short-term gains.

We need to encourage the diversification of the economy through STI and value-added products and services, STI being the agent of transformation and revolution. Through the injection of STI into our economic activities, we can create more value-added products and services to shift from low-valued upstream commodity business towards higher value proposition activities.

We need to transform our roles from consumers to prosumers by encouraging technopreneurs and technology start-ups. The advent of the collaborative or sharing economy witnesses a significant acknowledgment that exchange between products and buyer has fundamentally and forever changed. People are becoming the voices of products and greatly impacting the success or failure of brands. To ride on this wave, we need to nurture a conducive ecosystem to provide technopreneurs and technology start-ups a good platform to thrive and contribute significantly to the growth of the country. With the right combination of policy, infrastructure, funding facility, and mentoring, these local industries could unlock more key growth drivers in our economy.

We need to nurture our ecosystem for people-driven economy through agile governance. Today is the era of socialnomics where consumers and the online communities have an extraordinary influence on how businesses operate. Through responsive governance, we can nurture the ecosystem for people-driven economy that will prosper the Malaysian economy, ensuring everyone to receive an equal opportunity and return from the economic value chain. With this equitable distribution of wealth and opportunities as well as national wealth creation, the development of the entire of society can be realised.

Collaboration between SMEs and international partners for micro-multinational is urgently needed. It is time for micro-sized Malaysian SMEs to become into micro-multinationals. These SMEs need to collaborate among each other, be willing to cross borders and work with international partners by sharing local knowledge and bringing like-minded global players together. They then will have the opportunity to stand out taking on new markets and competitors, expanding their brand and network.

The rise of new technology will create more room for a higher economic contribution. Approaching new markets will require local industries to invest in the necessary capital resources and talent that will elevate them into robust innovative industries.

Vision: Smart Growth
End State: Sustainable Development

Sustainable development is the only roadmap to achieve the future we desire. We can no longer think of what's in it for me and my generation, but also what will be left for the next generations. We should never be over-complacent with the small wins that we have in this fleeting moment just to sacrifice the future generations. There must be a long-term perspective on the impacts of our actions today to ensure the right decisions for future successes that will be inherited by our successors.

To develop sustainable Malaysia means we have to balance our economic, environmental, and social needs whilst avoiding over-consumption of limited resources. This requires a long-term and integrated approach that will not only require the participation of government, academia, and industries but more importantly us – the civil society. Change comes from within. Only by our understanding, responsibility, conscience, and interdependence can Malaysia see a paradigm shift of current lifestyle behaviour towards green and sustainable practices.

Vision: Leveraging on STI
End State: Enhancing STI capacity and knowledge

The nation that is most innovative and best at leveraging STI for its benefit will be one of the most progressive, resilient, competitive and sustainable in the future. History shows us how revolutions driven by STI transformed the knowledge, lifestyles, society, nations, and the world at large. Today, as we stand on the cusp of another revolution, we are the controller of our destiny. The decision is in our hand. Are we going to leverage on the upcoming revolutions for our own benefits?

The future is where students in our schools today will be spending their lives tomorrow. One of the biggest affordances of technology is towards the enhancement of the concept of customised education/personalised learning. This shift brings more benefit to the young talents as they can dive deep in their own unique interests and develop their skillset and talent that will be well- remunerated in the future.

Technology is never static. To develop a strong national capability, we must create special impetus for the technology that all of us need. Demand can be created; coordinating platforms between our research and industry for demand-driven research and development (R&D) and market-driven delivery system is important in ensuring efficiency, avoiding redundancy, maximising outputs, and generating intended outcomes for a harmonious, prosperous and sustainable Malaysia.

Democratisation of knowledge enables the flow of information regardless physical location. As we become a scientifically engaged society, we need to strengthen our collaboration with world-class talents to enhance our local STI capacity and competency as it is a driver of transformational changes and an enabler to realise a Progressive Malaysia 2050.

As the world becomes more connected, current STEM talents need to continuously reskill themselves to adapt to the changes and exhibit the skills that will attract industries or be willing to even become job creators and break traditional boundaries. This will also support the move towards open innovation for new ideas. By sharing knowledge, we too gain new knowledge and knowledge can be multiplied.

Transformational Shifts

Transformations and changes are necessary in making progression. However, it is important to adhere to the philosophy that like a metamorphosis of a caterpillar into a butterfly, it requires a concerted amount of effort, planning, resources and right timing.

If we are brave enough to say goodbye to the problems and complacency of today, life will reward us with a new chapter of our life. If Malaysians are able to put aside their differences, we will all realise the problems that we face are the same and if we can solve it together, we will share a better tomorrow together. A lot of people want change in their lives, they even dream to change the world. But often we place the responsibility to change things on governments, NGOs, academic institutions, private industries, and the society as a whole. The truth is, anyone, anywhere, can start an initiative of change by applying the words of Leo Tolstoy: Everyone thinks of changing the world, but no one thinks of changing himself.

Start, but don't stop there. Individuals are powerful; society even more so. Once we start, we will be unstoppable. The moment is now. Progress calls for changes and those who cannot change their minds cannot advance. Therefore, let us make changes now in our lives. We need to undertake transformational shifts in the nine key drivers of change and it must begin from us shedding the skin of today and embracing the new opportunities of tomorrow.

The transformational shifts on the right are intended to be long-term approaches in achieving an ideal Malaysia that is harmonious, prosperous and sustainable. On the other hand, Big Impactful Challenges are intended to jumpstart our actions so that we can continue the journey in to the future with resolute. It should bring the Nation to a higher level by solving an urgent problem that is faced by society. We hope by having these impactful challenges, they could spark ideas that push our boundaries to be more creative and innovative in achieving our vision.

FROM

TO

LEADERSHIP & GOVERNANCE

- | | |
|---------------------------------|---|
| Administrative delivery | • Innovative services |
| Post-truth decision making | • Evidence-based decision making |
| Gradual governance and policies | • Agile and responsive governance and policies |
| Centralised decision making | • Empowered, facilitative and decentralised decision making |

ECONOMIC GROWTH & EQUITABLE DISTRIBUTION

- | | |
|---------------------------------------|--|
| Industry-driven economy | • People-driven economy |
| Resource intensive | • Knowledge intensive |
| Mass production of goods and services | • Mass customisation of goods and services |
| Low wage employees | • High wage employees |
| Low value-added products and services | • High value-added products and services |

EDUCATION & TRAINING

- | | |
|--------------------------------|---|
| Classroom and curriculum based | • On-demand learning and democratisation of knowledge |
| Rote learning | • Critical thinking and problem solving |
| Formal education | • Informal life-long learning education and skills |

STI CAPACITY & COMPETENCY

- | | |
|--|--|
| Scientifically aware society | • Scientifically engaged society |
| Consumer of goods and services | • Prosumers of goods and services |
| Silo approach in research, development and commercialisation | • Collaborative network approach in R, D & C |

PEOPLE & VALUES

- | | |
|---|--|
| Tolerant of the differences in a plural society | • Respect and understanding of the differences in a plural society |
| Focusses on the bad | • Highlights the good |
| Individualistic and materialistic worldview | • Societal and for the greater good worldview |
| Wait-and-see attitude towards changes | • Proactive attitude towards changes |

TALENTS

- | | |
|-----------------------------|--|
| Job seekers | • Job creators |
| Low skilled migrant talents | • High skilled local talents |
| One skillset for a lifetime | • Many skillsets for lifelong through reskilling |
| One job for one career | • Different roles for one career |
| Permanent employment | • Freelancers in a gig economy |

POPULATION & DEMOGRAPHICS

- | | |
|---|---|
| Centralised services | • Decentralised services |
| Services and infrastructure catered to a young growing population | • Services and infrastructure catered to ageing slow population |
| Reactive healthcare | • Preventive healthcare |
| Social protection for a young and productive population | • Social protection for a rising dependency ratio |

URBANISATION & RISE OF MEGACITIES

- | | |
|--|--|
| Concentrated development | • Well-balanced and well-spread development |
| Disconnected infrastructure and services | • Well-connected infrastructure and services |

GREEN & SUSTAINABLE PRACTICES

- | | |
|--|--|
| Practices towards short-term gains | • Practices towards long-term sustainability |
| Waste and linear economy | • Circular and shared economy |
| Over-consumption society | • Sustainable consumption society |
| Green & sustainable practices out of enforcement | • Green & sustainable practices out of awareness |

Galvanising Action through Undertaking Big Impact Challenges

We need to aim high and execute on those ideas quickly and carefully for the betterment of our Nation, our future. Here are the three big impact challenges proposed for a prosperous, harmonious and sustainable Malaysia:

Big Impact Challenge 1: Riding the Digital Tsunami

Today, a life without secured connectivity is virtually unthinkable. We need to turn the tide to develop cutting edge digital technology as a Malaysian identity.

We are in the midst of one of the greatest changes in humankind triggered by the rise of Internet and emerging technologies that have been hitting Malaysian shores. Today more than three billion humans are connected to the internet, communicating and sharing information with each other.

Action 1

IoT, Smartphone, e-commerce and e-government require high interconnectivity in the citizen's daily life. The Nation's physical infrastructure must keep up with this exponential need.

Action 2

An approved education system, must be put in place to prepare the young for work in a digital world. Retraining and reskilling programmes will assist entrepreneurs adapt to changes.

Action 3

Cybercrime is borderless thus, cybersecurity is a shared responsibility. Security officials and law enforcement agencies should make major adjustments on cyber law and implement rules and regulations to prevent these crimes.

Action 4

Protection of many aspects of privacy should be of the highest priority when policies and laws are formulated.

Big Impact Challenge 2: Healthy and Fit Malaysia

Healthy living is essential for a better quality of life. A harmonised state of body, mind and soul will elevate Malaysians to become ideal citizens.

Statistically, Malaysia is fattest country in Southeast Asia with an obesity rate of more than 40%. Not only are we outweighing our neighbours, our children are also following suit among their peers as one in every five Malaysian children is overweight or obese. Malaysia's Health Minister has given warning that the country is witnessing higher rates of diabetes, high cholesterol, hypertension, and weight-related disabilities.

Action 1

Poor diets and inactive lifestyles without are serious threats to our nation's development. Given this tsunami of obesity threatening to cripple health care systems, economies and productivity, the government must exploring innovative strategies to reverse the tide.

Action 2

Information on how to live healthy must be made readily available.

Action 3

Our healthcare system should leverage on digital technologies.

Big Impact Challenge 3: Zero-Waste Malaysia

It is time to accelerate efforts to move towards a zero-waste Malaysia. As a nation designed for a sustainable future, together we will convert waste to wealth by championing clean technology.

We must aim towards a zero-waste society.

Action 1

Per capita, Malaysians produce more than 38,000 tonnes of trash per day, where almost half of it comes from food waste. This has to be drastically reduced.

Action 2

Electronic waste or e-waste causes environmental and health hazards and needs to be addressed by the public and the local councils.

Action 3

Power and water wastage are another problem of the Malaysian society. Malaysia must shift into sustainable nation with a society adhering to reduce, reuse and recycle philosophy.

The Journey towards Progressive Malaysia 2050 begins with what you do today

Malaysia has indeed made huge strides. But our successes are only as sustainable as long as we have the strength and the will to uphold them today. And if we do not, we bequeath a darker and more unstable Malaysia to our future generations. If not for the previous generations who shed blood, sweat and tears, we will not be where we are today. Let us be that generation of Malaysians that renews its commitment to unite in our diversity. In order to achieve our aspirations of a harmonious, prosperous and sustainable Progressive Malaysia 2050.

There is only one thing that makes our dream impossible to achieve: by never even trying. Whether or not something can or cannot be done is all in the mind. So instead of doubting ourselves, we believe in ourselves. Yes, we might stumble, there might be hiccups, but we will have each other throughout the journey as support. As the saying goes, *“Berat sama dipikul, ringan sama dijinjing”*. Our lives and destinies are intertwined; the strength of a society is when it is one, not when it is divided. The motivation to achieve a Progressive Malaysia 2050 must come from each and every one of us. We are motivated not just from the need to change and become greater but also in the belief that we are working towards a future that we will share, a legacy that we will leave to our future generations and a Malaysia that we all want to be forever harmonious, prosperous and sustainable.

**“Great moments
are born from great
opportunities.
That is what we
have today. This is our
time, our opportunity;
let us go out there
and realise our
aspirations.”**

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