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FUTURE OF COMPETITIVENESS
COOPERATIVE
VS
COMPETITIVE



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

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

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

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Initial Thoughts

Future of Competitiveness, Cooperative vs Competitive



Greetings and Salutations,

By the time this edition is in your hands, we'd be done readying ourselves and plans for the new year. Like everybody else, we at myForesight®, hope that 2022 will be better than the previous year.

Despite Covid19 Movement Control Order (MCO) restrictions, for the past year, we have been kept busy - undertaking industry consultation in envisioning a new national industrial strategy. This is part of our work where we collaborate and support the Ministry of International Trade & Industry (MITI) to design the New Industrial Masterplan. Based on the extensive engagement made, one of the most common recurring themes was "competitiveness".

Therefore, for the start of 2022, this edition explores the 'future of competitiveness' as the subject becomes more important than ever in the context of post-pandemic futures discussed in the previous one.

To that point, the world is already facing pressure from all directions concerning limited resources, rising nationalism, and decreasing trust. As a consequence, this puts a strain on trade, investment, and business climates. The ongoing pandemic only serves to exacerbate this situation. Therefore, discussing competitiveness at a time like this is a huge challenge and requires the audacity to brave the conversation. Nonetheless, approaching it with a new perspective and a long term view on the subject attracts much debate and criticism.

Prescription analyses of competitiveness have always revolved around common building blocks. They include the mastery of technology and innovation, agile policies, good governance, reliable infrastructure, and the availability

of skilled workforce. However, each nation, region, and industrial sector faces their own unique challenges. Therefore, generalisations of these prescriptions must be taken with some context. Furthermore, these building blocks are systemic in nature and are quite fluid as other "competitors" move ahead. Therefore, policy makers need to adapt quickly to develop robust strategies to address national competitiveness agenda.

There are now new challenges asking questions of nations' ability to compete, especially for developing countries like Malaysia. Among them are our ability to deal with uneven economic recovery from COVID19, increased competition in the industrial value chain, and mounting pressure from those that favour short-term strategies for quick gains. And of course, the 'black elephants' in drawing up national policies - managing the power and influence of multinationals, the need for stable policy frameworks and high level government trust. Political brinkmanship, distrust, and policy absence that have emerged in the past few years show few signs of abating and unfortunately all of these combined weaken competitiveness.

I do believe that this brinkmanship extends to international businesses and trade. New barriers and standards are being introduced under the pretext of national security, human rights and sustainability concerns. Real or imagined, this has a major impact on competitiveness.

So, what new things are needed, what has shifted and what will need to be discontinued? These were questions we asked ourselves and those we talked to in our consultation rounds.



To that point, the world is already facing pressure from all directions concerning limited resources, rising nationalism, and decreasing trust. The on-going pandemic only serves to exacerbate this situation. Therefore, discussing competitiveness at a time like this is a huge challenge and requires the audacity to brave the conversation.



As usual, we present both qualitative and quantitative assessments on the subject matter. The thought leaders presented here include authoritative captains from the Global Federation of Competitiveness Council (GFCC), a network comprising leaders and organisations from around the world committed to competitiveness and higher living standards. This includes Dr. Roberto Alvarez who is the Executive Director of the GFCC, our very own Tan Sri Ahmad Tajuddin Ali, a Distinguished Fellow of the GFCC and both Datuk Abdul Rahim Hashim and Datuk Yusoff Sulaiman, regular panellists and speakers on competitiveness.

As commodities and their by-products have kept the nation competitive for the last few decades, we also sought out the opinion of the Director General of Malaysian Rubber Board, Dato' Dr. Zairossani Mohd Nor. Here, he gives his views on the future of rubber for Malaysia.

Our regular contributors provide analysis on the subject matter too, looking at data modelling to stimulate country performance by exploring the 3C perspective. What are the 3 Cs? Well, read through.

You might agree with me and the viewpoints presented in the following pages or have a different opinion on things. Either way, I encourage you to reach out to us so that we can hear your thoughts and perhaps this will coax you into contributing to the publication at some point.

Signing off, I hope you continue to practice #physicaldistancing and adhere to the SOPs outlined by your respective health authorities. #StaySafe.



From the Desk Of

Datuk Dr. Mohd Yusoff Sulaiman

Collaboration, Competitiveness and Collective Well-Being

Published by BERNAMA on the 24th of August, 2021

One clear take away from the COVID19 pandemic is that no one country can claim to be able to go it alone. The international health industry and fraternity is an obvious example of nations putting their heads together to come to an agreement on rules and standards, share information and establish good practices. Additionally, even if a country is in a better state than most, the crippling of other economies undermines the collective well-being of all nations, as physical movements are hampered, trade stops and supply chains are disrupted.

This compels a rethinking of the concept of competitiveness as a zero-sum game. Improvements in productivity and competitive ability require changes on many levels and are not without risks, stress and costs. In the business world, financing and project consortia have long operated on this very concept of risk management and collective resilience. With the benefit of hindsight and looking ahead to a post-pandemic future, collaborating to compete is the way to go.

Malaysia ranked 27th on the World Competitiveness Index 2020. The current difficulties notwithstanding, efforts are continuously taken to improve the dynamism and buoyancy of the Malaysian economy vis-à-vis that of other nations. Competitiveness, however, is more than just numbers and indices. The Global Competitiveness Report 2021 states that countries which invested in innovation, digitalisation and a sound welfare system, which in turn resulted in greater social cohesion, have been better able to weather the crisis and rank higher in competitiveness. Collective well-being and competitiveness are in fact complementary concepts.

Getting the prerequisites in place

High productivity together with demonstrated adaptability and resilience are what the nation continuously aspires to – the ‘True North’. Building resilience calls for foresight and an accurate evaluation of risks and future scenarios. Recognising this, the ‘Framing the Future’ initiative of the Global Federation of Competitiveness Councils (GFCC) examines parameters that promote agility, adaptability and innovation to go beyond merely weathering storms but emerging stronger for it.

The F.I.R.S.T model i.e. Finance, Infrastructure, Regulatory, Skill and Talent and Technology is a systematic line up of the pre-requisites. This may be fulfilled by the public sector if the project is of a strategic nature or the capital outlay too big, or the private sector especially in areas of operations and maintenance.

Investors are attracted to the synergy of human capital, infrastructure and operation costs which results in the competitive production of goods and services. One winning example is the Kulim High-Tech Park (KHTP) which continues to register interest from potential investors in areas of medical, biotechnology and electronics, among others, under the most trying investment climate locally and globally. Typically, potential investors would scout and assess through detailed evaluation more than 50 industrial and technology parks globally before reaching the final investment decision. The coming together of all the elements of F.I.R.S.T is testament to the adage that the whole is greater than the sum of its parts.

More bang for the buck

Another tried and tested collaborative model is resource matching, an example of which is the Newton-Ungku Omar Fund (NUOF). The programme, spanning years 2014 through 2021, is a science and innovation partnership between the United Kingdom and Malaysia aimed at promoting the prosperity and well-being of Malaysians through fundamental and translational research, as well as capacity building activities. Areas of focus are digital innovation, environment and climate change, food security, health and life sciences and weather and climate science. Using this resource matching model, the benefits are both tangible and intangible in that it shortens the learning curve and lessens financial outlay with similar, mutually beneficial outcomes.

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The Global Competitiveness Report 2021 states that countries which invested in innovation, digitalisation and a sound welfare system, which in turn resulted in greater social cohesion, have been better able to weather the crisis and rank higher in competitiveness.

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360-degree touchpoints

The impact of a well-executed collaboration often goes beyond an intended economic outcome to also positively impact inclusiveness and environmental sustainability.

The waste-to-wealth project involving the rice farmers in Kedah is a case in point. Rice husks, the by-product of rice milling, is an agricultural waste. Because they seem to be of little or no value, farmers traditionally resort to open burning and scorching, creating environmental and community issues. By bringing together universities, government agencies, funding institutions as well as the farmers and manufacturers, the ensuing research and development resulted in the conversion of the rice husk into highly sought-after products, for example for use as packaging material.

Rice husks decompose at a faster rate than petroleum-based products, are of considerably lower carbon footprint, more environmentally friendly, and are, therefore, labelled as green products. As a result, they are marketable in developed countries, especially the Scandinavian economies. They were also marketed in the Silicon Valley and were met with great interest for use as internal casings for laptops and smartphones.

While the economic benefits are commendable, the positive outcome of collaborations goes much further on both the national and global fronts. Ultimately, collaborations encourage parties taking ownership, responsibility and accountability – the bedrock of sustainable partnerships.



Leadership for Future Competitiveness

Roberto Alvarez is a systems-thinker and doer who has been working at the intersections of technology, business, policy, global issues and communications for more than 25 years. Roberto currently serves as the Executive Director of the Global Federation of Competitiveness Councils (GFCC), a global multi-stakeholder organisation with presence in more than 30 countries. Before joining GFCC, he was a Senior Manager at the Brazilian Agency for Industrial Development (ABDI), where he led innovation, internationalisation and sectorial development initiatives. Roberto also worked as a management and operations consultant (with a focus on manufacturing and logistics) where he co-founded 3 tech companies, designed and implemented grad programs, and taught graduated courses in different Brazilian universities. He is an author and organiser of publications on innovation, industrial development and manufacturing strategy and operations. Throughout his consulting career, Roberto has managed numerous automotive, energy, building materials, government administration and higher education industry projects.



Roberto Alvarez
Executive Director,
Global Federation
of Competitiveness
Councils USA

Competitiveness: A moving target

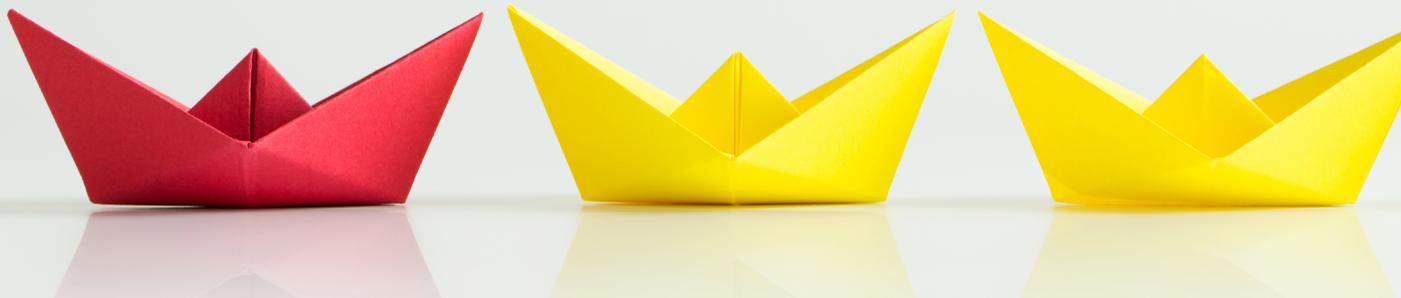
Competitiveness is not static. Being competitive today does not guarantee future competitiveness for businesses, organisations, nations and regions. In fact, history has shown us that businesses, organisations, nations and regions are in for a never-ending high-tech arms race. Since early 90s, competitiveness has become a discipline that has engineered many key changes around the world.

The internet as we know today only came into existence in 1993 when the first browser was launched. As we know, global connectivity and digitalisation grew exponentially and as a result, transformed businesses, societies, global behaviour and political systems.

Similarly, climate change was not a major issue a few decades ago, but today, it is considered a central issue in policy and business decisions. In 1990, the global population was around 5.3 billion persons and decades later, we are now crossing the 7.9 billion mark. The importance of technology was pivotal then but it hadn't reached the pace of change it has now as an absolute driver of global transformation.

What is happening to global competitiveness in the face of such prevalent tech-led transformations? How have strategies changed over time? The Global Federation of Competitiveness Councils (GFCC) surveyed its members in 2016 with these two questions in mind and, although a lot of things had panned out since then, some valuable insights, remain relevant.

- There are different **generations of competitiveness** agendas around the globe. Back in 2016, we identified three generations. The first is mostly about 'the basics of competitiveness' and keeping costs in the economy under control, including key aspects such as foreign trade and business environment. The second is centred on value creation, that is, innovation; whereas the third included a variety of emerging issues, such as sustainability, gender and exponential/disruptive technologies.



Competitiveness agendas:

Foreign trade and the business environment	Innovation	Emerging issues
<ul style="list-style-type: none"> • Trade • Productivity • Regulation • Taxation • Investment • Infrastructure • Education 	<ul style="list-style-type: none"> • Innovation • Entrepreneurship • S&T • Governance • Public-private 	<ul style="list-style-type: none"> • Gender • Sustainability • Creativity • Security • Resilience • Big projects • Equality • Social progress • Disruptive tech

- Different competitiveness councils, chambers and agencies across the globe have agendas that are more closely associated to one of the three archetypical generations depicted here. The type of agenda endeavoured by each organisation is **normally associated with the level of development of national economies.**
- In practice, all of these things are meshed together and all the issues that countries need to deal with to build competitiveness are not strictly sequential, even if priorities may change along the way. In order to be competitive, nations need to simultaneously pay attention to changing business environment, promote innovation and address a variety of new things related to future growth. It makes sense to focus on different aspects in different moments, **but competitiveness agendas should not be limited to a single issue.**

The backdrop for competitiveness

The world is changing rapidly and the COVID19 pandemic has accelerated trends that highlight structural weaknesses in global societies and economies. Thus, any reflection about future competitiveness should consider at least these four fundamental issues.

Centralisation x decentralisation

A slight tension is emerging where decentralised organisations and configurations are gaining momentum in a traditionally centralised world. Few examples of this have shown up in several places, from business to policy, including our daily lives. Certain cities have progressively gained relevance with respect to the countries they are located in and their respective local governments, while the workplace continues to shift and become more decentralised. Apart from work, new organisational models and innovation are increasingly mainstream. The need to find balance between regional and national interests is something the global society has struggled with for a while. Traditionally, future

strategies, foreign trade policies, economic growth, and innovation policies are centralised with a knack of causing tension. However, with a brand-new, technology-enabled push towards decentralisation, local-national coordination will carry more importance than ever.

Increasingly complex world

With the speed of change shaking up the world comes increasing complexity. Now, innovation and competitiveness strategies are compelled to deal with this complexity. To cope with this complexity somehow, innovation and competitiveness strategies have combined trade, internet regulation and data policy, hence becoming more digital rather than physically parallel. Though when this happens, we are combining areas that were originally separated by policy but have evolved to be a lot more connected today. It is therefore our duty to curtail the blurred lines created by these areas being more connected and consider a more systemic approach to look at innovation and competitiveness strategies for the future. This requires a lot of coordination, flexibility, and adaptability throughout government structures. In many cases, it will require deep changes in regulatory framework.

Government capabilities

The strategies needed for the future can only be successfully designed and implemented if the necessary government capabilities are in place. It is only reasonable on the assumption that the world is more complex and everything operates at a faster rate. We need a government system that is able to adapt, move swiftly, deal with knowledge, and the capacity to engage with businesses, organisations, universities, societies, and people in new ways. Complexity brings with it the need to integrate knowledge and expertise about a wide range of topics, from law to AI, ethics to synthetic biology, education to the functioning of the internet and many more. Consequently, these interrelations seek to establish future strategies, and governments need



new structures, models of operation, technical capacities and insights on an expanding array of topics. In addition, governments need the operational expertise to integrate and engage a fluid set of stakeholders and increase their collaboration with the private sector.

Foresight the futures

We currently live in an age where global trends are developing at a rapid pace accelerated by sophisticated technology and scattered hasty changes. Compounding the problem is the policy set that is now required to find solutions at unprecedented speed. With that said, policy organisations need to prepare for a lot more to advance in the coming years. Policy organisations therefore need to develop the capacity to anticipate future issues, and not simply lay out future political strategies by looking through the rear-view mirror. In order to look ahead and work on future institutional and policy frameworks, it is necessary to find methods, techniques and mental models beforehand. We need foresight, and that must be a cross-sector, society-wide effort.

Future, community and new voices: Cooperative leadership for a fast-changing world

As I write this piece, the world has not yet emerged from the COVID19 crisis, and we continue to muddle through the pandemic. It has brought about challenges we have never faced in our lifetime before, exacerbating a global scenario that's already riddled with plenty of critical issues from competitiveness, climate change to persistent social divides. However, this is not an ordinary moment, and neither are the issues at stake. The world looks different now and it is a big ask to push for a new type of leadership to emerge.

However, there are three leadership aspects that stand out as this new reality unfolds. First, leadership is increasingly about designing and navigating the future. Second, leaders need to be tech savvy in operating in new environments that combine the fast pace of the digital world with well-documented analogue challenges. Third, leaders need to come up with new ways to make innovation inclusive and prosperity a collective experience. I will explore these ideas below.

Leaders must take responsibility for designing and endeavouring a better world

Prosperous, sustainable and inclusive societies are not built by chance. Such an enormous task requires collective efforts from leaders at all levels. It will demand astute choices, commitment and, above all, an intentional effort to conceptualise the future and mobilise all society sectors towards its realisation. In other words, societies and policy efforts need a 'design perspective' remake.

By adopting a new design perspective, leaders should combine purpose and focus on people and social dynamics. This in turn will provide more clarity on the problems to solve and a clear course to action based on experimentation, learning and engagement. They need to be able to work across various segments of the society to build consensus and support a future vision that can systematically address the challenges we face today, getting to the 'hows' along the way and adjusting those as the process evolves. This is not a process that can be fully planned, yet it is highly interactive, and, in some way, it is about recognising and embracing complexity. Ultimately, it requires resilience.

To create the type of change that can take us to a more sustainable and inclusive society, leaders need to understand the social systems and resources they have to deal with. In reality, designing and realising a more prosperous, sustainable and inclusive world is a large-scale entrepreneurial effort.

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To create the type of change that can take us to a more sustainable and inclusive society, leaders need to understand the social systems in which they operate and use the resources they have in hand.

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Leaders will increasingly operate in a fluid world of distributed resources

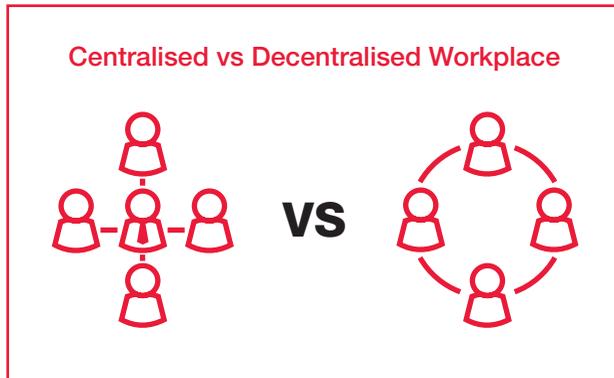
We are seeing first-hand a deep change in the work culture within organisations. In the US for example, more than 30% of workers are freelancers, accentuating a trend that was already prevalent before the pandemic. Competencies and skills that could only be accessed via corporate structures in the past are now available in new ways. If you need a designer or a software developer, you can go to platforms such as Upwork, while expert networks can supply professionals with various backgrounds such as strategic consultancy, genomics, M&As and etc.

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Leaders are responsible for building the platforms, institutions and processes for this demographically diverse, cross-generation and essential conversation to happen. They will speed up innovation and contribute to their organisations and society at large by doing that

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There is a growing abundance of 'free talent' in the market and what is emerging is not just an economy in which organisations operate remotely, but truly one in which highly educated professionals are detaching themselves from fixed organisational structures. We are not simply moving from hierarchy to autonomous teams, but to decentralised and virtual organisations, or professional swarms. This may seem far-fetched for now, but it is already the reality of many. Can governments and policy tap into this potential?



This emerging scenario therefore requires new forms of mutual adjustments. New ways to engage, measure and compensate contribution apart from new reporting models and new digital platforms to coordinate, verify work and clear payments will be needed. Leadership will increasingly be about building communities and teams as businesses will be conducted in a fluid world of distributed resources. A new class of leaders will be relied upon to mobilise scattered resources in clever ways to solve longstanding problems in business and our society. They will need practical solutions and institutional frameworks to allow for that, particularly in the policy space.



We are at a tipping point and should not take for granted that we will be better off as we eventually emerge from the pandemic. We all need to act purposefully to build back better. Leaders are responsible for catalysing conversations and action.



Leaders need to include new voices and innovators in the conversation

There are no simple clear-cut answers however for the complex challenges of today's world and the dilemmas that businesses, organisations and societies face in this defining time of uncertainty. It is clear, however, that ill-structured problems or 'situations' can only be properly addressed if different views and perspectives associated with them are voiced and factored into decision making. Leadership has to be a conversation that includes a multitude of voices (and colours, genders, races, creeds, demographics etc.).

Oftentimes, one of the voices frequently absent when the subject involves innovation and competitiveness is the voice of innovators that create future technologies, business models, companies and industries. I once heard Tony Blair said that he "...was always conscious about the importance of convening big business leaders.... But it was only towards the end of my term that I understood the importance of having young entrepreneurs and innovators around the table". I've seen this gap appear consistently across countries and it is a key issue to be addressed in the context of policy and business, especially when innovating means pushing forward.

Leaders are responsible for building the platforms, institutions and processes for this demographically diverse conversations to happen. They will speed up innovation and contribute to their organisations and society at large by doing that.

It's time to fly!

As competitive organisations around the globe work relentlessly to capture global transformations by offering fresh solutions to current and future global challenges, competitiveness as a result becomes a constantly moving target. It is also important for competitive organisations to develop and deploy new governance solutions, management capabilities and expertise.

As leaders, we are responsible for catalysing meaningful conversations and action. Decidedly, leaders will be tasked to build partnerships and shape forward action. Most of the challenges we are currently facing and the ones that will surface down the road are distinctively unique. Although there are no proven models to address these challenges, leaders will have to learn to fix them on the fly. The good news is that real-world leadership practices are still valid, so are knowledge sharing and collaboration that can accelerate learning. Ultimately, platforms like GFCC can be extremely helpful in moments like these and I invite all readers to join us in our journey for a better future.

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Datuk Ir (Dr) Abdul
Rahim bin Hashim



AT

Tan Sri Dr Ahmad
Tajuddin Ali

MIGHT's Joint-Chairmen

Bridging the Gap:
Uplifting Technological
Capabilities to Sustain
Global Competitiveness

On continuously strengthening Malaysia's competitive edge....

AR

As **industrial technologies capabilities** will be one of the key components to enhance the nation's competitiveness, there is an urgent need to uplift local companies' capacity and capabilities. This involves disruption to the way of doing things, changes to how companies and industries operate. Unfortunately, the appetite for change is not great as there are pressures to remain status quo. Furthermore, companies have neither the time nor the facilities to create and master the required technologies.

To do this, there is a need to enhance the collaboration between business, research, and academia. This is one of the reasons MIGHT was created, to connect others and facilitate industries to do grow and do better. We connect, pull it together, and drive industries towards a common direction.

The government has created many more government agencies like MIGHT that are also ready to facilitate industries, smoothen the technology development and application process as well as push the companies to do their best, get to another level, value-adding to their businesses and industrial sector growth. They could facilitate companies to collaborate with other organisations – research institutes or universities - to be better in their businesses. The research institutes and university could provide the resources, knowledge, and the people to assist the companies.

In fact, if we look at the history of universities, research was never part and parcel of the universities. Their role was to teach and ensure there is enough graduates to support the development of the country. It is the government which made sure there is the research agenda in the university's syllabus.

Therefore, bringing all these organisations to work on a common agenda could contribute towards the betterment of all involved. What is most important is that the research and development findings are impactful, helps the businesses and give returns to the nation.

And so far, there are many research institutions in the country that has been successful in their specific **focus areas**.

AT

Malaysia has been amongst the top 30 nations in terms of competitiveness for the last decade or so. However, we could not afford to take this for granted as other countries are also making strides to improve their competitiveness. What was previously our competitive edge, low-cost labour, provision of financial incentives, tariff protection could no longer work as other countries could easily take the same path.

Therefore, one of the many ways to bolster our competitive advantage and ensure that we could continue competing in the future is by improving and strengthening our capability and mastery of technology.

At present, high technology equipment and machineries are already used and utilised into many industrial sectors to support the country's economic growth. These are brought in by multinational corporations or by local businesses which procure technologies that can be used to support their operation and production.

But for Malaysia, do we just want to be a user of technology? A follower? The simple answer is an absolute "no".

In fact, we could not afford to be a mere follower but must be amongst the leader in certain technology fields and sectors. This could be done by ramping up technological advances, redoubling research and development activities and stepping-up innovation activities.

Enhancing and strengthening our industrial technological capabilities will make a difference, enabling us to earn our own place in the global society.

“

But for Malaysia, do we just want to be a user of technology? A follower? The simple answer is an absolute “no”.

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On priorities, we could start with ...

AR

As I have said, we have had success stories as there are many research institutions in the country that has been successful in their specific focus areas. The research in oil palm and rubber have been extremely impactful on the country and has positioned Malaysia on the world map. It has made these two sectors the cornerstone of our economic activities for the past few decades.

Rubber research has enabled us to devise foundations made from rubber for large buildings to withstand earthquakes. Whereas palm oil research has successfully developed better oil palm seeds which bears more fruits and increase the yield. In the plantations sector, research has been at the top of agenda, of which there has been a 20 percent growth in yield all thanks to the collaboration between the research organisation and companies.

We need more of this. But sadly, research on both sectors have stagnated because they have not come up with anything innovative worth noting lately.

Priorities should be given to challenges faced by the country such as import substitution. As an example, Malaysia is the amongst the top 10 countries importing coconut oil in the world. Malaysia is able to grow its own coconuts but yet it keeps importing the commodity. The coconut industry is not developed appropriately.

Moving forward, requires us to identify both the needs and wants as well as its issues and problems of the future. This will allow us to invest in the right technological solutions, develop the right capabilities and capacity to maintain our competitive edge.

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In the plantations sector, research has been at the top of agenda, of which there has been a 20 percent growth in yield all thanks to the collaboration between the research organisation and companies.

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AT

I believe, Malaysia should strive and focus in the areas which we have existing capabilities and would enable us to find opportunities that are relevant to the key economic industrial sector. Focus on technologies that will improve our production capacity and come up with new products.

One of the industries which Malaysia has led and should continue to lead is the oil palm sector. It is best placed to make use of technology to improve production, yield, manage plantations. Other than crude palm oil, its downstream products can be developed further and there is potential for other applications such as biomass and other utilisations. For example, wood composites produced from the palm oil tree trunk can be used to produce furniture. These are the value add that we could do rather than leave the oil palm tree trunks to rot in the field.

Research also must be done to dispel the negativity surrounding the industry as well. Currently there is a negative global perception on palm oil mainly due to environmental activists. Therefore, public relations and marketing counter initiatives also needs to be done. But to further dispel the negative flak, the industry must also produce products which are environmentally friendly and uses sustainable practices in its operations. All this could be done via technology with the right R&D.

To survive and be competitive in the future, Malaysian industries, the oil palm sector included must be known and seen as 'greener environment'. As environmental concerns would be high on the agenda, green and sustainable practices will be used as standards and requirements for market entry. Malaysia's future competitiveness will be about doing what is good for the environment and make eco-friendly products according to the market needs.

At present Malaysia has remained competitive but everybody is after their share and place in the market and wants to dethrone each other. Our competitors, industries that competes with the palm oil industry will continue to find ways to discredit us by saying that it degrades the environment and destroy the rainforest.

Unfortunately, we have limited resources and therefore must make choices. We cannot afford to do “everything under the sun”. The country must delve into areas where we have the best competitive advantage.

On developing capabilities, moving up the value chain...

AR

The role of universities in building capacity and knowledge generation cannot be denied as they are the institutions that produce the necessary talent or workforce required to meet the industry demand and, in some cases, collaborate to address specific issues afflicting businesses and society. The E&E sector as such has also benefitted from this collaboration between business and academia. This role and relationship increase in importance as we move forward to address the complexity of business and industrial development.

Universities have no choice but to keep up on the changing business and industrial landscape. It is a journey that universities must take, addressing the requirements of the people, industries, and nation.

To ensure effectiveness, national research agendas must be aligned, consistent and followed through. This will form the basis of our research and development capabilities and help formulate future success recipes. We can only reap the benefit of certain research portfolios decades from now thus universities and research institutions must have focus areas to enable effective capacity development, enabling industries to move up the value chain as the country moves forward. Research and industries impact people's well-being and society as a whole and that is why research organisations cannot work in silos.

Again, I stress on the need for effective collaboration. There are a lot of "connecting the dots" between research organisations and industries and that will need to happen before both entities start contributing towards addressing each other's problems as some of these issues would not be effectively solved on their own respectively. This must be addressed in a more structured manner.

AT

Unless we find ways to stay relevant, we will lose market share and lose our competitive edge.

Let's take another industry as an example. The E&E sector in Malaysia started out as just a product assembly, with relatively low knowledge workers, manufacturing various electrical products for multinationals. However, it has since moved up the value chain in product development, processes and in R&D. A few local companies based in Penang have come up with process improvement technology which has proven to be more effective in automation and robotics.

The experiences, capabilities and capacity developed over the years in the E&E sector must be learned, replicated, and adopted to improve other sectors using similar processes and production technology. Because it is our own technology, we could customise and adopt it to fit our industrial sector processes and work culture better.

This also applies to technology we used not only for work, but for our life – at home or leisure. Smart homes, smart cities, these are buzzwords you hear a lot and there are opportunities to develop these technological solutions locally because we don't simply want to be users of these technologies but innovators. Creating local solutions to local issues and needs. We must find ways on how to create these indigenous technologies, improve our capability, move up the value chain and market them globally.

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The experiences, capabilities and capacity developed over the years in the E&E sector must be learned, replicated, and adopted to improve other sectors using similar processes and production technology.

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On industries and academia working together...

AR

It is well-known that Malaysian industries and the universities collaboration are weak.

As industries search for solutions to address their issues beyond their organisation or industry sectors, the answers might lie with the universities. However, there is a need to address the mismatch of expectations. On the demand side, companies require solutions that is quick and cost effective that will enable it to be more productive and profitable. Unfortunately, universities do not make this happen often enough.

The quagmire has impeded the supply side in universities with its research and development activities. There are a number of reasons why this continues to happen. Amongst them includes that there is no real pressure on universities to deliver the solution needed by the industry as most scientist and research personnel are evaluated differently and not bound by a company's or industry's urgency.

For the companies, it's about survival and looking for the services and solutions from those who can give them. If companies which are already beleaguered are not able to engage with the universities, they cannot afford to wait.

As Malaysia aspire to be among the top competitive nation globally, one of the key building blocks will be industry-academia collaboration. This will enable the creation of solutions for the local and international market and offer products which can boost our competitiveness that meet customers' demand.

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It's about survival and looking for the services and solutions from those who can give them. If companies which are already beleaguered are not able to engage with the universities, they cannot afford to wait.

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AT

The chasm between industry and research exists and is more apparent especially between large and small companies. Multinational corporations as well as the government link companies have their own research and development facilities, and they can contribute funds for research if they want to. Small companies do not have such luxury; therefore, the industry-academia takes an added importance.

I have talked about effective collaboration. However, it is worth pointing out that collaboration between research organisations and industries are not about just dollars and cents or transfer of technology.

It extends beyond technology development, to include perception of the research and its collaborative benefits which is very important as well. Research and industries impact people's well-being and society as a whole and thus that is why research organisations must be seen to undertake research that contribute towards the nations need. This could help alleviate scientist and researcher's role in nations building. Therefore, work cannot be done silos and research done for research's sake. That is why industry-academia collaboration matters.

As research are conducted in various industries and involve multi-disciplines, it is important to draw upon the data that each other have. There is a need to share, as the solutions perhaps lies beyond the traditional known sector and discipline.

Perhaps a detailed study could be undertaken to look at the impact of collaboration between industries and research organisations. This could provide answers to some lingering questions. Has productivity increased? How do we balance work and research?

On what's next?...

AR

One of the key pillars of competitiveness is people and talent. So, it all goes back to education, as we need people to think creatively, collaborate and communicate effectively as well. This value can be nurtured from school to ensure the student is well equipped for 20-30 years as laying down the foundations from young is crucial.

And once they become researchers, they need to understand that it is not just about science and technology. They need to have the awareness and understanding on what's going on, its related issues and communicate effectively how their areas of research could provide solutions. Researchers cannot develop an idea only on their own, should collaborate to solve the issue holistically and not on a piecemeal basis, be able to connect and cooperate with the right people.

To sustain our competitiveness, there must be a masterplan for our technology development for the researchers to focus on and thus there is a need to step back and assess on what was done for the last 60 years. They must look at their achievements, be realistic and plan on where we want to be in the next 20, 30 years and change strategies and tactics if need be. We need to know what and where we want to be as high-tech nation. What would the realistic target be and what sort of research and technology development is needed to support this vision.

In envisioning Malaysia's future, we want to be competitive, increase our productivity and move up the value chain beyond manufacturing and a venture into multitude of industries. Of course, we need better, forward looking, holistic policies that would enable all this to happen. This is where MIGHT plays its role in providing advice to the government, designing the right policies to ensure we move in the same direction.

AT

There are many aspects of technology development and applications that we can look at. Either at home to enable a better quality of life or to be used at the workplace to improve productivity. So, there are opportunities for Malaysian companies to embark on.

However, as a country, Malaysia needs to prioritise the industrial sector that gives significant increases in value and generate economic wealth by leveraging on technology. With foresight, we can identify industrial sectors that have maximum possibility of success and possibly develop new products and services that will improve our competitiveness and economic performance.

To complement this, the country will also require qualified and talented people in multiple technology domains to develop new systems, products, and processes. Therefore, training and education is key to our success.

Again, I can't stress enough, we have not changed our vision of the future. We want to be known as a "High Tech nation", earning our place in the competitive world. A technology creator, that provide solutions for local and global challenges. We must find ways on how to make these technologies here - remaining Malaysian.

These are the challenges the nation faces to sustain our competitiveness.

At MIGHT, we will continue to facilitate, and drive this agenda. As written on our building "Together, we make it happen".

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Malaysia needs to prioritise the industrial sector that gives significant increases in value and generate economic wealth by leveraging on technology.

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What's Next for the Rubber Industry?

Dato' Dr Zairossani bin Mohd Nor is the Director General of the Malaysian Rubber Board (MRB). The MRB, an agency under the Ministry of Plantation Industries and Commodities, is the custodian of the Malaysian rubber industry and oversees the sector in its entirety. Appointed to the post in 2017, he is the youngest person to helm the MRB. Dato' Dr Zairossani has a great background in rubber research, and holds a PhD in chemical engineering from Waterloo University, Canada. He has published over 80 scientific papers and holds 10 patents and trademarks. He has also won over 20 awards for his work in R&D.

Dato' Dr. Zairossani Mohd Nor
Director General, Malaysian Rubber Board
cum Chairman, MRE Management
Committee

R&D PAVING WAY FOR MALAYSIA'S RUBBER INDUSTRY

Since our first rubber plantation in Kuala Kangsar, we have gathered more than 100 years of experience. Today, our industry's yield is some of the best out there, if not the best. Proudly, our raw rubber is highly sought after as the world's premium. There is some historical precedent to our storied rubber industry's past and why our Standard Malaysian Rubber or SMR is one of our flagship export products. What I can say is, this 100-year period in retrospect saw unprecedented growth for our rubber industry, especially in terms of upstream and downstream innovation as well as output.

We have, over the years, gone through various cycles of progress. We started humbly as a raw rubber producer before the first world war up to the 70s. We were then the largest rubber producer and held that position until 1982. Since, we've been overtaken over by other countries such as Thailand, Vietnam and Indonesia.

After that, we progressed to the processing sector where we became the world leader in processing concentrated latex. These developments however, didn't happen by accident. In Malaysia, we are fortunate to have a strong industry spine. When we started the industry, we had our national framework for the rubber industry. Early on, Malaysian Rubber Board (MRB) was responsible for the industry's scaling-up strategy. And in this structural framework, we had various implementing agencies that sprang up to support our rubber industry's goals.

In addition to this, we also had an enterprising funding mechanism that continues until today. In social and economic terms, we have always been consistent in supporting our rubber industry. Our upstream and processing sectors, I can say, have some of the highest growth rates. Although our raw rubber production capacity was overtaken, but we are still a rubber industry leader to this day.

We've held on to this advantage simply because our ecosystem can't be duplicated by other countries. Thankfully for us, we always have MRB overseeing all quality-related

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Although we are now in seventh place as a raw rubber producer, our smaller production footprint is in contrast to our superior quality and higher productivity. Our rubber is premium quality and is recognised all over the world.

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aspects of our SMR production. This way, although our production volume has somewhat declined, we have remained consistent and strong in terms of quality. For us, the challenge now is to maintain our leadership. The world is clearly changing and we need to make sure we're not locked into old systems that stop us from diversifying our products and bringing new innovation to the market.

Although we are now in seventh place as a raw rubber producer, our smaller production footprint is in contrast to our superior quality and higher productivity. Our rubber is premium quality and is recognised all over the world. This rapid pace of change however can create hurdles. Therefore, going forward, we have to diversify to exit the commodity realm and go into niche specialty as well as increase our traction in new customised rubber product categories.

To this end, I'm fully convinced, our R&D experience and capability will help speed our transition to the latest innovation and technology. While we continue to produce premium rubber, we must act now to strengthen our leadership in rubber R&D and commercialisation.

CONSUMER NEEDS CHANGING THE RUBBER INDUSTRY

Currently, the industry is counting on greatly increasing the complexity of our raw latex and rubber. We have seen how a number of industrial and consumer sectors cosy up to what latex can do to improve their products. This actually started in the late 70s, and its development picked up tremendously across various other sectors in the mid 80s and early 90s. Taken together, with the right technology and R&D support, we can increase the diversity of our downstream sector.

Objectively, we will focus our effort on generating new income sources through more sophisticated products. As a world leader, our challenges in the rubber industry are well documented. Although we have surrendered our stronghold as the largest raw rubber producer, we are still the industry's frontrunner as far as values are promised. However, to help us sidestep our challenges concerning underutilised land and labour shortage, we need to step up one or two notches in terms of technology to get ahead of our competitors.

One of our strategies is to develop our SMR into a specialty commodity. Surprisingly, not many know that when you tap a rubber tree, the latex the tree bleeds out only contains about 30% of rubber content. So, there's a lot of room for us to take this further. Right now, we are exploring what we can do with the other 70% in terms of new products and value creation.

MAINTAINING OUR STARRING ROLE IN THE COMMERCIAL LATEX SPACE

To sustain our industry and commodity advantages, we need to look at value multipliers that we can get out of technologically and knowledge-based innovations. At the same time, we can't ignore the latest emerging trends that are going to frame economic prospects worldwide such as sustainability and green manufacturing.

I believe our industry needs a bit of a soft push to go further. We need to drill down on what sophistication we need to engineer to produce more latex and rubber-based product spin-offs.

Our downstream sector for example is dominated by latex-based products. However, in actual fact, the overall global market value of our products, 90% of it consists of dry rubber and our current export contribution from the latex space is only about 10% to 15%. Even if we can capture another 10% from our latex sector, this can almost double our export revenue.

To date, we have more than 10,000 different types of rubber products. And these products are highly diversified. With that being said, we need to act imaginatively to move up the value chain. By aligning our excellent raw rubber quality with rapid advances in technology, we can produce more complex latex and rubber derivatives to serve a wider range of industries.

Doing this will help us to fully utilise our strength in manufacturing and sustainable production that we can count on to maintain our competitiveness for the next 10 to 20 years. So, it's really up to us where to refocus our efforts as we have experience entering almost all niche dry rubber and latex segments. Significantly, this is very much in line with our ambition of being a world leader at both ends,



Although we have a fully automated rubber tapping system available today, its steep rental makes it difficult for us to transfer the technology to these smallholders.



the upstream and downstream sectors. We can draw on lessons from our R&D experience and take advantage of the ecosystem in place.

So, these are the areas we are looking at to implement technology industry-wide to enhance our value-creation activities. In one novel use-case, our glove manufacturing for example, one of the research areas that we can look into is the advancement of materials for glove manufacturing.

I would also like to bring your attention to the fact that Malaysia is the chair of the ISO/TC45. This international committee is responsible for developing international standards for raw rubber and rubber products. On the ground, with more certifications, we can ensure whatever we produce is of international quality. Plus, we also provide testing services through our global testing centre. This centre has been set up to assist our manufacturers to comply with all international standards in terms of export and technical requirements. By leveraging the cumulative impact of all these facilities, we can assist our manufacturers to become global players and get them to penetrate larger market places abroad. Ultimately, this will allow us to explore many new profitable niche sectors and build our long-term advantage.

REVEALING NEW OPPORTUNITIES FROM CHALLENGES

As we come to grips with industry changes, it's actually a chance for us to turn our challenges into opportunities. Going forward, technology will be key. At the moment, it requires a systems approach to get our rubber farms to produce higher yield. Our main issue right now is the upstream sector where we are dealing with 95% of smallholders.

Many smallholders unfortunately have felt the sting of fluctuating rubber prices in recent years. Yet while it's easier for downstream manufacturers to implement automation, tapping rubber trees still needs labour.

Although we have a fully automated rubber tapping system available today, its steep rental makes it difficult for us to transfer the technology to these smallholders. Currently, the production cost for the system is about RM2,000 at a pilot scale.

Eventually, when the technology gets widely commercialised, we can probably bring the cost down to about RM700 or RM1,000. In practice, a smallholder needs to have one machine for each tree they own. In one hectare, you have about 400 trees. Despite the low cost entry of the technology, it's still very difficult for our smallholders to invest due to a lack of funds. Although we have other solutions such as semi-automatic systems, there's still a lot to be done to make technology more accessible for our smallholders.

Another way to solve this problem is to get more participation from our locals. Of course, to hire local labour, our smallholders need to pay them more compared to foreign workers. Apart from this, there's also training that's needed. As such, we are working closely with all the implementing agencies, especially Rubber Industry Smallholders Development Authority (RISDA).

However, I do believe that with wider implementation of technology, this could be an attractive lure for our locals to work in our rubber industry, whether in the upstream or downstream sector.

For example, we have a funding instrument that provides salary incentives to help our industry players reduce their dependency on foreign workers. This funding incentive pays the difference between the minimum wage and the amount needed to hire local labor. So far, from the 10,000-job target, we have already managed to create 5,000 jobs. Similarly, our goal is to extend this kind of funding support to our upstream and midstream operators that largely consist of smallholders.

This is to make sure our smallholders don't abandon their farms and continue tapping. Unfortunately, these underserved smallholders are the most vulnerable. Going forward, MRB's critical role is to introduce fitting technology packages that can assist our smallholders and downstream players to achieve a reasonable degree of automation. What we do is we facilitate a case-by-case solution to help them access the technology they need.

On the contrary, if you look at the glove industry, they have achieved a lot on the automation front. Case in point, when our rubber glove industry started, for 1 million gloves, they then required more than 30 workers. But now, thanks to technology, we've been able to bring it down to 1.5 workers.



When our rubber glove industry started, for 1 million gloves, they then required more than 30 workers. But now, thanks to technology, we've been able to bring it down to 1.5 workers.



As far as the technology goes, our rubber glove industry has automated as much as possible.

However, there are certain processes that are still difficult to automate. I would say that they are about 90% automated. Now as to their productivity rate, ours is one of the highest in the industry, having increased our production output from about 3000 pieces to 50,000 pieces a day. So you can see what productivity improvement automation can have on the industry. Even at this rate, our rubber glove industry is still complaining about labour shortage. Currently, our players need an additional 25,000 workers to cope with surging demand worldwide as well as restrictions imposed by the MCO.

STRENGTHENING OUR LOCK ON RAW RUBBER AND LATEX R&D

We have long been a pioneer of rubber innovation. Since the start of our rubber industry, we have made this component a central part of our growth. So, when we speak about sustainability, it's the same. Considering our environmental challenges, we now need to be deliberate about our forward action. This therefore throws a spotlight on sustainability and it asks us to make a series of smart, tailored judgement calls.

At MRB, we play a crucial role in this period of uncertainty. Our incentives and technology assistance are important to help our players pivot to greener technology. As the industry calls for more responsible practices, apart from our work to enhance the properties of our SMR, we need to make sure that our chemical and physical processes comply with international standards.

Ultimately, this will alter the content and properties of our rubber produce. Through R&D, we can sample and prototype new specialist rubber types. For example, our rubber industry is currently working on reducing the use of synthetic rubber. In tire manufacturing for example, we need to find new ways to help us clinically replace some of the synthetic rubber properties that are currently in use. Tire manufacturing typically combines both synthetic and natural rubber. However, we can now fuse nanotechnology in existing industry practices to produce a new type of specialty rubber.

Potentially, this could help us reduce the use of synthetic rubber that's largely harmful to the environment in its afterlife.

One more potential use-case we can look into is the modification of the latex properties in our glove products. By infusing the latest nanomaterials in our product line, we can engineer new types of advanced composite materials. In turn, this could help us tackle common issues with our glove products such as improving our rubber products' oil resistivity. On this count, we have a high ceiling as to what our R&D and ecosystem can do. Not only that, we could potentially produce thinner gloves, something that conventional gloves struggle to match therefore giving us an added value and a formidable product advantage.

So in this new chapter, we need to get our industry players to pick up greener rubber production practices and technologies. In the upstream sector for example, we can certainly move our sustainability needle by using lesser hazardous toxic chemicals. In essence, these specialty rubber materials could open up new niche applications and reduce our raw material dependence that constitutes about 60% of production costs.

As the industry's frontrunner, we can't afford to be denied by the opportunities that we can make out of our challenges. I just can't stress this enough. This will make an exponentially greater difference than anything else, as we get to reduce our carbon footprint and help us to prepare for future regulatory changes around manufacturing sustainability simultaneously. For example, the European Union recently announced regulatory changes that introduced tighter compliance measures. I'm pretty sure these changes will ripple out nearly everywhere across the industry. Nonetheless, improving our readiness to turn all these challenges into opportunities will be pivotal. It is our responsibility to up the pace of our R&D to secure and sustain our rubber industry. Last but not least, to get more export contribution from our rubber industry, it is crucial for us to think about breaking our challenges into parts and solve the challenges simultaneously, rather than one at a time for our industry to be able to carry out the work efficiently.

MALAYSIA'S GLOBAL COMPETITIVENESS

Where We Rank Amongst our Peers?

Malaysia, a land of opportunities

Despite the recent global health and economic crises, Malaysia is ramping up efforts to nurture a future forward economy. As one of the most technologically developed countries among industrialising nations in the ASEAN region, Malaysia's persistent drive to engage modern technologies proves to be a great advantage for investors.

Key points behind the reason why our country remains a competitive destination for investors include:

16th / 169 in trade connectivity
(second among Asia-Pacific countries)
Source: DHL Global Connectedness Index (GCI) 2020



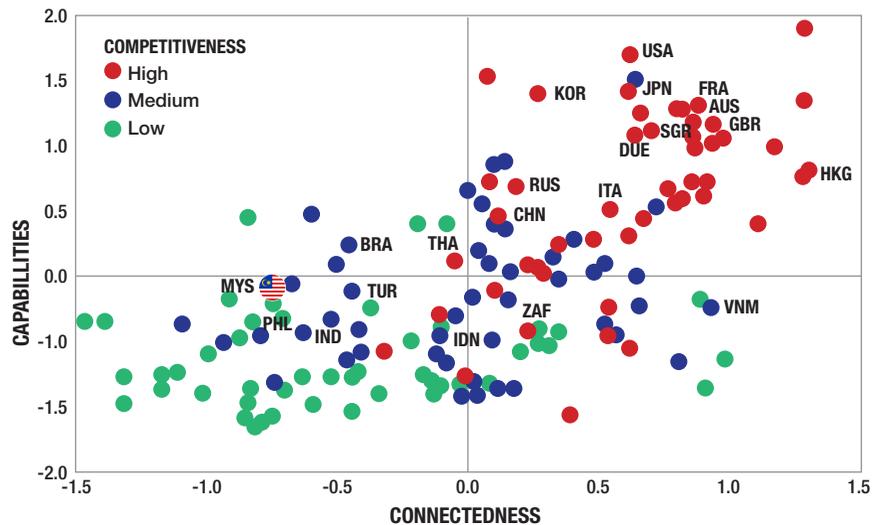
4th / 17 assessment comparing the economy's competitiveness as a manufacturing hub
Source: KPMG and the Manufacturing Institute in the United States, "Cost of Manufacturing Operations Around The Globe"

12th World bank doing business 2020

25th in the IMD World Competitiveness 2020

Strengthening Competitiveness, Capabilities, and Connectedness (3Cs) are key strategies to adapt to manufacturing-led development and challenges. Overall, these changes are brought on by an evolving environment led by Industry 4.0 technologies, servicification of manufacturing and shifting trade patterns. A World Bank report shows that:

- Malaysia is characterised by "high competitiveness-low capabilities-low connectedness"
- Evidenced by the fact that the competitiveness of our nation's business environment is not matched by the capabilities of its firms and workers, nor by its connectedness to markets
- Backed by cross-country data demonstrating the variations in countries' performance in the 3Cs space which highlights Malaysia's overall preparedness relative to competitors
- The conclusion? It is imperative for Malaysia to improve its capabilities and connectedness while maintaining high competitiveness on par with the countries occupying the upper-right quadrant.



Source: Adapted from Hallward-Driemeier and Nayyar (2017) with updated data World Bank

The upper-right quadrant club: are we there yet?

The "Upper-Right Quadrant" (URQ) club is a group of countries that scored high in the competitiveness, capabilities, and connectedness categories as a result of their robust economies. These include USA, South Korea, Japan, France, Australia, United Kingdom, Singapore, Hong Kong, Germany, Russia, Italy, and China.

Looking at our current standing, Malaysia isn't all that far behind in the competitiveness index table. However, we have been lagging quite significantly in capabilities and connectedness related indexes.

Aspirational peers comprise 33 OECD member countries. These countries provide potentially useful institutional norms against which Malaysia can be compared.

Aspirational peers

Australia	Ireland	Sweden	United Kingdom
Austria	Israel	Switzerland	United States
Belgium	Italy	Turkey	
Canada	Japan		
Denmark	Mexico	Chile	Latvia
Finland	Netherlands	Czech Republic	Poland
France	New Zealand	Estonia	Portugal
Germany	Norway	Hungary	Slovak Republic
Greece	Spain	Korea Rep	Slovenia
		Lithuania	

Given that these rankings are published by reputable international agencies, is there any doubt that Malaysia's ongoing reform initiatives are on the right track to further enhance Malaysia's competitiveness, productivity and governance? Now, let's zoom into a more specific key point which will help us uncover Malaysia's future fueled by efforts to help promote investment and accelerate national economic development.

These rankings emphasised that Malaysia must be prepared to address the challenges brought on by shifts in the global landscape driven by geopolitical, economic, social, and environment shifts and at the same time, take advantage of new opportunities arising from it.

Defining the 3Cs



COMPETITIVENESS

Defined as the need for Malaysia to keep abreast with the changing environment and to be on par with other advanced economies. Improving our country's ranking in the Global Competitiveness Index (GCI) involves improvement in all parameters of the index and to realise national aspiration as a high-income nation.



CAPABILITIES

This refers to the need for workers and firms to strengthen their ability to adopt and use new technologies driving productivity growth and produce higher value-added products and services driven by R&D and innovation. More importantly, it is interesting to note that Malaysia's industry players are not at risk of being disadvantaged by the impact of Industry 4.0 Revolution and are able to capitalise on opportunities to increase the competitiveness of the nation.



CONNECTEDNESS

This extends beyond physical connectedness such as transportation and logistics, but may also include supply-chain, cross-industry synergy and digital connectivity.

	COMPETITIVENESS			CAPABILITIES			CONNECTEDNESS		
	Global Competitiveness Index 2021 (out of 141 economies)	Global Complexity Index 2021 (out of 133 economies)	World bank Doing Business 2021 (out of 190 countries)	Bloomberg Innovative Economy 2020 (out of Top 60 economies)	Global Innovation Index 2021 (out of 132 countries)	World Bank Human Capital Index 2020 (out of 173 countries)	Logistic Performance Index 2018 (out of 160 countries)	DHL Global Connectedness Index 2020 (out of 169 countries)	Network Readiness Index 2021 (out of 130 countries)
China	16	12	31	15	12	45	26	70	29
USA	10	71	6	9	3	35	14	37	4
Russia	45	26	28	26	45	41	75	53	43
Japan	31	59	29	12	13	3	5	44	16
Germany	15	27	22	1	10	25	1	13	8
U.K	18	53	8	18	4	11	9	8	10
France	29	2	32	10	11	18	16	21	14
Italy	41	15	58	19	29	30	19	26	28
Korea	23	11	5	2	5	4	25	22	12
Malaysia	25	22	12	27	36	62	41	16	38
Australia	22	62	14	20	25	16	18	34	13
Hong Kong	7	76	3	39	14	2	12	25	32
Singapore	5	50	2	3	8	1	7	2	7

Source: World's Bank Development Report, Global Innovation Index 2021, IMD World Competitiveness Center, Doing Business, Bloomberg DHL, Global Business Complexity Index 2021, Network Readiness Index

Regional peers

Cambodia
 Indonesia
 Lao PDR
 Myanmar
 Philippines
 Singapore
 Thailand
 Vietnam

Regional peers comprise fellow ASEAN countries that are also high-growth countries grappling with many of the same challenges facing Malaysia.

Regional peers

Argentina
 Croatia
 Oman
 Panama
 Puerto Rico
 Saudi Arabia
 Trinidad and Tobago
 Uruguay

Transitional peers comprise 19 countries that achieved high-income status in the last 30 years (1988-2017) and helps elucidate the conditions that prevailed for these countries at the time of transition, which are important to Malaysia's ambitions today.

What is competition if we have no one to look up to? For this matter alone, Malaysia's peers and fellow competitors in the global arena have been rather visible to inspire us during our course of growth.

A recent report by the World Bank entitled "Aiming High – Navigating the Next Stage of Malaysia's Development" (2021) also refers to the above-mentioned countries as "Malaysia's Aspirational Peers". The report highlights that Malaysia will achieve a high-income nation status but at a slower pace compared to our predecessors a.k.a. Aspirational Peers. Our averaged percent growth for the last decade has admittedly been lower than the rates recorded by any of our transitional peers in the last decade preceding their achievement of high-income status. At this rate, it would take us 28 and 43 years, respectively, to reach the current per capita income levels of the Republic of Korea or Singapore.

Source: World Bank staff elaboration

SIMULATING COUNTRY PERFORMANCE INDEXES USING DATA MODELLING



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The use of country performance indexes is a fast and concise way to gauge a country's performance compared to other countries. Besides country benchmarking, country performance indexes can also help identify areas of improvement of a given country. There are currently many country performance indexes covering various areas that are important to a country's development, such as science and technology, economics, social, and the environment. An excellent example of a reputable country performance index is the Global Competitiveness Index from the World Economic Forum.

Given their wide acceptance and relevance to a nation's development, policymakers have begun to show interest in adopting country performance indexes as a formal means of performance measurement. Just early this year, the Malaysian government launched the Malaysia Digital Economy Blueprint, also known as MyDigital, where the Global Innovation Index (or GII) has been included as a policy target to be improved, specifically in the areas of research and knowledge creation. Meanwhile, the Ministry of Science, Technology and Innovation (or MOSTI) has also established a national task force to monitor Malaysia's GII ranking performances.

As country performance indexes are increasingly becoming an important yardstick to measure policy performances, policymakers must understand how Malaysia's performance is being calculated by the various institutions that publish these indexes, such as WIPO, WEF and IMD. By understanding their methodologies and being able to replicate how countries' scores and rankings are calculated, relevant stakeholders will be able to (i) evaluate the level of

impact that each underlying indicator have on Malaysia's ranking performance, thus (ii) enabling stakeholders to focus on targeted underlying indicators that would create the greatest impact.

Country performance indexes' methodologies can be replicated through data modelling and visualisation. Data models built to emulate a targeted country performance index (e.g., GII) can be used to simulate Malaysia's ranking performance. Being able to simulate ranking performances allow analysts to analyse past accomplishments and estimate future performances. When coupled with other study methodologies, such as Foresighting, various plausible scenarios could be built by examining the underlying input indicators' qualitative and quantitative aspects. These plausible scenarios could provide stakeholders with clearer visibility of what's ahead when planning the appropriate strategies to improve Malaysia's ranking performance. Besides, the ability to perform simulation could also assist stakeholders in setting realistic and achievable targets for both the input indicators and Malaysia's annual ranking performances moving forward.

However, the said approach is by no means a substitute for the government's regular reviews and diagnoses on the country's needs and performances. Instead, it could serve as a planning tool that complements and supports a more fact-based decision-making process in determining the most appropriate policy interventions. Furthermore, adopting data modelling to support decision making also aligns well with the government's push for more digitalisation in the public sector.

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Being able to simulate ranking performances allow analysts to analyse past accomplishments and estimate future performances.

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SEEING THROUGH THE 3 “Cs”



Liz Alexander, PhD

Futurist. Author.
Consultant. Speaker.

Dr. Liz Alexander has been named one of the world's top female futurists. She combines futures thinking with over 30 years' communications expertise to produce publications that showcase the advice of fellow futurists on issues including the future of education, and how businesses can practically benefit from working with the futures community.

Dr. Liz is the author/co-author of 22 nonfiction books published worldwide, that have reached a million global readers, and has contributed to leading US technology magazine Fast Company, Psychology Today, and journals such as Knowledge Futures, and World Futures Review. She earned her PhD in Educational Psychology at The University of Texas at Austin.

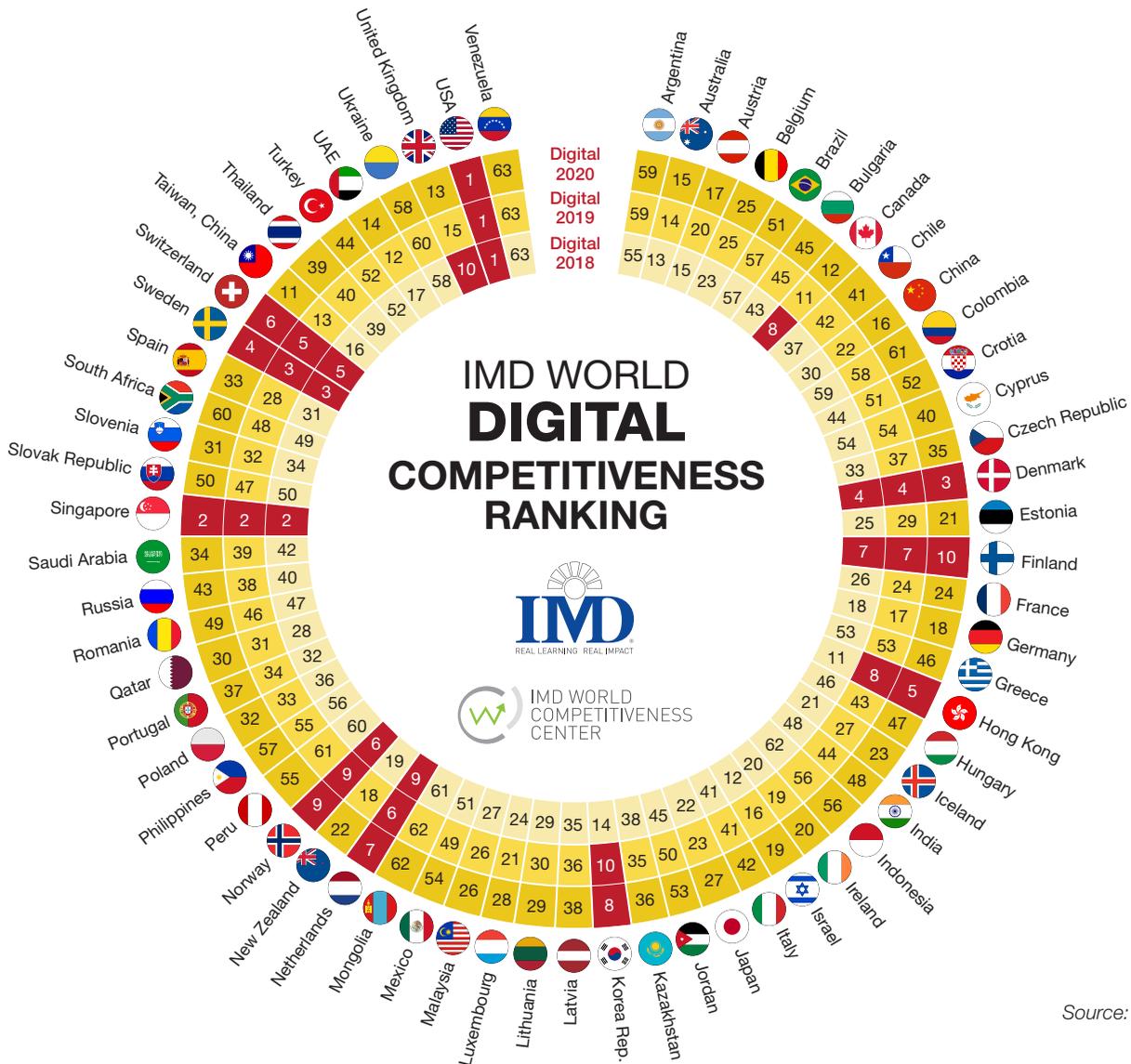
How can we become better prepared for challenges such as those accompanying Industry 4.0 technologies, the trend for more services activities within manufacturing firms, and shifting trade patterns? One answer is to build capabilities in order to boost competitiveness in a world in which rapid and reliable global connectedness is vitally important. These are what's known as the three Cs: Competitiveness, Capabilities, Connectedness, and they are all intrinsically intertwined.

Yet the execution of such strategies can often be unexpectedly thwarted. For example, a policy research working paper produced by the World Bank Group, in partnership with the Turkey Ministry of Science, Industry, and Technology, found that with regards to the servicification of manufacturing in that country: "Although servicification has the potential to boost firm performance, the opposite appears to be the case in Turkey: manufacturing firms with service affiliates tend to be less productive." The report then goes on to explain why: Because a number of reforms and the easing of regulatory restrictions were needed before it was possible to bring about the desired outcomes.

That is one of the problems with taking issues out of context and believing that—even collectively—these three Cs are a panacea. This is particularly highlighted when we examine those examples in the area of global competitiveness, and what it really takes for such high-performing countries to reach that particular goal.

Competitiveness

As the IMD World Competitive Rankings for 2020 show, there are patterns to be gleaned from those countries that ranked highest on global competitiveness: Singapore, Denmark, Switzerland, the Netherlands, and Hong Kong SAR. One pattern that caught the attention of the IMD data analysts is that they are all relatively "small economies." While there is no single agreed definition for this term, generally speaking "small economies" are considered to be countries with a high GDP relative to the size of their populations.



As Arturo Bris, Director of the IMD World Competitiveness Center and Professor of Finance, is reported to have said, “The benefit of small economies in the current crisis comes from their ability to fight a pandemic and from their economic competitiveness. In part these may be fed by the fact it is easy to find social consensus.”

In other words, small economies have the advantages of agility and flexibility, even if many of them don’t always live up to that.

A multitude of other factors was shown to play a key role in these successes, among them robust international trade and investment, high employment contributing to a strong labour market, and business efficiency.

What these findings also made clear was that countries that dropped dramatically in the rankings from the year before, such as the United States (-7) and China (-6), had become mired in major issues like trade wars and various forms of social, economic, or political turmoil. Hence the concept of “competitiveness” is not simply a question of business and industry acting alone or stepping up their efficiency and productivity. There are broader economic and social considerations that feed into a country’s ability to boost its competitiveness.

While it is tempting to think there are definitive lessons to be learned from studying and trying to emulate countries that score highest on the measure of competitiveness—and sometimes there are—we should not lose sight of the fact that the factors contributing to those successes are deep-seated in culture as well as policy. Take the Nordic countries for example (Denmark, Finland, Norway, and Sweden), all of which ranked in the top ten on business efficiency that plays such an important role overall in competitiveness. Not only are they known for being open cultures, but they place a high value on maintaining strong health and education systems—paid for by some of the highest tax rates in the world—which has helped to support their robust labour markets.

That aside, as the World Economic Forum pointed out in the executive summary to its Global Competitiveness Report Special Edition 2020, in relation to the current pandemic: “This unusual moment calls for innovative and much-needed policy shifts.”

Capabilities

According to one definition the capabilities of an organisation are: “the capacity, materials, and expertise an organisation needs in order to perform core functions.” In short, they embrace everything from customer relations to materials- and IT-management. Certainly, firms need to strengthen their ability to produce higher value-added products and services, driven by R&D and innovation.” But how best to do that?

As with competitiveness, there needs to be a shift in thinking in addition to policy. More specifically, to embrace what has been called “open innovation.”

To think that one’s greatest capabilities lie only within the walls of your office, manufacturing plant or factory has been shown to be a fallacy. The business world is replete with examples of collaborations between competitors, supply chain partners, customers, and even the general public that have broadened the capabilities of companies and led to the production of new products and services.

As reported by Torbjørn Netland, Chair of Production and Operations Management at ETH Zurich, open process innovation is the future of operational excellence. Sharing proprietary machine data with machine suppliers, for example, not only helps those suppliers gain valuable insights, leading to “a cost-effective way to outsource and unlock process innovations for particular machines.” This kind of openness also generates a competitive advantage for the company against firms that prefer to keep such data under wraps.

Netland cites a cluster of companies operating in the high-end electronics space in Scandinavia that realised they had less to fear from each other than from foreign competition. The members of this cluster actively cooperated to innovate their processes by, “opening their factories to local competitors, organising joint seminars, and sharing process problems and innovations in dedicated workshops.” Each cluster member thrived in what would otherwise be a marketplace in which they would have had to face fierce competition alone—both internally and externally.

“ Similar to the manner in which we tend to believe that our driving skills are above average, managers tend to believe that their companies’ process capabilities are better than average. This cognitive bias, known as the above-average effect, can be a dangerous illusion... ”



Clusters that are, on average, able to innovate their processes faster than competing clusters can gain a competitive edge...



In the Netherlands, international brand Philips opened their High Tech Campus Eindhoven in 1998 not just to technical universities, but to other companies so that they might all share knowledge and insights within an “inspired R&D playground.” Philips’ approach to openness has led to the company being called “the innovation titan of industry,” resulting in them making over 1,700 new patent applications in 2017 from ideas and knowledge shared among those whom other organisations might consider “competition” rather than collaborative partners.

That gives another meaning to the 3rd C in our list: Connectedness, in showing how connecting with competitors enhances capabilities.

Connectedness

One of the questions raised during the current pandemic has been whether we are seeing the rise of deglobalisation. After all, the microscopic virus known as COVID19 has single-handedly achieved a decline in global connectedness, in terms of products and people crossing international borders. Thanks to digitisation, however, services have been less affected.

Despite the challenges—political, economic, and logistical—brought about by the pandemic, the consensus of opinion, certainly among those international experts taking part in one IMD roundtable, is that while globalisation may have slowed down because of the coronavirus, it’s still on an upwards trend.

In reviewing DHL’s Global Connectedness Index 2020 for this article, two things jumped out at me. The first was how many countries appear in both that index and the competitiveness rankings, underscoring the point I made earlier about how the 3Cs are intertwined:

The second point was seeing Malaysia listed as one of the “top outperformers,” exceeding expectations by the widest margin with regards to both the depth and breadth of its connectedness. Depth (how much of a country’s economy is devoted to imports and exports) is said particularly to spur economic growth, with breadth indicating the extent of a country’s international connections.

Half of these top ten notable countries are in SouthEast Asia: Cambodia; Malaysia; Singapore; Thailand; and Vietnam. As the DHL report goes on to say: “SouthEast Asian countries benefit from linkages with wider Asian supply chain networks as well as ASEAN policy initiatives promoting regional economic integration.”

Hence one might conclude that it is not necessarily global connectedness (breadth) overall that is most advantageous to a country’s economy, but the strength of its regional ties. Asia seems to have an edge in that regard. Perhaps all it takes is embracing a more open attitude towards sharing knowledge and ideas with regional partners and “competitors”, rather than believing that one’s country capabilities are the be all and end all.

Who knows where that might lead and who knows where that might lead with respect to boosting competitiveness overall.

The Link Between Competitiveness and Connectedness

IMD Competitiveness Index		DHL Connectedness Index 2020	
Singapore			The Netherlands
Denmark			Singapore
Switzerland			Belgium
The Netherlands			United Arab Emirates
Hong Kong SAR			Ireland
Sweden			Switzerland
Norway			Luxembourg
Canada			United Kingdom
United Arab Emirates			Denmark
United States			Malta

Source: IMD and DHL

Emerging Technologies for Future Competitiveness

WHAT'S COMING?



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Socio-economic impact of a changing technological landscape can dramatically shake up how we go about fulfilling our basic needs, quality of life and wealth creation. Governance styles, too, will not be spared. Fittingly, these two intertwining aspects—tech and governance, will be discussed at length in this infographic-style article.

First, we'll take a look at how emerging technologies are bound to change Malaysia's tech horizon. Second, we are going to dive deep to see if we are ready to keep up.

So, what's new? Or rather, what's evolving? As is the case with any new technology, where are the new opportunities going to come by? To kick things off, we are going to take a look at a Gartner Hype Cycle graph that provides a visual representation of the maturity and adoption of emerging technologies and their applications. This graph shows us relevant factors to consider with respect to how and where new technologies are solving real business problems.

As this shift also creates new opportunities, we can then see how industry players, governments and the civil society would react to new technologies or applications that could evolve over time.



For the sources behind this infographic, please visit: www.myforesight.my
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Hype Cycle for Emerging Technologies, 2020



Plateau will be reached: ● less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years # as of July 2020

Source: Gartner. Gartner's Top Strategic Technology Trends for 2021

By framing our observation around Gartner's thematic trends, we set out to gauge the disruptive power and development of the three technologies below. Essentially, these three technologies are some of the most widely implemented as far as local public sector's digitalisation initiatives are promised.

Artificial Intelligence (AI)

5G network

Blockchain

ARE WE READY?

When Budget 2020 was announced, it was tabled with a clear intention to drive nation-wide digital transformation. Evidently, supporting start-ups, re-training the workforce and improving infrastructure were key measures reinforced. This renewed focus was meant to make way for two key tech trends to grow: preparing 5G deployment and accelerating adoption of next-gen technologies.

Based on the Gartner Hype Cycle graph, these three technologies may change the tech ecosystem but appear susceptible to plateauing in the next 10 years. However, to fully benefit from these technologies, the government needs to foster a climate that's thoroughly inclusive for the ecosystem to work effectively.



- The future is full of uncertainty and requires fast decision-making. AI's well documented ability to analyse, respond and adapt to "measured" situations provide a novel new way of solving problems.
- For example, generative AI is the type of AI that can create new or alter existing content (images, video etc.). Although these new artifacts are similar to the original content, but they are not exactly the same. However, fake content can pose serious misinformation and reputational risks and is expected to increase rampantly in the next five years.

FUNDING

(Public & private funds and initiatives)

- Industry Digitalisation Transformation Fund (2019 budget)
- MIDA-Industry4WRD Intervention Fund
- SME Corp Malaysia-SME AI programme matching grant - the collaboration with SME Corp Malaysia will also promote local digital innovation by adopting cloud and AI technology to help SMEs create innovative products.
- RHL Ventures: It is a Malaysia-based venture capital firm that is heavily investing in areas such as artificial intelligence, machine learning and IoT.
- Cradle Fund: Cradle Seed Ventures (CSV) is the venture capital arm of Malaysia's premier early stage financier and influencer. It supports start-ups such as Go-Mad.AI, which is an on-demand nutritionist start-up based in Malaysia.
- NEXEA Venture Capital: This Malaysia-based VC firm offers funding and help for tech start-ups through mentoring, networking and consulting.
- TH Capital: This Malaysia-based VC empowers entrepreneurs with funds, networking and growth opportunities in South East Asia. With a focus on technology and innovation, the VC invests in high-growth tech start-ups in AI, cloud, IoT, mobile gaming and more.
- SunSEA Capital: This venture fund invests in digital start-ups across Malaysia, Thailand, Singapore, Indonesia, Philippines, Vietnam and Hong Kong. They believe that AI is important along with the rise of chatbots, robotic process automation and other tech development bandwidths.

INFRASTRUCTURE

- Data Free Trade Zone (DFTZ) - an eFulfillment and eServices hub designed to facilitate cross-border trade and enable local online businesses to export their goods (MDEC & Alibaba)
- Key Agency: Malaysia Digital Economy Corporation (MDEC)
- Malaysia City Brain project - A partnership between MDEC, Kuala Lumpur City Hall, and Alibaba, the initiative combines 5G, IoT, and AI technologies to optimise traffic, parking, and energy management.
- AI-based security and surveillance solutions - Since 2017, MIMOS has been working with Huawei to develop AI-based security and surveillance solutions that include advanced video analytics and facial recognition systems.
- The introduction of Malaysia's first AI park and scholarship programme.
- The demand for computing power is ever-increasing since the rise of AI. This challenges the ability of existing infrastructure to cope with high density, which is why Malaysia has seen growth in this industry and is tapped as a key location for data-centres.
- Centre of Artificial Intelligence for Future Industry (CAIFI) is building an AI ecosystem for the Malaysian industry to move into Industry 4.0.

POLICY & REGULATIONS

- National Policy on Industry 4.0 (Industry4WRD) aims to drive the country towards an Industry 4.0 hub for Southeast Asia, using new technologies to increase productivity and competitiveness across industries.
- National Big Data Analytics Framework - Drive big data analytics (BDA) demand across all sectors and activate adoption & usage of BDA in the public sector
- National AI Framework - Drive Malaysia's AI ecosystem, by leveraging AI and machine learning for digital transformation.

TALENTS & SKILLS

- AI park to foster R&D and grooming of local talent - The Malaysian company G3 Global has inked a USD1b agreement with two Chinese firms to develop its first AI park. The park will serve as a platform to groom local AI talent, and support efforts to build a commercial AI ecosystem and advance AI research in Malaysia.
- MCMC introduced its MYINDUSTRY AI Scholarship, an AI-focused Masters funded by the industry, universities, and Malaysia Digital Economy Corporation (MDEC).

TECHNOLOGY PUBLICATION & PATENTS

- 50 AI patents have been registered in Malaysia in the last 10 years.
- The industry, particularly small and medium enterprises (SMEs), were more inclined towards doing business through traditional ways; some of them might have avoided adoption of new technologies such as AI and big data due to the high entry cost.

Are we ready? To this end, we have put together a list of examples consolidated from various references. As a result of these vast collection of references, we have managed to highlight a few contrasting results and opinions. The F.I.R.S.T acronym, which stands for Finance, Infrastructure, Regulation & policy, Skills & Talent and Technology is used to illustrate Malaysia's tech ambition.



5G NETWORK

- In the face of rapid changes and decentralisation, organisations need to be more agile and responsive than ever. Being modular, efficient, continuously improving and innovating is a core principle that forward-looking organisations must embrace.
- Modular business models enable organisations to pivot from rigid, traditional planning to being agile. Being agile offers plenty of benefits, as it pushes out more innovation, cuts costs and attracts more partners.
- 5G wireless technology delivers higher multi-Gbps peak data speed with ultra low latency. With its massive network capacity and increased availability, 5G is more reliable and promises a more uniform user experience to more users.

FUNDING

(Public & private funds and initiatives)

- Industry Digitalisation Transformation Fund (2019 budget)
- MIDA-Industry4WRD Intervention Fund
- National Fibreisation and Connectivity Plan - RM10b boost from Universal Service Provision Fund to accelerate connectivity for the masses.
- The SPV is expected to invest a total of RM15b (US\$3.7bn) over the next decade and will be given the appropriate spectrum to own, implement and manage 5G infrastructure.
- The government will introduce an RM5b grant for ecosystem development to promote innovation.
- In the 2020 budget, the government provided RM25 million for digital grants.

INFRASTRUCTURE

- Ministerial Value Innovative Centres (VICs, proposed), National Digital Identity (forthcoming).
- The National 5G Task Force was mandated to study and recommend a holistic strategy for the fifth generation (5G) mobile technology deployment in Malaysia.
- RM15b to set up an entity that will be granted an entire spectrum and operational scope to manage 5G roll-out by the end of 2021, a single entity that will come under the purview of the MCMC, fully owned by the MOF.
- Malaysia is speeding up 5G deployment in the country through a "special purpose vehicle" (SPV)
- Priority will be given to locations in states that can facilitate and speed up The National Fibreisation and Connectivity Plan (NFCP).
- Jendela will lay the foundation for comprehensive and high-quality broadband coverage facilities and prepare the country for the transition to 5G connectivity.

POLICY & REGULATIONS

- MyDIGITAL initiative seeks to transform Malaysia into a digitally-driven, high income nation and a regional leader in the digital economy.
- The Jalinan Digital Negara (JENDELA) plan was formulated to provide wider coverage and better quality of broadband experience for the rakyat, while preparing the country for 5G technology.
- National Fibreisation and Connectivity Plan - in response to the nation's desire to improve broadband quality and coverage, reduce broadband prices and provide Internet access across all spectrums of the society.
- The SPV is part of Malaysia's new MyDigital economy blueprint to bolster its national fibre infrastructure and incentivise major cloud suppliers to set up local datacentres, among other things. The plan focuses on bringing forward the plan to roll-out 5G technology from 2021 to the last quarter of 2025.

TALENTS & SKILLS

- Huawei has collaborated with the Sarawak government to boost ICT talent by introducing the Sarawak Digital Youth Talent Development Programme and in transforming CENTEXS into a digital academy in Sarawak.
- Huawei Malaysia is committed to helping Malaysia build a new Intelligent Malaysia regarding the five areas of ICT - talent development, economic policy optimisation, grant subsidies programmes, technology enablement, and industry partners' ecosystems.
- Huawei's first ASEAN Academy in Malaysia, with an investment of RM3 million will nurture 50,000 Malaysian talent in the next five years across various businesses and technology sectors. The academy will provide more than 3,000 ICT courses involving 100 skilled trainers to nurture national digital talent by working with local universities such as Tunku Abdul Rahman University College (TARC), University of Malaya (UM) and Multimedia University (MMU).

TECHNOLOGY PUBLICATION & PATENTS

- Ericsson Innovation Centre for 5G (IC5G) in Universiti Teknologi Malaysia is the first centre of its kind in Malaysia. The centre conducts research, seminars, training, hackathons and exhibitions.
- The Malaysian government will build and manage its own 5G network in partnership with Telekom Malaysia (TM) and Huawei Technologies.
- 37 patents have been registered for 5G in Malaysia from 2014.
- Neighbouring countries such as Singapore, Thailand and Vietnam are ahead in 5G roll-out and Malaysia has to catch up quickly to remain competitive and be attractive to investors.
- SME Corp Malaysia will promote local digital innovation by adopting cloud and AI technologies to help SMEs create innovative products.



BLOCKCHAIN

- Increased consumer data exposure, fake news, videos, and biased AI have caused organisations to shift from trusting central authorities (government registrars, clearing houses) to trusting algorithms.
- Algorithmic trust models protect the integrity, privacy and security of data, provenance of assets, as well as the identities of people and things.

FUNDING

(Public & private funds and initiatives)

- Industry Digitalisation Transformation Fund (2019 budget)
- MIDA-Industry4WRD Intervention Fund
- Global Tech Fund (GTF) by MDEC for catalysing digital innovation ecosystem.
- The equity crowdfunding platforms (ECF), co-investment scheme known as Malaysia Co-Investment Fund (MyCIF)

INFRASTRUCTURE

- Malaysia's Securities Commission (SC) is currently pioneering the regulatory sandbox for capital markets called 'AFINity@SC', short for 'Alliance of FinTech Community'
- National Trusted Cryptographic Algorithm List (MySEAL) is a project to develop a portfolio of national trusted cryptographic algorithms, managed by CyberSecurity Malaysia. The project was specifically designed to provide a list of cryptographic algorithms suitable for implementation within the Malaysian context that supports the National Cryptography Policy (NCP).
- Malaysian Common Criteria Evaluation and Certification (MyCC) is a systematic process for evaluating and certifying the security functions of ICT products against ISO/IEC 15408 standards known as Common Criteria (CC). MyCC can be used to verify the security functions of applications connected to the blockchain.
- Melaka Straits City is a project set to build a tourist city based on the blockchain technology. The creation of the blockchain city aims to enhance tourism development and improve blockchain education. The 835-acre blockchain city is supported by the government of China and several major corporations.
- Developed by Malakat Ecosystem, the Halal Blockchain Network (HBN) is a halal food supply chain that capitalises the blockchain network technology.
- Malaysia Blockchain infrastructure and ecosystem are illustrated in figure 1.

POLICY & REGULATIONS

- BNM has issued the 'Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT) - Digital Currencies (Sector 6)' policy on the 27th of February 2018 as part of its effort to promote greater transparency surrounding digital currencies in Malaysia.
- In Budget 2019, the Minister of Finance announced that the Capital Markets and Services (Prescription of Securities) Order would be gazetted to set up a new regulatory framework to approve and monitor Digital Coin and Token Exchanges.
- The Securities Commission Malaysia (SC) announced that it registered three Recognised Market Operators (RMOs) to establish and operate digital asset exchanges (DAX) in the country.
- The future of travel in a COVID19 world requires show proof of COVID19 testing and vaccination history, as well as the Immunity Health Passport as an end-to-end platform for users.
- HBN will help to ensure the food supply chain is in accordance with Islamic Halal requirements as food production processes can now be tracked.
- Regulation of the blockchain law in Malaysia and/or cryptocurrencies should be welcomed as it provides more certainty and protection to the general investing public.
- More information is illustrated in figure 2

TALENTS & SKILLS

- CyberSecurity Malaysia offers several training programmes on cryptography as follows:
 - i) Cryptography for Beginners
 - ii) Cryptography for Security Professionals
- MDEC's Malaysian Digital Hub programme aims to spur the growth of local tech companies by partnering with co-working spaces to foster a community where entrepreneurs can network with potential partners, investors, and talent.
- The Malaysian government's Tech Entrepreneur Pass programme identifies talent through a digital hub.

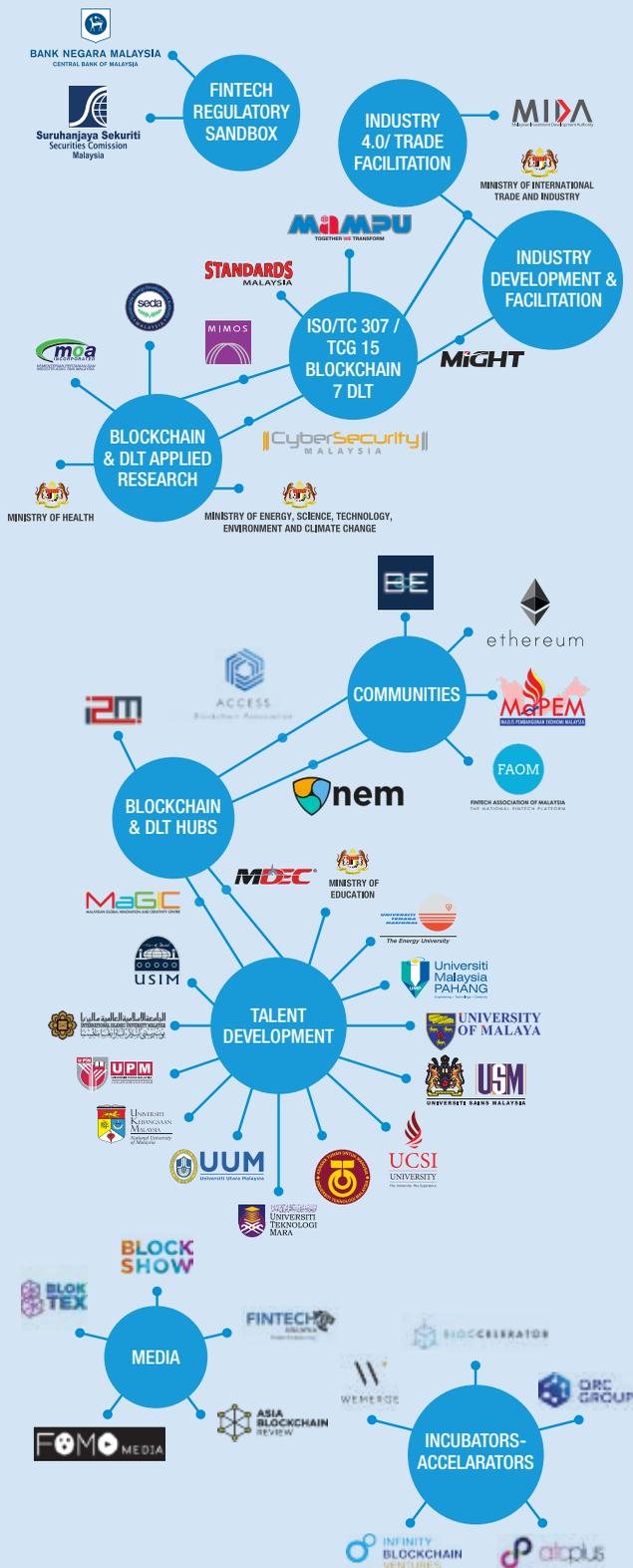
TECHNOLOGY PUBLICATION & PATENTS

- 'Securities Commission (SC) Innovation Lab' compiles industry and public input in order to formulate the regulatory framework needed for the Alternative Trading System (ATS) announced in Budget 2018. Among the products included were digital currencies.
- MIMOS is currently investigating ways and means for further blockchain and DLT technology adoption. These measures will be mapped across existing applications and software systems for government and local industry use-cases.
- 120 blockchain patents have been registered in Malaysia since 2017, of which, 49 are foreign patents.
- 2020 Global Start-up Ecosystem reported that Malaysia's capital was ranked 11th as an emerging start-up ecosystem in the world.

Figure 1

Infrastructure & Ecosystem

Early Blockchain Players in Malaysia



Source: MIGHT, Malaysia blockchain & distributed ledger technology (DLT) report 2019.

Figure 2

Regulation/standards /policy

The Current Government Effort In Blockchain Regulatory Environment



BANK NEGARA MALAYSIA
CENTRAL BANK OF MALAYSIA

Scope

- Legal Tender, Moneygame

Initiatives

- Fintech Regulatory Sandbox – 2016
- BNM alert and update list
- Anti-Money Laundering and Counter Financing of Terrorism Policy for Digital Currencies (Sector 6)
- Anti-Money Laundering and Counter Financing of Terrorism (AML/CFT) - Money Services Business (Sector 3) (Supplementary Document No. 1)

Impacts :

- Financial system stability
- Scam list
- Reporting Institutions
- E-KYC



Scope

- Cyber security

Initiatives

- National Cyber Security Policy (NCSP)
- MS ISO/IEC 27001 Information Security Management System (ISMS) Implementation
- MyCC Evaluation and Certification services
- Technology Security Assurance (TSA) Service
- National Trusted Cryptographic Algorithm List (MySEAL)

Impact

- Computer security
- Information technology security (IT security)



Suruhanjaya Sekuriti
Securities Commission
Malaysia

Scope

- Digital Assets Exchanges, Securities, Fundraising

Initiatives

- The Capital Markets and Services Act 2007 (CMSA)
- Affinity Innovation Lab - Over The Counter
- International Organisation of Securities Commissions (IOSCO) on ICOs
- Industry Consultation on the introduction of Alternative Trading System (ATS) in the Malaysian capital market Jan-Mar 2018
- “Capital Market Architecture Blueprint in Decentralised World” report Nov 2018
- The Project Castor for Over the Counter Market (OTC)
- 31st Jan 2019, The Securities Commission Malaysia (SC) amended its Guidelines on Recognised Markets to introduce new requirements for electronic platforms that facilitate the trading of digital assets
- Under the revised guidelines, any person who is interested in operating a digital asset platform is required to apply to the SC to be registered as a Recognised Market Operator

Impacts

- Transparent securities based transactions
- Industry engagement for policy on capital markets

The Current Government Effort In Blockchain Regulatory Environment



MINISTRY OF DOMESTIC TRADE AND
CONSUMER AFFAIRS

Scope

- Consumer Protection

Initiatives

- Consumer Protection (Electronic Trade Transactions) Regulations 2012
- National Consumer Protection Policy 2002
- Trade Description Act 2011

Impacts

- E-Commerce
- MLM
- Scams



MINISTRY OF INTERNATIONAL
TRADE AND INDUSTRY

Scope

- Trade Facilitation Smart Manufacturing

Initiatives

- UN/CEFACT initiative
- Industry 4.0

Impacts

- National trade interests
- Inputs to mitigate possibilities of Technical Barriers to Trade (TBT)



MINISTRY OF FINANCE

Scope

- Financial and Legal Monitoring of Digital Assets Ecosystem

Initiatives

- Budget 2018
- Budget 2019 - The Capital Markets and Services (Prescription of Securities) Order to be gazetted in 2019 to set up a regulatory framework to approve and monitor Digital Coin and Token Exchange

Impact

- Market stability

STANDARDS MALAYSIA

Scope

- Legal Definitions of Technology

Initiatives

- National Mirror Committee for Blockchain and DLT T/C/G 15
- One of Founding members for the global ISO committee for Blockchain and DLT ISO/TC 307 Blockchain & DLT

Impacts

- National trade Interests
- Inputs to mitigate possibilities of Technical Barriers to Trade (TBT)
- Technology interoperability

MIGHT

Scope :

- Use Cases for National Competitiveness

Initiatives

- Industry engagements Proof of Concept projects
- Facilitating role in developing use cases in support of Industry development efforts

Impacts

- National trade Interests
- National competitiveness



MINISTRY OF
EDUCATION

Scope

- Education

Initiatives

- E-scroll system

Impact

- Simplifying authentication and verification of university diplomas

Source: MIGHT. Malaysia blockchain & distributed ledger technology (DLT) report 2019.

Conclusion

So, are we ready for new tech? Here are our top recommendations to speed up our tech development and adoption. Going back to the two premises this mini study is based on, we can conclude that:

- The key driver for the Malaysian government lies in participating early in the development phase of these breakthrough technologies. In part, this will help the government clearly navigate the many intuitional, industry and talent challenges it currently faces. However, as more collaborative and deliberative efforts to bump up adoption will be rolled out, a wider global network that champions ethics, good governance and compliance is required for wider AI adoption.
- Global talent deficit across the three technology domains showcases the size of the challenges faced by the industry and the future of work. While automation will nudge the workforce to upskill, it is easier said than done. Without a strong focus on tech adoption and implementation, it would be difficult to refresh current workforce considering the volatility of today's economic climate.
- Collaborations and partnerships between local and foreign industries need to be bumped up to increase local R&D and innovation output.
- Firm yet Innovative policies need to be crafted to give Malaysia a speed advantage in governing the development of these technologies. Also, friendly policies can empower more local players to explore broader markets outside of Malaysia. Ultimately, the right policy ecosystem will promote growth and ensure that we can strike the right balance between profitability, social inclusion, environmental sustainability and technology governance.

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LEADING WITH INTEGRITY: Doing the Right Thing Right



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Having a high level of competitiveness is very important to ensure that an organisation is ready to move forward and face the challenges of competition. Competitive organisations instinctively know what needs to be done to emerge victors in the game and are not intimidated by current challenges within an ever-dynamic market and limited resources.

Why competition and competitiveness is the catalyst for change

Without stating the obvious, any organisation will definitely experience more challenging competition, especially if they are transitioning from being a local player in a highly dynamic market towards becoming a global entity. Who's to say that decades-old, highly established companies will remain victorious when competing with the new kids on the block, namely emerging companies that are way smaller in size compared to these so-called local 'giants'?

Each year, thousands of small startups make their way into the scene trying their luck at making it big in the shortest time possible, but the reality is, not many would make the cut. The road to success is paved with many challenges, one of them being an ever-changing industry landscape.

Heraclitus, the Greek philosopher famously said,
“ **Change is the only constant in life.** ”

What's certain is that, companies who are prepared to change with the times and adapt to the market's needs and wants, have a higher chance at success and continuous growth. They will likely be rewarded for their vision to remain competitive in an ever-changing market.

But here comes the kicker: with great competition and success, comes a great moral dilemma.

Can integrity and competitiveness co-exist?

Not many would realise this but the spirit of competitiveness is actually very closely related to an important and key identity value, namely, integrity.

It is important to recognise the fact that at the heart of fierce competition lies an even bigger reward which tends to affect the attitude, actions and even a person's value. It can lead to violations of rules or laws, fraud, leading to undesirable outcomes in the absence of firm integrity.

Consider this: we often see intense competition in the world of sports, where players and teams compete with each other with high hopes of achieving victory. Putting up high capital, time, energy and unbridled passion is common but the question, does it justify misconduct, racism, trickery, corruption and the like? Where is the limit? What is the meaning of victory if there is absolute disregard for integrity and dignity?

Fact: the highly dynamic ecosystem of football, one of the most popular sports in the world, is fueled by relentless global demand thanks to its hundreds of millions of fans. This age-old industry is worth tens of billions of dollars. Because of the high expectations, there is mounting pressure on the players, coaches and the whole team to attain championship glory. But to remain competitive, all team members must learn to balance this high pressure with utter professionalism, credibility and integrity.

To put this all into context, there may be a lesson or two we can learn from the role of the parent body of the world of football, namely FIFA (International Federation of Football Association). Since its inception in 1904 until now, FIFA has a membership of 211 members worldwide. In 2018, its revenue reached the ballpark of US\$4.6 billion with a net profit of US\$1.2 billion and cash reserves of US\$2.7 billion by the end of 2018.

It goes without saying that administering a prestigious world-class body that is over a hundred years old is not a walk in the park. FIFA's success in maintaining the status of football as the world's most popular sport is certainly more challenging with the changing demographics of the world's population, rapid technological advancement and various other challenges.

Standing proud in the eyes of the world

Under the administration of President Gianni Infantino, who was appointed in 2016, FIFA became even more successful. Now, the game of football is no longer only concentrated in a few regions such as Europe and Latin America but also beyond the growing Asian region. FIFA is also at the forefront of its initiatives to utilise all modern technologies to innovate the sport, with key efforts in high definition live broadcasting, Video Assistant Referees (VAR), Goal-line Technology, Virtual Offside Line, Electronic Performance and Tracking System and other innovative offerings.

With success comes great challenges. FIFA is not untouched by controversy. In 2015 some of its top leaders were linked to corruption, bribery, vote fraud involving the appointment of FIFA president Sepp Blatter and the awarding of the 2018 and 2022 FIFA World Cup Russia events to Russia and Qatar respectively. Eventually many of its top officials were suspended by FIFA's ethics committee including FIFA President Sepp Blatter and UEFA President Michel Platini for unethical offenses and were banned from engaging in the sport until 2023.

But under the new administration of President Gianni Infantino, the football governing body rose up to the challenge by overhauling and streamlining the administration of the body by inculcating high values of integrity. As a result the 2018 FIFA World Cup Russia which is FIFA's flagship product achieved impressive heights of success, attracting the largest number of spectators in its history of 4 billion spectators with revenue of USD6 billion, up from USD4 billion previously. Now, the thrill of the FIFA World Cup Qatar 2022 which will take place in Qatar next year has begun to rally up global excitement and will once again be the focus of its legions of fans despite the challenges of the global COVID19 pandemic.

The integrity of the President of FIFA is evident from his infamous words:

“ This organisation went from being toxic, almost criminal to what it should be - an organisation that cares about football. We have transformed it into a new FIFA - an organisation which is synonymous with credibility, trust, integrity, equality, human rights

Gianni Infantino, June 2019

”

The association's far-sighted goals can be seen in its FIFA 2020-2023 Vision Report titled **Making Football Truly Global**. One of its core values include Football Governance – The principles of good governance, in particular transparency and integrity, are the heart of FIFA's mission to protect the game of football and all its stakeholders globally. All matters related to players' status, transfers, professional football, intermediaries, as well as disciplinary and ethics constitute the core of this area.

The application of high value of integrity to balance the fierce competition is a very important ingredient and has proven to successfully remove the body from the turmoil it faces, resulting in great success. This teaches us that professionalism and integrity must be maintained no matter how high the stakes or how fierce competition is so that the victory achieved will be more meaningful, dignified and will be remembered in the pages of history.

When integrity meets inclusivity

Another lesson that we can take home from FIFA's role and experience as a major football governing body is the success of creating an ecosystem that is precise, conducive and excellent. With its cumulative experience and capabilities, FIFA has succeeded in producing a great impact due to its conduciveness and inclusivity which involved all parties without exception or discrimination. The involvement and role of all industry components such as team management, competition governance, financial management, training and development, event management, player welfare, sports education and development, development and use of technology, support community involvement and more have played their respective roles, reinforcing its stature as a global force to be reckoned with, and as a favorite sport for people all over the world which has also spawned a variety of new innovations that provide widespread benefits.

It goes without saying that any country in the world regardless of whether they are in the northern or southern hemisphere, poor or rich, has the same chance to excel in the sport of football if they work hard to develop themselves with the right formula. Anyone can claim the title of football world champion - it is considered fair game for all with no bias or discrimination as to the team's origins. Monopoly is also limited so that wealthy football clubs cannot monopolise everything with the power of money as it will only damage the industry in the long run.

Today, we witness the improvement in the performance of countries that used to lag behind in the trenches of the football industry. Countries such as Japan, South Korea, China, Tunisia, Turkey and Australia that have not previously been known for football are now able to compete at a higher level as a result of adaptation to professionalism and integrity, leading to each of their success as a global football force. A well-established and fertile ecosystem produces quality football and is capable of generating huge profits.

Shine bright like a diamond

Any player who achieves professional status is looked upon favorably due to his ability and credibility to perform the task entrusted to him as long as it commensurates with the training offered. Players do realise that they need to perform to the best of their ability while complying with every rule, standard and ethics. They will not arbitrarily break any rules as it can damage his credibility and professionalism. Here, we bear witness to the quality of performance and how it is driven by strong integrity which is undeniably an important component of professionalism.

And when it comes to coaches and team leaders, a professional and credible individual will always set himself an example when implementing everything from the ground up. He will strive to be an exemplary coach: held in high esteem by each of his men and respected by his opponents. He conveys his hopes and goals clearly and vividly and considers himself the shining beacon of light that will guide them in the march towards victory. His core focus as a coach will always be on the ability and wellbeing of each of his players. The welfare and safety of his men will not be compromised as he will defend the team, leading towards the referee and opponents regarding him with great respect because they know he is an honest and trustworthy person.

With these scenarios clarifying the link between high competitiveness and the value of integrity and its importance as one of the components in a conducive and excellent industrial ecosystem that is capable of bringing success at the highest level, there really should not be questions about whether there is a place for integrity to co-exist with competitiveness, in or out of sports.

There is much that other industries can learn from FIFA's impeccable management of the world-class football industry. Football's competitive nature would always demand that each of its players be at their best by building on a foundation of integrity, self-confidence and focus to realise their goals. It also teaches the importance of teamwork -- indeed, a cohesive team will be more equipped to weather great challenges as opposed to banking on an individual's strengths. As world football legend Pele famously said: **I'm constantly being asked about individuals. The only way to win is as a team. Football is not about one or two or three star players.**

In the borderless world of competitive footballs, local companies, policymakers and the rest of the local industry players need to constantly think of the latest formulas to further enhance the competitiveness of our industry. Indeed, strengthening the value of integrity among all stakeholders is one of the winning formulas that will strengthen our country's industries and propel it towards excellence.

REALISING MALAYSIA'S ASPIRATIONS

The futures we desire based on selected National Policies

DASAR ALAM SEKITAR NEGARA

Environmentally sound and sustainable development nation

DASAR HARTA INTELEK NEGARA

Intellectual competitive nation

NATIONAL POLICY ON CLIMATE CHANGE

Climate resilient development nation

DASAR KOMODITI NEGARA

Hub komoditi dunia

NATIONAL POLICY ON SCIENCE, TECHNOLOGY & INNOVATION (NPSTI)

Competitive and competent Nation built upon strong STI foundations

DASAR KEBERSIHAN NEGARA

Circular economy nation

DASAR KEUSAHAWANAN NASIONAL 2030

Malaysia as a leading entrepreneurial nation by 2030

INDUSTRY4WRD: NATIONAL POLICY ON INDUSTRY 4.0

Transitioning Malaysia's industries towards Industry 4.0

NATIONAL INTERNET OF THINGS (IOT) STRATEGIC ROADMAP

Malaysia to be the Premier Regional IoT Development Hub

MALAYSIA'S ROADMAP TOWARDS ZERO SINGLE-USE PLASTICS 2018-2030

Towards zero single-use plastics for a cleaner and healthier environment in Malaysia by 2030

PHARMACY PROGRAMME STRATEGIC PLAN 2017 TO 2020

Enhancing the nation's health through excellence in the practice of pharmacy

NATIONAL DEFENCE POLICY

Protect and defend national interests

MALAYSIAN AEROSPACE INDUSTRY BLUEPRINT 2030

No. 1 aerospace nation in the SEA and as an integral part of the global market by 2030

SHARED PROSPERITY VISION 2030

A decent standard of living to all Malaysians by 2030

NATIONAL TRANSPORT POLICY

To develop a sustainable transport sector that accelerates economic growth and supports the well-being of the rakyat in line with an advanced nation status

NATIONAL TRANSPORT POLICY 2030

Developing a sustainable transport sector that accelerates economic growth and supports the well-being of the rakyat in line with an advanced nation status

COMMUNICATIONS & MULTIMEDIA BLUEPRINT

Connected, informed and digital nation

NATIONAL SECURITY POLICY

To protect and defend national interests which form the foundations of Malaysia's sovereignty, territorial integrity and economic prosperity.

Based on these aspirations immediate actions need to be taken to materialise the future we desired

ACTION 1

Enhance Competitiveness

ACTION 2

Enhance Capabilities

ACTION 3

Enhance Connectedness

ACTION 4

Enhance Government's Role as Catalyst

ACTION 1

ENHANCE COMPETITIVENESS

In the era of The Fourth Industrial Revolution, all spheres of business and production have been undergoing some crucial changes that have a strong impact on human life. These disruptive transformations remodel the attitudes and perceptions of modern consumers, who, in turn, create challenges for all industries with their growing demands. As the manufacturing industry is one of the biggest and most important ones in every country, it should comply with the world standard and meet the customers' requirements. Let's find out what are the challenges and changes Malaysia needs to face in order to attain global recognition.

CASE FOR CHANGE 1

Expanding diversity to a broader set of increasingly complex industries

The global outlook provides perspectives on elements that could shape the future competitiveness of Malaysia. The need to expand the nation's economic capability to produce more complex products has been frequently highlighted in multiple reports. Malaysia is currently ranked 26th in the Global Economic Complexity Index (ECI) which is not too distant from most of the URQ group members. However, this can be further improved by addressing the challenges as follows:

- **Malaysia strives to break the middle-income trap to emerge as a high-income nation**

For Malaysia to attain developed nation status, beating the middle-income trap phenomena is imperative even if this is historically rare. This phenomenon happens when a country's growth slows down after its GDP per capita reaches middle-income levels, making the transition to high-income levels difficult or unattainable. Despite the challenges, the 'Asian Tigers' i.e., South Korea, Hong Kong, Singapore and Taiwan have successfully risen up.

- **Malaysia's export earnings are highly dependent on commodity products that are vulnerable to price uncertainty**

Despite Malaysia's export value having increased by 15-fold in 2018 compared to 1989, there was no significant change in Malaysia's product concentration. The recent COVID19 outbreak saw a marked decline in commodity prices due to falling global demand with Brent crude oil prices decreasing by almost 50 per cent since the start of 2020. This was largely due to an unprecedented decline in transport and travel activities, which account for approximately two-thirds of global oil consumption.

Hence, it is crucial to focus on products that are more resilient against market shocks i.e. pandemic outbreak and global financial crises. This would mean an urgent move towards diversification of Malaysia's economy beyond commodities and low value-added products & services. One avenue is through the increasing machineries production and the contribution of telecommunication in sub-sectors such as aerospace manufacturing, optical and medical devices to intensify higher value-added activities.



- **Malaysia's manufacturing sector value added is at a high or medium risk of facing higher competitive pressures**

The World Bank projects that 37.5% of total MVA and 46.1 % of DVA embodied in Malaysia's gross manufacturing exports for high- and medium-skill global innovator sub-sectors are highly exposed to current globalisation and technology trends. This suggests that the higher the exposure to future sources of competitive pressures, the more our Government and industries need to invest more on better technologies, skills, infrastructures and other areas just to retain Malaysia's existing shares, as well as to successfully enter new markets.

- **Malaysia's economic complexity lags behind advanced and fast-growing peers, while others are fast catching up**

Looking at the movements in the Economic Complexity Index (ECI) from 2006 to 2016, regional countries such as Korea, Singapore, China and Thailand have accomplished greater complexity gains than Malaysia's improvement of +0.21 within this period of time. This indicates that these countries experienced more substantial diversification in their product mix or have ventured faster into highly complex products. The improvement in Malaysia's ECI is relatively slower as the export mix diversified by a smaller extent and the entry into new products has yet to materialise significantly. As of 2017, Malaysia ranked 28th place for the most complex economy in the world and was driven by the machinery and electronics cluster, as well as the complex chemical, plastic and rubber products.

- **Broadening of Economic Complexity will help sustain economic growth and raise the income level**

In the 1960s, South Korea, Malaysia and Ghana shared an almost similar economic status. However, these

changed five decades later where South Korea's GDP per capita has increased around 25-fold, Malaysia's around 8-fold and Ghana's about 2-fold. Unlike other countries that have undergone a massive increase in economic complexity, Malaysia still lags behind our counterparts and need to ramp up efforts to sustain our economic growth and raise their levels of income per capita to be at par with other Asian Tigers in the region.

CASE FOR CHANGE 2

Building a higher level of self-sufficiency as a strong base for faster rebound

The unprecedented COVID19 pandemic unveiled vulnerabilities of the current system, especially the possible risks of disruption to supply of foods and medicine. This calls for a more concerted effort to improve the nation's resilience should a similar occurrence happen in the future. Issues and challenges associated with this effort are as follows:

- Although Malaysia's food exports have grown faster (from RM22.1 billion in 2013 to RM34.1 billion in 2019), with a compounded annual growth rate of 7.5%, the country is still a net importer of foods. Malaysia has yet to achieve self-sufficiency or food security in an era of land scarcity, climate change and rising consumption due increasing population, it is necessary to explore new and emerging agricultural technology and incorporate digitalisation to increase productivity, yield and quality.
- Malaysia's reliance on the import of medical supplies exposes it to risks of potential shortages. In 2018, Malaysia imported approximately USD2.4bn (RM9.5bn) worth of medical supplies including face masks, disinfectants and medical devices used to diagnose and treat patients. This high dependency on imports of medical supplies exposes us to risks of acute shortage in supplies especially if procured from only a few countries.

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CASE FOR CHANGE 3

Balanced growth through inclusiveness and sustainability

Decades of aggressive growth strategies have left the environment degraded and society unequal. Companies cannot thrive in a failing and declining society. Hence for businesses to be sustainable, growth plans must include inclusiveness and sustainability as key elements of societal development. Among the challenges associated with inclusiveness and sustainability are as follows:

- **Disparity of rural and urban wealth distribution:**

Concentration of development projects in urban areas and the uneven distribution of economic opportunities have resulted in the widening of urban-rural economic disparity. A more equitable income distribution can only be achieved through more inclusive development planning nationwide with a more even distribution of infrastructures and services i.e., internet and transportation, access to education and infrastructural necessities.

- **Social well-being is lagging behind economic well-being:**

The Malaysia Well-Being Index is an overview of the people's well-being comprising 14 components covering both economic well-being sub-composite and social well-being sub-composite. We were doing relatively well with 100 points in 2000 and improved to 122.4 points in 2018, however yet over the course of 18 years, progress has been slow in areas pertaining to the family (e.g. juvenile crimes and household debt), environment (e.g. water and air qualities and forest coverage) and health (e.g. life expectancy and medical care quality) sub-composites. The OECD Economic Survey 2019 pointed out that Malaysia needs to focus on productivity growth with structural reforms to move up the value chain and improve skills to be able to attain high-income country status by 2024.

- **Inequality and poverty have fallen, but Malaysia remains more unequal compared to most peers:**

Malaysia's Gini coefficient has been decreasing over the period 1981–2017, even as GNI per capita increased. Over the same period, Malaysia reduced income poverty to just 2.7 percent based on the World Bank's upper-middle income poverty line of US\$5.50 per person per day. Even so, inequality is still higher in Malaysia than among most of its aspirational peers. Successful high-income countries not only raise average incomes, but also the minimum basic standard of living that every citizen can expect to achieve. They also provide higher levels of economic security and reduced vulnerability, so that households are not at risk of falling into poverty because of illness, job loss, death of a breadwinner, natural disaster or other shocks.

- **Reduce environmental impact and realise Malaysia target carbon emission:**

Malaysia is facing growing pressure from citizens and regulators to address environmental challenges linked to industrial production, including unsustainable use of natural resources and energy, growing waste and pollution issues as well as GHG emissions. Under the Paris Agreement, Malaysia has pledged to reduce GHG emissions intensity to GDP relative to the 2005 level by 45% by 2030. For this to be achieved, Malaysia's economic development path needs to become less carbon-intensive. Yet, fragmentation and lack of coordination of environmental policy governance generate gaps between planning and implementation. To address this problem, the government established the Ministry of Energy, Science, Technology, Environment and Climate Change in 2018 by integrating functions across ministries related to energy, environment, climate change and green technology. This ministry was disbanded under the new government administration in early 2020 to three different ministries respectively.

“

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ACTION 2

ENHANCE CAPABILITIES

Various sources suggesting the following issues and challenges that will become barriers to the future of the Malaysian industrial capabilities. Addressing these hurdles via concerted planning and effective implementation is important in ensuring Malaysia to be in the Right Upper Quadrant.

Shortage of required talent with high skills and knowledge intensive workers

Low technology adoption and innovation outputs at increased risk of being disrupted by the Fourth Industrial Revolution

Low outputs of innovation from R&D activities to support the advancement of local products and services



For the sources behind this infographic, please visit: www.myforesight.my
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CASE FOR CHANGE 1

Shortage of required talent with high skills and knowledge intensive workers



1 Malaysia remains slightly behind the median country in terms of human capital performance.

Malaysia ranked **55th** out of 157 countries

in the World Bank Human Capital Index 2017, indicating that Malaysia invests more in its population's health and education than its competitors.

GDP INDEX

Yet, Malaysia's score on the index is lower than what would be expected given its level of GDP per capita.

In business sophistication, Malaysia ranked

36th out of 129

economies and outperforms its ASEAN competitors (except the Philippines) in the Global Innovation Index (GII) 2019 but is largely lagging behind China and high-income comparators.

Solution:

Improved education system for Malaysian to be included in the upper right quadrant club.



2 Malaysia lags in high skilled jobs in occupations with "knowledge generation and application" activities.

To sustain increases in the country's productivity, Malaysia will need to rely on

technology-intensive rather than **labour-intensive** production methods.

Malaysia lacks strength Artificial Intelligence compared with other frontier skills that its workforce possesses.

AI, Cyber Security and Human-Computer Interaction

skills are also growing in Malaysia, but at a significantly lower rate than other consumer-facing less-sophisticated tech skills, such as graphic design, web development and social media.



3 Talent mismatch among Malaysian young graduates.

TALENT ≠ JOBS

Despite possessing a high level of education, employees had to settle for jobs that typically do not require such education levels.

95% of young workers in unskilled jobs and **50%** of those in low-skilled manual jobs are over-qualified for these occupations, suggesting that employees had to settle for jobs that typically do not require such education levels

If narrowing income premium continues, increase of 'brain drain' and outflow of talents would occur



4 Entrenched dependence on foreign workers for low-skilled jobs.

In 2017, the total outward remittances amounted to

RM35.3 billion

the bulk of which was accounted for by foreign workers.



This distorts wage levels as these workers usually take on low-skilled jobs at a cheaper pay compared with the locals.

Employing foreign labour may be cheaper but it weakens the incentive for companies to substitute labour with technology



5 Around half of all jobs in Malaysia are at risk of being replaced or reshaped by automation.

Approximately

7 million jobs

in Malaysia are at risk

High risk

Jobs in accommodation and food services

Jobs in the **high-risk category** involve routine tasks that could be quickly and easily automated

Low risk

Human health and social work

CASE FOR CHANGE 2

Low technology adoption and innovation outputs at increased risk of being disrupted by the Fourth Industrial Revolution



Malaysian automation proxied by industrial robots installed is below the global average



Digital divide hinders access to vast opportunities in the virtual world



Low adoption rate of digital technologies among local businesses especially SMEs



Malaysia's service sector is highly dependent on foreign service providers.



The economy is still highly dependent on, and driven by factor inputs, especially non-ICT capital accumulation.



Most Malaysian industries have lower capital intensity (higher labour intensity) and lower labour income shares.

Key points that we should all be aware of:

- Analysis of the wage to productivity ratio shows that Malaysian workers are still being paid less than workers in benchmark economies. This suggests that Malaysia's current wage productivity levels are misaligned. While workers in benchmark economies may produce higher output in a given time due to better technology (and hence earn a higher wage), holding the value of output constant would have controlled for this technological effect.
- Through the SPV 2030, the government of Malaysia targets to increase compensation of employees (CE) to GDP by 48%, which is equivalent to the current high-income countries.
- Despite intensification of public investment and initiatives aiming to boost productivity, Malaysia's productivity levels remain weak and the economy is still highly dependent on and driven by factor inputs, especially non-ICT capital accumulation mainly on residential and non-residential buildings.
- Between 2014-2018, Malaysia's total export of services amounted to USD 189.9 billion and total imports for multiple service sectors were valued at USD 212.65 billion. This indicates that Malaysia should consider strengthening its local capability of these services and reduce its dependence on other countries.
- Malaysia is far behind OECD countries in terms of digital adoption index. On the SME end, technology adoption remains low and utilisation of computers is limited to administrative matters. One of the keys elements to accomplish the Shared Prosperity Vision 2030 lies in the restructuring of the business and industry ecosystem in Malaysia to enable SMEs and micro-businesses to contribute 50% of the country's GDP by 2030. This is achieved through creating approximately 30% high technology companies from the total SMEs pool in manufacturing and services subsectors. This poses a threat to present SMEs businesses in Malaysia if they do not embrace digitalisations to scale their businesses.

CASE FOR CHANGE 3

Low outputs of innovation from R&D activities to support the advancement of local products and services

In order to bridge the gap between R&D activities and measurable progress in the local products and services sector, the challenges Malaysia is currently facing include:

- The industry is not sufficiently translating innovation inputs (e.g., R&D) into innovation outputs.
- Malaysia is unable to capitalise on its innovative capacity, which led to gaps appearing between Malaysia and newly industrialised countries.
- The long-term trend shows that patent applications by non-residents have grown every year since 2007 but there is a marked decline for patent applications by residents. 2000 to 2017, mainly due to foreign firms' participation in the Malaysia economy. As such, any shocks to economic activities involving foreign firms will deter patenting trends. The slow growth also indicates that the current home-grown (endogenous) innovative capabilities are still weak and require a better policy intervention to accelerate the innovative capabilities in Malaysia.

ACTION 3**ENHANCE****CONNECTEDNESS**

Connectedness is critical for Malaysia to become an attractive destination for investment and to enable efficient cross-border trade. It is also important for Malaysia to be connected to the global market through its presence in the global supply chain. However, the current state of low connectedness might have contributed to the following issues and challenges:

Malaysia's share of FDI among the ASEAN countries shows a decline over time indicating that the country is losing its competitive advantage when compared to Vietnam, Thailand and Indonesia that boast of a growing share of FDI inflow.

The inflow of Malaysia's FDI in ASEAN has shown a gradual decline from 10% in 2013 to 5% in 2018 while FDI inflows to countries such as Vietnam, Thailand and Indonesia are increasing and quickly catching up. In 2018, rising tensions between the United States and China made a positive impact on ASEAN due to trade diversion caused by the reconfiguration of global supply chains triggered by the tension. Data provided by the Malaysian Investment Development Authority showed that total approved FDI increased by 48% to RM80.5 billion in 2018 from RM54.4 billion in 2017.

For Malaysia, the pace of increase pales in comparison to the investment flows entering Vietnam and Indonesia. The UOB Global Economics & Markets Research pointed out that Vietnam's success in attracting FDI was contributed by education reforms with emphasis on mathematics, science and technology under the Doi Moi policy which placed Vietnamese students at par with developed countries like Japan and South Korea. Moreover, Vietnam is able to leverage on a large labour force and low wages, similar to China 20 to 30 years ago. In addition to a large supply of high-quality labour, Vietnam has the advantage of competitive wages alongside high productivity, a business-friendly economic environment, growing domestic demand with an expanding middle class, as well as diversity of export markets and tax incentives. It was added that Malaysia may also be more selective in the type of FDI as the country is not keen on low value-added, labour-intensive and polluting industries. In sum, Malaysia will have to strengthen its talent pool capabilities, which will indirectly intensify innovation and increase the country's productivity.

Malaysia's share in world exports has remained constant since 2008, whereas countries such as Vietnam, Indonesia, and Thailand have slowly expanded their world export share.

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Since 2008, Malaysia's share in world exports has remained constant whereas her neighbouring countries' export performance has positively grown. A comparison of Compound Annual Growth Rate (2006-2018) among neighbouring countries shows Vietnam is emerging as a rising star in exports, followed by Thailand and Indonesia. This warrants concern as Malaysia is facing steep competition from its neighbours.

Malaysia's value-added in gross export is lower compared to countries such as Japan, Indonesia and Thailand, although it has improved over the years.

From 2005 to 2016 Malaysia's value-added in gross export is lower compared to neighbouring countries namely Japan, Indonesia and Thailand. This shows that Malaysia is facing challenges in terms of value-added in gross export as compared to her neighbouring countries. The SPV 2030 document pointed out that Malaysia has yet to capitalise its full potential to become an ASEAN hub and achieve its goal of becoming an Asian Tiger. This may be possible with the shift of global consumption towards the Asian region by 2030. Hence, it is important for Malaysia to strengthen itself in the 3Cs space to be counted amongst the ranks of other Asian Tigers.

Despite higher export value in totality in the past two decades, further breakdown of the export market structure reveals a rise in re-export share.

The contribution of Malaysian re-exports of trade goods registered a significant increase in 2018. Re-exports increased from 5.6% in 2010 to 20% in 2018 and focused more on E&E products and refined petroleum products. Re-exports of E&E products and refined petroleum products accounted for 47.7% and 22.3% of total re-exports in 2019. Re-exports for the period January to April 2020 increased by 9.4% compared to the same period last year. Increased re-exports of refined petroleum products and E&E products were RM3.5 billion and RM0.8 billion respectively. The structural shift may have been caused by the expansion of e-commerce activities and regional distribution hubs mainly facilitated by air cargo activities. One of the downsides of re-export is its low value-added contribution to the economy since it increases the domination of low-skilled jobs.

Low number of local companies especially from SMEs participating at national-level export.

While SMEs represent the vast majority of firms and account for half of manufacturing employment, large firms drive MVA and even more exports. Unsurprisingly, the latest census shows that SMEs' contribution to employment and the total number of firms in the manufacturing sector far outweigh their share of gross output and MVA. However, there is a wide variation across products, with SME's share of MVA ranging from 76% (furniture) to 3% (coke and refined petroleum products). According to the most recent figures, SMEs contributed about 34.4% of Malaysia's MVA in 2018, but only about 8.4% of its total manufactured exports (DOSM 2019).

Most of Malaysia exports are driven by MNCs, with 73% of the export-oriented projects approved by MIDA in 2018 originated from foreign investments.

Malaysia is known as an export-oriented economy, yet looking at breakdown of export market structure from 2014 to 2018 as exhibited in Figure 42, a big share of Malaysia's export is dominated by foreign investments driven by multinational companies, with only around one-third by Malaysia firms. For Malaysia to become a high-income country it is crucial for Malaysian firms to increase its capabilities in national-level export. Presently, this is more pressing due to the pandemic outbreak that has disrupted, and also may have indirectly rerouted a number of supply chains. Adoption of Industry 4.0 technologies is an opportunity for local firms to restart their businesses post-pandemic and penetration of Malaysian brands and intellectual properties into ASEAN, Asian and global markets as one of the strategies outlined to achieve Shared Prosperity Vision 2030.

Malaysia's relatively low connectedness is a significant weakness, especially to the extent it is competing with other Asian countries for space in GVCs.

A key element in determining a country's competitiveness, especially within the export-oriented space is its level of connectivity. According to the World Bank LPI 2016, Malaysia ranked at number 32 and had the highest LPI score after Singapore in the Southeast Asian region whereas Malaysia ranked 41st out of 160 countries in the LPI 2018, behind most regional competitors with the exception of Indonesia and the Philippines. According to the LPI scores of 2018, Thailand and Vietnam have overtaken Malaysia in logistics performance. This turn of event puts Malaysia behind fiercer competition with its regional neighbours for a space in the GVCs.

LPI is the weighted average of the country scores on six key dimensions as shown in table below. From 2014 to 2018, Malaysia's overall logistic performance has been declining gradually, from 25th place in 2014 to 32nd place in 2016 and later to 41st place in 2018.

DIMENSIONS	RANKING		
	2014	2016	2018
Customs and border clearance efficiency	27	40	43
Trade and transport infrastructure quality	26	33	40
Competitively priced international shipments	10	32	32
Logistics quality and competence	32	35	36
Tracking and tracing consignments	23	36	47
Shipments timeliness	31	47	53

Malaysia's ranking is particularly low on some of LPI components, including "tracking and tracing" (47th) and "timeliness" (53rd). A low LPI is due to high logistics costs and unreliable supply chains that reduce a nation's competitiveness. It is said that countries that cannot provide the conditions for developing a predictable and reliable supply chain will become increasingly disconnected from world markets where networked production models are common. Malaysia's position is at stake since Malaysia is deeply embedded in the global value chain. Hence, a Logistics and Trade Facilitation Masterplan must be rolled out to transform the logistics and trade facilitation sectors and improve Malaysia's LPI ranking to the top 20 positions by 2030.

ACTION 4

ENHANCE GOVERNMENT'S ROLE AS A CATALYST



The government's role shall not be limited to coordination and facilitation activities, but also enabling industry growth through support such as financial facilities, infrastructure, regulatory, talent and technology development. In certain strategic new areas, the Government could kick-start the development by venturing together with qualified private companies to explore the potential behind developing a new industry. However, there are number of issues and challenges that need to be addressed, including:

CASE FOR CHANGE 1

Effective Policy Implementation (Industry4Wrd)

Malaysia should continue pushing for business regulation and governance reforms

The World Bank World Governance Indicators 2018 revealed that Malaysia has room for improvement on major dimensions of governance, such as the rule of law, government effectiveness and corruption, which would help put its business environment on par with that of high-income competitors. It ranks far lower on other important aspects, such as starting a business (126th), paying taxes (80th), trading across borders (49th), resolving insolvency (40th), and enforcing contracts (35th).

Malaysia has significantly improved its business regulations in recent years, as reflected in its improved ranking in World Bank's Ease of Doing Business. We were placed in 12th position amongst 190 economies worldwide with a score of 81.5 in 2020, a further improvement from the 15th place in 2019. Additionally, Malaysia is among the world's best performers on some dimensions, such as dealing with construction permits (2nd) and getting electricity (4th) despite ranking lower on other aspects. These are all areas where Singapore, the best regional performer and world's second highest-ranked country, is far ahead, giving a sense of the magnitude of the effort needed for Malaysia to reach the frontier. The increased complexity of markets requires a rules-based order and neutral contract enforcement to function efficiently. Where institutions do not facilitate this type of environment, corruption can distort firm-level decision making, leading to reduced investment and output (Olken and Pande (2012)). Corruption also has potentially adverse consequences for the provision of public goods and services and can trigger costly externalities.

CASE FOR CHANGE 2

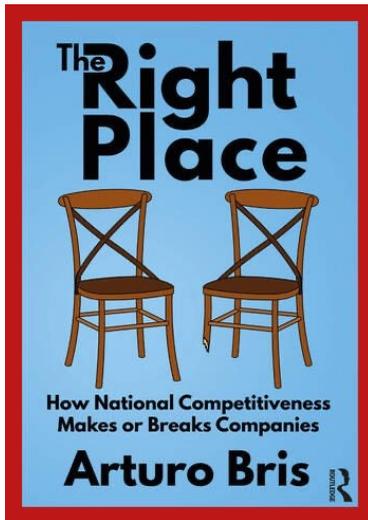
Increase accountability & Transparency (NACP)

Strengthen the quality of infrastructure and backbone services, thus improving Malaysia's business environment

Overall, Malaysia possesses a good infrastructure base in terms of transport, electricity and water and sanitation. This provides a better level of services than most Low Middle-Income Countries (LMICs) in Asia despite some weaknesses, such as the rural road network and urban sewerage facilities (World Bank 2017). However, a closer look reveals that shortcomings in terms of ICT and trade-related infrastructure (e.g., ports, railroads, roads) is holding us back from competing with other OECD countries, other high-income comparators and China. This is illustrated by the evolution of the number of fixed broadband connections per capita and the perceived quality of trade and transport infrastructure, which have both decreased in Malaysia recently, at a time when countries such as China and Vietnam were quickly catching up. Other evidence suggests there is also room for progress on the side of the financial services, such as Malaysia's relatively low ranking in the Global Innovation Index 2019 on indicators related to access to credit (45th) and venture capital markets (48th).

Malaysia recognises the need to invest in and improve the transport and ICT infrastructure base, as well as to enhance the efficiency of enabling services, such as finance, logistics and ICT in order to facilitate linkages between service providers and manufacturing firms. There is a need to liberalise heavily regulated and state-led financial, telecommunication and transport service sectors and to open them up to the domestic and foreign competition.

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Author: Arturo Bris
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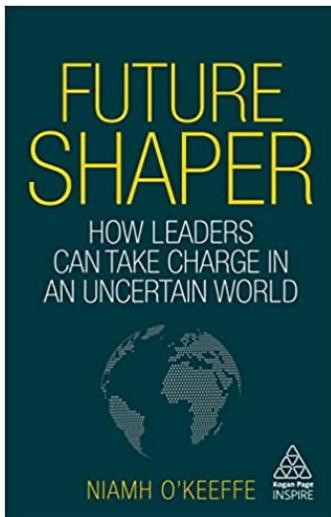
The Right Place

How National Competitiveness Makes or Breaks Companies

The Right Place explains why firms succeed in one country and fail in another, irrespective of their inner drivers, and suggests potential initiatives that governments can take to help the private sector create jobs and, consequently, make their countries more prosperous.

The competitiveness race is not unlike a cycling race. If you want to ride fast, you need three things: a good bike, to be in good shape, and a smooth and fast road. In a collaborative model, you might say the business is the bicycle, the business leader is the cyclist, and the road is the government and the external environment. The responsibility of a government is to design and build the best possible road. It turns out that when the road is good, good cyclists suddenly appear and want to race on it. In this book, competition and macroeconomics expert, Arturo Bris, provides the analysis of country competitive performance based on 30 years advising countries on this topic. The typical mistakes that countries make are revealed and the pillars necessary in building a competitive economy: economic performance as a necessary condition for prosperity; government efficiency, so the public sector can create the conditions for a productive economy; business efficiency, so companies can create jobs; and infrastructure, both tangible and intangible, so businesses and individuals can operate efficiently.

With contemporary case studies throughout, the book provides an illuminating read for politicians, business leaders and students of macroeconomics.



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Future Shaper

How Leaders Can Take Charge in an Uncertain World (Kogan Page Inspire)

We live in a world of continuous uncertainty and on the brink of a massive digital and AI-powered shift. What should leaders do?

The answer is not to shy away from inevitable changes and more uncertainty, but to have the courage to face it.

Leaders need to take charge by embracing new technologies and ideas and converting these into opportunities for leadership innovation. The best ways for leaders to predict the future is to help create the future.

Future Shaper is about giving back a sense of control. It's about empowering leaders to take charge and shape the future. **Niamh O'Keeffe** asks leaders to re-calibrate their leadership skills to include imagination and courage, to embrace innovation and drive growth and create a better future.

Future Shaper helps readers to:

- Embrace new digital technologies, understand AI and equip themselves for those not-yet-invented challenges
- Gain insights from today's successful leaders
- Make an impact and feel more in control using an easy-to-understand leadership framework

Map the future

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

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