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FUTURE-PROOFING WORKFORCE: HIGH-SKILLED TALENT DEVELOPMENT STRATEGIES

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Abstract: The rapid evolution of technology has necessitated a proactive response to future-proof the workforce. Despite being the driver of national digital economy, a concerted effort to collectively engage and report the voice of C-suite in future-proofing workforce has not been conducted. This paper synthesizes insights from the Malaysia Board of Technologists' forum, "Future-Proofing the Workforce: High-Skilled Talent Development Strategies." The imperative arises from the pressing need for nations and industries to adapt to the evolving technological landscape and ensure the readiness of their human capital. This paper advocates for strategic interventions, including identifying and quantifying current skill gaps, fostering collaboration between educational institutions and tech industries, coordinating competency development initiatives, formulating policies to attract and retain talent, promoting diversity, and implementing mechanisms to measure competency development. A strong emphasis is placed on the necessity of collaborative initiatives to shape Malaysia's future economy by cultivating a resilient, high-skilled workforce capable of propelling innovation, economic growth, and sustainable development in the digital era. These insights are designed to guide stakeholders in their endeavors to ensure the resilience and preparedness of Malaysia's workforce in the face of evolving technological and economic landscapes.

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1. Introduction

The rapid advancement of technology in recent years has brought about transformative changes in various industries, revolutionising how we live, work, and interact. As emerging technologies continue to shape the global landscape, it has become increasingly crucial for nations and industries to adapt and future-proof their human capital to stay competitive in the digital age.

Taking the lead in recognition of this pressing need, the Malaysia Board of Technologists (MBOT) organised an inaugural forum entitled, "Future-Proofing the Workforce: High-Skilled Talent Development Strategies" (henceforth denoted by MBOT forum) held on 6th June 2023. The MBOT forum was attended by 42 C-suite representatives from 24 government, universities and industries to collectively highlight and identify areas that require the attention of the industrial community and explore how industry participation can play a vital role in nurturing a highly skilled workforce that can thrive in the ever-evolving technological landscape.

The attendees not only highlighted the current trends and demands in the tech industry but also emphasised the importance of proactive measures to bridge the existing skills gap and prepare the workforce for the jobs of tomorrow. According to the Current Workforce Composition by the Department of Statistics Malaysia (2023) [1], most of our talent is semi-skilled, which comprises 62.3 percent, while high-skilled talent is only 24.9 percent. The country needs at least 35 percent of high-skilled workers in the labour workforce by 2030 to be considered as a developed nation.

Efforts towards this goal of becoming a high-skilled nation is championed by the Ministry of Science, Technology and Innovation (MOSTI), through the National Science, Technology, and Innovation Policy (NSTIP) 2021-2030 [2], and is based on several core pillars that include adaptive STI talent, leading STEM education, the expansion of STI talent participation, and the increase of demand for STI talent, especially crucial in light of global economic changes and rapid technological advancements that is vital for the growth of industrial sectors towards a sustainable economic development [3]. In addition, it is estimated that 70 percent of the targets by the United Nations (2023) in Sustainable Development Goals (SDGs) can be achieved using technology applications [4]. Therefore, talents in technology are considered high-skilled talents and are the backbone of all economies. Across all industries, we require technological talent before we can create any technology or services. Failure to secure this will result in shortages across many vital industries, ultimately impeding our ability to remain competitive and productive.

The World Bank (2023) highlights the current state of skills in Malaysia that is outlined based on the education outcomes of the country, skills in the labour force, wages, demand for skills, workplace training and skills gaps. The importance of productivity growth and innovation have been identified as primary drivers of higher living standards and are key to generating quality jobs, increasing incomes and reducing poverty. While the country has progressed in its access to education, learning outcomes are below potential as ironically, a growing educated workforce is becoming more apparent. Yet, most Malaysians are in semi-skilled jobs and the share of high skilled labour falls short when compared to other aspiring countries. Skills-related underemployment among youths have increased over the years, and wage growth for semi-skilled and tertiary educated workers have slowed.

The World Bank suggests that for Malaysia to reach the same level as that of the average OECD country, Malaysia needs to create 2 million additional high-skilled jobs [5]. In comparison, Singapore aims to have 1.2 million digitally skilled workers by 2025, a 55 percent jump from their present 2.2 million. The current national skill gap in Malaysia is the result of several issues such as:

i) Poor alignment of education programs to the digital age skill sets demands
ii) Increasing number of talents leaving the country
iii) Slow collaborations between government, industry and academia
iv) Low enrolment in STEM and TVET programs

These focal points have spurred discussions in the forum on identifying strategies to address the changes required, which are:

i) Identifying current skill gaps, and specifying industry skills needs and its quantity
ii) Enhanced partnership between educational institutions and tech companies to align curriculum with industry requirements and innovating academic programs to foster practical skills development
iii) Coordination among stakeholders in competency development initiatives
iv) Formulating policies in attracting and retaining talents including improving the STEM image and making STEM and TVET career pathways attractive
v) Promoting diversity and inclusion in the workforce and industry development while embracing emerging technologies to improve productivity
vi) Designing an agile mechanism to measure the effectiveness of competency development
vii)

This paper therefore aims to catalyse meaningful action and inspire collaborative initiatives that will shape the future of Malaysia's economy by building a workforce that is not only resilient but also capable of driving innovation, economic growth, and sustainable development in the digital era. This paper is prepared to identify the current state of future workforce readiness in Malaysia, present case studies of innovation in intervening digital workforce among the society and present the aspirations for stakeholders to play their collective roles.

In essence, this problem statement outlines the multifaceted approach taken by MBOT to comprehensively assess, intervene, and aspire towards a digitally adept and future-ready workforce, underscoring the importance of a concerted, collaborative effort in shaping the nation's technological and economic trajectory. The subsequent sections of this paper will delve into the specific areas that emerged as focal points during discussions. The methodology adopted in identifying the aspirations for the Malaysian workforce is conducted through identifying the current talent outlook and conducting ad-hoc case studies on efforts related to digital workforce preparation. The combination of news analysis and insights obtained from the forum are employed as the basis of a proposed way

forward. Each section provides an in-depth analysis of the respective topic, presents case studies, and offers specific recommendations that can guide stakeholders in their efforts to future-proof the Malaysian workforce.

2.0 High Skilled Talent Outlook

The World Economic Forum for Education, Skills and Learning [6] has brought attention to the vital need for a Reskilling Revolution by 2030 in which an estimated 1 billion people are liable to be radically transformed by technology in the next decade and in which over 350 organisations have united to provide them with better education, skills and economic opportunities. As traditional education systems struggle to prepare students for a rapidly changing work demand, the problem is being felt in developing countries such as Malaysia where high unemployment rates are a growing concern.

From Artificial Intelligence (AI) to climate technology, the world is changing at a dizzying pace. Economic and geopolitical trends have created divergent outcomes for labour markets globally, with high-income countries experiencing tight labour markets and low- and middle-income countries facing higher unemployment than before the pandemic. As job markets evolve, workers with basic education levels and women are grappling with lower employment levels, and real wages are declining (**Error! Reference source not found.**).

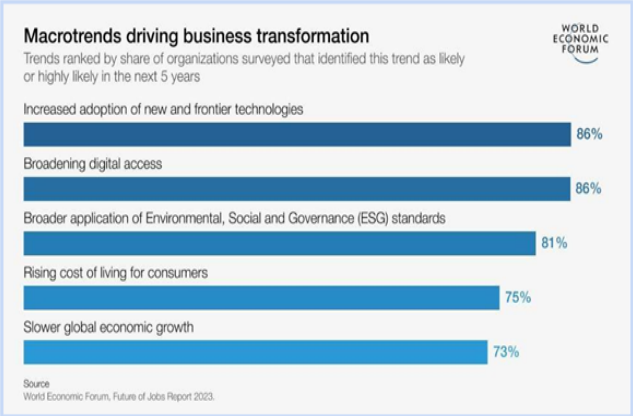

Fig. 1 - Macrotrends driving business transformation [6]

The macrotrends above identify five factors driving future transformation: increased adoption of new and frontier technologies, broadening digital access, broader application of Environmental, Social and Governance (ESG) standards, rising cost of living for consumers, and slower global economic growth; all of which impacts the economic growth of the nation.

Skill accelerators are essential for driving the reskilling revolution. A framework for public-private collaboration must be proposed to identify, support, and streamline efforts to build a more resilient and equitable economy, while enhancing the skills of both the global and Malaysian workforce. This indicates the need for an ecosystem that constantly requalifies employees and creates jobs for young people in a technologically evolving world . This initiative aims to transform how individuals, companies, and education providers learn, work, hire, and train.

As spelled out in the National AI roadmap [7] for AI awareness and adoption enculturation, capacity building in human resources and infrastructure/information is implemented as the near and medium target accomplishment. To foster AI talents, upskilling and reskilling data and AI literacy programs, including certifications and academic courses, are offered through various channels, including industry recruitment initiatives. Various intellectual discourse, forums and channels are created to identify opportunities, challenges and best practices for AI implementation. Support for infrastructure is provided through consortium and shared resources strategy, which will be formed through designated and funded projects by the government and industry. The Prime Minister of Malaysia has recently made an announcement for the creation of an AI faculty with a history-breaking funding, and a national institute of AI will be established soon. The Ministry of Science, Technology and Innovation (MOSTI) launched the National Technology and Innovation Sandbox (NTIS) that integrates research, development, and commercialization in an innovation program for researchers, innovators, startups, and entrepreneurs.

Building towards creating a versatile workforce means that we need to be innovation-hungry to adapt to the ever-changing landscape of business and technology. Gog Soon Joo, Chief Skills Officer of Skills Future Singapore, states, “Skills are now the "common currency" that will drive continual upskilling and reskilling efforts” [8]. If forward-thinking countries can successfully combine all the benefits of traditional education with the dynamics of rapid skill development, they will experience a radical shift. A shift that can build more diverse, equitable and resilient workforces that are ready to tackle the challenges of the future to close the gap between what the job market needs and what national and international workforces can offer. The need to create a culture of learning and relearning the skills of the future ensures constant learning and requalification that no one is left behind in the race for success.

To thrive in a rapidly changing world, we need a major reskilling movement. This will help us overcome challenges from technology, the economy, and the shift to green energy, no matter the industry or job. The focus should be on building essential skills like critical thinking, creativity, and adaptability. Additionally, training should equip people for in-demand fields like data analysis, AI, and renewable energy engineering. By bringing together ideas, policies, and opportunities across different sectors, these initiatives transform what it means to be part of the workforce, both nationally and globally. This collaborative effort between public and private sectors, built on a foundation of skills development, is not just about preparing people for future

jobs; it's about giving them the power to shape the world of tomorrow.

In turn, this leads towards enabling resilient growth, developing human capital, and accelerating economic equity as fastest growing and fastest declining jobs. A skilled workforce is among the top constraints of many industries [6]. With the changing nature of work and the workforce, more occupations requiring digital skills have been added to the Malaysia Critical Occupations List (MyCOL) and the demand for socio-emotional skills is increasing. A high share of industries face difficulties in sourcing employees with specific skills such as communication and interpersonal skills, as training offered to employees is focused mainly on technical skills development. As such, this has caused a paradox that could be due to mismatches in education/training and labour market demand; poor matching in the job market; and low-quality education.

3.0 Trends and Challenges

The emergence of new technologies, evolving job roles, and shifting workplace dynamics all have a profound impact on the skills and capabilities required by the workforce of tomorrow. Understanding the current workforce trends and their gaps is essential for organisations, educational institutions, and policymakers to develop effective talent development strategies. Some key trends discussed are as follows:

A) Skills Mismatch

Skills mismatch between employees and future job opportunities is one of the reasons behind the delay in securing large investments into the country. Investors are looking for local workers who possess specific knowledge and skills, especially in the technology and digital field, which local talents are lacking at the moment. Although the growth of graduate employment has expanded at an average of 7.2 percent per annum from 2001-2016, the number of graduates in jobs which do not require higher education qualification has also increased [9].

Despite Malaysia's unemployment rate has eased to 4.3 percent in November 2021 from its high of 5.3 percent recorded in May 2020 [10], the growing mismatch between skills and jobs is casting a shadow over job security, labour productivity, and attractiveness to investors. One of the key issues contributing to this situation is the mismatch between the skills and knowledge taught in schools and universities and the actual needs of the industry. Graduates often find themselves ill-prepared for the workforce, leading to difficulties in securing employment relevant to their fields of study.

According to the Malaysian Department of Statistics, the distribution of jobs in the labour market during the second quarter of 2022 indicates a dominance of semi-skilled positions at 62.2 percent (5.364 million) [11]. In contrast, highly skilled jobs accounted for only 24.9 percent (2.144 million), and unskilled jobs constituted 12.9 percent (1.111 million). The low percentage of highly skilled workers reflects a concerning gap that needs attention, especially since Malaysia aims to increase the number of highly skilled workers to more than 45 percent by 2030, in line with the national target set by the RMK12 plan to compete with other developed countries. In Malaysia, initiatives that promote local students to major in TVET and STEM courses are expected to produce skilled workers aligned with the country's industrialization needs.

Experts from the World Bank have expressed concerns in the MBOT forum about the declining state of Malaysia's education system and the quality of talent it produces. They identify lower-quality standards, outdated curriculum, ineffective teaching methodologies, and a lack of alignment with industry needs as key challenges. A notable aspect of this decline is the erosion of English language standards over the years, particularly in STEM-related subjects. The shortage of trained teachers, inadequate infrastructure, and subpar teaching standards have contributed to the deterioration of English proficiency among students. Furthermore, the prevailing education approach results in students acquiring knowledge as mere "givens" without questioning assumptions or exploring alternative perspectives. This method hinders the development of critical thinking skills, creativity, and innovation in the country's human capital.

The existing education syllabus exhibits a significant disconnect with the actual skills demanded by industries, leading to talent skill gaps. Although the report mentions critical thinking, analysis, and IT as essential skills, it fails to specify industry-specific skills. The syllabus lacks synchronisation with industry demands, resulting in inadequate depth of instruction in statistics, mathematics, and computing/IT-based skills, rendering them less useful for both students and the industry.

To address the ever-increasing and evolving demands of innovation and advanced skills, it is crucial to prioritise individuals with a strong inclination toward STEM subjects. The decreasing enrolment in STEM is worrying although TVET is gaining momentum. However, it is crucial to ensure that the talents have an innovative mindset rather than being technology users only. For example, in the MBOT forum, representative from Animonsta shared that their business model allows talent to expand beyond local markets due to the ability to produce their own products.

Another wisdom shared at the MBOT forum is that, upon upskilling and retraining after graduation such as through Fortinet's cybersecurity training program, graduates could meet the expectations, but this is not sustainable as the quantity of diverse high-skilled talents expected could not be met. Furthermore, fostering a pipeline of talented individuals who possess the aptitude and passion for high-skilled roles is paramount. Getting specialised training may not ensure the person is adaptive when a new job function is assigned.

Another worrying trend is the decline of the young in tertiary education enrolment, due to the lure of working despite low-skilled jobs. This group of young people choose not to bother with going through the traditional expectation of an educational program that requires them to commit to studying, and then only enter the workforce at an uncompetitive salary. The image of higher education is not very appealing since this would mean committing to a debt upon finishing tertiary education while no certainty of receiving a good salary.

B) Uncompetitive/ Low Salary

Recently, the job market is unable to accommodate the number of graduates churned out each year. The talents and skills possessed by the graduates could not be fully maximised in the economy. Many graduates are unable to secure suitable jobs based on their qualifications and skills, or jobs with remuneration commensurate to their qualifications. Due to a lack of effective planning and investments in education and skills-based training based on the latest industry developments and trends, many graduates often find their knowledge and skills irrelevant to the industry's needs.

Salaries for STEM-related jobs in Malaysia often lag behind those offered in developed countries, making it challenging to attract and retain skilled professionals in these fields. For instance, our analysis on the data from the Job Street employment website indicates that the average monthly salaries for engineering jobs in Malaysia range from RM3,200 to RM4,200, while in Singapore, the typical monthly payment is SGD$4,000. This disparity in remuneration can act as a significant factor in motivating graduates to seek employment opportunities abroad where they may find higher wages and stronger currency value.

Moreover, the projected employment paths for STEM graduates may lack attractiveness, leading to a reduced interest in pursuing careers in these fields. Graduates may perceive limited opportunities for career growth, job security, and competitive compensation in STEM industries within the country. Instead of investing in the training and upskilling of local workers to improve job performance and achieve high skill levels, several firms are resorting to cost-cutting measures by hiring low-cost foreign workers. As a result, this short-term approach hinders productivity growth and diminishes the creation of skilled job opportunities within the country.

Gender disparity in STEM manpower also remains a significant issue, with women continuing to be underrepresented in both STEM education and employment, despite outnumbering men in tertiary education. To address this imbalance, employers must take proactive steps to promote gender parity in their hiring practices.

Furthermore, the career prospects in STEM fields are comparatively limited in Malaysia when compared to developed countries like Singapore and Australia. Consequently, many talented individuals in Malaysia opt to migrate to these developed nations in search of better career growth and opportunities.

C) Underemployment

Both unemployment and underemployment represent different aspects of labour being underutilized. The decline in the unemployment rate might be attributed to more individuals accepting any available job to cope with the rising cost of living, including those who are new to the workforce or have re-entered after a period of unemployment.

Underemployment refers to the underutilization of the active labour force, which can be categorized into two types: time-related (TRU) and skills-related (SRU). In Malaysia, the Department of Statistics Malaysia (DoSM) [12] defines TRU as individuals employed for less than 30 hours per week, indicating they are not fully utilizing their capacity. On the other hand, SRU [12] pertains to individuals with tertiary education working in semi-skilled or low-skilled occupations, implying a mismatch between their skills or qualifications and their job roles. The convergence of TRU and SRU in the context of the gig economy is a critical point that seems to have been overlooked in the government's policy analyses and discussions, regardless of the ruling coalition.

Similar to the decline in unemployment, the overall underemployment rate has also decreased. According to DoSM's Labour Market Review for the Second Quarter (Q2) of 2022, the TRU rate dropped from 2 percent to 1.4 percent, and the SRU rate fell from 37.7 percent to 36.7 percent compared to Q2 2021 [13]. Additionally, the September 2022 Labour Force Statistics (LFS) from DoSM [14] indicate a youth unemployment rate of 12.1 percent for individuals aged 15-24 and 7.1 percent for those aged 15-30.

Considering the growth of the gig economy, the underemployment rate should theoretically be higher. EMIR Research states that underemployment is now structural, and the World Economic Forum’s prediction that by 2025 [15], more than half of all skilled employees must be reskilled. This is due to the rise of digital technology, which was disrupting the labour market and changing the way people work. The World Bank also reports that approximately 26 percent of the Malaysian workforce constitutes gig economy workers, which is nearly one out of three workers, equivalent to about four million freelancers.

This suggests a lack of job opportunities that match graduates' qualifications or openings for skilled jobs in the labour market. Unfortunately, this issue has persistently remained hidden, and the government's efforts to address it have been ineffective for at least the past decade. The lack of prospects for wage increases due to career progression and better qualifications or skilled training could also lead to a sluggish growth of the tax base.

D) Low Enrolment in STEM/TVET

Presently, the talent base of the workforce, particularly STEM talents, in Malaysia is lagging the standards of high-income nations. The country suffers from a shortage of skilled workers, weak productivity growth stemming from a lack of creativity and innovation in the workforce, as well as an over-reliance on unskilled and low-wage migrant workers. Besides, Malaysia is increasingly at risk of falling behind competitor countries as the quality of its education is declining. STIE 10-10 is still regarded in its infancy and poses huge potential to escalate STEM in Malaysia.

Low enrolment in STEM/TVET programs can lead to a scarcity of skilled workers in these fields within a country. When there is a shortage of skilled professionals, companies may struggle to find the talent they need to grow and innovate, potentially hindering economic development. According to the Education Ministry's 2020 Annual Report [16], only 47.18 percent of upper secondary school students were involved in STEM, falling significantly short of the national target of 60 percent. Malaysia also faces a worrying trend in that the number of students opting for science stream at Form 4 has been steadily decreasing. This inadvertently results in lower enrolment into STEM-related fields of studies at the tertiary levels. Correspondingly, industries will not have sufficient talent to fill technical posts, either to sustain ongoing operations or to fuel growth.

One of the primary reasons for low enrolment in the science stream, which falls under the STEM umbrella, is the perception that it is more challenging to score well in these subjects compared to other streams. Parents often prioritise their children's grades and scholarships for university admission, leading them to favour tuition centres that rely on drilling students with exam-focused questions. This teaching approach can make STEM subjects seem boring and burdensome, causing students to view them as mere obstacles to overcome rather than valuable knowledge for their future.

Moreover, students often fail to see the relevance of what they are learning in STEM subjects to real-world applications, which further diminishes their motivation to pursue these fields. The lack of practical connections between the subjects and real-life scenarios can make the learning experience less engaging and meaningful for students. Infrastructure readiness also affects the student's decision to pursue the area of STEM. Schools need to be equipped with the necessary resources and equipment to facilitate STEM teaching and learning, including access to online resources, laboratory equipment, and modern technology.

Science teachers' exposure and training in STEM can also be inadequate, leading to less effective teaching practices and a failure to instil a passion for these subjects among students. Additionally, a lack of facilities, insufficient budget, heavy workload, and time constraints can hinder the delivery of quality STEM education. The lack of support from school leaders further compounds the challenges faced in promoting STEM enrolment.

Ironically, to achieve higher performance in the SPM (Sijil Pelajaran Malaysia) examination, some school managements tend to reduce the number of science stream classes. This decision might be driven by a belief that students will achieve better overall results in non-science streams, but it ultimately contributes to the low enrolment in STEM and contradicts the national goal of increasing participation in these fields.

E) Gap in Digital Skills

Skills gaps and an inability to attract talent are reported in the forum as the key barriers preventing industry transformation. Companies are confident in improving their existing workforce progression as a business practice that can increase the availability of talent to their organisation, however, they are less optimistic regarding the outlook for new workforce availability.

On the other hand, according to the World Economic Forum's (WEF) "Future of Jobs Report 2020" [17], nine out of the top 10 emerging jobs in 2025 are STEM-related. Scientific progress is one essential key to our security as a nation. However, in Malaysia only 18 percent of Form Three students choose STEM subjects in 2021 which will result in insufficient STEM graduates for industry. The report also stated that technology adoption will remain a key driver of business transformation in the next five years. This indicates the importance of STEM education because it fosters critical thinking, problem-solving, and computational skills, which are essential for navigating the digital world. By equipping individuals with a solid STEM foundation, they can better understand emerging technologies, adapt to new tools and platforms, and keep pace with the ever-evolving digital environment.

Fostering a STEM-capable Malaysian workforce could ensure that we are prepared to meet evolving workplace demands as STEM fields are drivers of economic growth and innovation. Industries such as technology, engineering, healthcare, and manufacturing heavily rely on high-skilled STEM professionals to develop new products, improve processes, and create cutting-edge technologies. Those who work in the STEM-related enterprise fuel the nation's innovative capacity through their work in research and development (R&D) and other technologically advanced activities. Discoverers are needed for the creation of new scientific knowledge and its application.

STEM fields also provide the necessary expertise and knowledge required for various digital skills. For example, computer science, software engineering, and data science are critical for developing and maintaining digital platforms, applications, and systems. STEM professionals with skills in artificial intelligence (AI), machine learning, cybersecurity, and cloud computing are in high demand, as these technologies continue to shape the future of work.

The future workforce needs to possess STEM knowledge to capitalise on these emerging fields and contribute to their growth. STEM education fosters critical thinking, problem-solving, and computational skills, which are essential for navigating the digital world. By equipping individuals with a solid STEM foundation, they can better understand emerging technologies, adapt to new tools and platforms, and keep pace with the ever-evolving digital environment.

The Malaysian Qualifications Framework 2nd Edition (MQF 2.0) by the Malaysian Qualifications Agency (MQA) [18] and the Code of Practice for TVET Programme Accreditation (COPTPA) First Edition 2019 (Level 1–5 MQF) and Second Edition 2020 (Level 1–6 MQF) [19] have identified the digital skills learning outcome. Both these references, MQF 2.0 and COPTPA, are preparing digital skills learning outcomes to be built encompassing all areas of the body of knowledge.

According to MQF 2.0, "digital skills" generally refer to the ability to use information/digital technologies to support work and studies. The skills include sourcing and storing information, processing data, using applications for problem-solving and communication, as well as ethics in applying digital skills. Digital skills are embedded within the five clusters of the learning outcomes domains of MQF Second Edition:

i) Knowledge and Understanding;
ii) Cognitive Skills;
iii) Functional Work Skills with a focus on practical skills, interpersonal skills, communication skills, digital skills, numeracy skills, and leadership, autonomy, and responsibility;
iv) Personal and Entrepreneurial Skills; and
v) Ethics and Professionalism.

On the other hand, the industry seeks digital skills with specific proficiency in areas like data analytics, cybersecurity, cloud computing, and programming, and emphasises that a solid foundation in digital skills is necessary for individuals to navigate the digital landscape effectively. This specific proficiency is built in courses like data science, and data analytics. Although many similar courses are offered by the industry as short courses and some institutions offer these as open elective courses, not many students have taken extra effort to enrol themselves for this additional training on top of their current program schemes. Some universities such as Universiti Kebangsaan Malaysia through Pusat Pengajian Sains Citra [20] have created programs that make data analytics compulsory for their students.

While digital skills remain crucial, self-efficacy skills are highlighted in the forum as important traits to be possessed for a future-proof workforce. The self-efficacy skills discussed are consistent with the WEF's The Future of Jobs Report 2023 [17] which are analytical thinking, creative thinking, resilience, flexibility, agility, motivation and self-awareness, and curiosity and lifelong learning which were recognized as important workers ability to adapt to disrupted workplaces. Technological literacy, dependability, and attention to detail, as well as empathy, active listening, leadership, and social influence, as well as quality control.

F) Global Talent Recruitment

In some countries, initiatives for brain drain are being introduced, for example the golden visa scheme as a "game changer" to attract the world's best talent and boost foreign investment. The golden visa policy that will be launched in Indonesia [21] to attract quality talent in the field of digitalisation, health, research, and technology is aimed to bring more foreigners, including digital nomads and entrepreneurs, to invest in Indonesia. The holder of a golden visa will enjoy all sorts of perks. Apart from the 10-year permit, they will get a streamlined immigration service, the ability to buy assets in the country, as well as a fast-track route to citizenship. Foreign investors, highly skilled workers and high-earning retirees are among the groups who are eligible to apply.

G) Gig Economy and Flexible Work

The COVID-19 pandemic accelerated the adoption of remote work practices and flexible work arrangements. The rise of the gig economy and the availability of remote work options transformed traditional employment models. Freelancing, contract work, and remote talent pools provided organisations with the flexibility and access to a diverse range of skills.

This trend is likely to continue as organisations recognize the benefits of increased productivity, reduced costs, and improved work-life balance. As a result, the future workforce must possess skills such as self-motivation, collaboration in virtual environments, and the ability to adapt to remote work technologies. Among the current student generation, this requirement is not much of a challenge for them. This has also been among the factors for local talents to choose to serve multi-national companies located in the country, as well as those offering flexible workplaces. To add on, many of these workers are reluctant to return to their previous jobs following the resumption of business activities, as they now enjoy higher earning potential and greater work flexibility working in the gig economy.

This, however, has amplified the brain drain, talent retention and talent circulation issues, whereby the latter describes skilled labour emigrating in search of better opportunities. According to TalentCorp [22], Malaysia's brain drains rate stands at 5.5 percent of the population, significantly higher than the global average of 3.3 percent. Malaysia has highly skilled and talented individuals seeking better opportunities abroad. Malaysia has been facing this issue for many years, with many of its brightest minds leaving the country to pursue careers overseas. Singapore is "the most favoured country" with 54 percent of Malaysians being employed there, followed by Australia (15%), the UK (5%), and the US (10%) [23]. World Bank's Monitor Report, California-based Stanford Computer Science [24] has noted that among the main factors behind the Malaysian brain drain phenomenon are the "less attractive salary

and benefits" offered in the country, the lack of career prospects, and the unavailability of opportunities in certain fields. Coupled with the fact that many skilled workers previously working in Malaysia permanently return to their respective countries, this has resulted in a shortage of competent skilled and semi-skilled workers in the local labour market.

H) Digital Transformation

The Future of Jobs Report 2023 by World Economic Forum [17] states that technological advancement and increased digital access through adoption of new and frontier technologies such as big data, cloud computing and artificial intelligence (AI) are expected to drive job growth in more than half of surveyed companies, offset by expected job displacement in one-fifth of companies.

Meanwhile, big data analytics, climate change and environmental management technologies, and encryption and cybersecurity are expected to be the biggest drivers of job growth. On the other hand, agriculture technologies, digital platforms and apps, e-commerce and digital trade, and AI are all expected to result in significant labour market disruption, with substantial proportions of companies forecasting job displacement in their organisations, offset by job growth elsewhere to result in a net positive.

Today, the threat of cyber-attacks has become prominent as the Digital Economy comes into force around the world. Cyber-attacks are getting speedier and automated and more advanced. Cyber security is a major challenge for most organisations. With threats becoming ever more complex, the need for expertise has risen exponentially. Cyber security professionals are increasingly in demand as businesses continue to battle the growing threat of cyber security in Malaysia and globally.

According to independent market research firm Providence Strategic Partners (2023), Malaysia still lags in cyber security talent development and almost a total of 8,000 cyber security professionals in 2020. In addition, the total cyber security industry in Malaysia is forecasted to grow by 18 percent CAGR from an estimated RM3.9 billion in 2021 to RM5.5 billion in 2023. As such, Malaysia Digital Economy Blueprint (MyDigital) [25] has set a goal for the nation to produce 20,000 cyber security experts by 2025.

However, Malaysia does not have enough local talent and needs to insist on fulfilling the supply of data talent whilst supporting the nation's agenda of building digital talent such as an accelerator program (digital cap). Collaboration with local universities especially on curriculum developing on cyber security is needed. Malaysia should focus more on developing talent to cultivate the talents of cyber security such as encouraging STEM graduates to undertake as a profession. Perhaps, initiatives such as the provision of grants to promote cyber security awareness campaigns to the public, cyber security research and development (R&D) and skill development at the schools and universities will align the industry towards the building of a long-term strong cyber security talent.

I) Reskilling Revolution

The World Economic Forum has come out with a reskilling initiative through sourcing commitments, co-creating solutions and connecting stakeholders. The roadmap for 2023-2024 includes accelerating reskilling and upskilling around the world, as well as promoting skills-based labour markets. By closing skills gaps, the Reskilling Revolution initiative aims to reach at least 300 million workers and adult learners. The plan aims to drive impact through the activation of several areas:

i) New financing agenda
ii) Revitalised policy instruments
iii) Innovative standards of business leadership
iv) Comprehensive measurements and metrics
v) Faster delivery mechanisms
vi) New content of skills

In addition, the Reskilling Revolution will position education at the core of the economic recovery by updating teaching and education system, so they effectively prepare today's students for tomorrow's economy and society. This work aims to benefit at least 150 million students and young learners by 2024.

In Malaysia, the Tan Chong Technical Institute (Kota Bharu) launched the 1st Pilot Tan Chong Automotive Technology (TCAT-UMP MOOC) program [26], a collaboration between Tan Chong Education and Universiti Malaysia Pahang in 2019. The TCAT-UMP MOOC is developed to cater for people who are interested in automotive technical skills on vehicle repairs and maintenance with flexi learning schedules. This program provides fundamental and hands-on training together with videos and virtual face-to-face lecture sessions. MOOC platform supports learning and is open to anyone with access to a computer and the internet. This mode of delivery provides flexibility for lifelong learners and could offer better access to education.

MYFutureJobs is the Malaysian Nationa Employment portal for all job seekers and employers. MYFutureJobs uses AI-technology and a validated matching algorithm to provide the most accurate job match based on skills and competencies of jobseekers. The platform advertises providers of reskilling programs including Microsoft's digital skills for tomorrow's jobs program as an initiative to prepare young adults across Southeast Asia for the 21st-century workplace. This program will provide digital skills training for the most high-demand jobs in Data Analysis, Data Science, Development Operations, Software Development, and IT Support. Upon completion, participants will receive digital credentials and a chance to join soft skills training and job placement in the related fields.

Meanwhile, MDEC's contribution is through the MyDigitalWorkforce Work in Tech (MYWiT) shared at the MBOT forum is an initiative to incentivize employers to hire Malaysians via digital upskilling and reskilling programmes. This initiative supports companies to hire digital talent through salary and training incentives. MYWiT consists of the following programmes: Digital Business Services (DBS) and Digital Tech Apprenticeship (DTA). This platform also serves as a hub for other skills directories such as e-LATiH, Malaysia's premier learning aggregator platform which offers all Malaysians unlimited access to FREE online courses that meet the demands of various industries. It is open to all Malaysians with no minimum age limit.

4.0 Case Studies

The right technology can be a game changer for enhancing the workforce experience. Knowing how to maximise its capabilities can make industries resilient to withstand today's market challenge and thrive in the future. As work becomes increasingly dispersed across organisations, the labour market more competitive, and teams more reliant on hyperconnectivity to get their jobs done, building a digital workplace on par with experience workers have as customers is an essential part of business strategy. Digital transformation has already been bringing extraordinary economic dividends, efficiency, and productivity gains in a wide range of sustainable development areas. Digital trade is an increasingly vital part of the economic landscape worldwide and Malaysia's economy is no exception. While globalisation has resulted in a war for talent, Malaysia must secure the talent needed for economic transformation. Nevertheless, several industries are already stepping ahead to accelerate their digital workforce and talent.

A) On-the-Job Training by PETRONAS

Petronas shares with us strategies towards unlocking talent via their DigitalCAP initiatives. The Malaysia Digital Economy Blueprint was established to tap into the boundless possibilities of Malaysia's Digital Economy, supported by local digital talents. The key thrust is to build agile and competent digital talent. MDEC identifies that data-related jobs and skill sets are growing in Malaysia and South-East Malaysia. As a result, PETRONAS highlights three core skill sets deemed important to its organisation - tech savvy, data fluency and data literacy. Nonetheless, two internal challenges towards this goal are, the need for data professionals and high turnover rates. In addition, external challenges highlighted being the industry and the country itself specifically, scarcity of experienced data professionals, inadequate alignment of education with job alignment and rapid technological advancements. In efforts to overcome these shortcomings, PETRONAS resorted to bringing in 80 percent of data talent from other countries such as India and Vietnam.

Nonetheless, PETRONAS launched the Digital Career Accelerator Program (DigitalCAP) in 2022 to create a stable supply of data talent while supporting the nation's agenda of building digital talent. DigitalCAP is an on-the-job training to provide industrial exposure and opportunity in the data and AI space [24]. Its aim is to bridge the gap and empower successful results. The outcome of the programme was towards a stable supply of data talents, enhanced employability, and contribution towards the nation's agenda of digital talents. Its results have been resoundingly successful as candidates are primed and ready to continue their professional careers without boundaries.

Due to the success of the Petronas DigitalCAP, it is suggested that it be replicated across many companies and industries, and for MOSTI to take the lead in championing its widespread adoption and implementation. The need is to create a future-ready workforce by bridging the digital skills gap in universities and the current work environment, that reconditions individuals for success in the digital age. Several recommended approaches are, to:

i) Set up incubators or incubation hubs with participating organisations and government
ii) Drive participation through introducing benefits such as tax incentives for participating organisations
iii) Collect data through incubation hubs for the purpose of:
   - Measuring success based on key indicators and evaluate potential for scaling-up
   - Updating academic curriculum to remain relevant and up-to-date or current.

B) Work-based Learning by Carsome Academy

Carsome/Carsome Academy is an (integrated automotive) e-commerce platform that highlights its priority towards creating a creative workforce. The current engagement of work-based learning programmes with Universiti Malaysia Perlis (UniMAP) have allowed students to train at and with Carsome Academy. Upon completion of training, students are immediately employed with Carsome. The work-based learning initiative as well as the apprenticeship and internship programmes have been effective in training high-skilled graduates ready for the workforce. In efforts towards enhancing the training of future graduates, Carsome aims to extend its engagement with more local universities to bridge the gap between universities and the industry. The need for both parties to join forces towards resolving the current national shortage of a skilled workforce needs to be replicated and enhanced with further options and opportunities for students to learn and earn.

C) STEM Education by Animonsta Studios Sdn. Bhd.

Animonsta Studios Sdn. Bhd. (also known as Monsta) is a character business company and IP enabler with a diverse portfolio of products that cater to both children

and families with over a decade of experience and specialisation in feature films, TV productions, merchandising and other related products in the Intellectual Property business. As shared by its CEO/Director/Producer, Animonsta has become a key figure in not only the local creative industries but also among international competitors such as Japan.

A key factor that needs to be given attention is their ability to improve and draw the interest of the public on STEM advancements by enhancing the image, or branding, of high-skilled talent. The increase of interest of children or students alike, through animated/creative content can streamline attention towards key areas such as the importance of STEM and technology by making it interesting and exciting. In addition, the amount of brain drain of creative talent to neighbouring countries is worrying and becoming a real threat to the growing Malaysian creative industries. Hence, there is a need to create and replicate more entities such as Animonsta that subtly educate and influence through its animation content the attention of young local talent.

D) Social Innovation by Telekom Academy

One concern proposed by Telekom Academy is the need to create a society that is innovative in nature, as compared to creating a society of users. Malaysians have been branded as a user society, and it is time to change this social construct and initiate strategies towards creating an innovative society. There needs to be more programmes that reflect innovation than user nature. Malaysians need to be agile in moving forward. There cannot be a singular or specific focus as we need to consider factors such as a fast-growing industry, a stable industry, or a declining industry, the relevancy of the curriculum design for academic programmes, and the need to redefine all our skills based on the nature of different industries.

Priority needs to be given towards branding to attract high-skilled talent. Initiatives that are already in place for example are, the UNESCO World Creativity and Innovation Day and the MIT Museum of Innovation; to attract the public and build social interest as current practices are no longer sufficient to drive the Malaysian workforce. Flexible and agile approaches towards the rebranding of critical skill sets and the creation of innovative strategies need to be put in place.

5.0 Aspiration

Malaysia is expected to transition into a high-income economy by 2028, however as suggested by the World Bank Report (2021), Malaysia needs further reforms such as improving the quality of education, enhancing inclusiveness, and creating a sustainable economic growth to successfully join the ranks of other leading and developed economies [23]. Looking to the future, how can Malaysia shift into a better economic growth? Malaysia will have to find ways to boost economic growth, improve its competitiveness, create high-quality jobs, strengthen its institution, ensure greater inclusion, and strengthen its capacity to finance the transition to high-income and developed nation status. As the world becomes increasingly powered by technology and innovation, Malaysia can be expanded for untapped opportunities.

A) Economy Through Digitalisation – Moving Ahead into Technology-driven and Digital Nation

Technology can truly make our lives easier in all aspects. Technology can also be exploited to achieve a large production that is directly reflected in economic growth. Technology change should consider the use of innovation or creativity outputs for bringing about a partial or total change in the production process, or the product that aims to support competitiveness and therefore continuous modification in it to achieve continuity and growth. Transforming Malaysia into a technology-driven and high-income digital nation is challenging as policymaker, businesses, and consumers. Malaysia needs to fully leverage the fast-growing digital economy as a key strategy for economic recovery, which means attracting more investment into digitisation.

The report "Malaysia AI in SMB Market – Forecast (2022-2027)", by IndustryARC covers an in-depth analysis of the following segments of the Malaysia AI in SMB market:

i) By Deployment: Cloud, On Premises, Hybrid
ii) By Platform: In-Store, E-Commerce
iii) By Learning Model: Unsupervised Learning, Supervised Learning, Reinforced Learning, Semi-Supervised Learning, Others
iv) By SME Market Type Sole Proprietorship, Partnership, Close Corporation, Limited Liability Partnership
v) By Technology Machine Learning, Deep Learning, Natural Language Processing, Others
vi) By Application: CRM, IoT, Virtual Personal Assistant, Predictive Analysis, Inventory Management, Others
vii) By End Users: Manufacturing, Healthcare, Retail, Transportation and Logistics, Education, BFSI, IT and Telecom, Others

However, according to The World Bank's Digital Adoption Index, Malaysian businesses lag far behind their peers in Singapore and other high-income OECD countries, as well as some Asian economies including Thailand, Vietnam, and the Philippines [23]. Recently, only 62 percent of businesses are connected to the internet, 46 percent have fixed broadband (often of low quality) and 18 percent have a web presence of some kind. A study by Siemens Malaysia in 2020, found that only 50 percent of SMEs are not prepared to adopt new norms of remote working due to difficulties related to infrastructure and systems including internet connectivity [25].

Furthermore, according to Microsoft Malaysia (2020), there are two main reasons why Malaysian

business may find it challenging to embrace digital transformations, (i) a lack of technology knowledge, e.g., not knowing where to start, how to implement digital strategies and where to find technologically skilled employees, and (ii) organisational silos – 49 percent organisational silos is critical challenge in digitalisation. Some firms may have organisational structure so rigid that each department is in its own silo.

The impact of digitalisation on the global economy has been significant. The digital economy plays an increasing role towards becoming a high-income nation and one of the fastest growing sectors in Malaysia. Most of the digital economy has concentrated growth in the manufacturing sector of urbanised states. For Malaysia to continue progressing in its development path, the digital economy is posed to be the new driver of development and Malaysia must aspire to become the frontrunner on the digital to fully unlock the economic benefits. Meaning is that digital adoption in Malaysia must improve to progress in the digital economy. Malaysia also should investigate things such as creating a dynamic ecosystem for the digital economy, improving human capital or development of worker skills, and improving internet connectivity. Moreover, the polices also could be developed to encourage universal digitalisation by businesses such as reducing the costs of digitalisation, digitally relevant regulation, and the role of digital governance.

B) Economy Through Innovation – Innovation at the Heart of Malaysia's Plan for Economic Growth

Innovation and creativity underpin modern lifestyle, businesses, and wider society. In economic terms, innovation refers to the development and application of ideas and technologies that improve goods and services or make their production more efficient. Innovation is one of the major benefits of its contribution to economic growth. Innovation can be enhanced through spending on research and development (R&D) and investing in education as well as enabling enterprises to start businesses more easily. Moreover, innovation is also considered a key driver of aggregate economic growth and performance. To address this need, an environment that encourages future Innovation should be created.

Today, nearly half of all developing countries have released national science, technology, and innovation (STI) strategies, and there is a growing global consensus that innovation and technology need not be the sole province of advanced economics but also require effective policymaking and good governance. For example, the UK innovation Strategy sets out key actions to unleash innovation across the country and make the UK a global hub for innovation by 2035. Building and maintaining a strong and modern economy relies on many elements but innovation must always be at its Centre. Innovation turns great ideas into value prosperity, productivity, and wellbeing. It is the mechanism by which to create new opportunities and adapt to challenges. Effective innovation can establish a unique selling proposition (USP) for a product in which the customer is prepared to pay more and help businesses move up the value chain.

Encouraging people and businesses are the most important pathway to increasing rates of innovation. The key role that the government of Malaysia can play in supporting research that eventually generates significant innovation. In addition, the development of scientific capacity is an important prerequisite when considering the importance of the creation and diffusion of knowledge for innovation. Identifying the role such as university in generating innovation and new technology.

The STIE 10-10 framework plays a crucial role for Malaysia to embark on a journey of socio-economic transformation powered through the creation of a vibrant STIE ecosystem. The framework will pave the way for the nation to improve its innovative and creative capability as a means of enhancing economic competitiveness and quality of life. This framework will enable key sectors of the economy to become more knowledge- intensive and innovation driven. The STIE also lays out certain factors to identify a startup with high potential to drive Malaysia from its current production-based economy into a knowledge-intensive one. For a company to fit into MOSTI's identified National STIE Niche Areas, a company needs to have:

i) The potential to become an economic booster and have wide societal impact.
ii) Alignment to Malaysia's strengths and needs.
iii) Be inclusive and contribute to a multiplier effect to other sectors and communities across Malaysia.
iv) Once these businesses have been identified, MySTIE will deploy projects to address the needs of communities and their quality of life.

The National STIE Niche Areas will change from time to time. It will be reviewed every two years. Ten science and technology (S&T) drivers are identified based on emerging Science, Engineering, and Technologies (ESET) around the world, which includes 5G/6G, Sensor technology, 4D/5D printing, Advanced materials, Advanced intelligent systems, Cybersecurity & encryption, Augmented analytics & data discovery, Blockchain, Neurotechnology, and Bioscience technology. Meanwhile, the socio-economic sectors that are in focus for development by adopting these S&Ts are (i) Energy, (ii) Business & financial services, (iii) Culture, arts & tourism, (iv) Medical & healthcare, (v) Smart technology & systems, (vi) Smart cities & transportation, (vii) Water & food, (viii) Agriculture and forestry, (ix) Education, (X) Environment & biodiversity.

C) Transform Malaysia into High-Skilled Workers Nation - Move from a Labour-intensive Economy Model to a Knowledge-based Economy

Labor-intensive refers to the process or implies those tasks which require a large amount of labour (physical effort) and a heavy workforce for the accomplishment of

producing goods or services. Although, several labour-intensive tasks only need very low levels of education or skill. New practices of production have emerged in all the major economies of the world.

Economists have been competing on the global scene based on their capability to create, use, and diffuse knowledge. The knowledge-based economy is an economy in which production, distribution, and use of knowledge is the main driver of growth, wealth creation, and employment across all industries. Knowledge-based economics are important factors of production in leading economics, and this has led to a new description of economics as knowledge-based, as against the traditional natural resource-based economy. Knowledge is now recognised by leaders in both public and private sectors for accelerated economic growth.

Knowledge-based economy is playing a significant role in economic growth and development. The knowledge economy is an economic system that relies more on intellectual capabilities than physical inputs or natural resources. The knowledge economy is also the primary cause of the expansion of STEM professions such as skills like data analysis, ICT and innovation are in high demand in this economy.

According to the Department of Statistics Malaysia (2023), Malaysia current labour demand by skill jobs in the semi-skilled category recorded the highest share of 62.3 percent (5.49 million) then the high-skilled category ranked second at 24.9 percent (2.20 million) followed by the low-skilled category at 12.7 percent (1.12 million) workers [22]. Moving ahead, Malaysia's labour demand by skill will be expected to ease in the high-skilled category of at least 35 percent of the labour force by 2030 to achieve developed country status. As suggested by the World Bank, Malaysia would need to create two million additional high-skilled jobs to reach the same level as that of the average of the Organisation for Economic Co-operation and Development (OECD) countries. This is one of the goals of the Malaysia Knowledge-Based Economy and Services Model.

MBOT currently plays the role of a strategic agency in promoting the national high-skilled talent agenda. Through MBOT, professionals can continuously develop competencies, share knowledge, and give back to the community. Ultimately, this will enhance industry productivity and foster national prosperity.

D) Sustaining Human Capital – Strengthen the Malaysia's Local Talents Through Better Curriculum and Learning Opportunities

The terminology of knowledge worker has been coined to describe those workers who are participating most effectively in the knowledge-based economy and have specific skills and competencies. While the trend of skilled workers is gaining interest, the supply of highly educated talents who could meet the current market needs should also be sustained. This is because the ability to create, distribute and exploit knowledge has become a major source of competitive advantage. The availability of well-educated, high skilled talent in the workforce is important as Malaysia moves towards a knowledge-based economy. Malaysia's talent pool comprises skilled human capital predominantly supplied by the local education system.

Talent is one of the vital productivity drivers and as an integral element of economic and business growth, competitiveness, and innovation. Strengthening the local talent can uplift Malaysia's productivity growth. A sustainable talent pool should maintain equilibrium between talent inflows and outflows, thereby enabling a supply of appropriate talent to meet the demands of industry.

According to the Malaysian Education Blueprint 2013-2025, there will be a demand for an additional 1.3 million TVET employees [26]. Malaysia's vocational education and training system can be made responsive to the new priorities by innovation and technology. Malaysia should emphasise technical and vocational education and training (TVET) to reduce the gap in supply and demand for skills as well as develop industry-ready talents. Moreover, to realise technical education, many related programmes need to be created and offered. Malaysia Technical University Network (MTUN) is also in line with mainstreaming TVET at tertiary level and attempting to produce professional technologists as per market demand.

According to the World Bank (2018), Malaysia has demonstrated declining education outcomes in terms of quality [27]. Malaysia needs to raise its benchmarking for human capital management to secure the needs of talent and address issues affecting Malaysia's talent pool such as quality education, availability of talent, workforce productivity and liability. Offering a new approach to policy reform could improve educational opportunities and the quality of Malaysia's education system to tailor better local talents. The implementation of curriculum tailored by/for the industry is one way of implementing values and skill sets into national education.

E) Digitalisation Ecosystem Changing Demand for Skills in Digital Economies and Societies to Increase Productivity

Technological advancement and digitalization have been profoundly reshaping our work and lifestyle, business models and operation, and government policy choices. Digitalization has brought tremendous benefits to our economy and society, as it spurs efficiency and productivity gains and makes our lives more convenient, it poses many challenges. In the near future, digital technologies offer significant new opportunities for businesses, including lower barriers to entry, particularly to global value chains. According to UNESCO (2018) and ILO (2019), digital transformation has been bringing extraordinary economic dividends and efficiency and productivity gains in a wide range of sustainable

development areas from agriculture to health, infrastructure, environment, and education [28,29]. A study on the future of skills for the United States and the United Kingdom by Pearson, Nesta and the Oxford Martin School also found that interpersonal skills such as coordination, teaching and social perceptiveness will be in greater demand by 2030 [30].

Businesses are increasingly leveraging technology to harness their productivity and competitiveness potential and, especially in the context of the global COVID-19 pandemic, to allow for remote interactions and sustained operation. According to the World Bank Enterprises Survey data, in 139 countries in and around 2015, among formal companies with at least five employees operating in the manufacturing and services sector, the share of those having a website stood at 45.5 percent and the share of firms using email to interact with clients and suppliers at 70.3 percent [31]. Looking beyond simple issues of connectivity, email usage and mobile network, digitalization is tightly linked to the rate of adoption of advanced technologies, namely artificial intelligence (AI), cognitive technologies, blockchain, distributed ledger technologies (DLT), extended reality technologies, internet of things, cloud computing and big data. For example, to deliver meaningful results, companies can build momentum and then scale out and up, leveraging the multipurpose nature of generative AI. This approach could enable companies to promote broader AI adoption and create the culture of innovation that is essential to maintaining a competitive edge. AI capabilities to stay competitive, AI investment is forecast to increase by a factor of more than two and a half by 2023

The emerging industry 5.0 Creating a dynamic ecosystem for the digital economy. The adoption of advanced digital technologies by businesses is uneven. The future workforce needs to be equipped with skills that complement automation, such as complex problem-solving, innovation, and adaptability. Some companies such as Petronas are also categorising the skills required into tech savvy, tech fluency, and data literacy. Those who are successful in the future are those who know how to use the tools of the future. In this case, digital skills will have to be adapted much faster to the newest technologies. Reskilling and upskilling workers can help them to move from one occupation to another or adapt to new job requirements in the context of rapid technological transformation. As digitalisation is no longer confined to specific industries, but has become an important solution for survival, digital skills are increasingly required in jobs where this was not the case before. Looking forward, skills for the digital economy would include a full range of skills, including digital skills specifically, but also skills that pre-condition the deployment of digital skills (namely, foundational skills that are required to make use of any technology, such as literacy); and skills that complement digital skills and augment their effect, such as certain higher-order skills that are not necessarily specific to technologies: analytical thinking, research skills, synthesising and extracting the most important information, creativity, communication, problem solving and others. In addition, technical skills for a specific profession remain a key component of skills for digital economies generally.

6.0 Strategies and Recommendations

Malaysia is looking towards becoming a high-income and developed nation. The global economic environment is expected to moderate and grow at a slower rate of 2.9 percent in 2023 compared to 3.4 percent in 2022. According to The Minister of Economy (2023), Malaysia is on track to become a high-income nation if economic growth remains at around four to five percent from 2023 to 2025 and the status of a high-income nation can be reached as early as 2026 [32]. However, Malaysia needs to address some important long-standing economic weaknesses to progress toward becoming an advanced economy within the next decade. The forum has identified several strategies to address the aspirations required:

A) Projecting Talents and Skills

Recognising the power of the Fourth Industrial Revolution, innovation-hungry countries are leveraging the quality of ideas as a key driver of progress and tech-savvy workforce to transform their economy, embracing sectors like cloud computing and fintech. Skills are now the “common currency” that will drive continual upskilling and reskilling efforts. If forward-thinking countries can successfully combine all the benefits of traditional education with the dynamics of rapid skill development, they will experience a radical shift and build more diverse, equitable and resilient workforces that are ready to tackle the challenges of the future.

The talent crunch issue is a repercussion of the job opportunities that change according to the times, and that high demand for a particular skill set or industry would not always remain so. Despite having a pool of graduates, the shortage of high-skilled workers is a critical issue that necessitates immediate attention. However, if higher education is only for the sake of finding a job, the idea of education should be discarded and replaced with vocational training. Therefore, specifying industry skills needs and quantity is paramount to stock the right talent building. Writing good job descriptions can help employers find the best employees.

Additionally, to address the emerging demands on digital skills, the national skills framework like MQA and TVET could be complemented by a national digital literacy framework to underscore its level of importance in the development of our digital economy. A registry on available talents and new demands is needed to constantly requalify employees and as a reference for workforce pipeline to tackle current challenges and accelerate change. A skills accelerator network to close the gap between what the job market needs and what national and international workforces can offer could be built.

The industry needs to be equipped with the ability to project their expansion and specific manpower needed

so they could recruit the best talent. This demand could be used to groom their in-house workers and can be communicated to the workforce supplier, either higher education or training institutions. This growth prescription could proactively ensure the economy is backed up by the correct talents. MBOT and relevant agencies can play an even larger role, not limiting its functions to merely registering and recognizing individuals, but actively contributing to national talent development.

At the same time, an ecosystem that supports employment market innovations should grow. The country needs youth who are knowledgeable and skilled, who can be employed or set up their own businesses to give them flexibility in their work as the average salary offered in the market of RM2,000 or less is not appealing to them. Producing talents to be workers, innovators and inventors could expand the current market options through new businesses and products especially as this could invite new investors. Addressing this requirement and estimating the workforce could be spearheaded by the trade agencies.

B) Embracing the Reskilling Revolution

The pace of technological advancement that has resulted in businesses evolving towards digitalization demands graduates from various disciplines to continuously learn and upskill to remain relevant in the job market. The industries claimed that the workers recruited could not match their expectation and some argued about the basic skills that goes back even to the fundamental education years. Some may change jobs to gain more experience and increase self-value to position themselves in an environment that matches their strength and give them satisfaction by delivering quality service.

A comprehensive reskilling revolution can help us circumnavigate the potential pitfalls of technological advancements, economic challenges and the green transition across different industries and job categories. It must prioritise the development of critical skills such as analytical thinking, creative thinking, and resilience, as well as prepare workers to fill roles in high demand moving forward: data analysts, Artificial Intelligence specialists and renewable energy engineers, to name but a few.

Training management can have a big impact on employee retention. Innovation in talent-proofing and sustainable workforce planning could be supported by the society's mindset reform to appreciate and encourage lifelong learning. Various initiatives available currently including in-the-job training by institutions, online courses, micro-credentials, and professional development programs, will become increasingly important for individuals to acquire new skills, stay competitive, and enhance their employability.

Fluctuation of talent demands, and job markets require that higher education providers to practise a more productive and agile curriculum process to meet the demand for quickly changing industry demands including reforming to targeted training programs and initiatives to equip the existing workforce with the necessary skills to adapt to technological advancements.

C) Addressing underemployment issues

According to DoSM, the measure of underemployment reflects the desire of workers to seek additional work hours, even if they are not actively seeking them out. Underemployment can also refer to measures in terms of insufficient income earned and the more difficult measurement of productivity forgone because of the underutilisation or mismatch of skills. However, there are difficulties in standardizing the measurement of desired additional work hours. Awareness of underemployment issues and advocacy for effective policy changes at the government level should be increased.

In an attempt to overcome this problem, there was agreement to use work hour thresholds to designate underemployment. Lifelong learning and upskilling to ensure that individuals have the necessary skills for in-demand occupations should be encouraged. Another approach is to recognise and regulate the gig economy to protect workers' rights while also facilitating flexible work arrangements. Social safety nets and benefits for gig workers, job-transitioning, and unemployment should be enforced to improve their economic security. Investment in emerging industries and technologies should be encouraged as this can lead to job growth and utilise the skills of the underemployed population. Work hour discrepancies can be reduced by addressing the issue of part-time or low-hour work by promoting policies that encourage more stable and full-time employment opportunities.

D) Empowering STEM Talent Retention and Image Branding

Equally important attention needs to be given to the trend is the need to implement strategies to retain talent, ensuring a sustainable workforce capable of meeting evolving technological needs. A systemic change in the education system is necessary to reignite a passion for STEM. Lack of interest in STEM is a result of the rigidity of the school curriculum and the inflexible governance of STEM education.

Up-to-date talent through continuous professional development (CPD), needs to be in-hand with acknowledgment of skill sets attached with suitable salary scale to minimise brain drain. Salary revision for STEM and TVET could complement a rebranding of this career's image besides attractive career development pathways.

Implementation of STEM image branding should be started from early childhood and encultured across the society so there is recognition of the importance of these skills in upholding the economy. The rich STEM career opportunities should be made more visible to everyone through programs such as STEM icons and STEM

leadership programs. All teachers could play a role in this, besides only the counsellor at school.

Edutainment could play a role too. STIE policies implementation across sectors should be implemented e.g., every movie or show should highlight STEM elements. For example, in many Korean movies, deep content about STEM and jobs revolving around STEM are always used as among the characters and storyline to expose the audience to STEM. All businesses can contribute too, by providing STEM education in their social media appearance.

The contribution of industry and academia to schools to expose advancements in STEM should be more emphasised. Variations of career pathways including trans-disciplinary nature of STEM careers should be shared with the public.

E) Widening Work-based Learning and Apprenticeship Implementation

Work-based learning and apprenticeship programs are educational and training initiatives that combine classroom instruction with on-the-job training. The primary goal is to enhance the learners' understanding and application of theoretical concepts by putting them into practice in real-world settings. These programs are designed to provide individuals with practical skills and knowledge in a specific industry or occupation while allowing them to earn a wage. Work-based learning can be conducted through:

i) Internships: Short-term placements typically undertaken by students or recent graduates to gain work experience related to their field of study.
ii) Cooperative Education (Co-op): Students alternate between periods of academic study and periods of paid work experience directly related to their course of study.
iii) Job Shadowing: A short-term observation opportunity where a learner follows an experienced worker to understand their job role and responsibilities.
iv) Service Learning: Students participate in community service activities that complement and enhance classroom learning.

An apprenticeship is a structured training program that combines on-the-job training with classroom instruction. It is typically designed to prepare individuals for skilled occupations and trades. Apprentices work under the guidance of experienced professionals to learn the practical aspects of the job.

The recent announcement by the Ministry of Higher Education on hybrid and flexible learning system which set mandatory university attendance only in first and final years. In the middle years, students will be given a choice and the flexibility to study from home, without having to attend physical classes. Through this initiative students can organise their activities more flexibly and they will be able to save their tertiary education costs. It will give some advantages such as, can reduce the amount of loans and education costs, opening space for students work or do things that require them to not be on campus. At the same time, it opens opportunities for graduates enter the job market a year earlier.

The hybrid and flexible learning system could facilitate wider incorporation of work-based learning (especially through internship and cooperative education modes), and apprenticeship which could provide hands-on experience, training is tailored to the needs of the industry, smooth transition to employment and allow apprentices to earn a wage during their training, making it a viable option for those who want to avoid student loan debt.

F) Igniting the Innovation Economy

The modern development of world economic relations, and globalisation of the economy determine the need for innovative development of the national economy as the main elements of which are knowledge and innovation. Innovation is the specific function of an organisation or business. The success of new ideas is crucial to a business being able to improve its processes., bring new and improved products, and services to market, increase its efficiency and most importantly, improve its profitability. Innovation can offer amazing development with the possibility of changing the future and as part of business strategy.

The increasing complexity of product and services, shorter life cycle, rapidly changing market demands require new or different capabilities and management practices to successfully develop innovations and sustain a business competitive advantage. For example, South Korea stands as an innovative country and technical innovation has been measured based on productivity, high-tech public company density, research and development spending, patent activity, manufacturing output and tertiary efficiency. According to the Global Talent Competitiveness Index (2019), South Korea has 30th position out of 125 economies with various innovative indicators [33]. So, it shows that innovation plays an important role in enhancing a country's position in international business.

Industry 5.0 is focusing companies to transition to a more sustainable, human-centric, and resilient industry through innovation. Motives to innovate include the desire to increase market share or enter new markets, to improve the product range, to increase the capacity to produce new goods and reduce cost. Meanwhile, by creating a more flexible regulatory environment that fosters innovation and increases commercialisation capability in research organisations. To strengthen innovation as a new economy, Malaysia needs to maximise the resource potential of the state in combination with the use of foreign innovative technologies and investments. While it should also be changed for adoption to be a frontrunner into science, technology, and innovation (STI) and establish a relationship with the private sector.

To achieve the innovation economy mission in 10-10 MySTIE framework, a review should be done in

mapping the courses and academic programmes, as well as to conduct a thorough programme review based on Outcome Based Education (OBE) and MQA guidelines, especially focusing on the synopsis, course learning outcomes, and programme learning outcomes. The 10-10 MySTIE also brings implications to grants, research and postgraduate studies. Collaborative networks and platforms towards establishing vibrant innovation ecosystems across Malaysia needs to be built to connect the government, academics or researchers, innovators, industries, and communities. Government grants such as MOSTI, MOHE and any other grants, research, postgraduate studies, training, and consultancies will be driven by the 10-10 MySTIE Framework from now until 2030.

The World Economic Forum established the Technology Pioneer community in the year 2000. The community is composed of early- to growth-stage companies from around the world that are involved in the design, development and deployment of new technologies and innovations, and poised to have a significant impact on business and society. The programme aims to give next-generation innovators a voice in solving global issues and the opportunity to contribute to the exploration of future trends. Each year, the Forum recognises a new cohort of Technology Pioneers and incorporates them into its initiatives, activities, and events. Malaysia could consider having a similar initiative.

The National Technology and Innovation Sandbox (NTIS) is established to support selected startups to accelerate further by giving them the opportunity to test and validate tech solutions in a controlled live environment under relaxed regulations.

Governments also need to approach digital transformation methodically. A realistic assessment can help governments identify and address the gaps in their capabilities. Innovations that are funded should have specific, attainable, and time-bound goals, besides clear reasons behind their objectives and the values to be created. The government should also come out with Key Performance Indicators to measure the success of this framework and translate the 10-10 MySTIE into real action items. The 8i STI Ecosystem Enablers need to be elaborated further and must be assigned to the right champions. Many Blueprints, Frameworks Strategies failed because they lack continuous monitoring and champions to break down any barriers. Building a database of experts would be a good start and with a Project Management Office on STIE progression at the highest level in the ministry.

G) Accelerating Digital Reform to Turbocharge Growth

Increased adoption of new and frontier technologies and broadening digital access could be most likely to drive transformation in organisation (WEF Future of Jobs 2023). The rise of AI and the green transition will transform the way we work. Policy coherence is critical to shipping's green transition as moving towards a low-emission economy will create millions of 'green jobs'. This, coupled with new technologies, such as AI and digitalisation, is leading to increasing calls for investment in skills to ensure a thriving future workforce in 2030 and beyond.

According to the United Nations Conference on Trade and Development (UNCTAD) in 2023, now is the time for developing countries to capture more of the value being created in the green tech revolution – and use it to grow their economies, make them more resilient to shocks and reduce inequalities [34]. UNCTAD calls on their governments and business communities to invest in more complex and greener sectors, boost technical skills and scale up investments in the technology infrastructure needed to grow green industries. To support this evolution, the report urges the international community to make global trade rules more supportive of emerging green industries in developing economies and reform intellectual property rights to facilitate technology transfer to these countries.

From kicking off various digital adoption initiatives for SMEs to establishing a centre to accelerate the fourth industrial revolution (IR4.0) and expand digital transformation locally, Malaysia is well on its way in establishing itself as a high-income nation by boosting digital adoption at all levels of society. The pandemic has significantly accelerated digital adoption locally driving a 68 percent surge in e-commerce. Malaysia's digital economy is continuously growing, and it is expected to contribute 22.6 percent of Malaysia's gross domestic product (GDP) by 2025.

Globally, the Malaysia AI in SMB market is estimated to be $23,267.5 million in 2021 and is analysed to grow at a CAGR of 21.89 percent during forecast period 2022-2027. Huge investment in AI around the globe is driving the Malaysia AI in the Small and Medium Business market. AI can influence and assist SMEs in two ways: by changing their business environment and making it easier for them to do business, or by allowing them to modify their business models and practices, allowing them to expand their reach and productivity. These two dynamics are obviously intertwined, as SMEs adjust to changing business situations by modifying their processes and products, or by innovating to change market conditions using data analysis.

Local organisations should consider accelerating the adoption of AI into their businesses to stay competitive in a rapidly changing & digitally modernising market. Based on the Malaysia Digital Economy Blueprint (2021) published by the Economic Planning Unit, AI technology is estimated to contribute a 26 percent increase of Malaysia's Gross Domestic Product (GDP) in the next decade [35]. Adopting AI in more sectors could improve productivity and unlock growth, which is why some companies such as Carsome and Petronas are exploring how AI can help increase their productivity. Some are embracing AI through a

concerted effort by leadership to identify the required capabilities based on the company's prioritised use cases, which will likely extend beyond technical roles to include a talent mix across engineering, data, design, risk, product, and other business functions. SMEs digital reform could be turbocharged by digital leadership that could drive the companies to tap into the vast potential of digital technologies to achieve their goals. With digital leadership, leaders can connect with people and resources worldwide, access new markets, and create new value.

While generative AI may eventually be used to automate some tasks, much of its value could be derived from how software vendors embed the technology into everyday tools (for example, email or word-processing software) used by knowledge workers. Such upgraded tools could substantially increase productivity regardless of the user's background. However, as AI continues developing rapidly, questions have been raised about the future risks it could pose to people's privacy, their human rights or their safety. There are concerns about the fairness of using AI tools to make decisions which impact people's lives, such as assessing the worthiness of loan or mortgage applications. Regulating AI to build public trust in cutting-edge technologies and make it easier for businesses to innovate, grow and create jobs could ensure the democratising AI initiative reaches its full potential.

According to the World Economic Forum, by 2025, Web3 technologies will have revolutionised the world of commerce, in much the same way that Web2 transformed access to information. Physical and digital (phygital – a marketing term that blends digital experiences with physical ones) 'things' will be listed and traded on an open, liquid, digital market [36]. Another digital reform that could be anticipated is the digital based services that maintain humanity, intimacy, depth, and empathy such as focusing on real conversations instead of mass influence. This may sound contrary to the direction by many organisations through the usage of chatbot, but it is expected that consumers will value interactions that make us feel closer to each other and that can focus on the human experience. The transition to the metaverse will be not a technological but a sociological paradigm shift. The metaverse will be shaped by the communication of our emotions, enabled by technologies such as virtual and augmented reality, and brain-computer interfaces. New hardware, platforms, disciplines, and senses will come into play. Social contracts will be redefined in the virtual world, where emotion, trust, and safety become our most important currencies. But with enormous growth comes an array of issues: data privacy, management, access, and affordability that should be addressed with appropriate regulations.

Therefore, a reform that could turbocharge this is the equipping workforce with valuable human skills that are complemented with digital proficiency to allow immersive human experience while leveraging technologies for productivity.

H) Redesigning Inclusive and Flexible Environments

Leveraging technologies for productivity yet in a humanised setting is a global agenda nowadays. Guidelines by international agencies such as UNESCO have highlighted the importance of responsible technologies including AI to prioritise humans against technology. This is because AI systems raise new types of ethical issues to many aspects including decision-making, employment and labour, social interaction, democracy, human rights and many more. The importance of protecting human rights and equipping people with the values and skills needed for sustainable development and effective human-machine collaboration in life, learning, and work hence become further amplified.

Besides, mental health and quality workforce should be managed too so the employees are motivated to improve their skills and creativity to achieve better results while accountable for their performance. Employees may feel burned out to balance career and life commitments. Factors that could deter a conducive working environment such as having to be trapped in congestion on the way to work could also demotivate them. By offering flexibility, organisations could create an environment where employees feel valued, trusted, and empowered, resulting in higher job satisfaction and increased commitment to their work. Work-life balance is being given more importance among the current workforce generation besides other expectations encompassing flexible working hours, remote work opportunities, job sharing and part-time work, and personalised work arrangements.

I) Attracting and Retaining Talents

Job seekers want comprehensive salaries and benefits, inclusive company cultures, and ample career development opportunities. Competitive compensation and a comprehensive employee benefits package could attract and retain skilled workers. Workers also prioritise companies that align with their goals and values. Leaders must partner with employees to help them develop their careers in ways that also support the company's mission, especially in a tight job. Employers should keep this in mind as they think about which strategies, they can use to not only attract the best workers but also keep them long-term.

Incentives for innovators and talents grow offers that are not saturated only in the centre of town and certain sectors could result in ideal workforce development. Tax incentives for people and industries in STEM related industries could also be considered. Initiatives such as golden visas could attract foreign talent to complement grooming our local talents. Besides, a possible new supply of workforce could be among the foreign students in Malaysia. An example initiative that can be considered is to make it compulsory

for foreign students in Malaysia to have an internship in a company in Malaysia as part of the condition for admission in our local academic programs.

J) Coordinating Partnerships

Partnership and coordination play crucial roles to leverage isolated efforts, connect people and opportunities, and broaden expected outcomes. An agile measure for competency development effectiveness could be developed as an indicator of efforts, achievements and identify gaps. Partnership between educational institutions and tech companies to align curriculum with industry requirements and innovate academic programs to foster practical skills development as follows.

Collaborating with Educational Institutions: Organisations can establish partnerships with educational institutions, such as universities, colleges, and vocational schools, to ensure that the curriculum aligns with industry needs. By providing input on desired skills and competencies, businesses can help shape the education system to produce job-ready graduates. Expertise in the industry can also give direct benefit to the students and the academicians through introducing a scheme for industry players to be short term-pedagogy-scheme for industry at academia, and vice versa.

Industry-Academia Partnerships: Collaboration between academia and industry can lead to research and development initiatives that address emerging challenges and opportunities. Joint projects, internships, and knowledge-sharing programs can bridge the gap between theoretical knowledge and practical application, preparing students for the future job market.

Public-Private Partnerships: Governments and businesses can form partnerships to invest in workforce development initiatives. This collaboration can lead to the creation of training programs, scholarships, and incentives that support individuals in gaining the necessary skills for future jobs. By working together, governments and private entities can address skill gaps and foster economic growth.

Cross-Sector Collaboration: Future-proofing the workforce often requires collaboration across different industries. Sharing best practices, insights, and experiences can help identify common challenges and develop solutions that benefit multiple sectors. Cross-sector partnerships can also facilitate talent mobility and encourage knowledge exchange.

Internal Collaboration: Within organisations, fostering collaboration and coordination is essential for future-proofing the workforce. Departments and teams should work together to identify emerging skills requirements and create development programs. Cross-functional projects and mentorship programs can help employees gain exposure to different areas, promoting agility and adaptability.

Industry Associations and Networks: Joining industry associations and professional networks can provide access to resources, training opportunities, and a platform for collaboration. These platforms often facilitate knowledge sharing, industry-wide initiatives, and the development of standards, all of which contribute to future-proofing the workforce.

International Collaboration: With the globalisation of the workforce, international collaboration becomes increasingly important. Sharing insights and experiences across borders can help organisations understand global trends, best practices, and new market opportunities. Collaborating with international partners also enables access to a diverse talent pool and fosters a global mindset among employees.

7.0 Post-event country-level developments

Various active developments have been available at national level since the forum convened which reflected the country's appetite for reskilling the future talents especially in AI.

As an effective response to growing interest in data centers and artificial intelligence, as well as the need to enhance the understanding of students at various levels, the Ministry of Digital, Malaysia is formed as well as to drive economic growth and lure investment to the country.

AI events such as the Chinese Chambers of Commerce and Industry Tech Conference (ACCCIM, 2023), UK MY AI Conference 2023 (BHCKL, 2023) and ASM's AI Forum (ASM, 2023b) have highlighted examples of implemented AI initiatives and calls for closer collaboration to democratize the promises of AI for all. Talks, hackathons, intellectual discourses, forums, exhibitions and digital channels have been created to identify opportunities such as upskilling and reskilling programs, challenges such as talent gaps and infra/infostructure necessities, and best practices for AI implementation including use cases.

The government is also investing in AI education and research by funding the first AI faculty in Malaysia at Universiti Teknologi Malaysia, expected to start in 2024 [27].

The establishment of the Malaysia Centre4IR in MyDIGITAL (under the Ministry of Economy) is a further example of unwavering commitment by the government to foster innovation and facilitate the co-design of policies and regulatory frameworks necessary to maximize the social benefits and minimize the risks associated with these advanced technologies.

The 'AI untuk Rakyat' (AI for People) program (MyDIGITAL, 2024) is another such initiative, aimed at enhancing public literacy in AI and bridging the digital divide, with a focus on inclusivity and participation in AI-related developments. The program consists of two courses, AI Aware and AI Appreciate, that are available in four local languages, based on original courses by Intel. The courses are free and compulsory for all government servants.

8.0 Conclusion

MBOT recognises the imperative of preparing the nation's workforce for the challenges and opportunities presented by the rapidly evolving digital landscape. In response to this imperative, the Board has undertaken the task of evaluating the current state of future workforce readiness in Malaysia. This paper is a call to action. It aims to ignite collaborative initiatives that empower Malaysia's workforce for the digital age. We envision a workforce that is not just resilient, but a catalyst for innovation, economic growth, and sustainable development. Through this paper, we'll assess Malaysia's current state of future workforce readiness, showcase inspiring case studies, and define the roles various stakeholders can play in shaping this collective vision.

The primary objective of this initiative is to identify the current state of future workforce readiness within the Malaysian context. By conducting a thorough assessment, the MBOT aims to pinpoint the strengths, weaknesses, and existing gaps in the nation's capacity to equip its workforce with the necessary skills and competencies demanded by the digital era. This evaluation will draw on a range of factors, including educational programs, industry demands, and workforce composition.

Furthermore, the paper seeks to present case studies highlighting innovative interventions that have successfully navigated the challenges of integrating digital technologies into the workforce. These case studies will shed light on best practices, successful strategies, and lessons learned, offering valuable insights for shaping effective policies and initiatives.

The paper has delved into the specific areas that emerged as focal points during the forum discussions:

a. Identifying current skill gaps: Understanding the existing skill gaps within the tech industry and mapping them to future industry demands.
b. Collaboration between academia and industry: Strengthening the partnership between educational institutions and tech companies to align curriculum with industry requirements and foster practical skills development.
c. Upskilling and reskilling initiatives: Designing targeted training programs and initiatives to equip the existing workforce with the necessary skills to adapt to technological advancements.
d. Promoting diversity and inclusion: Encouraging a diverse and inclusive workforce to foster innovation, creativity, and a broader range of perspectives within the tech industry.
e. Embracing frontier technologies: Nurturing a culture of continuous learning and exploration to keep pace with the latest advancements in emerging technologies.

In addition to diagnosing the current state and presenting successful interventions, the paper articulates aspirations for stakeholders to collectively contribute to the preparation of the future workforce. It emphasizes the collaborative roles of government bodies, educational institutions, industries, and other relevant entities. By presenting these aspirations, the MBOT aims to foster a shared vision and commitment among stakeholders to actively engage in the collective effort of ensuring Malaysia's workforce is well-prepared for the demands of the digital future.

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