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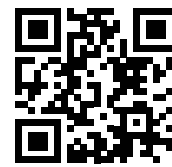
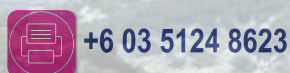
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foreword

The Covid-19 pandemic has not only brought about serious health implications but also created a highly challenging economic climate across the world. Here in Malaysia, we at SIRIM are doing our part in this on-going war against the pandemic. With our expertise in technological innovations and our role as a facilitator of the nation's economic growth, we are in a unique position to contribute, both in terms of supplying the necessary equipment for Covid-19 frontliners and patients, and in helping industries weather this storm.

In this issue, we highlight the programmes we have on offer that can facilitate this. We urge organisations, especially small and medium enterprises (SMEs), to take advantage of what we have for you. Let us work together to get back on track and embrace the upcoming 12th Malaysia Plan while moving closer to achieving the Sustainable Development Goals (SDGs) for the benefit of all.

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THE COVID-19 CORONAVIRUS HAS WREAKED HAVOC IN OUR DAILY LIVES. SIRIM HAS BEEN WORKING TIRELESSLY TO HELP FRONTLINERS, PATIENTS AND SOCIETY IN OUR FIGHT TO CONTAIN THE VIRUS WHILE SAFEGUARDING THE COUNTRY'S ECONOMIC PROGRESS AS WE MOVE CLOSER TO THE 12TH MALAYSIA PLAN AND, CONSEQUENTLY, TOWARDS ACHIEVING THE UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOALS (SDGs).

*Prof. Ir. Dr. Ahmad Fadzil Mohamad Hani,
President and Group Chief Executive of SIRIM*



facilitating MALAYSIA'S ECONOMIC GROWTH

The year 2020 had a rocky start, with the Covid-19 pandemic casting its shadow on the world. Malaysia has not been spared.

With the operational stress brought about by the pandemic, it has become more crucial than ever for Malaysia's industry players to be able to reap the benefits of Industry 4.0 technologies and ensure their business continuity. This is where digitalisation, particularly of the manufacturing processes, is key.

"It is timely that small and medium enterprises (SMEs) review their business model and supply chain network to build a more resilient and agile business in order to survive and recover from the Covid-19 crisis. SIRIM will assist them to accelerate the adoption of digital technology and automation," said Prof. Ir. Dr. Ahmad Fadzil Mohamad Hani, President and Group Chief Executive of SIRIM.

For one, SIRIM has a wealth of programmes and initiatives to facilitate faster economic recovery, like the SIRIM-Fraunhofer programme. Rolled out in 2015, the programme is aimed at increasing the productivity of SMEs in the manufacturing sector via technology penetration and upgrading.





SIRIM also plans to introduce new digital modalities to prepare manufacturers and industry at large for the new normal.

"In our commitment to building capabilities and capacities in the industry towards achieving higher productivity, we offer strategic solutions that are up to date with emerging trends and tailored to the needs of modern enterprises. SIRIM combines technological innovations with business-oriented disciplines to deliver quality products and services that are relevant to the marketplace," shared Dr. Ahmad Fadzil.

SIRIM is aware that IT platforms and infrastructure are critical for digitalisation. However, SMEs are reluctant to invest due to high costs and uncertainty of the benefits of their investments. "To address this, SIRIM is collaborating with well-known international companies like Hitachi, Bosch and Huawei in identifying affordable and suitable IT-related solutions for Malaysian SMEs. The "Experience Centre", which we plan to set up in SIRIM, Bukit Jalil, will enable SMEs to assess and understand potential platforms or technologies to be used," added Dr. Ahmad Fadzil.

With its close links to industry, SIRIM is able to introduce new ideas and concepts, such as Circular Economy, Eco-innovation and Design for Environment (DfE), and Material Flow Cost Accounting (MFCA) to the local players, especially SMEs.

"There is a 'wait-and-see' attitude among most Malaysian companies. We want our people – be they SIRIM's scientists, engineers, standards secretaries or management system auditors – to be proactive and become agents of change in sharing new ideas, concepts, standards and technologies when they are on the ground," explained Dr. Ahmad Fadzil.

Moving into the 12th Malaysia Plan

According to the Malaysia's Sustainable Development Goals, Voluntary National Review 2017 report, the country's achievements with respect to specific United Nations Sustainable Development Goals (SDGs), namely SDG12 (Responsible Consumption and Production), SDG13 (Climate Action), SDG15 (Life on Land) and SDG17 (Partnership for the Goals) include green government procurements at a total value of RM429 million since 2013, reduction of the carbon intensity of our economy by 33% since 2009 and the preservation of 52.5% of our forest cover.

SIRIM has had a hand in facilitating these achievements, whether directly or indirectly, through its standards development, conformity assessment and industrial research activities. Besides publishing 65 eco-standards supporting green procurement between 2016 and 2020, it established a demo plant in Sabah to tap the methane gas emitted from palm oil mill waste, in addition to developing an Industry Standard for bio-natural gas (BioNG).

SIRIM also plays an integral role in ensuring that forest and oil palm-based plantation companies adhere to standards set by the Malaysian Timber Certification Council (MTCC) and Malaysian Palm Oil Certification Council (MPOCC), particularly in resource and wildlife management.

Additionally, SIRIM is collaborating with the United Nations Industrial Development Organization (UNIDO) in exploring the potentials of Solar Thermal as another clean energy option to reduce energy costs in manufacturing facilities.

It is timely that small and medium enterprises (SMEs) review their business model and supply chain network to build a more resilient and agile business in order to survive and recover from the Covid-19 crisis. SIRIM will assist them to accelerate the adoption of

**digital technology
and automation.**





Malaysia is headed in the right direction. The government has set a policy that all activities planned under the

12th Malaysia Plan

have to be aligned with the SDGs.



The upcoming 12th Malaysia Plan (2021-2025) is set to move Malaysia even closer to achieving the SDGs. According to Dr. Ahmad Fadzil, "Malaysia is headed in the right direction. The government has set a policy that all activities planned under the 12th Malaysia Plan have to be aligned with the SDGs."

Concurrently, SIRIM is well-poised to continue supporting the government's efforts. "Our initiatives under the 12th Malaysia Plan leading towards the SDGs are imbedded in the activities that we carry out," he added.

Going Forward

In line with the Ministry of International Trade and Industry's (MITI) initiatives in new potential growth areas, such as aerospace, rail, medical devices and shipbuilding, SIRIM has been engaging with industries to identify their needs, challenges and aspirations to enable it to develop programmes and services that are relevant.

SIRIM is also looking into establishing a Medical Device Innovation Centre (MDIC) which aims to develop the nation's medical device industry and enhance its competitiveness. MDIC will assist in building capabilities to address the market access gaps of the local medical device products as well as growing the product innovation capabilities of medical device manufacturers in the country.

"The MDIC will help Malaysian companies to localise products to replace imported goods; develop home-grown products; ensure local products meet product quality, performance and reliability; and meet regulatory requirements," elaborated Dr. Ahmad Fadzil.

Services will include biomodelling and prototyping, industrial research and product innovation, technology commercialisation, accredited testing, certifications, training and consultation.

Industry players will therefore be able to tap into SIRIM's extensive range of capabilities – from research and development to commercialisation – to facilitate market access. In the long term, this will lead to economic growth, as well as creating more jobs and access to new markets for our medical devices. Meanwhile, locally manufactured medical devices will allow for more affordable products and access to quality essential healthcare services in line with SDG3 (Good health and wellbeing).

Malaysia's Medical Device Industry at a Glance

RM1.4 BIL
MARKET VALUE IN 2018/2019

16.1%
PROJECTED ANNUAL GROWTH

RUBBER GLOVES & CATHETERS

BIGGEST EXPORTS TO GLOBAL MARKET

The MDIC will help

Malaysian Companies

to localise products to replace imported goods; develop home-grown products; ensure local products meet product quality, performance and reliability; and meet regulatory requirements.





collaborating with **INDUSTRY** to **grow** **THE NATION**

MALAYSIA HAS BEEN STEADILY MAKING HEADWAY IN EMBRACING THE FOURTH INDUSTRIAL REVOLUTION. THUS FAR, MULTINATIONAL CORPORATIONS (MNCs) SEEM TO BE THE MAIN BENEFACTORS OF THE NEW TECHNOLOGIES THAT HAVE SPRUNG FORTH. HOW CAN THIS GAP BETWEEN MNCs AND SMALL AND MEDIUM ENTERPRISES (SMEs) BE CLOSED?

KEY TECHNOLOGY PILLARS



Artificial Intelligence



Autonomous Robots



Augmented Reality



Simulation



Advanced Materials



Cybersecurity



Big Data Analytics



Cloud Computing



System Integration



Additive Manufacturing



Internet of Things (IoT)



At SIRIM, we have a wide spectrum of technology-oriented solutions available. In fact, we offer one of the most complete

suites of solutions

under one roof within the nation, if not throughout the region.





The arrival of Industry 4.0 has brought about many rapid technological advancements and new possibilities. On Malaysian shores, the phenomenon is expected to catalyse the growth of the manufacturing sector in particular through the 11 key technology pillars that were identified in the country's Industry4WRD: National Policy on Industry 4.0.

Malaysia is said to already have one of the most advanced technology-based industries in the region. Nevertheless, there is a significant gap between the bigger and smaller players. This is where SIRIM comes in. In promoting innovation through research and development via its Industrial Research division, SIRIM is well-equipped to help small and medium enterprises (SMEs) progress.

"At SIRIM, we have a wide spectrum of technology-oriented solutions available. In fact, we offer one of the most complete suites of solutions under one roof within the nation, if not throughout the region," stated Dr. Mohd Shahrul Azmi Mohamad Yusoff, Director of the Industrial Centre of Innovation (ICI) in Smart Manufacturing at SIRIM.

As a bonus, SIRIM is able to capitalise on its unique triple-helix partnership with the government, academia and industry to ensure that the solutions it offers are of the best quality.

SIRIM's main objectives in this respect are to increase productivity, reduce dependency on foreign solutions and ensure the continuous growth of Malaysia's industries. The SIRIM-Fraunhofer programme is one of the initiatives being conducted to facilitate this.

"The gap between industry players is largely because of innovation disparities that occur as a result of differing

funding capabilities. The technology audits and readiness assessments conducted under SIRIM-Fraunhofer are among the tools used for our on-going benchmarking efforts, which will then be followed by a transformation strategy," said Dr. Mohd Shahrul.

SIRIM has also been appointed by the Ministry of International Trade and Industry (MITI) to be an assessment body for the Industry4WRD Readiness Assessment. Adopting a predetermined set of criteria, this comprehensive programme aims to understand the capabilities, gaps and, subsequently, readiness of organisations to adopt Industry 4.0 technologies. This will enable them to come up with the necessary strategies to move forward.

According to Dr. Mohd Shahrul, it is important to measure the competency level of the organisation first to ensure that it is able to reap optimal benefits from SIRIM's industrial research capabilities. "That is the first step towards understanding the true level of awareness among industry players, which will allow us to design a unique competency development programme that is able to address the individual issues of each organisation," he elaborated.

With its vast pool of researchers, engineers and analysts, SIRIM also possesses immense experience and expertise in multiple technological aspects; consequently, it has developed a methodology to assess and guide industry as a whole towards a better future via technological innovations.

The Centre of Progress

Among others, SIRIM's offerings include six ICIs and three Technology Centres (TCs), which support the country's



The technology audits and readiness assessments conducted under SIRIM-Fraunhofer are among the tools used for our on-going benchmarking efforts, which will then be followed by a

transformation strategy.





Engage with us; we will walk you through the transformation towards becoming **industry4.0-ready** with our years of experience and vast expertise along the technology spectrum.



industrial innovation ecosystem through research and development and new technology innovations that develop and sustain businesses and industries.

“The ICIs are a dynamic research setup with aggressive engagement along the horizontal value chain, focusing more on applied technology to be adopted by industries along the value chain. TCs, on the other hand, concentrate on the verticals – the advancement of technology within a particular discipline,” explained Dr. Mohd Shahrul.

The projected leap in technology for the manufacturing sector is envisioned to pave the way for the introduction of mass customisation, whereby industry players will be able to respond much faster to individual demands and provide bespoke solutions. Through its Centre of Excellence for Smart Manufacturing, SIRIM is leading the way in transforming industries and laying the foundation of regulatory frameworks for Industry 4.0 initiatives in the country, with various offerings that include training services, readiness assessments, strategic technology planning, as well as private and public contract research.

*Dr. Mohd Shahrul Azmi Mohamad Yusoff,
Director of the Industrial Centre of Innovation (ICI)
in Smart Manufacturing at SIRIM*

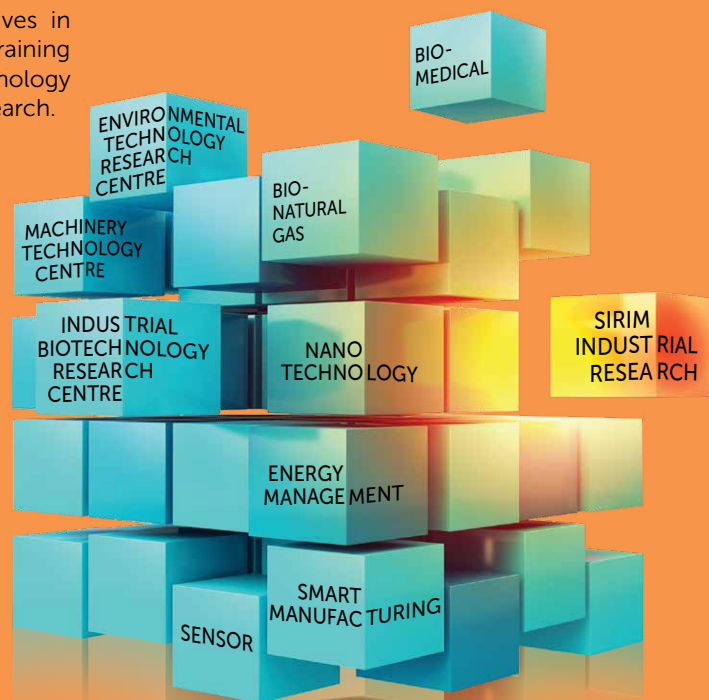


Gearing Up for the Future

There is definitely room for improvement when it comes to increasing the level of adoption of smart manufacturing technologies among SMEs. This is a necessity if we wish to continue growing and developing the country’s industry as a whole.

SIRIM looks forward to welcoming industry players that might need a helping hand. “Engage with us; we will walk you through the transformation towards becoming Industry 4.0-ready with our years of experience and vast expertise along the technology spectrum,” declared Dr. Mohd Shahrul.

SIRIM Industrial Research encompasses:





embracing the **digital age** for the **PROSPERITY OF THE NATION**

THE WORLD IS EXPERIENCING A DIGITAL TRANSFORMATION LIKE NEVER BEFORE. WITH DIGITAL DISRUPTORS ALREADY SNAPPING AT THE HEELS OF MANY INDUSTRIES, HOW READY IS MALAYSIA TO REAP ITS BENEFITS?



digitalisation

is changing our economies and societies – driving entrepreneurship, innovation and growth; and it is expected to keep expanding.



As the fourth industrial revolution continues to gain traction the world over, it has become more evident how essential digitalisation is for the prosperity of a nation. Digitalisation is changing our economies and societies – driving entrepreneurship, innovation and growth; and it is expected to keep expanding.

As a key accelerator of socioeconomic development, digitalisation becomes a central ingredient in upping the productivity and efficiency of a nation. As such, organisations that wish to stay competitive and relevant in today's economy need to be ready to adapt and transform accordingly.





Optimising Progress

Digitalisation is a broad term that refers to a holistic transformation across diverse areas using digital technologies in a strategic manner to streamline and/or accelerate one's operations.

Many people tend to confuse "digitalisation" with "digitisation"; however, there is a clear distinction between the both.

"Digitalisation is the integration of digital technologies into everyday life and business activities, while digitisation refers to the conversion of manual paper-based processes into digital-based processes. You need to digitise before you digitalise," explained Tengku Intan Narqiah Tengku Othman, Chief Digital and Information Officer of SIRIM.

As a significant harbinger of a nation's health and development, it comes as no surprise that digitalisation brings with it an array of benefits. For one, it has brought about new and exciting ways for engaging customers, making the customer experience faster and easier. It is also playing an integral role in facilitating a more seamless workflow by optimising business processes and systems, consolidating key applications, and allowing for easier data retrieval and smoother inter-departmental collaboration, to name a few.

The increase in an organisation's capabilities can be expected to bring about an increase in its adaptability as well as more and better innovations. This could subsequently lead to improvements to current products and the creation of new products, resulting in new and larger revenue streams.

Digitalisation is also seen to empower employees, giving them a platform to develop new skills and future-proof themselves in addition to equipping the organisation with the in-house knowledge and skills necessary to sustain its growth and competitiveness.

"At a very high level, digitalisation catalyses the economy by increasing the production of higher quality goods and services at reduced costs, which can, in turn, gain in per capita Gross Domestic Product (GDP)," added Tengku Intan.

Naysayers have spoken out about their fear of job loss. While this might be inevitable, digitalisation could also spell new opportunities. "While the digitalisation may reduce labour workers, the advancement of the technological ecosystem could also result in a new economic model being born – the digital economy, paving the way for new job opportunities to be created in digital services across industries," she explained.

digitalisation

is the integration of digital technologies into everyday life and business activities, while digitisation refers to the conversion of manual paper-based processes into digital-based processes. You need to digitise before you digitalise.



Defining the Digital Economy

According to the Malaysia Digital Economy Corporation (MDEC), "The digital economy refers to the actions taken by both the private and public sectors to adopt and utilise digital technologies to communicate with people, deliver goods and services, and meet other core functions to raise productivity, revenue and incomes."

In other words, digital economy is a collective term that refers to an economy focusing on digital technologies. It covers all activities supported by the web and other digital communication technologies and, as such, is also known as the Web or Internet Economy. Today, the digital economy has an estimated USD3 trillion value.





At a very high level, digitalisation **catalyses** the economy by increasing the production of higher quality goods and services at reduced costs, which can, in turn, gain in per capita Gross Domestic Product (GDP).



Overcoming Barriers

Despite that, getting organisations to jump on the digital transformation bandwagon has not been all smooth-sailing. There are numerous barriers that they need to overcome. These include:

- Inadequate infrastructure
- Lack of trust in digital technologies
- Shortage of properly skilled manpower/know-how
- Financial constraints
- Lack of interoperability of standards

While a popular consensus is that small and medium enterprises (SMEs) would be the hardest hit by an inability to smoothly adopt digital technologies due to the often high investment costs of doing so, Tengku Intan feels that this is not always the case. "My personal view is that budding SMEs do not have any issues in embracing digitalisation in their businesses. The late adoption normally stems from mature and stable organisations, which are initially unwilling to change. This is a major hindrance as when they do change their mind, often enough their businesses have already been disrupted."

Accelerating Digitalisation

SIRIM plays an important role in accelerating the adoption of digital technologies, particularly among SMEs. "At SIRIM, we have the necessary capabilities to help SMEs to be more competitive in terms of technological solutions," said Tengku Intan. These include joint research and technical services, exchange of personnel and information, and strategic innovation studies. SIRIM is also planning to establish an industry-driven platform to encourage the adoption of digitalisation among industry players.

While the digitalisation may reduce labour workers, the **advancement** of the technological ecosystem could also result in a new economic model being born – the digital economy, paving the way for new job opportunities to be created in digital services across industries.





Collective Capabilities

Collectively, SIRIM provides an array of facilities and programmes to promote digitalisation among our industry players. Among others:

- * SIRIM Training Services provides various digitalisation-related training programmes
- * SIRIM Industrial Research offers technological solutions in digitalisation areas
- * The SIRIM-Fraunhofer programme enhances the productivity of SMEs in the manufacturing sector through its core activities, namely Implement Innovation Management, Increase Technology Uptake, Nurture Growth of SMEs and Cross-cutting Programmes
- * SIRIM pursues smart partnerships with numerous technology partners

In championing digitalisation within the nation, SIRIM is focused on two areas in particular: innovation and adoption. "Via the SIRIM-Fraunhofer programme, for example, SIRIM is able to gather industry-driven requirements in the area of digitalisation. This will be pertinent input for SIRIM to conduct research and development and innovation in line with our vision to be the Best Partner for Innovation," she explained.

Internally, Tengku Intan reveals that SIRIM will continue to adopt and embrace digitisation and digitalisation initiatives. "Our mission is to improve employee and customer experience by simplifying and innovating our business processes using unprecedented technologies to provide faster and more efficient services to the public."

By doing so, SIRIM will move a step closer towards realising its mission of becoming a trusted partner to the industries and doing its part for the progress and development of the country.

Enhancing Global Competitiveness

In essence, the prosperity of a nation is dependent on its global competitiveness which, in turn, is dependent on how optimally its industry players are able to embrace digital technologies. With improved competitiveness, the country would logically be able to produce more and better products and services, and consequently increase its GDP. Conversely, countries that fail to do so may find their GDP declining.

"Digital transformation is not about technology; it is a human and mindset transformation," mused Tengku Intan.

It is therefore imperative for Malaysia's industry players to take the initiative to do what is necessary to ensure that they are able to adapt and adopt digital technologies that will enable them to innovate and progress further.

*Tengku Intan Narqiah
Tengku Othman,
Chief Digital and Information
Officer of SIRIM*



Our mission

is to improve employee and customer experience by simplifying and innovating our business processes using unprecedented technologies to provide faster and more efficient services to the public.





THE YEAR 2020 MARKS THE END OF THE 11TH MALAYSIA PLAN. AS THE COUNTRY GEARS UP FOR THE 12TH MALAYSIA PLAN THAT WILL COMMENCE NEXT YEAR, THE MALAYSIA PRODUCTIVITY CORPORATION (MPC) SHARES WHY PRODUCTIVITY IS CRUCIAL TO ENSURE THE NATION'S CONTINUED PROGRESS.

progressing with PRODUCTIVITY

*Dato' Abdul Latif
Hj Abu Seman, the Director
General of Malaysia
Productivity Corporation (MPC)*



higher productivity

levels will lead to higher quality output, allowing the organisation to be more competitive not only in the local market but also in the international market.



The Malaysian government is endeavouring to transform the economy from input-driven growth to productivity-driven growth. This is because with the former, it is becoming more expensive to accommodate every unit of input injected into the economy, thus resulting in a decrease in GDP growth compared to in the past. This transition is therefore necessary to achieve sustainable economic growth.

A Measure of Efficiency

Productivity measures how efficient a production process is. This means that it will rise when inputs in the production process are optimally utilised to achieve greater levels of output. In other words, productivity grows when output grows more rapidly than input, thus rendering input more productively efficient.





Productivity is a key determinant of living standards. It ascertains the overall economic health of a nation by illustrating how an economy optimally utilises existing resources to enable sustainable economic growth.

“A sector with high productivity growth gives the industry and businesses in the sector a competitive advantage in relation to resources such as materials, machinery, labour and capital. Consequently, higher productivity levels will lead to higher quality output, allowing the organisation to be more competitive not only in the local market but also in the international market,” explained Dato’ Abdul Latif Hj Abu Seman, the Director General of Malaysia Productivity Corporation (MPC).

When it comes to the manufacturing sector in particular, productivity gain is important to allow the industry to compete with other economic sectors for resources and maintain international competitiveness. Similarly, at organisational level, productivity can allow the firm to remain competitive through the provision of higher wages, returns to shareholders or funds for investments.

Measuring Success

Economic prosperity and a higher quality of life are not overnight achievements. They require persistence in ensuring that the nation’s productivity levels are up to par in the long run.

At MPC, the two common productivity measures used are:

- Multifactor Productivity (MFP), which measures economic performance that compares the amount of goods and services produced (output) to the amount of combined inputs used to produce the said goods and services.

Propelling Productivity

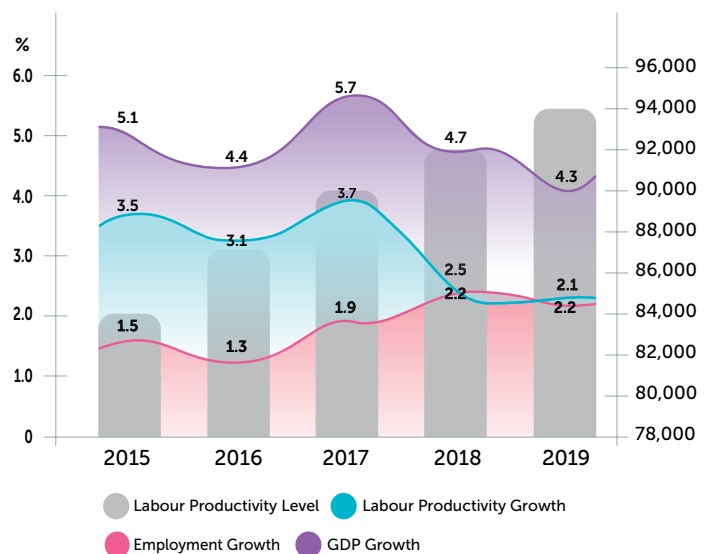
Established in 1962, Malaysia Productivity Corporation (MPC) was given a mandate to monitor the productivity performance of organisations before and after innovation intervention programmes through strategic partnership programmes implemented by various ministries and agencies. With the launch of the Malaysia Productivity Blueprint (MPB) in 2017, MPC’s role has expanded to also include the monitoring of productivity initiatives implemented at sectorial level.

Today, MPC continues to spearhead the nation’s efforts in boosting productivity and competitiveness via various productivity improvement initiatives, including the Regulatory Impact Analysis (RIA) and Reducing Unnecessary Regulatory Burden (RURB) under Modernising Business Regulations, and Lean Management and Business Excellence under Quality and Excellence Development of Enterprises.

- Labour Productivity (LP), which measures the growth in value-added output per unit of labour used.

LP growth is affected by several factors, namely MFP and capital intensity. While MFP encourages technological dynamism, capital intensity refers to the utilisation of capital within the workforce.

“Investments in capital alone will not reflect higher productivity but should be complemented by efficient



Malaysia’s Labour Productivity Level and Growth, GDP Growth and Employment Growth, 2015-2019



managerial practices and work procedures, advanced machinery and technology, and skilled labour,” elaborated Dato’ Abdul Latif. “Both MFP and capital intensity will measure the qualitative aspects of labour and capital input.”

Subsequently, MPC is working with the Economic Planning Unit (EPU) to develop a standard measure of MFP using the KLEMS method. KLEMS is an acronym that refers to capital (K) and labour (L), the primary factors of production; as well as intermediate inputs of energy (E), materials (M) and services (S).

Promising Position

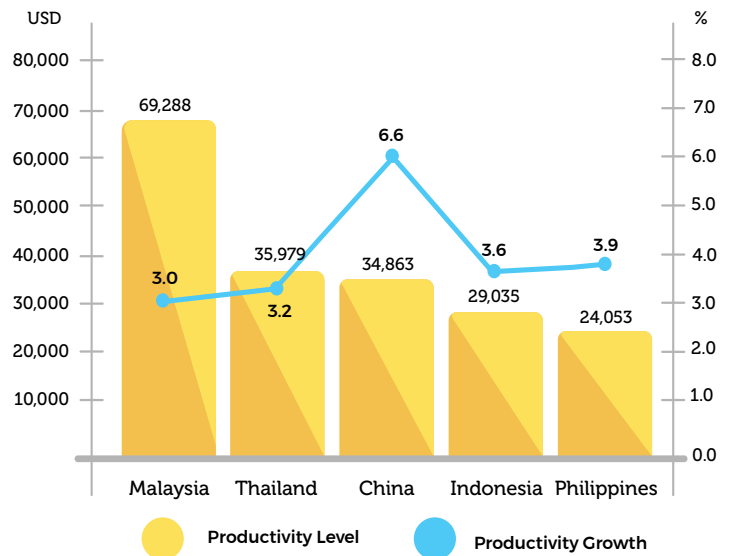
Malaysia fares relatively well in terms of productivity levels, with its LP growing by 2.2% to RM93,909 in 2019 compared to RM91,972 in the previous year. The country is at the forefront when compared with others in the region, such as Thailand, China, Indonesia and the Philippines.

“Malaysia is within reach of a productivity renaissance, which can be a vital advantage to boost the international competitiveness of our national economy,” commented Dato’ Abdul Latif.

To improve the country’s productivity levels, it is essential to ensure the evolution of the economy’s market position and the success of its long-term transformation continue. To facilitate this, the following objectives will have to be met:

- a well-educated labour force
- a conducive climate for innovation
- efficient market mechanisms
- advanced physical infrastructure
- highly capable public institutions

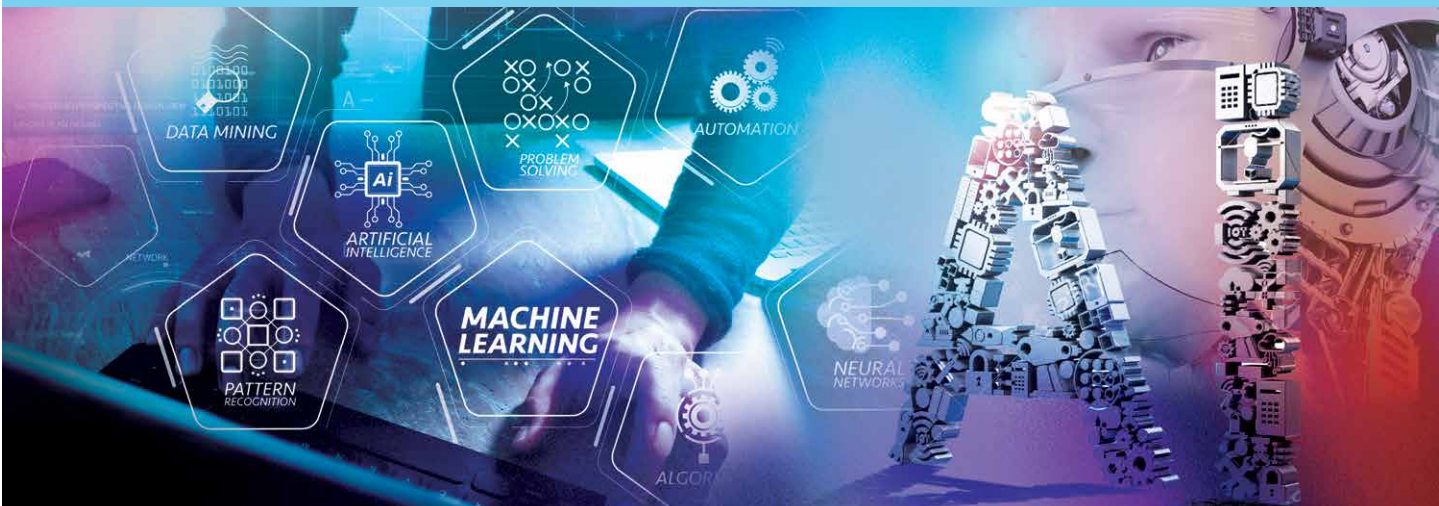
MPC plays a key role in implementing numerous initiatives that are significant in enhancing the nation’s productivity level.



Labour Productivity of Malaysia vs Selected Asian Countries, 2019

Among them, the Malaysia Productivity Blueprint (MPB) was launched in 2017 to drive the implementation of productivity initiatives at national, sectorial and enterprise levels. “With the MPB, the Productivity Nexus was rolled out. This is an industry-driven platform that aims to boost enterprise productivity and innovation, and involves industry, government and universities sharing expertise to support the implementation of productivity solutions to empower enterprises,” explained Dato’ Abdul Latif.

In order to build a competent pool of knowledgeable workers to meet the nation’s current and future needs, it is imperative to increase the proportion of high-skilled human capital while reducing dependence on low-skilled workers. The National Wage Index, which sets a benchmark based on skill level, and Productivity-linked Wage System (PLWS) practices will facilitate this.





Meanwhile, to enable industry players to adopt the technologies of the fourth industrial revolution, MPC is working closely with other agencies under the Ministry of International Trade and Industry (MITI) to realise the Industry4WRD policy.

● The Way 4WRD

Industry4WRD is the country's response to facilitate the digital transformation of the manufacturing sector and its related services. It aims to pave the way for enhanced productivity, job creation and high-skilled talent pool in manufacturing, and ultimately contributes to economic prosperity and societal wellbeing, while also encouraging the development of the sector's innovative capacity and capabilities to create Malaysia's own technologies, products and services.

Source: Ministry of International Trade and Industry

To inculcate a culture of productivity in the workplace, a best practice partnership programme allows organisations to share best practices and ideas with each other through seminars, conventions and conferences as well as online avenues that include a Productivity Way Up portal and Benchmarking Online Networking Database (BOND) system.

Several initiatives have also been implemented to create a business environment that is conducive. These include the Good Regulatory Practices (GRP) and Reducing Unnecessary Regulatory Burdens (RURB) methodology.

"The unique value proposition of the RURB methodology is that it addresses issues with an 'outside to inside' approach, involving collaborations between businesses and regulations to find solutions to challenges," added Dato' Abdul Latif.

MPC is also the secretariat of the Special Task Force to Facilitate Business (PEMUDAH), which was introduced to forge closer collaborations between public and private

sectors to improve business regulations, service delivery, ease of conducting business and the proactive launch and pursuance of new initiatives to increase productivity and competitiveness.

Additionally, MPC conducts productivity improvement intervention programmes. These include capacity building roles that guide organisations in becoming more efficient and productive, and system development that allows the organisations to measure their performance and, in turn, determine their performance benchmarks. "With these programmes, organisations can learn about quality management through the diagnostic measurement of business excellence and lean management," said Dato' Abdul Latif.

Getting Strong Support

SIRIM plays a prominent role in providing the necessary support to MPC to facilitate the improvement of the country's productivity levels.

There has been a lack of collaboration between centres of excellence and industry associations in providing upskilling opportunities, facilitating latest technology adoption and offering testing facilities, which has resulted in missed opportunities for the development of the capabilities of small and medium enterprises (SMEs). This is where SIRIM can lend a helping hand.



SIRIM is focused on Industry 4.0 and smart manufacturing research and technology capabilities. As one of the national centres of excellence on smart manufacturing, SIRIM, together with MPC, can be instrumental in helping the manufacturing industry, especially via the

**productivity
nexus.**





"SIRIM is focused on Industry 4.0 and smart manufacturing research and technology capabilities. As one of the national centres of excellence on smart manufacturing, SIRIM, together with MPC, can be instrumental in helping the manufacturing industry, especially via the Productivity Nexus," revealed Dato' Abdul Latif.

Among the areas that SIRIM can assist in are:

- Standards for interoperability
- Competency and capacity building
- Technology adoption

Inspiring an Impact

It is expected that the National Centre of Excellence on Smart Manufacturing will:

- *accelerate technology adoption that will contribute to higher industry growth*
- *facilitate the structured transformation of the industry to lead to wider market access and revenue growth*
- *strengthen the country's industrial innovation and technological competitiveness for higher efficiency and productivity among local manufacturing companies*

Contributing to the Nation's Development

The enhancement of the nation's productivity is a crucial aspect in determining the success of the upcoming 12th Malaysia Plan and, consequently, our consistent development.



"The first objective of the 12th Malaysia Plan, namely economic empowerment, may directly be contributed through the implementation of productivity enhancement initiatives across all economic sectors as well as for citizens/workers.

"Enhancing one's productivity can be related to the initiatives to increase the adoption and utilisation of technology and transformation of human capital towards a better skilled workforce. The implementation of the productivity-related initiatives will therefore support the achievement of recommendations under the various strategic thrusts of the 12th Malaysia Plan," concluded Dato' Abdul Latif.



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12th Malaysia Plan.





WITH A KEY ROLE IN CHAMPIONING THE GROWTH OF MALAYSIA'S INDUSTRIES, SIRIM HAS SEVERAL INITIATIVES IN STORE TO ENSURE THEY CAN PROGRESS SUSTAINABLY. TWO AREAS THAT IT FOCUSES ON ARE CERTIFICATION AND TRAINING.

helping ORGANISATIONS to grow SUSTAINABLY

Sustainability is not a new concept. In Malaysia, the government has been championing this for years. However, it has become even more crucial and relevant in recent times as more countries around the world are committing to upholding sustainability in their operations. As Malaysia is highly dependent on international trade, it is vital for the country to keep abreast with this global trend.

"Sustainability for Malaysian exports would mean that the products are deemed to have been produced by businesses that are more responsible for protecting the environment as well as prioritising the interests, safety and welfare of stakeholders involved, including customers, employees, vendors and the community at large," said Rosniza Abdul Wab, Head of Marketing and Customer Experience Section at SIRIM QAS International Sdn Bhd.

She cautioned that Malaysian exporters are now faced with having to deliver assurance of meeting environmental, social and governance (ESG) standards to convince buyers from around the world that their products and services are sustainable.

Sustainability

for Malaysian exports would mean that the products are deemed to have been produced by businesses that are more responsible for protecting the environment as well as prioritising the interests, safety and welfare of stakeholders involved, including customers, employees, vendors and the community at large.





- Sustainability focuses on meeting the need of the present without compromising the ability of future generations to meet their needs. The concept of sustainability comprises three pillars: economic, environmental and social, which are also popularly known as the 3Ps, namely profits, planet and people.

Source: Investopedia.com

However, the awareness level of Malaysians in general with regard to the importance of sustainability is still considered low. According to Dr. Mohd Azman Idris, Senior General Manager of the Training and Consultancy Department at SIRIM STS Sdn Bhd, "A survey we conducted from October to November last year on the adoption of management and best practices revealed that very few organisations have adopted management standards such as ISO 22301 (Business Continuity Management Systems), SIRIM 6 (Total Quality Management) and SIRIM 13 (Lean Management), three standards that are related to how an organisation will survive during difficult times and continuously improve their business performance to compete globally."

Meeting Benchmarks

Certification is a useful tool to add credibility as it demonstrates that an organisation's products and/or services meet certain benchmarks. For one, a supplier will enjoy wider market access and assurance that his quality management activities are well-organised and capable of continuously producing the desired effect.

For corporate buyers that purchase components or outsource sub-assemblies, third-party certification assures them of the quality of their final product and lower risk of the disruption of their operations. Consumers, meanwhile, will find that in most cases, certification is the only means they have to obtain assurance on the quality, safety and longevity of a product.

"In fact, certification promotes protection of society, facilitates international trade, contributes to the protection of the environment and helps to enhance the global economy," commented Rosniza.

Assurance of Sustainability

In order to obtain a certification, an organisation will have to follow a set of predetermined requirements. These will essentially provide an outline in guiding it towards more sustainable operations.

certification

promotes protection of society, facilitates international trade, contributes to the protection of the environment and helps to enhance the global economy.



● Mark of Conformance

Certification is an element of conformity assessment whereby a third party provides written assurance that a product, service, system, process or material conforms to specific requirements. The certification can be in the following categories:

- Management System Certification
- Product Certification
- Personnel Certification

There is typically some form of a conformity mark that will be applied on a particular product or service that has been evaluated and approved as complying with the necessary requirements. This marking is often a must for access to markets where mandatory regulations are in force.





Sustainability in an organisation means that the said organisation’s management, operations and financial efforts are focused on ensuring that it is responsible towards the environment and society, and is ethical. These characteristics collectively form the three central factors that define an organisation’s practice of sustainability, namely ESG.

“To date, ISO has published a total of 22,467 standards to be used as guides or frameworks for governments, industries and consumers to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs),” said Rosniza.

She went on to cite the first SDG – No Poverty – as an example. “The Anti-Bribery Management System Standard (ISO 37001) supports businesses and governments to combat bribery and build a culture of business integrity. A high-integrity culture will help reduce wealth gaps, which are a major cause of poverty.”

To date, ISO has published a total of **22,467 standards** to be used as guides or frameworks for governments, industries and consumers to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs).





SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION 
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	

1 NO POVERTY ISO 9001 ISO 14001 ISO 37001	2 ZERO HUNGER ISO 14001 ISO 22000 ISO 37001	3 GOOD HEALTH AND WELL-BEING ISO 13485 ISO 37001 ISO 39001 ISO 45001	4 QUALITY EDUCATION ISO 14001 ISO 21001 ISO 29993	5 GENDER EQUALITY ISO 45001	6 CLEAN WATER AND SANITATION ISO 14001 ISO 22301 ISO 55001
7 AFFORDABLE AND CLEAN ENERGY ISO 14001 ISO 22301 ISO 50001 ISO 55001	8 DECENT WORK AND ECONOMIC GROWTH ISO 22301 ISO 28000 ISO 45001 ISO 55001	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE ISO 9001 ISO 22301 ISO 28000 ISO 45001	10 REDUCED INEQUALITIES ISO 13485 ISO 21001 ISO 37001 ISO 45001	11 SUSTAINABLE CITIES AND COMMUNITIES ISO 21001 ISO 22301 ISO 28000 ISO 50001	12 RESPONSIBLE CONSUMPTION AND PRODUCTION ISO 9001 ISO 39001 ISO 50000
13 CLIMATE ACTION ISO 14001 ISO 37001 ISO 50001 ISO 55001	14 LIFE BELOW WATER ISO 9001 ISO 14001 ISO 37001	15 LIFE ON LAND ISO 14001	16 PEACE, JUSTICE AND STRONG INSTITUTIONS ISO 18788 ISO 21001 ISO 45001	17 PARTNERSHIPS FOR THE GOALS 	





There is a total of 17 SDGs listed and organisations can champion whichever are more relevant to their business. In fact, SIRIM QAS International offers numerous internationally recognised certification programmes relating to these SDGs, which businesses can choose from.

Among its certification programmes are:

- ISO 14001 – an Environmental Management System
- ISO 14067 – a Product Carbon Footprint that allows organisations to quantify the total emission of greenhouse gas (GHG) from each process during the entire life cycle of its products
- ISO 50001 – an Energy Management System, which provides verification of organisations’ efforts in reducing their energy consumption and GHG emissions
- SIRIM Eco-Labeling – a home-grown scheme that communicates the product’s environmental benefits
- Photovoltaic Module Certification – ascertains the reliability and safety of photovoltaic modules
- Modular Coordination Verification – a scheme for the implementation of Industrial Building Systems (IBS) to improve productivity in the construction sector

In light of the Covid-19 pandemic, SIRIM QAS International continues to assist in minimising the disruption of its customers’ businesses by enabling remote audits for industries in the essential services.

Building Skills and Knowledge

Alongside the certification programmes, it is just as important to ensure that the people behind the organisations are well-versed and equipped with the necessary skills to grow their businesses on the path towards sustainability. This is where training comes in.

SIRIM STS has conducted numerous training programmes on standards related to sustainability, including ISO 22301, SIRIM 6 on Total Quality Management and SIRIM 13 on Lean Management. It also holds specific trainings, such as the MS 2530 (Malaysian Sustainable Palm Oil) targeting oil palm industries that allows an organisation to export its palm oil products.

“Sustainability can also refer to how an organisation will survive for a longer term and compete with others during times of ease or hardship. Over the last 20 years or so, organisations have been faced with enormous pressures, which include the growth of competition, erosion of market share, economic recession, technology change, social change, new legislations, natural disasters and, of course, diseases like the current Covid-19 pandemic,” shared Dr. Mohd Azman.

The imposition of the Movement Restriction Order (MCO) to alleviate the spread of the Covid-19 virus has had significant impacts on most of the nation’s business activities. In circumstances like this, having a Business Continuity Plan in place is essential to ensure smooth operations, even if they are being conducted remotely.

SIRIM’s Business Continuity Management System training addresses this issue. “Participants learn how to conduct a Business Impact Analysis and identify the appropriate action plan,” explained Dr. Mohd Azman.

The Business Continuity Management System training is offered live online, and requires good internet connection as well as a computer, laptop or tablet with a webcam, speaker and microphone. Participants are advised to find a quiet setting in their homes to ensure minimal interruption. They will also be required to submit assignments, and an e-certificate of attendance will be issued upon completion of the course.

Spurred by the current Covid-19 pandemic, SIRIM plans to take advantage of the digitalisation era and focus on the delivery of online training via an e-learning platform moving forward. “We started offering pre-recorded training at the end of last year and live online training in April this year. This will allow more people to participate,” said Dr. Mohd Azman.

With the Covid-19 situation, the demand for both pre-recorded and live training has been gaining momentum. SIRIM STS offered 10 live training programmes in April, covering topics like the Business Continuity Management System, ISO 45001, ISO 37001, ISO 9001, ISO 14001, ISO 41001, ISO/IEC 17025, ISO 22000, Integrated Management System and Digital Marketing. Meanwhile, more training programmes are still being added on.

We promote

our services




through various avenues such as SIRIM Industry Engagement seminars and workshops, focus group briefings, industrial visits and e-mail blasts. Our website is also a good resource, as our clients will be able to obtain updates on the latest programmes and offers there. Other avenues include dialogues with industry players, corporate social responsibility programmes and social media.

☰





On-ground vs Online

Normal Classroom Training	Virtual Live Training	Pre-recorded Training
 <ul style="list-style-type: none"> • No need for internet connection and relevant electronic gadgets • Participants get direct contact time and face-to-face communication with trainers 	 <ul style="list-style-type: none"> • Cheaper than normal classroom method • Participants are able to ask questions, comment and get feedback immediately 	 <ul style="list-style-type: none"> • Cheapest alternative • Participants can attend at any time and venue



*Dr. Mohd Azman Idris,
Senior General Manager of
the Training and Consultancy
Department at SIRIM STS
Sdn Bhd*

The training programmes offered by SIRIM STS encompass standards, best practices, soft skills, management and technology training, including Industry 4.0-related training in line with the government’s call for industries to adopt smart manufacturing technologies. “We are also looking forward to offering more personnel certification programmes, such as Certified Qualified Manager, Certified Quality Professional and Certified Internal Auditor for Quality, to name a few,” added Dr. Mohd Azman.

“Other avenues include dialogues with industry players, corporate social responsibility programmes and social media,” added Rosniza.

With today’s ever-evolving economic climate, it is no longer feasible to compete based on quality and price alone. Organisations have to have their fingers on the pulse of current market trends in order to be future-proof. This is where sustainability needs to become a value proposition that will keep them relevant and allow them to contribute positively to the economy.

Towards a Future-proof Economy

Both Rosniza and Dr Mohd Azman see the need to consistently reach out to the public to increase awareness of the importance of certification and training in helping organisations achieve sustainable growth.

“We promote our services through various avenues such as SIRIM Industry Engagement seminars and workshops, focus group briefings, industrial visits and e-mail blasts. Our website is also a good resource, as our clients will be able to obtain updates on the latest programmes and offers there,” said Dr. Mohd Azman.

*Rosniza Abdul Wab,
Head of Marketing and Customer
Experience Section at SIRIM QAS
International Sdn Bhd*





FIVE YEARS HAVE PASSED SINCE THE SIRIM-FRAUNHOFER PROGRAMME MADE ITS DEBUT AMONG SMALL AND MEDIUM ENTERPRISES (SMES), AND IT CONTINUES TO GAIN MOMENTUM TODAY. SIRIM SHARES HOW THE PROGRAMME HAS FARED DURING THIS TIME AND WHAT IS IN STORE BEYOND 2020.

global expertise for LOCAL EXCELLENCE

The SIRIM-Fraunhofer programme was initially conceived to support the government in achieving the labour productivity targets set out in the 11th Malaysia Plan (2016-2020). This year marks the tail end of the plan. As Malaysia heads towards the 12th Malaysia Plan, the programme has been growing from strength to strength.

SIRIM-Fraunhofer has a specific focus of enhancing productivity at enterprise level through technology interventions and the provision of targeted assistance to small and medium enterprises (SMEs) in manufacturing sectors.

The SIRIM-Fraunhofer programme supports the government's agenda to

build better platforms

for technology interventions and innovation for the SMEs. The programme, which was established in 2015, stems from a strategic alliance with the Fraunhofer Institute of Germany to provide our SMEs with better access to technology penetration and upgrading.



Looking West

Inspired by the success of Germany's SMEs in adopting technological innovations, the SIRIM-Fraunhofer programme adapts the country's methods with an aim to increase the usage of technology and innovations among Malaysia's SMEs.





According to Nor Azlan Mohd Ramli, the Principal Consultant of Industrial Research Management Centre at SIRIM, the SIRIM-Fraunhofer programme supports the government’s agenda to build better platforms for technology interventions and innovation for the SMEs. “The programme, which was established in 2015, stems from a strategic alliance with the Fraunhofer Institute of Germany to provide our SMEs with better access to technology penetration and upgrading,” he said.

A few years down the road, the response from SMEs has been overwhelming. In fact, more than 2,700 SMEs have since benefited from the implementation of various initiatives under the programme.

Attractive Proposition

SMEs find the SIRIM-Fraunhofer programme to be beneficial as it equips them with the necessary tools and customised solutions to address their particular needs in areas that include technological issues, new product and process development, and automation and mechanisation of production.

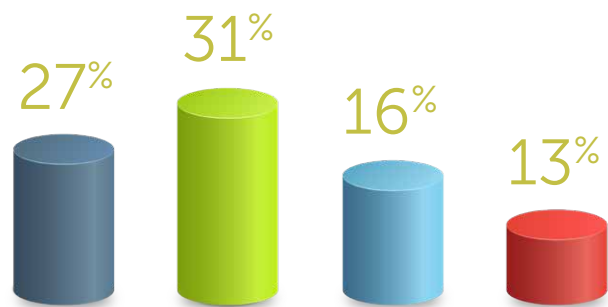
“We are consistently engaging with the SMEs to unearth their issues; once this is identified, we will work on delivering the solutions through technology intervention projects,” explained Nor Azlan.

Anticipated outcomes from these projects include an increase in production yield, the generation of new products and processes, a reduction in production reject rates and market expansion.

To date, the technology intervention programme has achieved significant success in areas that include mechanisation and automation, new product development, technology enhancement, localisation of technology, packaging and labelling, training and consultancy, standards compliance and technical advisory.

Making a Positive Impact

According to an independent study commissioned by the SIRIM-Fraunhofer Secretariat and undertaken by the Putra Business School of Universiti Putra Malaysia (UPM), the SIRIM-Fraunhofer programme witnessed:

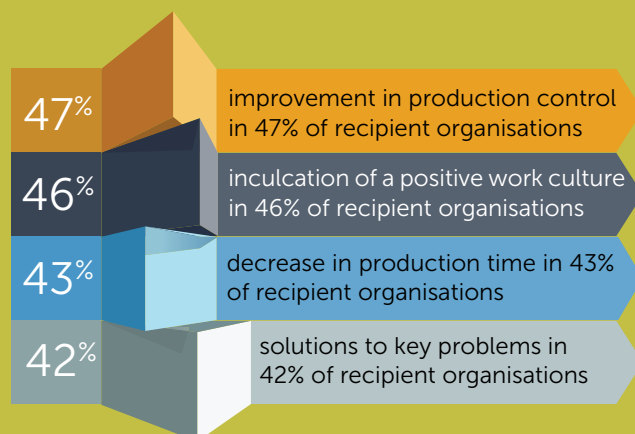


- an increase of 27% in annual sales
- an improvement of 31% in labour productivity
- an improvement of 16% in labour cost competitiveness (sales/labour cost)
- an improvement of 13% in labour cost competitiveness (labour cost per employee)

Nor Azlan cautioned that a drop in the capital cost productivity should be expected as a result of the higher total fixed assets used. “The returns should be able to be realised in the following fiscal year at the earliest. However, the 27% increase in annual sales is significant enough to offset this teething operational issue.”

In addition to financial gains, the programme has also contributed significantly in enhancing the operational excellence of organisations. This includes:

- Other initiatives under the SIRIM-Fraunhofer programme that have benefited SMEs include:
 - Innovation Workshops, whereby organisations are taught simple yet practical methods in idea and technology management
 - Technology-based training programmes, which include product development and engineering-based training





Moving Forward

With the 12th Malaysia Plan commencing next year, SIRIM looks forward to continuing and expanding on the existing initiatives of the SIRIM-Fraunhofer programme that have proven to be effective.

Among others, SIRIM-Fraunhofer 2.0 is set to roll out with an enhanced scope that encompasses SMEs in both manufacturing and manufacturing-related services sectors. While the primary objective of the programme remains the same, new initiatives will be introduced. These include frugal innovation, value-adding of products through industrial and product design, market-driven research and development, compliance and calibration, and market access.

“The Ministry of International Trade and Industry (MITI) has responded positively to SIRIM-Fraunhofer 2.0. We will also be proposing a programme that prepares SMEs towards digitisation and for Industry 4.0,” elaborated Nor Azlan.

SIRIM believes that technology innovation is critical in sustaining long-term economic growth for the organisation and the country. “Investing in technology should be part of the SME’s strategy; it’s a key component for any organisation to remain competitive. Innovation essentially creates high-skilled jobs, provides a competitive edge and increases the drive for talent development,” detailed Nor Azlan.

“The contribution of Malaysian SMEs to the country’s gross domestic product (GDP) has grown from 32% in 2010 to 36.6% six years later. This means that the target of 41% by 2020 is within reach,” he enthused.

● Failure in adopting technological innovation could result in an inability to improve on competitiveness due to:

- low level of technology adoption
- limited technical skills and knowledge among the workforce
- lack of demand-based research
- over-dependence on foreign workers and imported products
- low awareness of technological innovation
- lack of motivation to increase manufacturing quality

A Silver Lining

Typically, SMEs in particular are more vulnerable to uncertain economic conditions. With the current Covid-19 pandemic, many of them are in a state of distress due to the suspension of their operations during the movement control order.

“In addition to being a human tragedy, the Covid-19 outbreak is also impacting the global economy adversely. Nevertheless, we have observed mixed reactions from SMEs in relation to their participation in SIRIM-Fraunhofer programmes. It is tough for the SMES but most are still positive about pursuing the programmes,” commented Nor Azlan.

investing in technology

should be part of the SME’s strategy; it’s a key component for any organisation to remain competitive. Innovation essentially creates high-skilled jobs, provides a competitive edge and increases the drive for talent development. The contribution of Malaysian SMEs to the country’s gross domestic product (GDP) has grown from 32% in 2010 to 36.6% six years later. This means that the target of 41% by 2020 is within reach.





In view of this, the SIRIM-Fraunhofer Secretariat is doing what it can to alleviate financial hindrances. Among them is the option to take up a special loan with Bank Muamalat. "SIRIM recently signed a Memorandum of Understanding with Bank Muamalat to offer an attractive funding package for organisations to participate in SIRIM-Fraunhofer programmes," he explained.

Who Can Apply for SIRIM-Fraunhofer Programmes

- ✓ In the SME category
- ✓ Majority-owned by a Malaysian
- ✓ In the manufacturing sector
- ✓ Has been in operations for a minimum of 2 years
- ✓ Voluntary – willing to be audited and committed in follow-up programmes
- ✓ Willing to commit a monetary investment of 20% of the project value

Apply at <http://sirimtechnologyaudit.my>

Defining SMEs

SMEs in the manufacturing sector refer to firms with a sales turnover that does not exceed RM50 million or 200 or fewer full-time employees.

The SMEs have to be entities registered with the Companies Commission of Malaysia (SSM) or other equivalent bodies, excluding:

- entities that are public-listed on the main board
- subsidiaries of public-listed companies on the main board, multinational corporations (MNCs) or government-linked companies (GLCs)
- Syarikat Menteri Kewangan Diperbadankan state-owned enterprises

Catalysing Growth

In this era of economic globalisation, SMEs have been identified as an engine of sustainable development. With technology being a key catalyst in this ecosystem, the SIRIM-Fraunhofer programme is an instrumental initiative that will, hopefully, elevate the capabilities and competitiveness of Malaysia's SMEs.

With the right resources, experience, infrastructure and networks in its grasp, SIRIM is in a unique position to undertake this task effectively. As such, SIRIM will continue intensifying its efforts in supporting the government's agenda of upscaling SME productivity through technology interventions.

"Technology innovation is no longer an option today. It has become a central component for any organisation to remain competitive!" declared Nor Azlan.

The initial success of the programme has whetted the interest of many other SMEs. To ensure its continued success, government funding and support are imperative. To this end, Nor Azlan expressed his gratitude for MITI's positive response towards SIRIM's proposal for the continuation and expansion of the programme.

"With continued funding, we are optimistic to keep on playing an effective role in working with the SMEs and gearing them up to thrive in the era of the fourth industrial revolution," he concluded.

technology innovation

is no longer an option today. It has become a central component for any organisation to remain competitive. With continued funding, we are optimistic to keep on playing an effective role in working with the SMEs and gearing them up to thrive in the era of the fourth industrial revolution.



Nor Azlan Mohd Ramli,
Principal Consultant of Industrial
Research Management Centre
at SIRIM





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