ISSUE 05 | NOVEMBER 2024

MIFA IN ACTION

MALAYSIA INDUSTRY FORWARD ASSOCIATION

The Implications of Generative AI in Education: Pros & Cons

Augmented Reality: The Innovative Way in Smart Maintenance.

Empowering Tomorrow:

MIFA Smart Manufacturing 2024 in KL

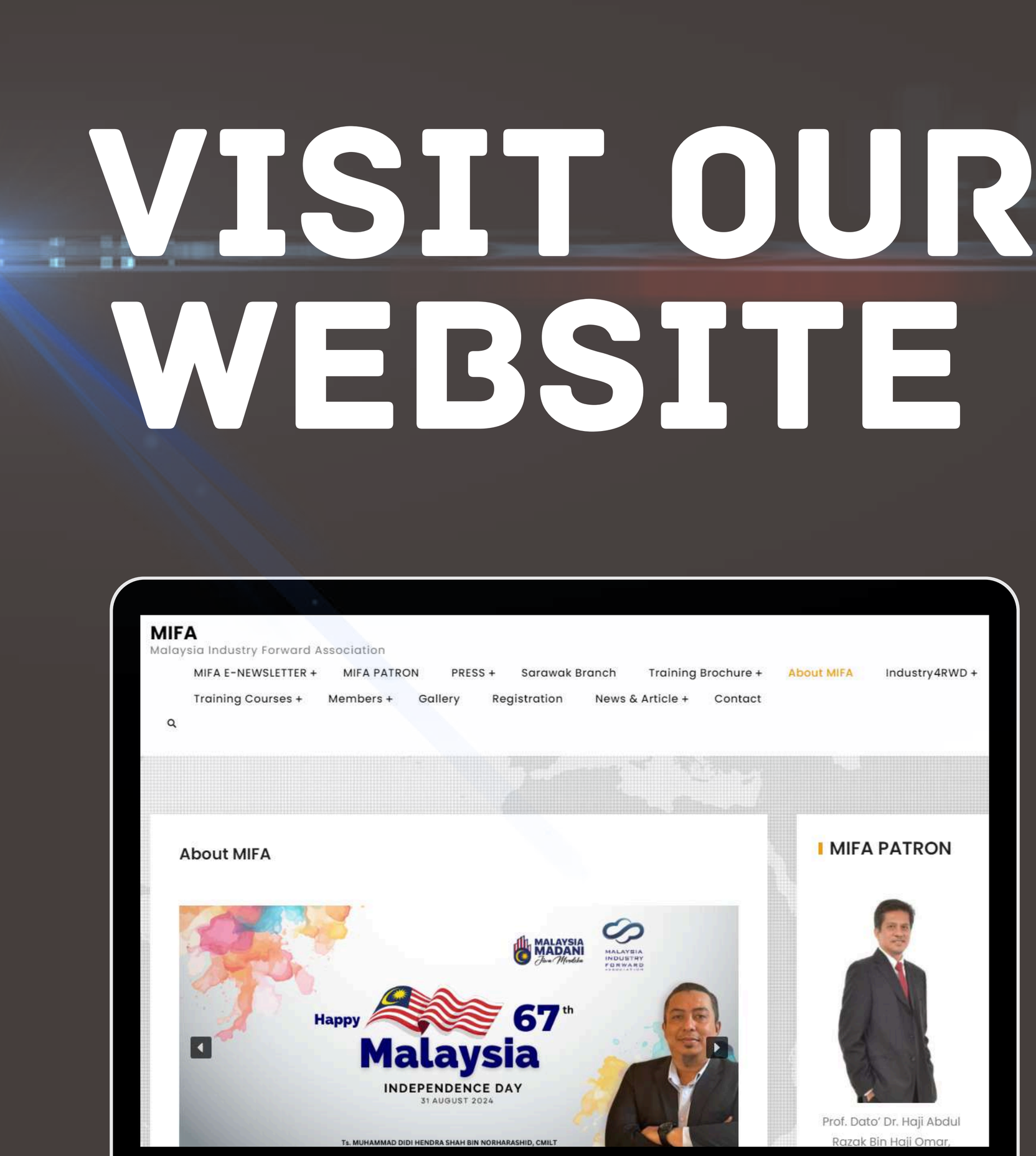
YBhg. Dato’ Seri Reezal Merican Naina Merican

Launched 1st MIFA Smart Manufacturing Forum & Exhibition @ MITEC, KL

Congrats to MIFA's Special Advisor YBhg. Dato' Ts. Dr. Haji Amirudin Bin Abdul Wahab *on receiving the 2024 National Technologist Award!*

www.mifa-i4.my

VISIT OUR WEBSITE



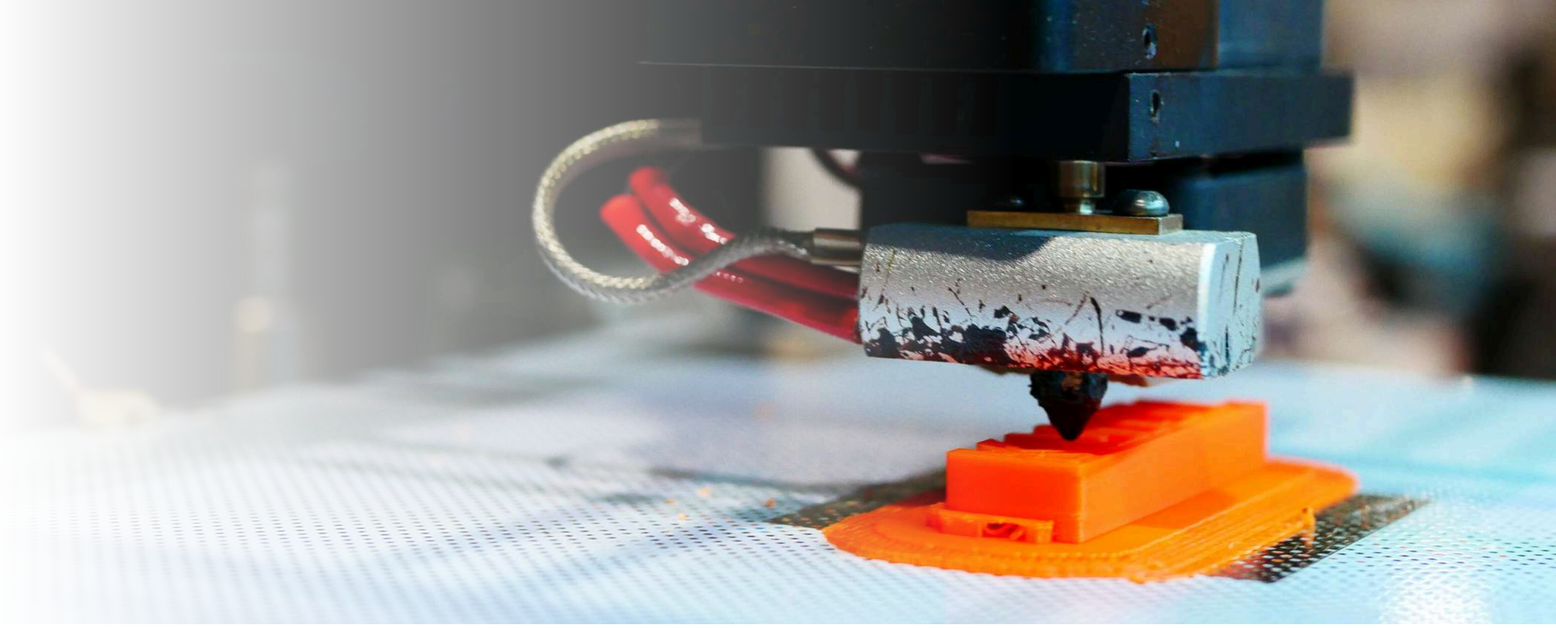
www.mifa-i4.my

Certified by :

MIFA CERTIFICATION

ENJOY OUR 10% OFF FOR ALL TRAININGS!

Contents



NOVEMBER 2024
ISSUE 05

ADVISOR
President of MIFA
Mr. Ts. Hj. Muhammad Didi Hendra Shah

EDITOR-IN-CHIEF
Mohd Zakry Mohd Sa'ed

EDITOR & COPY WRITERS
Siti Nurlisa Nurul Nafisah
Nor Anis Dayana Rusila

ART DIRECTOR & SENIOR GRAPHIC DESIGNER
Dylan Khabib
Dylina Irmeela
Zaihanariyah

ARTICLE CONTRIBUTORS
Siti Zulaika binti Awang Ahmad @ Yusof
Ahmad Azkhairie bin Azwan,
Nur Aiin Selamat
Yathavan A/L Subramaniam,
Mohd Zakry Mohd Sa'ed

MALAYSIA INDUSTRY FORWARD ASSOCIATION

03 78316130
www.mifa-i4.my
admin@mifa-i4.my

INTRODUCTION

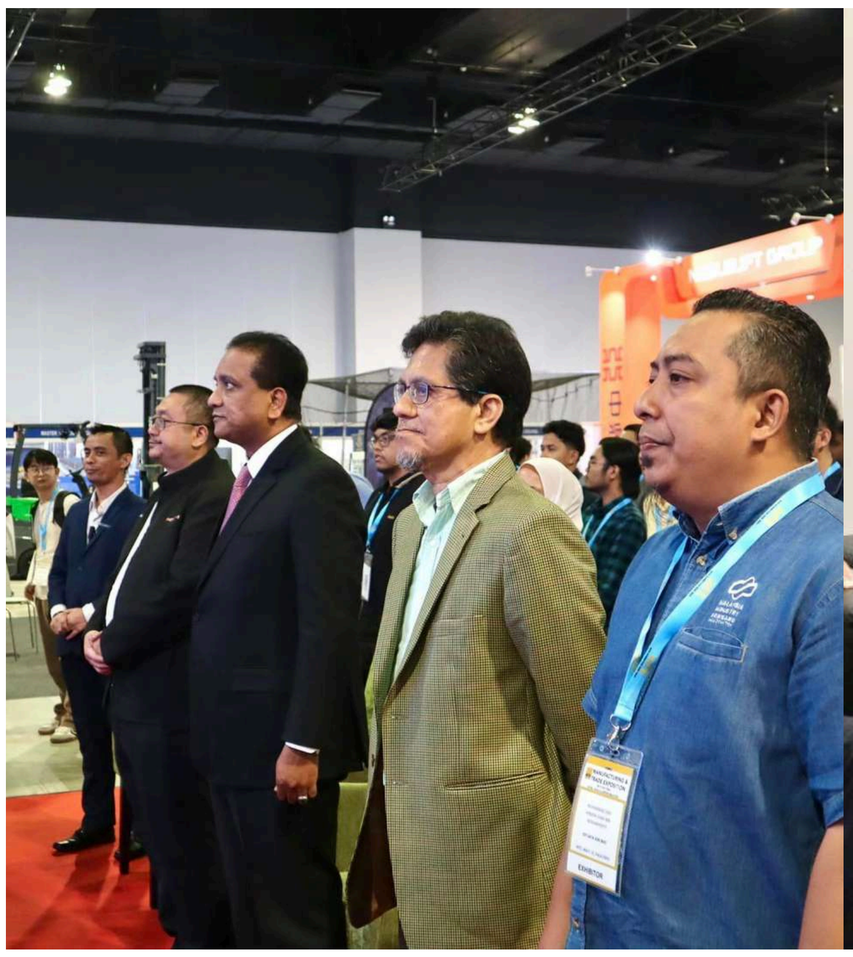
OBJECTIVE

To be the leading community platform that provides outstanding members value relates to Malaysia Industry4WRD Policy. It will connect related stakeholders, entrepreneurs, researchers, and policymakers with a strong voice of influence on the innovation, development, and market deployment of I4.0 & IR4.0 technologies & applications while stimulating and spearheading a favorable business environment.

MISSION

- Promote adoption, usage, and governance of IR4.0 implementation.
- Deliver outstanding member's value to all key stakeholders among business communities & policy makers (govt).
- Advocate and shaping guidelines for the IR4.0 best practices.
- Generate new business opportunities, increasing collaborations among members and building professional standing.
- Build a sense of community-belonging among its members.
- Develop a comprehensive digital library or knowledge bank including successful implementation of testimony and case studies into use case scenarios.

PRESIDENT'S REMARKS



Assalamu’alaikum Warahmatullahi Wabarakatuh.

Dear Readers,

Wishing all MIFA members, partners, fellow technologists, innovators, business owners, and government representatives the very best! We warmly welcome our new members who have just joined us.

The role of science, technology, and innovation in our lives is undeniable, as they continue to drive transformative changes in the world around us. To move forward, we must reimagine our approaches and build resilience into our economies. Science, technology, and innovation are central to this endeavor, and collaboration will be key as we navigate this rapidly evolving landscape.

Throughout our journey with Science, Technology, and Innovation (STI) and the Sustainable Development Goals (SDGs), we've learned that only by working together in a multi-stakeholder and multilateral manner can we achieve rapid progress. Scaling up scientific advancements and technological solutions to deliver them where they are most needed is critical. While this new era will bring significant challenges, policymakers, entrepreneurs, businesses, financiers, diplomats, and civil society must strengthen partnerships to address these issues effectively.

I hope to see new visions, renewed momentum, and innovative partnerships that harness our collective expertise and drive toward achieving the SDGs through science, technology, and innovation.

Wishing everyone a successful and fulfilling year ahead.

TS. HJ. MUHAMMAD DIDI HENDRA SHAH BIN NORHARASHID, P.TECH, CMILT

MIFA President

Managing Director of Hadi Venture Sdn. Bhd. & IOT Sata Sdn. Bhd.

CONGRATULATIONS TO OUR SPECIAL ADVISOR

Heartiest Congratulations to

YBhg. Dato' Ts. Dr. Haji Amirudin Bin Abdul Wahab
Chief Executive Officer (CEO) of CyberSecurity Malaysia

on receiving the prestigious
Anugerah Teknologis Negara

Heartiest congratulations to MIFA's esteemed Special Advisor, YBhg. Dato' Ts. Dr. Haji Amirudin Bin Abdul Wahab, on being honoured with the prestigious 2024 National Technologist Award! This incredible achievement is a true reflection of your unwavering dedication, groundbreaking innovations, and relentless pursuit of excellence in the field of technology.

Your contributions have not only advanced the industry but have also set a high standard for others to follow. We are immensely proud of this well-deserved recognition and are confident that this is just one of many accomplishments in your illustrious career. May you continue to reach new heights of success and inspire many more with your visionary leadership.

This version emphasizes the importance of the award, the recipient's contributions, and the positive outlook for their future success.We wish you continued success in advancing technology in Malaysia and becoming an inspiring role model for every young technologist.

Sincerely,
MIFA EXCOs

MIFA SMART MANUFACTURING FORUM & EXHIBITION 2024 AT MITEC, KL

The MIFA Smart Manufacturing Forum & Exhibition 2024, taking place at MTE Kuala Lumpur from 9th to 12th October, served as a premier gathering for industry leaders, innovators, and experts in the field of smart manufacturing. This event featured insightful discussions, presentations, and exhibitions, showcasing the latest advancements in manufacturing technologies that are shaping the future of the industry. Attendees had the opportunity to explore cutting-edge innovations and engage in knowledge sharing with key stakeholders from various sectors.

In addition to the forum, the exhibition offered a platform for companies to present their solutions, products, and services that drive efficiency and innovation in smart manufacturing. Participants had gain the valuable networking opportunities, fostering collaborations and partnerships that will enhance Malaysia's position as a hub for advanced manufacturing technologies.

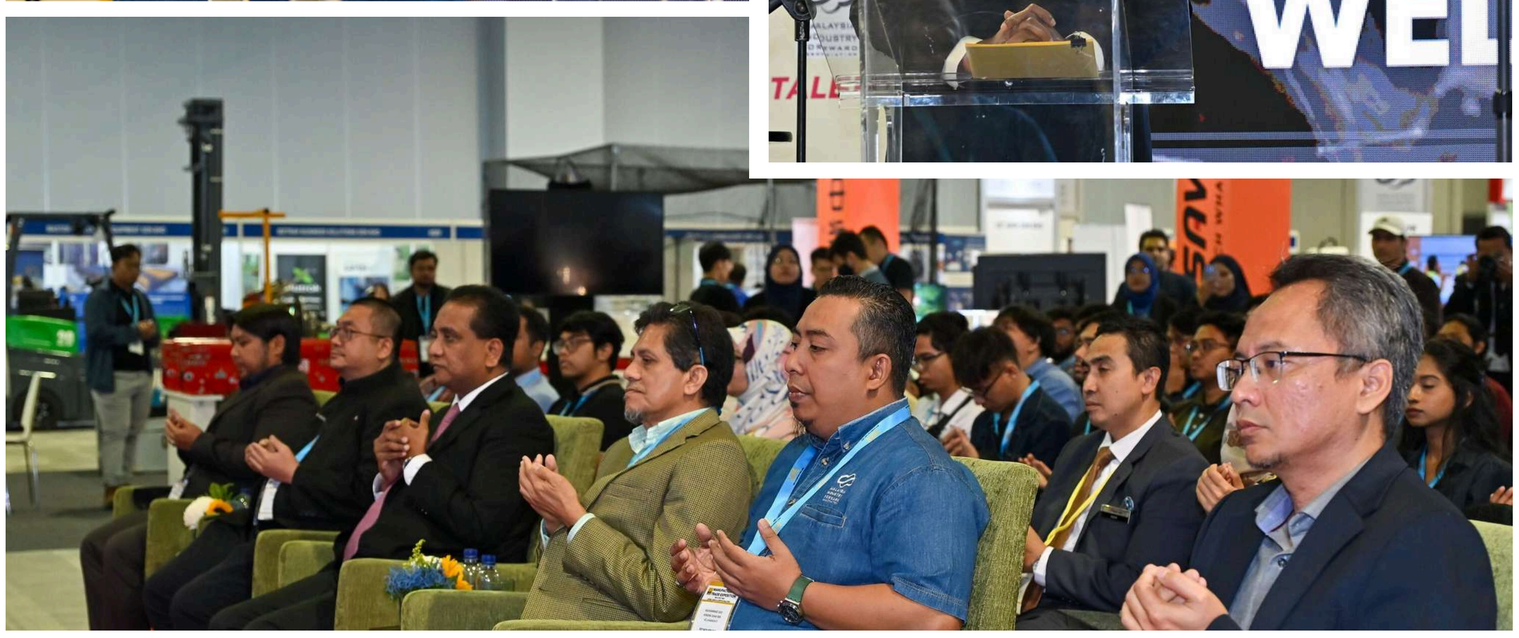
MIFA SMART MANUFACTURING FORUM & EXHIBITION 2024 AT MITEC, KL

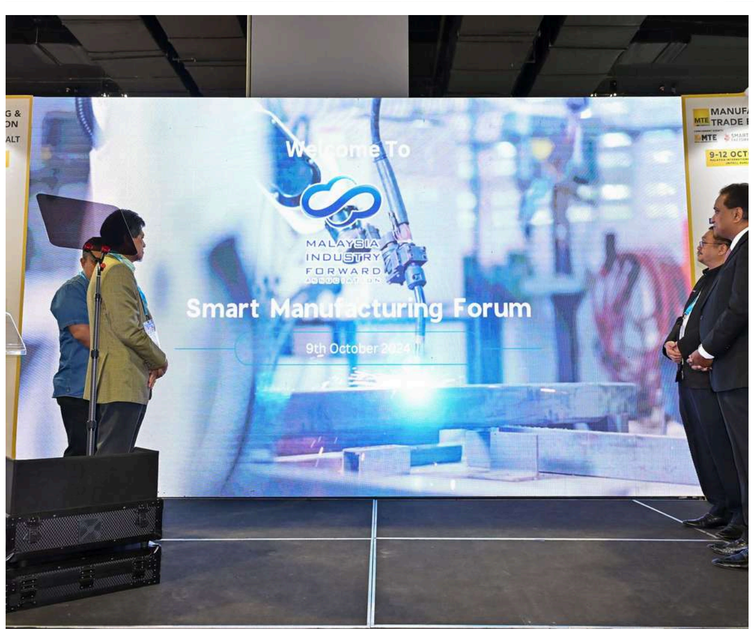
The MIFA Smart Manufacturing Forum & Exhibition 2024 featured keynote sessions from renowned industry experts which provide insights into emerging trends, challenges, and opportunities in the smart manufacturing landscape. Topics such as automation, digital transformation, and the integration of AI and IoT into manufacturing processes will be explored, offering attendees a comprehensive understanding of how these technologies are revolutionizing the industry. These discussions aim to empower businesses to adopt more efficient and sustainable practices.

Moreover, the event highlighted Malaysia's commitment to advancing its manufacturing sector, aligning with national initiatives like Industry 4.0. The forum attracted a diverse range of participants, including policymakers, industry professionals, researchers, and academia, all working towards driving innovation and growth. As a key event in the region, the MIFA Smart Manufacturing Forum & Exhibition 2024 played a significant role in shaping the future of smart manufacturing both locally and globally.

MIFA SMART MANUFACTURING FORUM & EXHIBITION 2024 AT MITEC KL

MIFA SMART MANUFACTURING FORUM & EXHIBITION 2024 AT MITEC KL





CLOSING CEREMONY OF THE MADANI TOUR AND BAGAN DATUK KELAPA FESTIVAL 2024

The Malaysia Industry Forward Association (MIFA) was invited to join the Closing Ceremony of the MADANI Tour and Bagan Datuk Kelapa Festival 2024, an event that celebrates Malaysia's rich cultural heritage and progress. This prestigious occasion highlighted the collaborative efforts of various sectors to promote both local traditions and national development under the MADANI initiative.

As part of the program, MIFA focused on showcasing emerging technologies related and how these advancements align with the vision of a modern, sustainable Malaysia. Through this platform, MIFA aims to underscore the importance of technology and industry in enhancing the economic landscape of regions like Bagan Datuk. By participating in this event, MIFA continues its commitment to fostering growth and innovation, supporting both local communities and industries. This collaboration between culture and technology exemplifies Malaysia's forward-thinking approach to development, ensuring that both heritage and progress go hand in hand.

Besides, MIFA has established a partnership with UNISEL to transform UNISEL into a technological hub for several industries.

Last but not least, the President of MIFA had the opportunity to meet with YB Dato' Shahrul Zaman Datuk Yahya, ADUN Rungkup at the event.

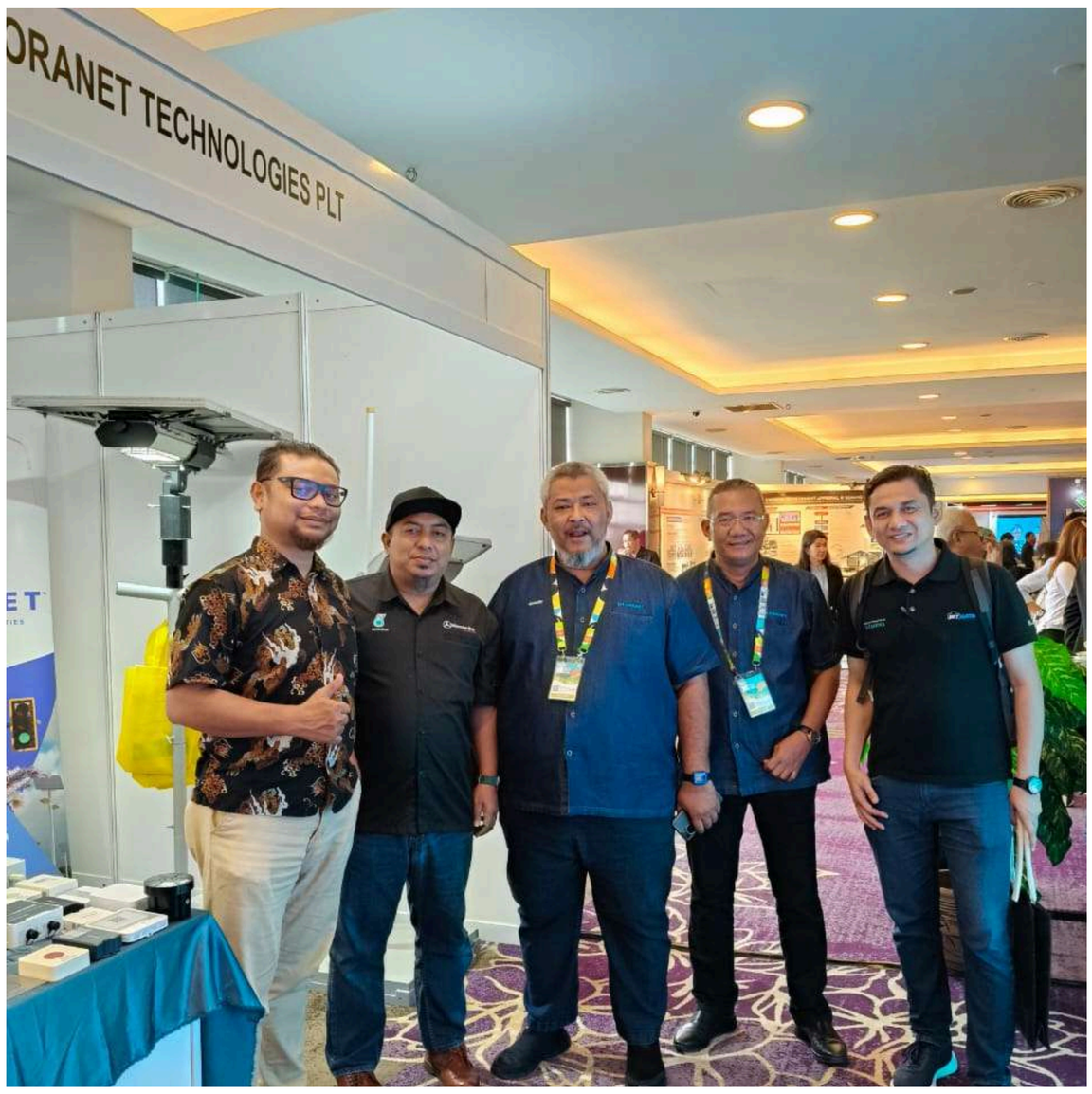
NATIONAL PLANNING CONGRESS 2024 VISIT

The President of MIFA and few Excos visited MIFA members at their booths at the National Planning Congress (NPC) 2024. Among the participating members were Loranet Sdn Bhd and React Tech Solution Sdn Bhd, both of whom showcased their expertise at the event. NPC 2024 was held at The Everly Hotel, Putrajaya, from October 28 to October 29, 2024.

This year, NPC 2024 adopted the theme “Urbanism Next 3R: Reimagine, Reinvent, Revitalise.” The event brought together industry leaders, urban planners, and visionaries to collaboratively shape the future of urban spaces in Malaysia. Key partners and sponsors of the event included the Subang Jaya City Council, Sepang Municipal Council, Sime Darby Property, and Trinity Group. Held in conjunction with World Town Planning Day 2024 (HPBS 2024), NPC 2024 served as a platform for thought leaders and changemakers to drive meaningful discussions on Malaysia’s urban planning landscape.

MIFA prioritizes supporting its members by visiting their booths at major events like NPC 2024. These visits not only help increase the visibility of companies such as Loranet Sdn Bhd and React Tech Solution Sdn Bhd but also strengthen relationships within the smart technology ecosystem. By fostering such connections, MIFA aims to promote innovation and collaboration, paving the way for advancements in smart technology and sustainable urban development.

The presence of MIFA members at NPC 2024 also highlights the association’s commitment to showcasing local innovation and expertise on a national stage. By participating in events of this scale, members not only gain valuable exposure but also create opportunities to network with key stakeholders and decision-makers. Such engagements are essential for driving growth, building strategic partnerships, and reinforcing MIFA’s role as a key player in Malaysia’s smart technology and urban planning industries.



MAWLID & FORUM: EXPLORING RASULULLAH'S ECONOMIC AND BUSINESS PRINCIPLES

On 5 October 2024, the Mawlid & Forum: Pemikiran Ekonomi & Perniagaan Rasulullah took place at the Ibu Pejabat DPMM, Kuala Lumpur. Organized by Pertubuhan Kerjasama Ekonomi Rakyat (PEC), this event highlighted Prophet Muhammad's economic wisdom and business practices, offering insights into how his principles remain relevant in today's fast-changing economic landscape.

The forum featured distinguished panelists who discussed key aspects of ethical entrepreneurship, sustainable business practices, and the importance of values-driven economic strategies. The event served as a platform to bridge Islamic economic principles with modern business and technology trends.

As a key highlight, members of the Malaysia Industry Forward Association (MIFA) actively participated in the forum. Representing Malaysia's Industry Forward, MIFA members shared their perspectives on integrating technology-driven solutions with ethical business practices. They emphasized how digital transformation can align with Islamic values, fostering sustainable and inclusive economic growth.

The event also addressed the challenges faced by modern businesses, emphasizing the importance of maintaining integrity in a competitive environment. Discussions highlighted how adopting values-based leadership and innovation can create lasting impacts on industries while improving community welfare. Participants were encouraged to embrace these principles as a framework for sustainable development and resilience in business.

The forum concluded with a positive outlook, underscoring the need for collaboration between organizations like PEC and MIFA to promote innovative yet ethical economic systems, blending tradition with modernity for a brighter and more inclusive future.

MIFA @ IDECS2024

16 October 2024, KUCHING – MIFA has sent a delegation of 4 exco members to International Digital Economy Conference Sarawak (IDECS2024), held for 2 days at Borneo Convention Centre Kuching (BCCK). The 7th edition of IDECS 2024 has successfully gathered global industry leaders, innovators, and relevant stakeholders to explore the vast potential of artificial intelligence (or artificial neuron) and IoT technologies in driving sustainable development in this region, led by Sarawak Government via Sarawak Digital Economy Corporation Berhad (SDEC). Among the highlights at the event are Navigating the Green & Circular Future of Digital Ecnomy.

The event was officiated by YAB Premier of Sarawak, Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari bin Tun Datuk Abang Haji Openg, who had recently awarded Anugerah Teknologis Negara by MBOT.

MIFA take this opportunity to congratulate IDECS 2024 exhibitions & conference committee (SDEC).

One of our distinguish associate, e-Moovit Technology Sdn Bhd, received an honourable opportunity to host a special tour with the Sarawak Premier to showcase and experience their autonomous bus, represented by the CEO, Dr Hairi Zamzuri.

MIFA President, Ts. Hj. Muhammad Didi Hendra Shah and Deputy President, Ts. Eng. Syed Zaini Putra AlJamalullail, represented MIFA and participated in panel discussions on Human-Centric Smart Cities: Aligning Vision with Citizen Needs and Engagement.

MIFA AND SDEC: PAVING THE WAY FOR FUTURE COLLABORATIONS

We are proud to introduce Mr. Maklen Bin Ali and Mr. Hj. Zakaria Bin Marzuki as the new Directors of the MIFA Sarawak Branch. With their extensive experience in engineering, technology, and business development, they bring fresh perspectives and strong expertise to drive Industry 4.0 initiatives and foster innovation across Sarawak.

The Directors of the MIFA Sarawak Branch, together with the MIFA President, are spearheading a groundbreaking partnership between MIFA and SDEC to advance Malaysia's digital transformation, particularly in Sarawak. Both leaders contribute a wealth of experience in engineering, technology, and business development to this initiative, ensuring its success and long-term impact.

By sharing resources and expertise, MIFA and SDEC aim to equip local businesses with modern digital tools, promoting smart city solutions, IoT, and sustainable energy management. This partnership focuses on bridging traditional industries with cutting-edge technology, empowering businesses to become more efficient and globally competitive. MIFA and SDEC are committed to providing training and resources, particularly in the areas of smart manufacturing and digital infrastructure.

Ultimately, their collaboration is expected to generate economic growth and create job opportunities, benefiting both the public and private sectors. Together, they are laying a strong foundation for a more connected and innovative digital future in Malaysia.

MIFA & CENTEXS: POWERING INDUSTRY 4.0

CENTEXS (Centre of Technical Excellence Sarawak) focuses on providing advanced technical and vocational training to equip the workforce with skills in emerging technologies, particularly in areas related to Industry 4.0.

It offers specialized programs in fields like automation, smart manufacturing, information technology, and renewable energy. CENTEXS aims to develop a highly skilled, future-ready workforce to support Sarawak's economic growth and meet the demands of evolving industries.

Under the direction of MIFA Sarawak Branch Directors ,Mr. Maklen Bin Ali and Mr. Hj. Zakaria Bin Marzuki, and the MIFA President visited the Centre of Technical Excellence Sarawak, CENTEXS, on July 30, 2024, to further collaborate and discuss all opportunities for developing technological innovation and Industry 4.0 projects in the region.

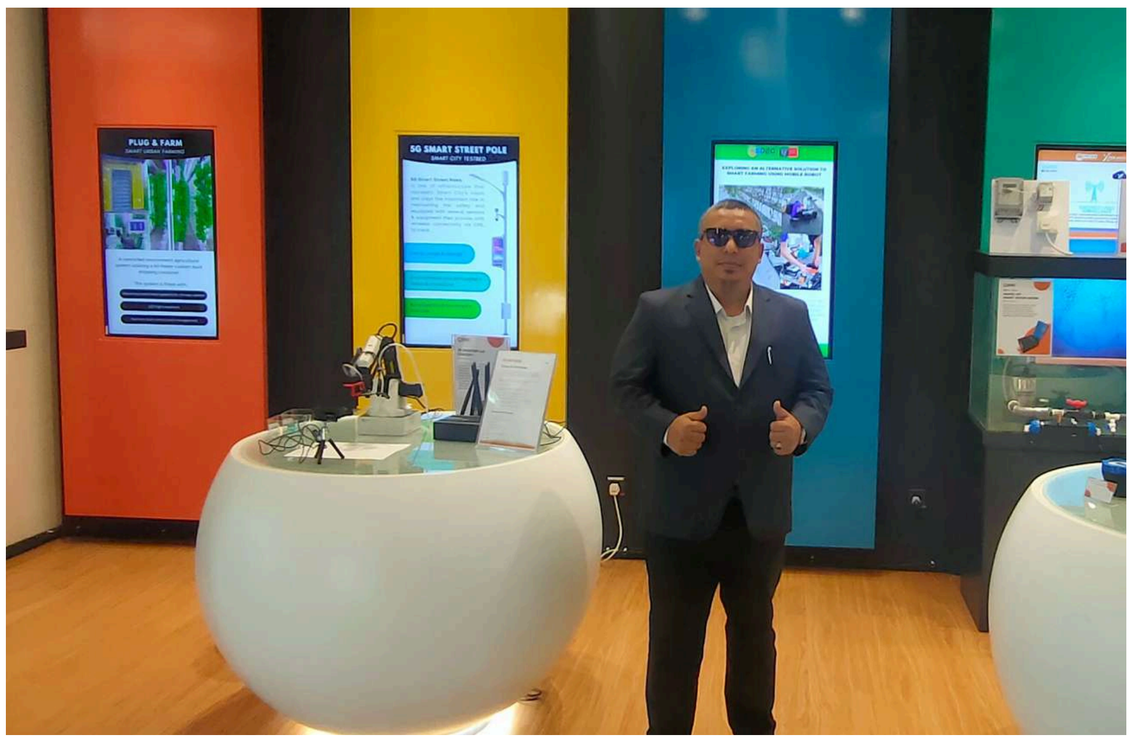
Their leadership is complemented by their extensive technical and engineering knowledge, which strengthens the partnership's ability to drive Industry 4.0 projects for the Sarawak region's development and prosperity.

During the visit, both organizations discussed potential partnerships in talent development and technology innovation. This aligns with MIFA's mission to drive the adoption of Industry 4.0 technologies across Malaysia, enhancing the nation's competitiveness in the global market.

MIFA & CENTEXS: POWERING INDUSTRY 4.0

The visit also included a tour of CENTEXS' state-of-the-art facilities, showcasing their advanced training programs and technology solutions designed to equip the workforce with Industry 4.0 skills. MIFA representatives were impressed by the hands-on training provided, which aligns with the industry's demand for a skilled and future-ready talent pool.

By strengthening ties between MIFA and CENTEXS, both organizations aim to contribute to the growth of Malaysia's manufacturing sector, ensuring it stays ahead in the rapidly evolving global landscape. Through this collaboration, MIFA and CENTEXS envision creating specialized training modules that address the specific needs of various manufacturing sectors, such as automation, robotics, and data analytics.



These modules would not only upskill current employees but also attract new talent to the industry, fostering a sustainable pipeline of professionals proficient in cutting-edge Industry 4.0 technologies. By tailoring these programs to industry demands, the partnership aims to enhance workforce productivity and adaptability, positioning Malaysia as a competitive player in the global tech arena.

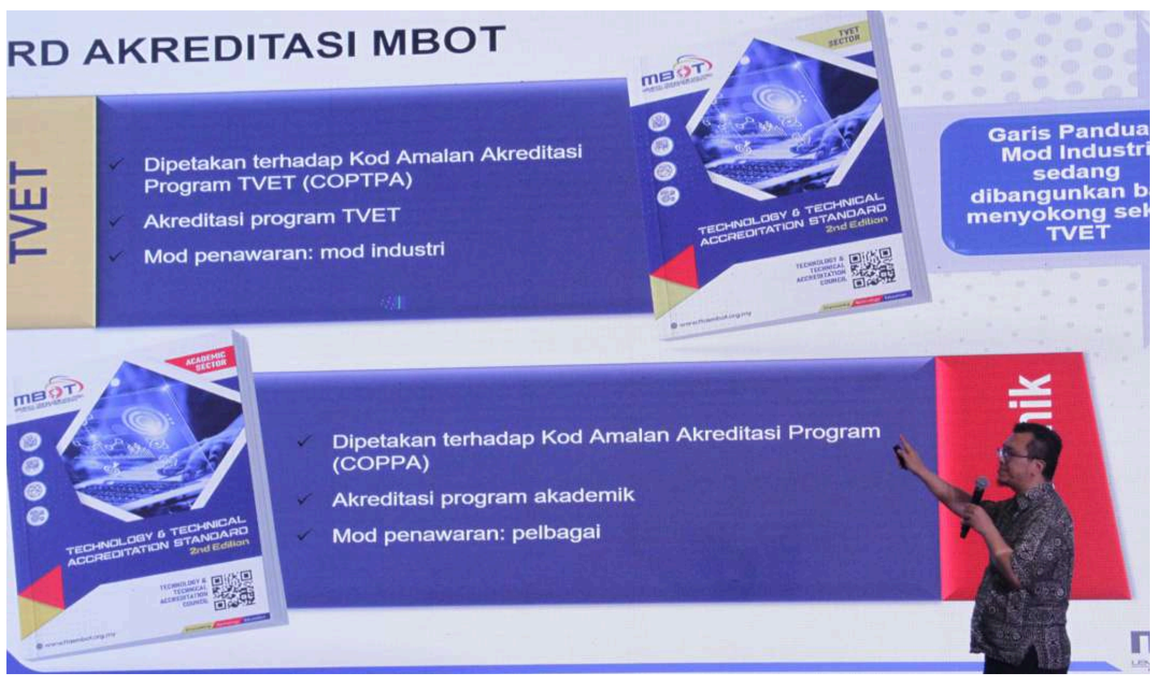
Additionally, both organizations are exploring joint research and development initiatives to drive local innovation in manufacturing processes. This approach includes sharing resources, expertise, and insights to design new technological solutions that can be tested and refined within CENTEXS' facilities before broader implementation. Such R&D efforts are intended to accelerate Malaysia's progress in achieving its Industry 4.0 goals and create economic opportunities through the commercialization of homegrown technologies, contributing to the nation's overall industrial advancement.

ENTICE MIGHT MSCA MBOT 2024

On 30 July 2024, the Malaysia Board of Technologists (MBOT) under the Ministry of Science, Technology, and Innovation (MOSTI) held the MBOT Experts Network in Technology, Innovation, and Cooperative Event (ENTICE 2024) in Putrajaya. This event aims to address Malaysia's need for a skilled workforce to support its transition to a knowledge-based economy. Minister of Science, Technology, and Innovation, YB Tuan Chang Lih Kang, highlighted the nation's goal to have 35% of the workforce be highly skilled, with efforts focused on creating 2 million additional high-skilled jobs to bridge the talent gap in technology.

ENTICE 2024 showcased key initiatives, including MBOT's new framework for accrediting short tech courses and micro-credentials, and its acceptance as a full signatory of the Seoul Accord. These developments allow Malaysian IT graduates to gain international recognition for their qualifications, promoting global mobility and enhancing the nation's appeal for top tech talent.

MBOT also launched its five-year STRIVE Strategic Plan (2024-2029), in line with Malaysia's National Science, Technology, and Innovation Policy, focusing on building a modernized, skilled workforce.MIFA's participation in ENTICE 2024 highlights its commitment to supporting national initiatives that strengthen Malaysia's technology sector. Through partnerships like these, ENTICE 2024 stands as a pivotal platform for fostering collaboration, professional development, and inclusive growth within Malaysia's tech landscape.



MIFA MEMBERS APPOINTED AS THE EXPERT PANEL FOR "INDUSTRY FORWARD" NCS DEVELOPMENT UNDER JABATAN PEMBANGUNAN KEMAHIRAN (JPK)

MIFA is honoured to be key members of the expert team appointed by Jabatan Pembangunan Kemahiran (JPK) to develop the National Competent Standard (NCS) for the Industry Forward initiative. This prestigious appointment reflects MIFA's deep expertise and leadership in advancing industry standards and technological innovation.

The establishment of the NCS is a critical step in ensuring that Malaysia's workforce is equipped with the necessary skills and competencies to meet the demands of the Fourth Industrial Revolution (Industry 4.0).

By collaborating with JPK and other industry leaders, MIFA is contributing to the creation of a robust framework that will shape the future of industrial training and certification, empowering businesses to adopt smart technologies and drive economic growth. This initiative will help ensure Malaysia remains competitive on the global stage by cultivating a highly skilled and forward-thinking workforce.

NCS PHASE 1,2 & 3 2024

Through this initiative, MIFA aims to align Malaysia's industrial training and certification standards with international benchmarks, ensuring that local competencies are recognized globally. The National Competent Standard (NCS) will serve as a foundation for developing skill sets that are not only technically sound but also adaptive to evolving technologies. This comprehensive approach will enable Malaysian industries to enhance productivity and meet the dynamic needs of global markets.

In addition to setting high standards for technical skills, MIFA's involvement will help incorporate crucial digital literacy and analytical thinking into the NCS framework. These competencies are essential for leveraging smart manufacturing technologies, such as data-driven decision-making, artificial intelligence, and the Internet of Things (IOT). By embedding these elements into the NCS, MIFA is fostering a workforce that can effectively harness the power of Industry 4.0 tools and innovations.

Looking ahead, MIFA's leadership in developing the NCS will play a vital role in supporting the government's strategic objectives for Malaysia's industrial future. By bridging the skills gap and promoting technological fluency, MIFA is contributing to a sustainable and technologically advanced industrial sector that will benefit not only companies but also Malaysia's economic resilience and long-term growth trajectory.

Lastly, integrating reskilling and upskilling opportunities, the NCS will make it possible for both new entrants and experienced workers to keep pace with technological advancements. This focus on lifelong learning and skill adaptability reinforces Malaysia's vision of building a future-ready workforce that is resilient, innovative, and capable of meeting the challenges and opportunities of a rapidly changing industrial landscape.

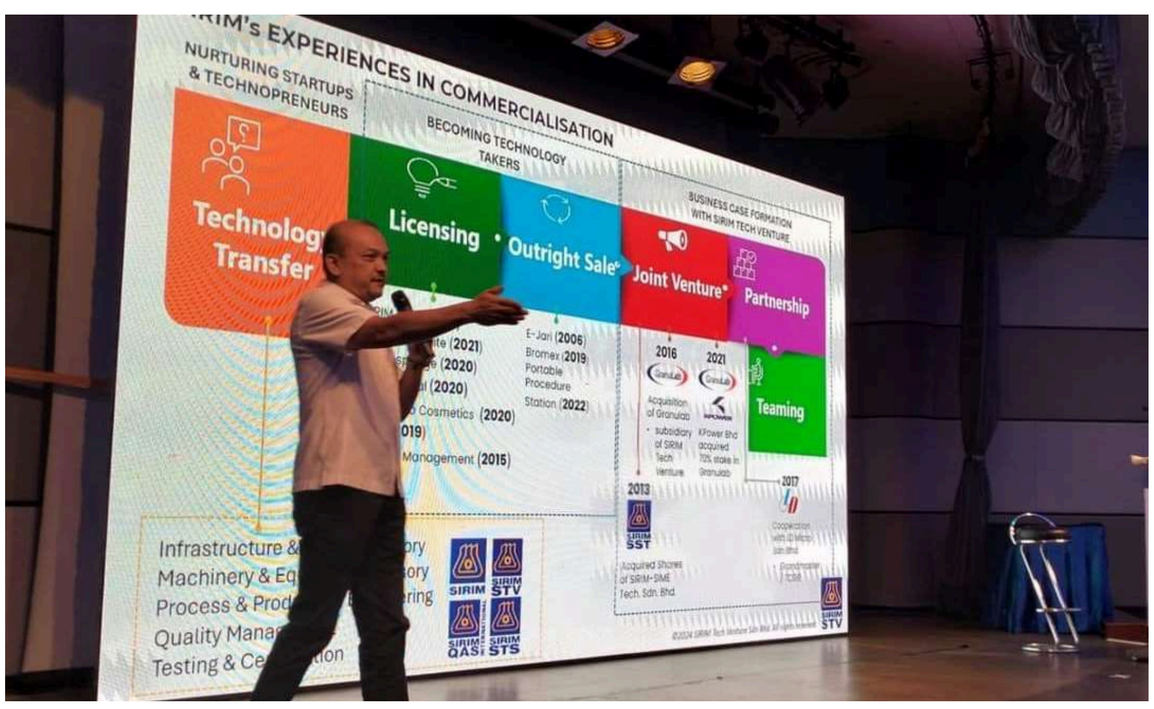
SIRIM BUSINESS FORUM: THE ART OF COMMERCIALISATION SHAPES UP YOUR BUSINESS FUTURE

The SIRIM Tech Venture Roadshow 2024 stood out as an inspiring platform for innovation and collaboration, bringing together tech enthusiasts, industry leaders, and visionaries. Special thanks to the 83 participants whose energy and insights drove the success of the event.

We are deeply grateful to all the esteemed panelists, including Mr. Ts. Hj. Muhammad Didi Hendra Shah Bin Norharashid, President of MIFA, who delivered an entertaining talk titled 'The Art of Commercialisation Shapes Your Business Future'. His talk reflected how strategies for leveraging innovation would shape the future of businesses, providing step-by-step actions that can be emulated to attain sustainable growth.

The forum also shed light on the challenges of narrowing the gap between invention and implementation, underlining some priority areas such as the management of intellectual property, securing innovation funding, and exploring strategic partnerships for competitive advantage. President of MIFA pointed out that technologies like IOT and Industry 4.0 have been playing a significant role in smoothing operations, improving efficiency, and opening up new revenue streams. The discussions urged businesses to go forward-thinking approaches by integrating digital transformation and smart manufacturing into their strategy in order to position themselves as global players.

MIFA also hopes for new partnerships and meaningful activities that will enable the industries to innovate and shape their future. We can continue to build a progressive and technologically advanced Malaysia together.



MIFA VISIT TO CYBERSECURITY'S CEO OFFICE

MIFA's special visit to the CEO of Cybersecurity Malaysia marks a strategic initiative aimed at enhancing and enforcing Digitalization Certification across various sectors in Malaysia as part of the Industry Forward movement.

This important collaboration seeks to strengthen the digital landscape by ensuring robust cybersecurity measures and establishing certification standards that will enable industries to securely transition into the digital era.

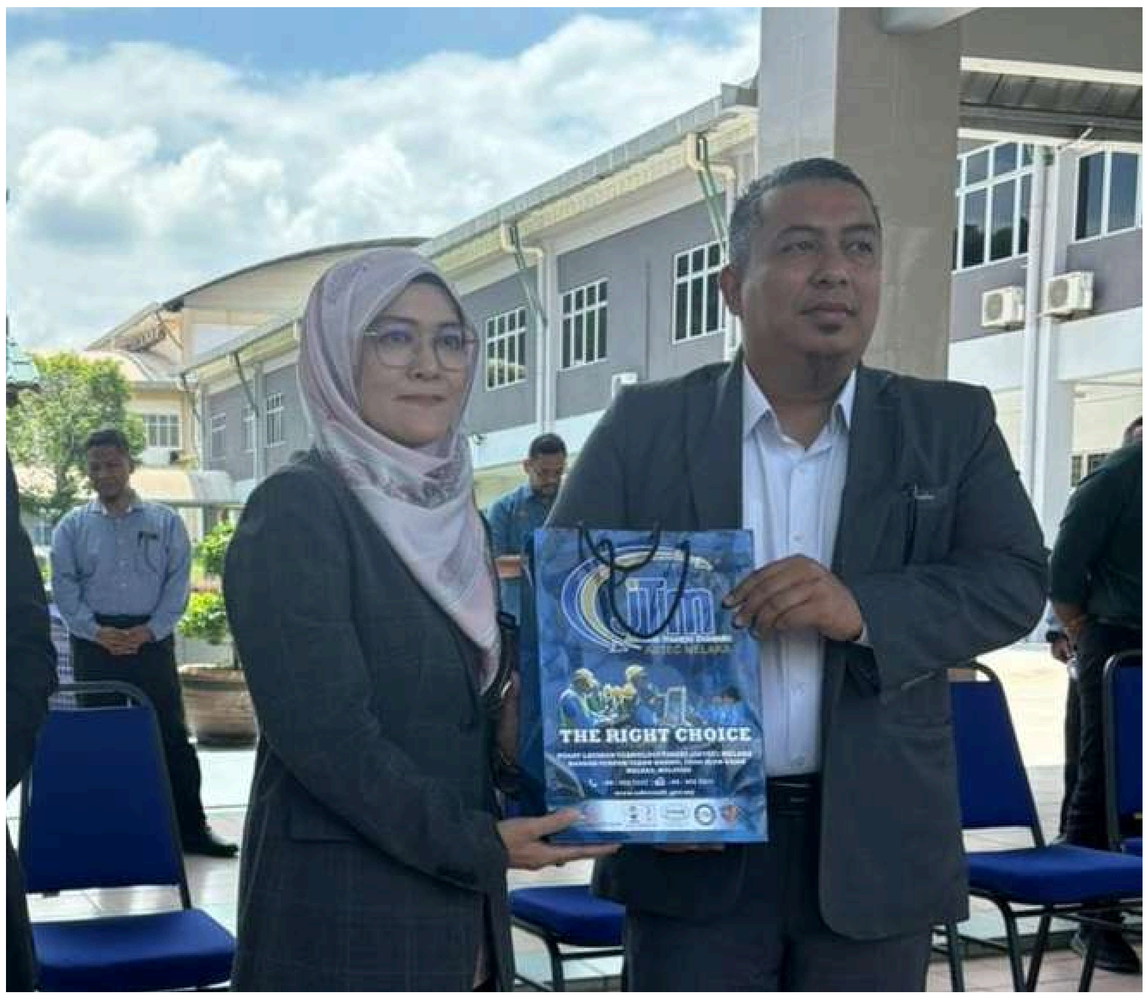
By fostering these efforts, MIFA and Cybersecurity Malaysia are playing a pivotal role in driving innovation, improving digital resilience, and ensuring that Malaysian industries are well-equipped to embrace the future of smart technologies. This partnership underscores our shared vision of a secure, digitally empowered Malaysia, prepared to lead in the global Industry 4.0 revolution.

MSCA-MIFA TABLE DISCUSSION WITH MELAKA ILJTM HIGHER MANAGEMENT TEAM ON SMART MELAKA PROGRAMME

13 August – MIGHT and PTHM participated in a discussion on Melaka Smart City hosted by ADTEC, the High Technology Training Centre in Melaka. Ts. Kamaruzaman Bin Haji Md. Ali, Deputy Director General of Manpower Department, Malaysian Ministry of Human Resources, chaired over this meeting. While MSCA's strategic partner, Malaysia Industry Forward Association (MIFA), also attended to share their experience in smart manufacturing based on the Malaysia Industry4WRD Policy.

ADTEC, Industrial Training Institute (ILP) Bukit Katil and ILP Selandar start with a comprehensive sharing about their institute and latest module offered. Followed by presentation on MIGHT and MSCA by Ts. Dr. Raslan Ahmad, along with several proposed avenues, which led to the meeting's goal of exploring into how to collaborate and co-create modules in the smart city vertical whereby Melaka will be the test bed for this initiative.

Moving forward, ADTEC will conduct a brainstorming session with MIGHT and PTHM to further define on the scope of this collaboration with a specific focus area which will be drafted as working paper that will be elevated to the state level, i.e. the Smart Melaka Implementation Committee (SMIC).



SIRIM-INDUSTRY WORKSHOP

SIRIM Kicks Off 3-Day SIRIM-Industry Workshop at Bukit Jalil

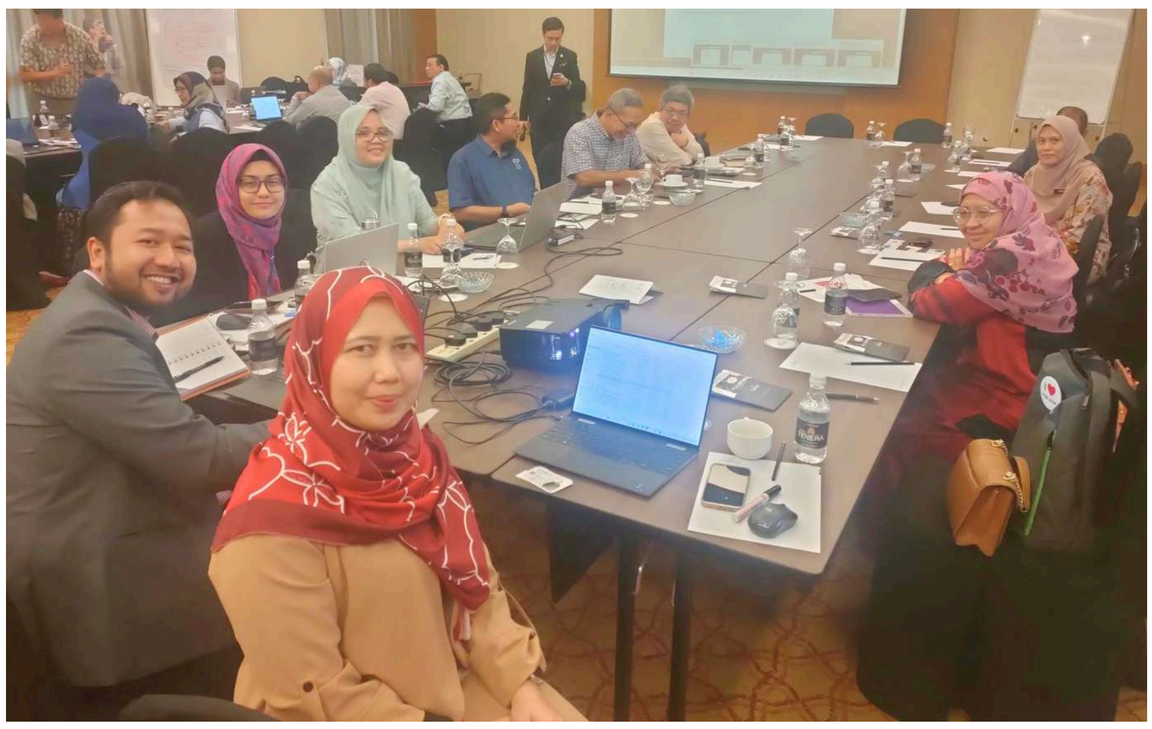
SIRIM had organized a 3-day SIRIM-Industry Workshop at the SIRIM Innovation Hall, Bukit Jalil. This event brings together government officials, industry experts, and key stakeholders to discuss challenges and opportunities within the industrial landscape.

During the event, Mr. Ts. Hj. Muhammad Didi had the priviledge of meeting Dato' Indera Dr. Ahmad Sabirin Arshad, CEO of SIRIM Berhad, and Ts. Ajmain Kasim, CEO of SIRIM Tech Venture. Their presence highlights the significance of collaboration between research institutions and industries in driving innovation and growth in Malaysia.

The workshop focuses on exploring Frontier Technologies that are reshaping sectors like manufacturing, energy, and smart cities. Through collaborative discussions, participants aim to develop strategies to harness these technologies, ensuring Malaysia's competitiveness in the global market.

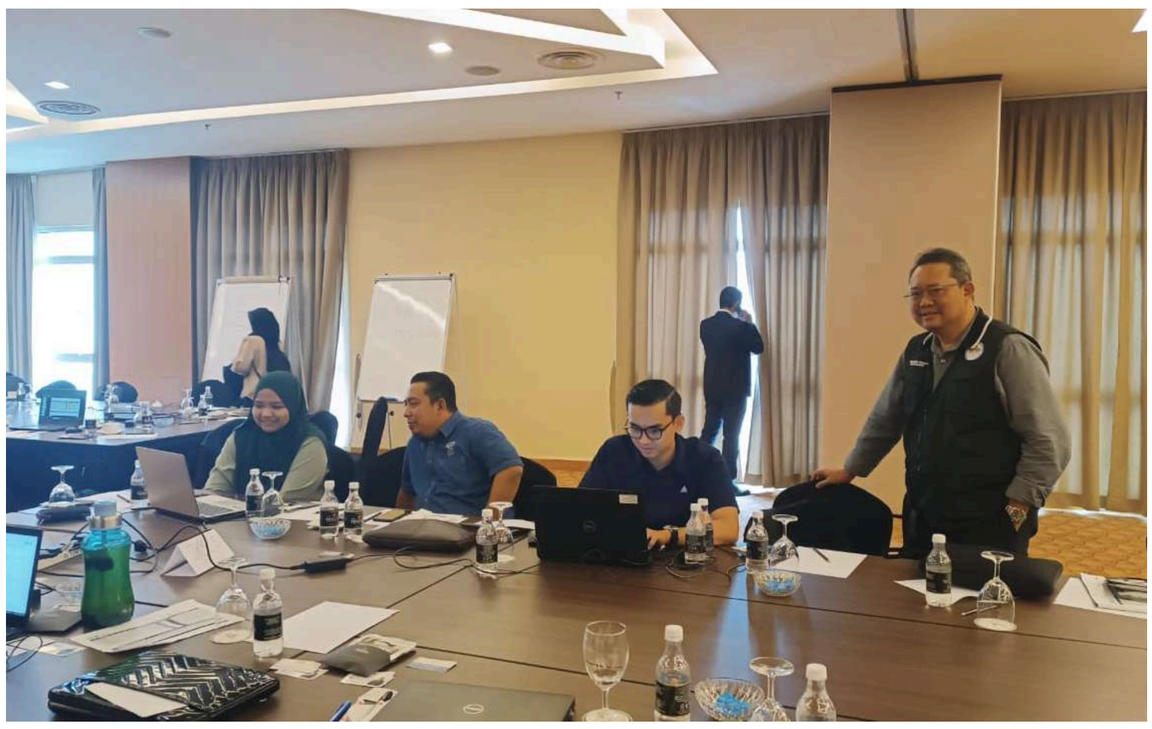
NATIONAL BLOCKCHAIN & ARTIFICIAL INTELLIGENCE (AI) ACTION PLAN COORDINATION WORKSHOP (NBAIC)

The Malaysia Industry Forward Association (MIFA) is honoured to have been selected as a member of the working committee for the National Blockchain & Artificial Intelligence (AI) Action Plan Coordination Workshop (NBAIC), spearheaded by the Ministry of Science, Technology & Innovation (MOSTI). This significant two-day workshop aimed to shape the strategic roadmap for the development of Blockchain and AI technologies in Malaysia.



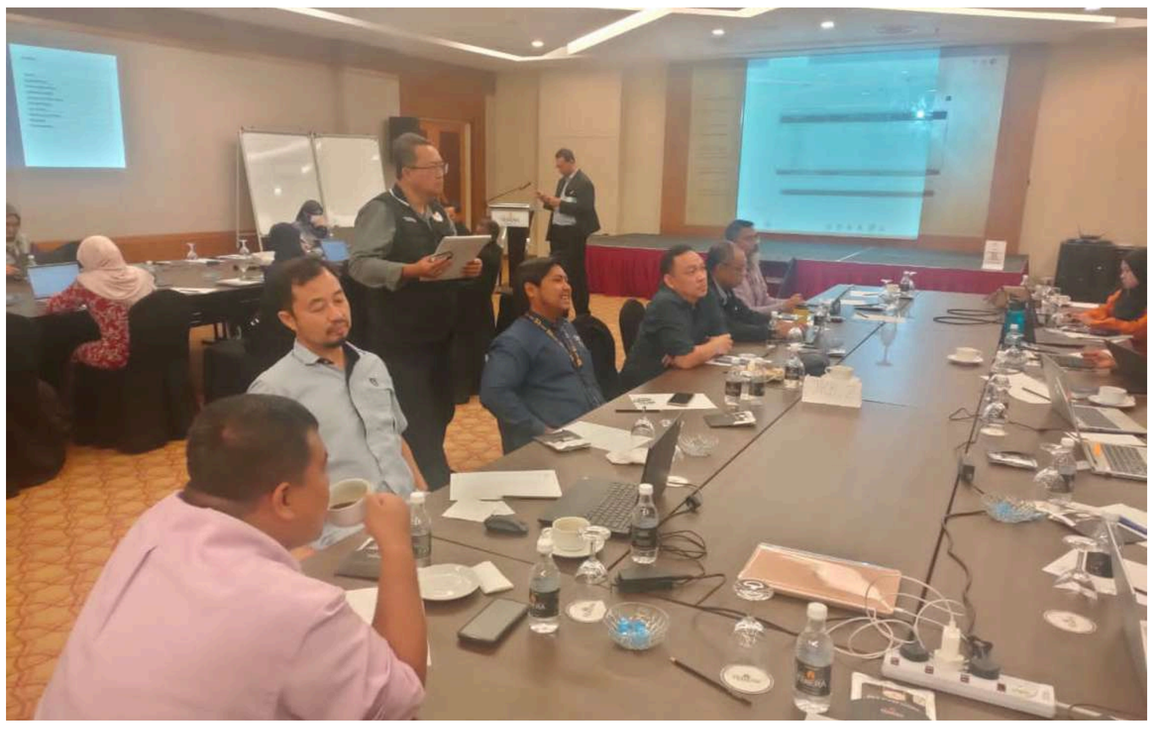
During the workshop, numerous key issues were discussed, with a primary focus on aligning national efforts and setting a clear direction for Malaysia's leadership in these transformative fields. Experts from various sectors, including government, industry, and academia, engaged in comprehensive dialogues on how to leverage Blockchain and AI to drive innovation, improve efficiency, and create new opportunities across various industries.

This initiative is not only critical for the nation's technological progress but also positions Malaysia as a potential leader and pioneer in the application of Blockchain and AI technologies within the ASEAN region. The collaborative efforts of all stakeholders involved in this workshop aim to ensure that Malaysia stays at the forefront of these emerging fields, ready to capitalize on the vast potential they offer.



We remain hopeful that through this continued commitment, Malaysia will lead the way in setting standards, fostering innovation, and becoming a regional hub for Blockchain and AI advancements.

The Malaysia Industry Forward Association (MIFA) is committed to supporting initiatives like the NBAIC Workshop, which align with its vision of fostering innovation and driving technological progress in Malaysia. By participating as a member of the working committee, MIFA aims to contribute valuable insights and expertise to shape the nation's digital future..



VISIT TO UNISZA TERENGGANU

In February this year, the President and key members of the Malaysia Industry Forward Association (MIFA) embarked on a significant visit to Universiti Sultan Zainal Abidin (UNISZA) Besut, where they explored the ongoing sweet potato and sweet melon farming projects. The visit highlighted MIFA's commitment to advancing agricultural innovation and was followed by a productive meeting at the Deputy Vice Chancellor's office in Gong Badak.

The primary objective of this visit was to solidify and expand upon an existing mutual agreement between MIFA and UNISZA, with a focus on developing large-scale 'Smart Agriculture' and 'Smart Aquaculture' initiatives. These initiatives are set to take place on a 1,000-acre plot of land in Besut and will actively involve the local community. By integrating cutting-edge smart technologies, these efforts aim to modernize farming and aquaculture practices, enhancing productivity, efficiency, and sustainability.

MIFA and UNISZA's collaboration is poised to bring about a transformation in these sectors, ensuring long-term benefits for both the local economy and society. The introduction of smart technologies is expected to not only improve yields and resource management but also create job opportunities and stimulate economic growth within the region. Ultimately, this partnership stands as a testament to the shared vision of both MIFA and UNISZA in fostering innovation, empowerment, and sustainable development in Malaysia's agricultural and aquaculture industries.

VISIT TO UNISZA TERENGGANU

The visit by the President and team of the Malaysia Industry Forward Association (MIFA) to Universiti Sultan Zainal Abidin (UNISZA) signifies a meaningful step toward strengthening partnerships between academia and industry in Malaysia. The visit involved two key activities: a meeting with UNISZA's Deputy Vice Chancellor for Research and Innovation at Gong Badak, and an on-site inspection of the UNISZA Besut Farm. Both events emphasize MIFA's commitment to collaborating with educational institutions to advance technology, research, and industry-driven initiatives.

In the first part of the visit, MIFA President met with the Deputy Vice Chancellor at UNISZA's Gong Badak campus, where they discussed avenues for collaborative research and technological development. This meeting allowed both parties to align their shared interests in promoting innovation within Malaysia's industries, particularly in the agricultural sector. The Deputy Vice Chancellor's presence highlighted UNISZA's dedication to research and its openness to collaborating with organizations like MIFA to create impactful, society-focused outcomes.

MIFA team's visit to UNISZA Besut Farm offered a hands-on experience with the agricultural practices and machinery currently in use at the university. The team observed various farming activities and equipment, sparking discussions on how technology, such as smart farming tools and IoT devices, could enhance productivity and sustainability.

This exploration aligns with MIFA's mission to foster Industry 4.0 practices across Malaysia, emphasizing the importance of digital transformation in agriculture to increase efficiency and address labor challenges.

MIFA SPONSORED BEST PROJECT AWARDS TO UPM STUDENT

MIFA Awards Best Project to UPM Student

The Malaysia Industry Forward Association (MIFA) is honoured to sponsor a prize to a University Putra Malaysia (UPM) student with the prestigious "Projek Terbaik" (Best Project) Award during a special ceremony held on 24 November 2023. The award, which came with a cash prize of RM1,000 and a certificate of recognition, was bestowed upon the student for their outstanding contribution in the field of Electrical and Electronics Engineering. The project impressed the judging panel with its innovative approach and the potential to make a meaningful impact within the industry, setting it apart from other entries.

The student’s project demonstrated a deep understanding of current technological challenges, while offering creative and practical solutions that could benefit both industry and society. MIFA's recognition of the project highlights its alignment with the association's broader mission to drive industrial growth through forward-thinking innovation and technological advancements.

This accolade further underscores MIFA's ongoing commitment to fostering young talent and promoting excellence within the engineering sector. By acknowledging the achievements of future engineers, MIFA aims to inspire continued innovation and provide a platform for emerging leaders to contribute to Malaysia’s technological progress. The award ceremony was graced by prominent figures from both the academic and industrial sectors, emphasizing the important role that universities play in cultivating the next generation of innovators and industry pioneers.

The event also served as a reminder of the value of collaboration between educational institutions and the industry in developing cutting-edge solutions that will help shape the future of Malaysia’s industrial landscape. Through initiatives like this, MIFA continues to champion the role of engineering students as critical contributors to the nation's path toward Industry 4.0 transformation.

MIFA-JPK TABLE DISCUSSION TOWARDS FUTURE COLLABORATION FOCUSING ON TALENT DEVELOPMENT

On 16 August 2024, MIFA conducted a courtesy visit to Ketua Pengarah Jabatan Pembangunan Kemahiran (KP JPK) at the KPKK Meeting Room. This meaningful engagement provided a platform to discuss strategic collaboration in developing industrial talents to meet the dynamic demands of the job market.

A key issue discussed was the potential appointment of MIFA as the 'Industry Lead Body (ILB)' for the 'New Technology' category. This reflects MIFA's critical role in driving innovation and preparing Malaysia's workforce to thrive in the rapidly changing Industry 4.0 landscape.

In this regard, both parties discussed ways to collaborate on enhancing skill development programs, including the creation of training modules, the promotion of knowledge transfer in emerging technologies, and aligning training institutions with the needs of industries.

These efforts will help make Malaysia's talent not only industry-ready but globally competitive.This visit by MIFA marks a commitment to creating partnerships that empower industries, enhance workforce capability, and support Malaysia's ambitions for high-tech and innovation-driven industries. Both MIFA and JPK are laying the foundation for a skilled and future-ready workforce.

MIFA @ KL 20 SUMMIT

The Malaysia Industry Forward Association (MIFA) actively took part in the KL20 Summit, a prominent event held in Kuala Lumpur aimed at driving technological advancements and industrial innovation. MIFA's participation in the summit highlights its commitment to promoting Industry 4.0 initiatives and advancing Malaysia's position in the global market.

At the event, MIFA representatives had the opportunity to network with key industry stakeholders, government officials, and tech innovators. The summit provided a platform for discussing the latest trends, challenges, and opportunities in areas such as smart manufacturing, automation, and digital transformation.

Throughout the KL20 Summit, MIFA focused on advocating for the importance of adopting forward-thinking industrial practices to support sustainable growth in Malaysia. By collaborating with both local and international experts, MIFA aims to foster partnerships that drive the country's industrial sectors towards embracing cutting-edge technologies.

The discussions held during the summit emphasized the role of digitalization, automation, and the use of artificial intelligence in enhancing productivity, reducing operational costs, and building a resilient industrial ecosystem for the future.

TALENTCORP WELCOMES MIFA FOR A MEMORABLE VISIT

MIFA is excited to announce a new and strategic collaboration with TalentCorp, an esteemed partner in driving national talent development. This collaboration marks an important step toward supporting and empowering several key national agendas, particularly focusing on upskilling and reskilling Malaysia's talent pool to meet the demands of a rapidly evolving industrial landscape.

On the November 2023, our delegation had the opportunity to visit TalentCorp Headquarters at Surian Tower, Damansara. This visit was a significant moment for both MIFA and TalentCorp, as it allowed us to engage in meaningful discussions about the future of talent development in Malaysia. Together, we aim to create programs and initiatives that will equip the workforce with the necessary skills to thrive in the age of Industry 4.0, including areas like artificial intelligence (AI), blockchain, and advanced manufacturing technologies.

Our collaboration is set to focus on enhancing workforce competitiveness, driving innovation, and ensuring that Malaysia continues to develop a robust talent pipeline capable of sustaining the country's industrial growth. By working hand-in-hand with TalentCorp, we are committed to ensuring that both upskilling and reskilling efforts align with the needs of industries and the aspirations of the nation.

Stay tuned for further updates on this exciting partnership and the impactful initiatives we will roll out in the near future.

22 REPRESENTATIVES FROM MIFA PARTICIPATED IN SPECIAL PROGRAMME ORGANIZED BY MIFA AND TALENTCORP

We are thrilled to share that 22 of our esteemed members participated in a special programme co-organized by MIFA and TalentCorp. This event marked a significant step in fostering closer collaboration between industry leaders and TalentCorp, with the aim of addressing critical talent development needs and empowering the workforce for the future.

The programme featured engaging discussions, workshops, and networking sessions, providing a platform for our members to explore potential collaborations and innovative solutions in areas such as upskilling, reskilling, and talent mobility. Through initiatives like these, MIFA continues to support its members in building a stronger and more dynamic workforce that aligns with the demands of Malaysia's rapidly evolving industrial landscape.

In addition, TalentCorp provided a comprehensive briefing on several programmes and incentives available to industries, aimed at further enhancing workforce capabilities. These initiatives focus on supporting industry players in their efforts to develop talent, attract skilled workers, and access financial assistance for talent development programmes, helping companies stay competitive and future-ready.

This event is just the beginning of many more collaborative efforts between MIFA and TalentCorp. We are committed to creating even more impactful opportunities and partnerships that will drive growth, innovation, and competitiveness within the industry. If you're not yet part of MIFA, now is the perfect time to join us. Together, we can build a brighter future for Malaysia's industries through collaboration, innovation, and strategic talent development.

MONTHLY MIFA EXCOS MEETING

Preparation for the MTE Exhibition at MITEC from 9-12 October 2024.

The Monthly MIFA Excos meeting took place, focusing on the critical preparations for the upcoming MTE (Malaysia Technology Expo) Exhibition, which will be held at MITEC from 9th to 12th October 2024. During the meeting, key strategies were discussed to ensure MIFA's participation showcases the latest innovations and contributions in advancing Industry 4.0 technologies.

The Excos outlined detailed plans for the exhibition booth, presentations, and networking opportunities to highlight MIFA's role in promoting cutting-edge solutions for the manufacturing and technology sectors. With the MTE Exhibition being a premier platform for industry leaders and innovators, MIFA is committed to making a strong impact, demonstrating its leadership in driving digital transformation in Malaysia. The meeting also addressed logistical arrangements and the coordination of various teams to ensure a seamless and successful presence at this prestigious event.

With the MTE Exhibition being a premier platform for industry leaders and innovators, MIFA is committed to making a strong impact, demonstrating its leadership in driving digital transformation in Malaysia. The meeting also addressed logistical arrangements and the coordination of various teams to ensure a seamless and successful presence at this prestigious event.

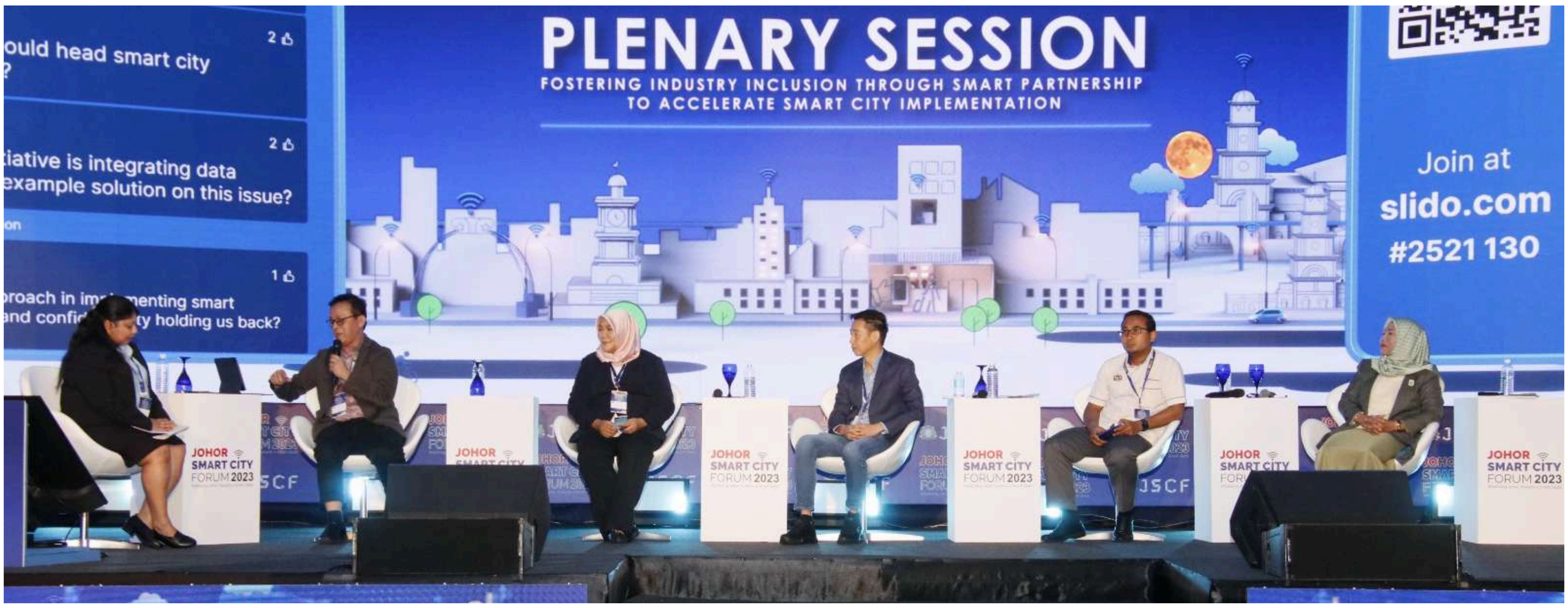
LUNCHEON FOLLOWING MIFA EXCOS MONTHLY MEETING

After concluding the monthly MIFA Executive Committee (Exco) meeting, members gathered for a delightful luncheon. This gathering provided an excellent opportunity for the Exco team to engage in informal conversations, exchange ideas, and further strengthen the camaraderie among the leadership.

While the formal meeting focused on key agendas, strategic discussions, and updates on ongoing initiatives, the luncheon allowed for a more relaxed environment where members could build stronger personal and professional relationships. Such moments of bonding outside the boardroom are crucial in fostering unity and collaboration within the team, ensuring that MIFA's goals are met with a shared vision and collective commitment.

We look forward to many more productive meetings and enjoyable gatherings as we continue working towards advancing Malaysia's industrial progress.

JOHOR SMART CITY FORUM



MIFA Participates in the Johor Smart City Forum 2023

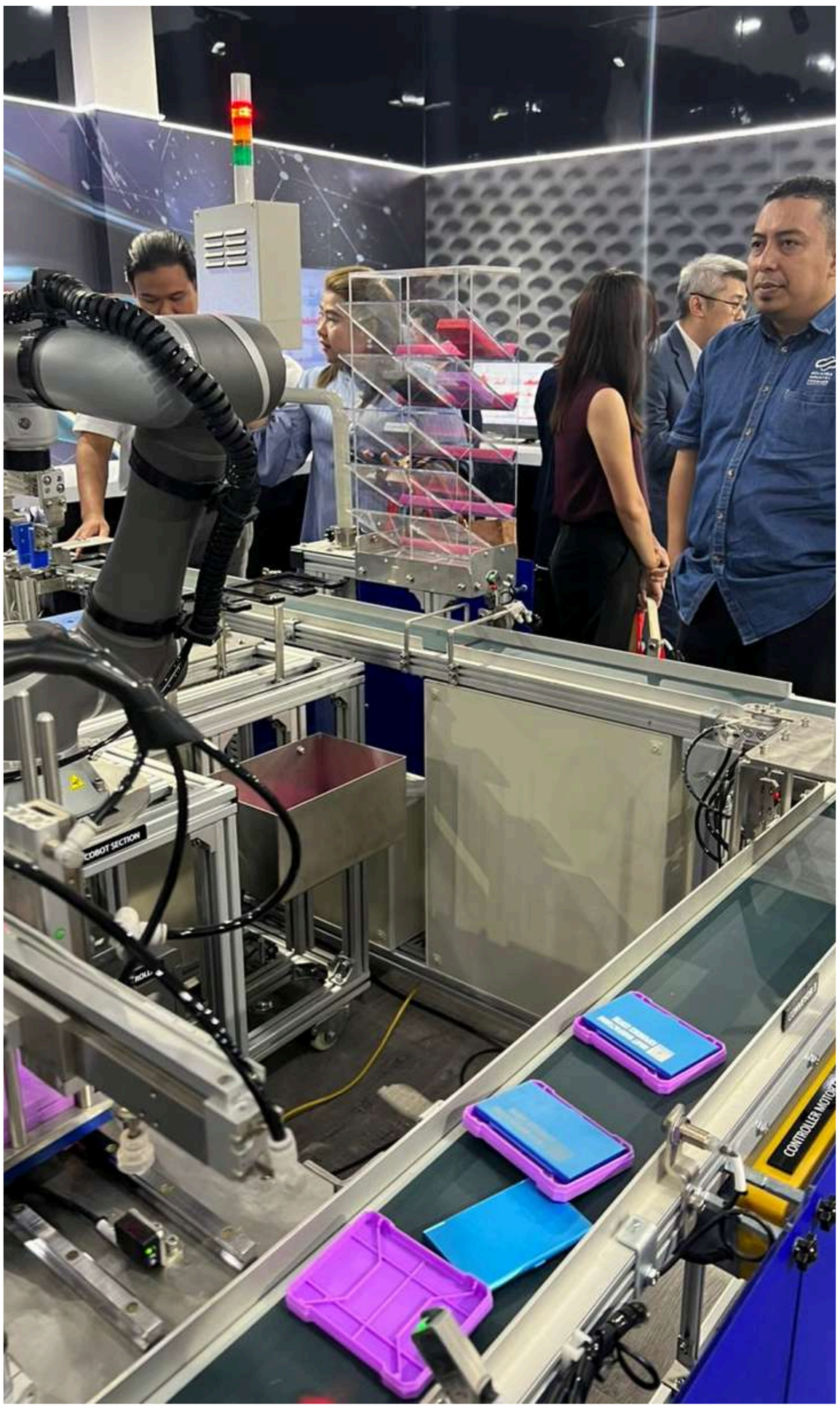
MIFA proudly participated in the Johor Smart City Forum 2023, a premier event focused on driving the future of urban development through cutting-edge technologies and innovative solutions. Held in the dynamic state of Johor, this forum brought together industry leaders, government officials, city planners, and technology experts to explore the possibilities of transforming cities into sustainable, efficient, and intelligent urban spaces.

Additionally, MIFA's representative, Mr. Kamaruzaman Jahidin, was invited as a special panelist at the forum. With his extensive experience in the smart city sector, Mr. Kamaruzaman provided valuable insights and a deeper explanation on the key elements of smart city development, further enriching the discussions at the event.

Besides, MIFA played an active role in the discussions, highlighting the importance of Industry 4.0 technologies such as artificial intelligence (AI), blockchain, and Internet of Things (IOT) in shaping the future of smart cities.

The forum provided valuable insights into how smart technologies can be integrated to enhance urban living, improve infrastructure, and create more efficient public services. MIFA is excited to collaborate with stakeholders across sectors to continue driving innovation and supporting the realization of smart city visions in Johor and beyond.

LAUNCHING OF SIRIM SMART MANUFACTURING EXPERIENCE CENTRE (SMEC)



MIFA proudly participated in the Launching of the SIRIM Smart Manufacturing Experience Centre (SMEC), a groundbreaking event that signifies a major leap forward in Malaysia's industrial transformation. The involvement of MIFA in this prestigious launch highlights its ongoing commitment to fostering innovation and promoting the adoption of cutting-edge technologies in the manufacturing sector.

The SMEC serves as an interactive hub where industries can explore the latest advancements in smart automation, AI-driven manufacturing solutions, IoT, and data-driven processes.

By taking part in this significant initiative, MIFA aims to contribute to the growth and development of smart manufacturing, empowering Malaysian industries to become more competitive in the global market. The collaboration reflects MIFA's role in supporting the nation's journey toward Industry 4.0, helping businesses streamline operations, improve productivity, and embrace sustainable, forward-thinking technologies.

MIFA - KPM BPLTV COLLABORATION MEETING

The Malaysia Industry Forward Association (MIFA) and the Ministry of Education's Vocational Education and Training Division (BPLTV) recently convened at Ancasa Hotel, Kuala Lumpur, to discuss a strategic partnership aimed at enhancing technical and vocational education in Malaysia. This collaboration seeks to align vocational training with industry demands, preparing students to meet the skills required in today's competitive industrial landscape.

A key focus of the partnership is to elevate the quality of Technical and Vocational Education and Training (TVET) by adapting curricula to industry standards. By integrating practical, hands-on training with modern industry practices, MIFA and BPLTV aim to ensure that vocational graduates are equipped with relevant skills, ready to contribute effectively to Malaysia's industrial growth.

The partnership also explores mechanisms to boost the competitiveness of vocational college graduates, positioning them for success both in local and global job markets. This includes exposure to industry advancements and preparing students to thrive in a rapidly evolving workforce.

In essence, this collaboration represents a meaningful step in bridging the gap between education and industry. By working together, MIFA and BPLTV hope to develop a skilled, adaptable workforce that can support Malaysia's economic growth and bolster the country's position in the global industrial arena.

WELCOME TO OUR NEW MEMBERS

MIFA is thrilled to announce the addition of four dynamic and innovative companies to our network. Each of these companies brings unique expertise and valuable insights to the table, strengthening our mission to drive growth, innovation, and industry excellence. Let's take a closer look at our newest members:

Operion

Established in 2007, Operion is a leading player in delivering cutting-edge technological solutions across various industries. With a focus on operational efficiency and digital transformation, Operion has earned a reputation for providing high-quality services that help businesses stay competitive in a rapidly changing market. By joining MIFA, Operion aims to collaborate with industry leaders to contribute to the development of a future-ready workforce and help shape Malaysia's industrial landscape.

GWorks Digital

GWorks Digital is a forward-thinking company specializing in digital marketing, web development, and technology solutions. Their innovative approach to solving business challenges has helped numerous organizations thrive in the digital age. As a proud new member of MIFA, GWorks Digital is excited to expand its network and contribute to Malaysia's digital transformation, with a particular focus on enhancing e-commerce platforms and digital business strategies.

Leader Biz Net

LEADER Biz Net Sdn Bhd, established on May 5, 2016, began as a typesetting and graphic design service before expanding into publishing, advertising, printing, event management, and supplying reading materials. As a new MIFA member, Leader Biz Net is eager to collaborate with other industry players, bringing their wealth of knowledge and experience to further elevate Malaysia's competitive edge in the global market.

Digital Methods

Digital Methods Sdn Bhd is a leading provider of innovative training and business solutions, specializing in IT, digital technologies, and workforce development. Established with the vision of empowering organizations through cutting-edge technologies, we offer a wide range of training programs that help individuals and businesses excel in the digital age. As a member of MIFA, Digital Methods looks forward to working alongside other like-minded organizations to foster collaboration and help build a stronger, more resilient workforce.

We are excited to welcome these new members to the MIFA community. Together, we will continue to shape the future of Malaysia's industries through innovation, collaboration, and strategic development.

Mohd Zakry MS (MIFA Academy)

STEM CAREERS: EXPLORING THE PATHWAYS AND OPPORTUNITIES IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

The rapid advancement of technology and the increasing need for innovation in various industries have made STEM (Science, Technology, Engineering, and Mathematics) fields some of the most dynamic and rewarding career paths today. From developing cutting-edge medical treatments to solving climate change issues, STEM professionals are at the forefront of solving some of the world's most pressing challenges. As these fields continue to evolve, there is a growing demand for skilled individuals in STEM-related jobs across diverse industries.

What is STEM?

STEM stands for Science, Technology, Engineering, and Mathematics. These fields encompass a broad range of disciplines and industries that require critical thinking, problem-solving, and analytical skills. STEM careers are focused around discovering new knowledge, improving existing technologies, and solving complex problems through innovation and creativity.

While the four categories (Science, Technology, Engineering, and Mathematics) each represent distinct areas, they often overlap, with professionals in STEM fields frequently working across multiple disciplines to address real-world challenges. In today's job market, STEM-related roles span a wide range of sectors, from healthcare and energy to finance and entertainment.

Why Pursue a STEM Career?

In 2021, Malaysia was reported to raise its proportion of STEM students to as high as 60%, to meet the future need for science, engineering and tech professionals. In 2020, the percentage of students in STEM was 47.18 per cent.Malaysia also needs more engineers. At the end of 2022, there were around 187,900 engineers registered, according to the Board of Engineers Malaysia.

This leaves the country's engineer-to-population ratio at one to 170. This is lower than in developed countries such as Germany and France, where the ratio is at one to 100, said Mr Chang, who studied civil engineering at the Universiti Putra Malaysia.

There are several compelling reasons to pursue a career in STEM, including:

1. Job Demand and Growth: STEM jobs are among the fastest-growing in the labour market. According to the U.S. Bureau of Labor Statistics (BLS), STEM occupations are projected to grow at a much higher rate than the average for all occupations over the next decade.

2. High Earning Potential: STEM careers tend to offer some of the highest-paying jobs. Professionals in engineering, software development, and biotechnology, for example, can earn significantly higher salaries than those in non-STEM fields.

3. Diverse Opportunities: The vast range of industries and fields within STEM means that there are countless career options available. Whether you're interested in healthcare, data science, renewable energy, space exploration, or artificial intelligence, STEM careers offer diverse opportunities.

4. Impact and Innovation: STEM professionals have the chance to make a tangible difference in society. Whether you're developing life-saving medical technologies or designing sustainable energy solutions, STEM careers offer the chance to create innovations that can improve lives globally.

Top STEM Career Paths

The world of STEM offers a variety of career paths, each with its own focus and opportunities. Below are some of the most popular and growing STEM careers:

1. Software Developer / Software Engineer

- Role: Software developers create applications and systems that run on computers or mobile devices. They work with programming languages, databases, and other software tools to design, code, and test software.
- Skills Required: Proficiency in programming languages (e.g., Python, Java, C++), problem-solving, critical thinking, and attention to detail.
- Job Outlook: The BLS reports that employment for software developers is projected to grow by 22% from 2020 to 2030, much faster than the average for all occupations.
- Average Salary: Estimated around MYR80,000 – MYR110,000 per year, depending on the level of experience and location.

2. Data Scientist / Data Analyst

- Role: Data scientists collect, analyze, and interpret large sets of data to help organizations make informed business decisions. They use statistical techniques and machine learning algorithms to extract insights from data.
- Skills Required: Expertise in programming (R, Python), statistical analysis, data visualization, and machine learning.
- Job Outlook: The demand for data scientists is expected to grow by 35% from 2020 to 2030, making it one of the fastest-growing career paths in STEM.
- Average Salary: Data scientists could earn an average of MYR70,000–MYR90,000 annually.

3. Biomedical Engineer

- Role: Biomedical engineers apply principles of engineering and biological sciences to develop medical devices, prosthetics, and diagnostic equipment. They work in hospitals, research labs, and manufacturing companies.
- Skills Required: Strong foundation in biology, chemistry, and engineering principles, as well as proficiency in software for simulation and modelling.
- Job Outlook: Biomedical engineering jobs are expected to grow by 6% from 2020 to 2030.
- Average Salary: Around MYR100,000 per year.

4. Civil Engineer

- Role: Civil engineers design, build, and maintain infrastructure projects such as roads, bridges, dams, and water supply systems. They ensure that these structures are safe, efficient, and sustainable.
- Skills Required: Strong knowledge of engineering principles, project management, and the ability to use CAD software for design.
- Job Outlook: Employment of civil engineers is expected to grow by 8% over the next decade.
- Average Salary: Approximately between MYR90,000 – MYR150,000 per year, depending on level of project experience and job location.

5. Environmental Scientist

- Role: Environmental scientists analyse and develop solutions to address environmental challenges, including pollution, climate change, and resource management. They work to protect natural resources and improve sustainability practices.
- Skills Required: Knowledge of environmental laws, biology, chemistry, and data collection techniques. Familiarity with GIS (Geographical Information Systems) is often required.
- Job Outlook: The employment of environmental scientists is projected to grow by 8% from 2020 to 2030.
- Average Salary: Estimated around MYR80,000 – MYR120,000 per annum.

6. Machine Learning Engineer

- Role: Machine learning engineers develop algorithms and systems that allow computers to learn from data and make predictions or decisions without being explicitly programmed. This technology is used in everything from voice recognition to self-driving cars.

- Skills Required: Deep understanding of algorithms, data structures, and machine learning frameworks (e.g., TensorFlow, PyTorch).

- Job Outlook: Machine learning is a rapidly growing field, with demand for experts increasing across various sectors.

- Average Salary: Machine learning engineers typically earn between MYR120,000 - MYR150,000 annually.

7. Cybersecurity Specialist

- Role: Cybersecurity specialists protect organizations from digital threats by implementing security measures and monitoring networks for suspicious activity. They work to prevent data breaches, hacking, and other forms of cybercrime.

- Skills Required: Expertise in computer networks, cryptography, ethical hacking, and knowledge of security protocols.

- Job Outlook: Employment in cybersecurity is expected to grow by 35% from 2021 to 2031.

- Average Salary: Cybersecurity specialists earn around MYR95,000 to MYR120,000 annually.

8. Astronomer / Astrophysicist

- Role: Astronomers study celestial bodies such as stars, planets, and galaxies to understand the universe's origins and evolution. Astrophysicists focus on the physical properties of these bodies and their interactions.

- Skills Required: Strong background in physics and mathematics, as well as proficiency in data analysis and simulation tools.

- Job Outlook: While a highly specialized field, astronomy and astrophysics careers are expected to grow at a steady pace, especially with ongoing space exploration.

- Average Salary: Estimated around MYR120,000 – MYR160,000 per year.

How to Pursue a STEM Career

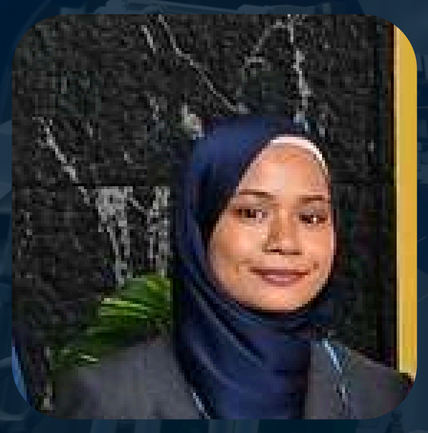
To enter a STEM field, individuals typically need at least a minimum diploma or bachelor's degree in a relevant discipline, although many advanced roles, such as data science or biomedical engineering, may require a master's degree or as high as doctorate level. In addition to formal education, hands-on experience, internships in the relevant industries, and relevant certifications can greatly enhance your qualifications. Many STEM careers also offer opportunities for continuous learning and development as technology and methodologies evolve.

The Future of STEM Jobs

As technology advances and the global economy evolves, new opportunities in STEM fields will continue to emerge. Areas such as artificial intelligence, renewable energy, quantum computing, and space exploration are expected to be at the forefront of innovation in the coming decades. For those considering a career in STEM, the future looks bright with countless opportunities to shape the world through science, technology, engineering, and mathematics.

Conclusion

STEM careers offer exciting and rewarding opportunities for individuals who are passionate about solving problems, pushing the boundaries of knowledge, and making a positive impact on the world. Whether you are interested in developing life-saving technologies, understanding the mysteries of the universe, or ensuring the safety and sustainability of the planet, STEM fields provide a wealth of career options that are both intellectually stimulating and financially rewarding. The key is to explore your interests, build the necessary skills, and embrace the rapidly changing world of STEM



Siti Zulaika binti Awang Ahmad @ Yusof

Bachelor of Manufacturing Engineering with Honours, Universiti Teknikal Malaysia Melaka (UTeM)

AUGMENTED REALITY: THE INNOVATIVE WAY IN SMART MAINTENANCE

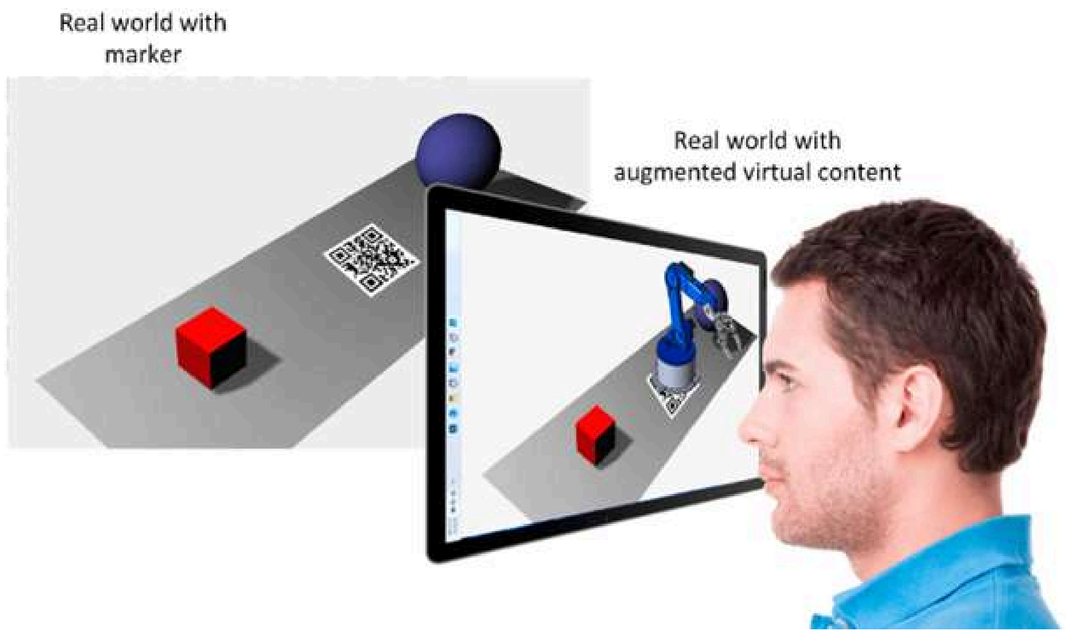
Industry 4.0 has significantly transformed the manufacturing sector by integrating advanced technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and Augmented Reality (AR) into maintenance practices, giving rise to the concept of Smart Maintenance. One of the most impactful applications of Industry 4.0 in maintenance is the use of AR to optimize operations. AR is an immersive technology that involves superimposing the real image by overlaying virtual objects on it. This allows a personnel to visualize and interacts with virtual objects in real time.

Benefits of AR-Based Maintenance

There are numerous benefits obtained from implementing AR-based maintenance, firstly it reduces the time taken for performing maintenance. This directly improves the availability of equipment and prevent long downtime caused by maintenance. Secondly, it enhances the quality of maintenance tasks by delivering real-time guidance and minimizing human errors. Thirdly, it lowers the risk of accidents by enabling remote support for maintenance personnel working in dangerous settings. Lastly, it improves personnel training by offering an interactive, hands-on learning experience making it easier for new technicians to grasp complex procedures.

Implementation of AR in Maintenance

During maintenance activities, technicians employ AR technology by directing a camera-equipped device, such as a smartphone or AR headset, toward the equipment they work on. The AR system superimposes relevant information directly onto the technician's field of view. For instance, when diagnosing a complex machine, on-screen indicators and annotations can highlight specific parts and provide step-by-step instructions. This helps technicians quickly pinpoint the areas of problem and enable them to interconnect various elements involved like pipes, wiring, and control mechanisms.



By merging digital information with the physical environment,AR streamlines complex procedures and supports more effective decision-making during maintenance a

EDAG: A Leader in Smart Maintenance Solutions

Globally, numerous companies have shifted their maintenance methods from traditional approaches to cutting-edge technologies offered by service providers. This shows that manufacturers are adapting to emerging innovations and be benefitted from them. EDAG, a leading engineering services provider, has developed innovative augmented reality (AR) solutions to enhance production processes and streamline manufacturing operations. EDAG has leveraged augmented reality (AR) technology specifically for smart maintenance that focus on optimizing repair and maintenance tasks in complex production environments. Their AR solution offers real-time support by overlaying digital information, such as maintenance instructions, technical diagrams, and component specifications, directly onto the physical equipment that is being worked on. This allows personnel to access relevant information without disrupting their workflow or consulting traditional manuals. The system enables quicker identification of faulty components, displays interactive 3D models for better visualization, and highlights specific parts or areas needing attention. Additionally, the system aids in troubleshooting by providing step-by-step guidance and real-time remote assistance. This allows experts to collaborate with on-site personnel regardless of location to provide support when technicians encounter issues beyond their expertise.

Apart from that, EDAG's smart maintenance solution is also equipped to handle predictive maintenance by integrating AR with IoT sensors. The sensors collect real-time data on equipment performance, and the AR system visualizes potential problem areas before failures occur, enabling maintenance teams to address issues proactively. This approach reduces unexpected downtimes, extends equipment life, and ensures optimal performance. Moreover, the AR-based maintenance solution simplifies training for new technicians by offering immersive, hands-on learning experiences, thereby enhancing their ability to perform complex tasks with confidence. Through these capabilities, EDAG's AR solution transforms traditional maintenance into a smarter, more efficient process that aligns with the principles of Industry 4.0.

Challenges in Implementing AR

The integration of augmented reality (AR) into maintenance practices presents several challenges that can impact its effectiveness and adoption. One of the primary issues lies in the technical limitations of AR devices. Many AR headsets and devices suffer from restrictive user interfaces, which can limit the field of view for technicians and hinder their ability to interact seamlessly with both the real world and AR overlays. Additionally, effective AR applications require robust data connectivity, typically through high-speed 5G networks to support low latency and real-time data transfer. Without adequate connectivity, the performance of AR systems is significantly compromised.

Moreover, integration with existing systems can be complex. Compatibility issues often arise when AR technologies are introduced into legacy systems, making it difficult to seamlessly connect AR solutions with current manufacturing processes.

Effective data management is also a critical concern, as the success of AR relies heavily on accurate and comprehensive data from various sources. Ensuring the quality and integration of this data into AR applications is a substantial challenge.Training and adaptation are also crucial aspects to consider. While AR can bridge some technical skill gaps by providing visual aids and step-by-step instructions, workers still need to be trained to use these technologies effectively.

Resistance to change from traditional methods to AR-based approaches can resist adoption and lead to implementation not working well. Additionally, if too much information is presented at once, AR can lead to cognitive overload, making it challenging for workers to process and act on the information efficiently.

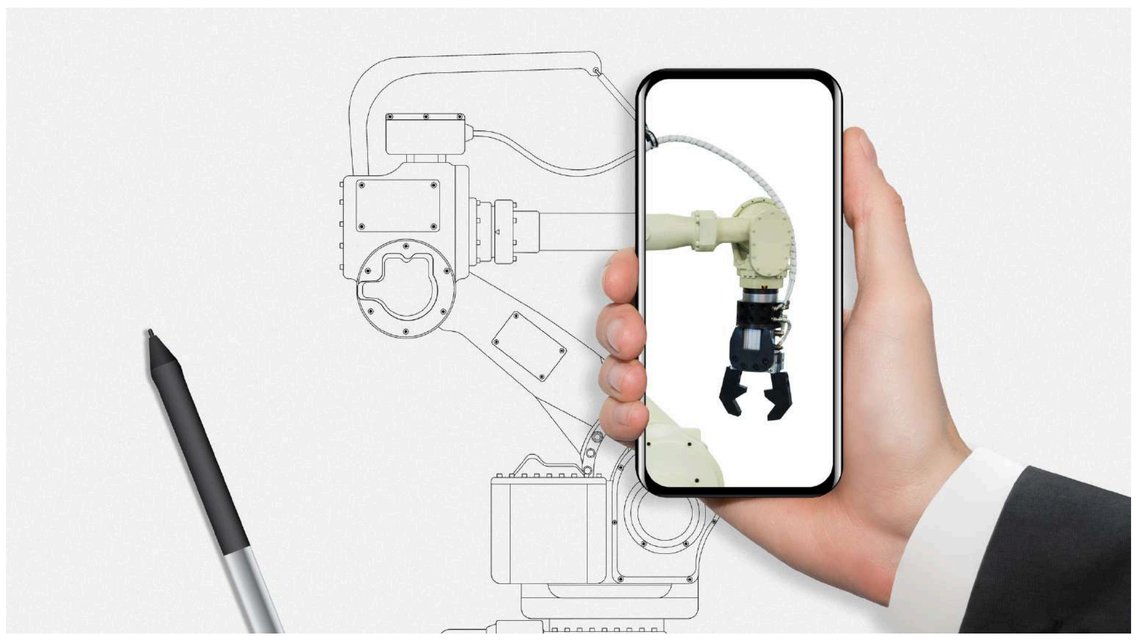
Safety and ergonomics are other important factors. The use of AR devices in dynamic factory environments may pose physical safety concerns, as personnel could become distracted by the overlays or misjudge their surroundings while focusing on the AR interface. Prolonged use of AR headsets can also cause discomfort or physical strain, negatively impacting productivity and overall job satisfaction.

Conclusion

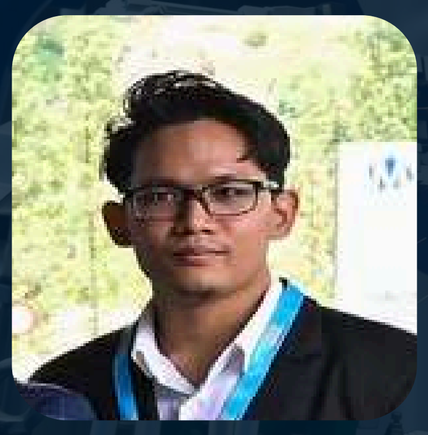
Augmented reality holds immense potential for enhancing maintenance operations by providing real-time insights and guidance which will be beneficial for overall business performance. However, overcoming the challenges is crucial for successful implementation. Addressing technical limitations, integration complexities, training needs, and safety issues enables companies to maximize the benefits of AR in the industry.

References

1. Bagh, A. (2024, April 1). AR in action - The revolution in industrial maintenance. SPIE RODIAS. https://www.spie-rodias.de/en/news/augmented-reality-in-action-revolution-in-industrial-maintenance/
2. EDAG Production Solutions
3. Malta, A., Farinha, T., & Mendes, M. (2023). Augmented reality in maintenance—history and perspectives. Journal of Imaging, 9(7), 142. https://doi.org/10.3390/jimaging9070142
4. Augmented reality in maintenance. Sensemore. (2024, April 18). https://sensemore.io/augmented-reality-in-maintenance/
5. Simon, J., Gogolák, L., Sárosi, J., & Fürstner, I. (2023). Augmented reality based distant maintenance approach. Actuators, 12(7), 302. https://doi.org/10.3390/act12070302



DIGITAL TWINS FOR ENGINEERING SIMULATIONS AND OPTIMIZATION



Ahmad Azkhairie bin Azwan,

Bachelor in Electrical Engineering Technology, Universiti Teknikal Malaysia Melaka(UTeM)

What is Digital Twin?

Seeking to reduce prototype production costs and conduct rigorous tests significantly? Require real-time monitoring and predictive analysis for physical assets? The solution is clear: Digital Twin (DT). A DT is a virtual representation of a physical object or system, created using data from various sources such as sensors, software, and other devices. It serves as a digital replica that mimics the behavior and performance of the real-world object or system in real-time. This digital twin is employed to monitor, analyze, and improve the performance of the physical object or system. It allows engineers and designers to experiment with different scenarios, configurations, and parameters without posing any risk to the actual object or system.

DT are utilized across diverse industries, including engineering, manufacturing, energy, healthcare, and transportation, to oversee and enhance complex systems and processes. They are also applied in smart cities to simulate the behavior of entire urban areas and optimize factors such as traffic flow and energy consumption. Grieves and Vickers [1] define the DT as "a set of virtual information constructs that fully describes a potential or actual physical manufactured product from the micro atomic level to the macro geometrical level. At its optimum, any information that could be obtained from inspecting a physical manufactured product can be obtained from its Digital Twin".

The Benefit of Digital Twins

DT offer a few benefits to businesses and organizations. They can be utilized to progress the plan and execution of items, frameworks, and forms. By mimicking distinctive scenarios, engineers and creators can recognize and address potential issues some time recently they happen within the genuine world. This could lead to moved forward proficiency, decreased costs, and expanded efficiency.

DT can also be utilized to optimize the upkeep of physical objects and frameworks. By checking the execution of an advanced twin, organizations can distinguish when support is required, decreasing the chance of downtime and anticipating exorbitant repairs. Besides, DT can be utilized to progress the client encounter. By analyzing information from sensors and other sources, organizations can gain insights into how clients utilize their items and administrations. This may be utilized to move forward with item plans, tailor administrations to client needs, and recognize unused trade openings

Examples of Digital Twins

DT are used in various industries, at the company where I interned, DTs are used to monitor equipment in isolation rooms. DTs are used before a certain process starts. In this case, they use certain gases in a closed chamber and some of these gases can be harmful if overexposed. So before each process starts, they run simulations and identify potential problems before it goes live. This can save time and money on wasted materials. Nowadays, DT is widely used in engineering fields. For example, in automotive engineering, there are cars and some advanced motor that can monitor their own condition. For example, QJ Motor China's Fortress 350 can monitor tire pressure and display it to the rider in real time.

For Civil Engineers the DT of cities are useful for planned construction and to improve traffic flow. It is stated that Singapore and Shanghai both have complete digital twins that work to improve energy consumption, traffic flow and even help plan developments. Smart cities are fast becoming a reality, providing an excellent way to reduce pollution and increase the well-being of residents.

Optimization Techniques

Predictive Analytics: DT use predictive analytics to predict potential issues and performance bottlenecks. By analyzing historical data and real-time inputs, they can identify trends and anomalies that could impact operations. For example, in manufacturing, DT can predict production bottlenecks that traditional methods might miss, allowing for proactive workflow adjustments.

Scenario Simulation: DT enable the simulation of different operating scenarios without interrupting real-world processes. This capability allows organizations to test different configurations, production schedules, and resource allocations to determine the most efficient approach. For example, DT can simulate thousands of production sequences to isolate the sequence that maximizes production time. **Machine Learning Integration:** The integration of machine learning algorithms improves the optimization capabilities of DT. These algorithms can adapt to both historical patterns and real-time variations, creating a system of repeatable business rules that can significantly improve manufacturing operations. For example, reinforcement learning can be used to dynamically optimize planning models. **Real-time adjustment:** DT support real-time adjustment based on live feeds from IoT sensors embedded in physical assets. This two-way communication allows organizations to react quickly to changing conditions in the field, continuously optimizing performance as new data becomes available.

Conclusion

Businesses and organizations can profit from several advantages provided by DT, which signify a new era of simulation and optimization. Organizations can lower costs, maximize performance, and improve product design by building virtual copies of real systems and objects.

DT will grow increasingly crucial as their use grows in terms of enhancing the effectiveness and efficiency of complicated systems and procedures, including those in manufacturing, transportation, and healthcare. DT have the potential to be a major technological advancement in the fourth industrial revolution because of its capacity to imitate and optimize performance.

Benefits of Optimization

Reduced costs: By identifying inefficiencies and optimizing resource allocation, DT can deliver significant cost savings. For example, optimizing production schedules can reduce downtime and minimize waste [3].

Improved productivity: Organizations leveraging DT report increased productivity due to improved operational efficiency. The ability to simulate and optimize processes results in better resource utilization and faster processing times. **Improved quality:** Continuous monitoring and optimization helps maintain high quality standards by identifying deviations from expected performance early in the process. This proactive approach ensures that quality issues are addressed before they escalate into larger problems. **Scalability:** The DT can be deployed across complex networks of interconnected systems, enabling comprehensive optimization of an entire factory or supply chain. Each node in the network can have its own DT, contributing to overall system efficiency.

Reference

[1]M. Grieves, J. Vickers, Digital twin: Mitigating unpredictable, undesirable emergent behavior in complex systems, in: F. Kahlen, S. Flumerfelt, a. Alves (Eds.), Transdisciplinary Perspectives on Complex Systems, Springer, Cham, 2017, pp. 85–113.

[2]Camarella, S. et al. (2024) Digital Twins: The Next Frontier of factory optimization, McKinsey & Company. Available at: https://www.mckinsey.com/capabilities/operations/our-insights/digital-twins-the-next-frontier-of-factory-optimization (Accessed: 03 October 2024).

[3]Head, P.K.D. (2023) Digital Twin: Optimizing Operations Through Excellence, L&T Technology Services. Available at: https://www.ltts.com/blog/digital-twin-optimizing-operations (Accessed: 03 October 2024).

[4]IBM (2023) What is a digital twin?, IBM. Available at: https://www.ibm.com/topics/what-is-a-digital-twin (Accessed: 03 October 2024).

[5]Limited, T.L.L.P. (2023) Digital Twins: A new era of simulation and optimization, LinkedIn. Available at: https://www.linkedin.com/pulse/digital-twins-new-era-simulation-optimization/ (Accessed: 03 October 2024).

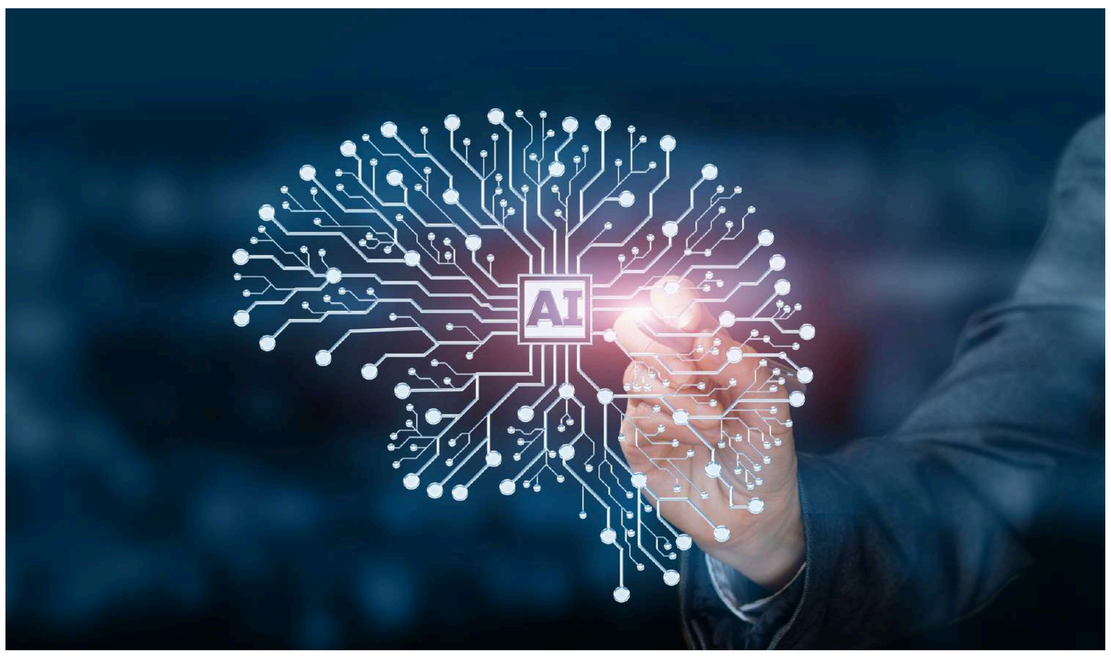
THE IMPLICATIONS OF GENERATIVE AI IN EDUCATION: PROS & CONS

Nur Aiin Selamat

Bachelor of Technology in Mechanical Automotive, Universiti Kuala Lumpur Malaysian Spanish Institute (UniKL MSI)

ABSTRACT

The emergence of generative artificial intelligence (AI) has opened transformative opportunities in education. This paper investigates the ramifications of generative AI technologies, including large language models and content-creation tools, while assessing their potential advantages and challenges within educational environments. On the bright side, generative AI can enhance personalized learning experiences, streamline administrative tasks, foster creative content production, and provide innovative tutoring systems. These benefits create avenues for boosting student engagement, alleviating the workload for educators, and increasing access to information. Nonetheless, this article also highlights the issues linked to the integration of AI, such as concerns over data privacy, the threat of eroding critical thinking skills, ethical questions surrounding AI-generated materials, and the risk of perpetuating biases found in training datasets. The paper aspires to offer a well-rounded viewpoint, balancing the advantages and disadvantages of generative AI in education while suggesting frameworks for ethical use and strategies to mitigate the limitations of these technologies. By considering both the benefits and the challenges, this research aims to educate stakeholders, including educators, policymakers, and technologists, about the responsible incorporation of generative AI into contemporary educational systems.



Introduction

The swift progression of artificial intelligence (AI) has profoundly influenced many sectors, with education being notably affected. One of the most revolutionary advancements is the emergence of generative AI, a branch of artificial intelligence that produces novel content, encompassing text, images, audio, and video, by analyzing patterns derived from extensive datasets. Instruments such as OpenAI's GPT-4 and other AI-based content generation frameworks are presently being integrated into diverse educational contexts, ranging from the automation of lesson planning to the provision of customized learning experiences for learners.(García-Peñalvo et al., 2024)

As educational establishments globally confront the dynamics of advancing technological environments, the advent of generative AI introduces significant prospects alongside considerable obstacles. Advocates contend that generative AI possesses the potential to transform the educational landscape by facilitating tailored learning experiences, fostering creativity, and alleviating the administrative responsibilities of educators. For instance, AI technologies can facilitate the development of personalized study materials, the design of assessments, or even the provision of immediate feedback, thus enabling educators to focus more on the relational aspects of teaching.(Shabir & Afzal, 2024)

However, incorporating artificial intelligence within the educational sphere also elicits significant concerns. Ethical dilemmas on data privacy, intellectual property rights, and the propensity for AI to perpetuate biases dominate the discourse. Furthermore, there exists a notable unease regarding the potential erosion of students' critical thinking abilities as they increasingly depend on AI-generated information, coupled with apprehensions that AI technology may undermine the fundamental human interactions that are essential to the educational experience

General AI

Artificial Intelligence represents a rapidly advancing technological field with the capacity to transform all dimensions of our social interactions. Within the realm of education, AI has initiated the development of innovative pedagogical and learning methodologies that are currently being evaluated across various settings. The persistent incorporation of generative AI into educational frameworks offers numerous prospective applications with extensive potential advantages, yet it simultaneously poses considerable challenges. As this technology progresses, educational institutions must judiciously manage its deployment to ensure it promotes enhanced learning outcomes while mitigating associated risks. Although a definitive and universally accepted definition of AI remains elusive, numerous foundational definitions of AI can nonetheless be found across different scholarly literature.(Holmes et al., 2023)

Figure 1. Different dimensions of AI (Holmes et al., 2023)

Thinking Humanly	Thinking Rationally
○ 'The exciting new effort to make computers think…*machines with minds*, in the full and literal sense.' (Haugeland, 1985) ○ '[The automation of] activities that we associate with human thinking, activities such as decision-making, problem-solving, learning…' (Bellman,1978)	○ 'The study of mental faculties through the use of computational models.' (Charniak & McDermott, 1985) ○ 'The study of the computations that make it possible to perceive, reason, and act.' (Winston, 1992)
Acting Humanly	**Acting Rationally**
○ 'The art of creating machines that perform functions that require intelligence when performed by people.' (Kurzweil, 1990) ○ 'The study of how to make computers do things at which, at the moment, people are better.' (Rich & Knight, 1991)	○ 'Computational Intelligence is the study of the design of intelligent agents.' (Poole, et al., 1998) ○ 'AI… is concerned with intelligent behavior in artifacts.' (Nilsson, 1998)

Pros of Generative AI in the Field of Education

Generative artificial intelligence in the field of education offers a plethora of significant advantages, with the facilitation of personalized learning experiences emerging as one of the most transformative elements. Through the rigorous evaluation of individual student performance metrics, AI systems are equipped to customize educational content according to each learner's unique pace and preferred learning modality. This systematic methodology ensures that students in need of additional support are afforded targeted assistance, while those demonstrating higher levels of proficiency are presented with more complex material, thereby cultivating an optimized and inclusive educational environment.(Holmes et al., 2019)

Another notable benefit relates to the enhanced efficacy it brings to the domain of content generation. Artificial intelligence is equipped with the ability to swiftly generate lesson plans, assessments, and interactive resources, thus preserving a substantial amount of preparatory time for educators. As a result, this allows instructors to dedicate more time to direct interaction with students and the delivery of mentorship, ultimately improving the overall caliber of educational instruction. (Holmes, 2016)

Generative artificial intelligence plays a pivotal role in enhancing accessibility within educational environments. It can generate alternative content formats for learners with disabilities, such as converting written text into verbal audio or creating visual aids. Furthermore, AI-driven translation technologies proficiently eliminate linguistic obstacles, thus ensuring that students from diverse linguistic backgrounds can interact with educational materials in their preferred language. (Challenges and Opportunities for Sustainable Development Education Sector United Nations Educational, Scientific and Cultural Organization, 2019)

The provision of immediate feedback represents a significant advantage of artificial intelligence in the sphere of education. Instead of undergoing prolonged intervals before receiving evaluative feedback, learners benefit from real-time responses concerning assessments, written works, and various tasks, thus enabling them to recognize mistakes and swiftly apply rectifications. This rapid feedback mechanism not only enhances the educational pathway but also strengthens knowledge retention, thereby cultivating a more dynamic and effective learning experience.(Roll & Wylie, 2016)

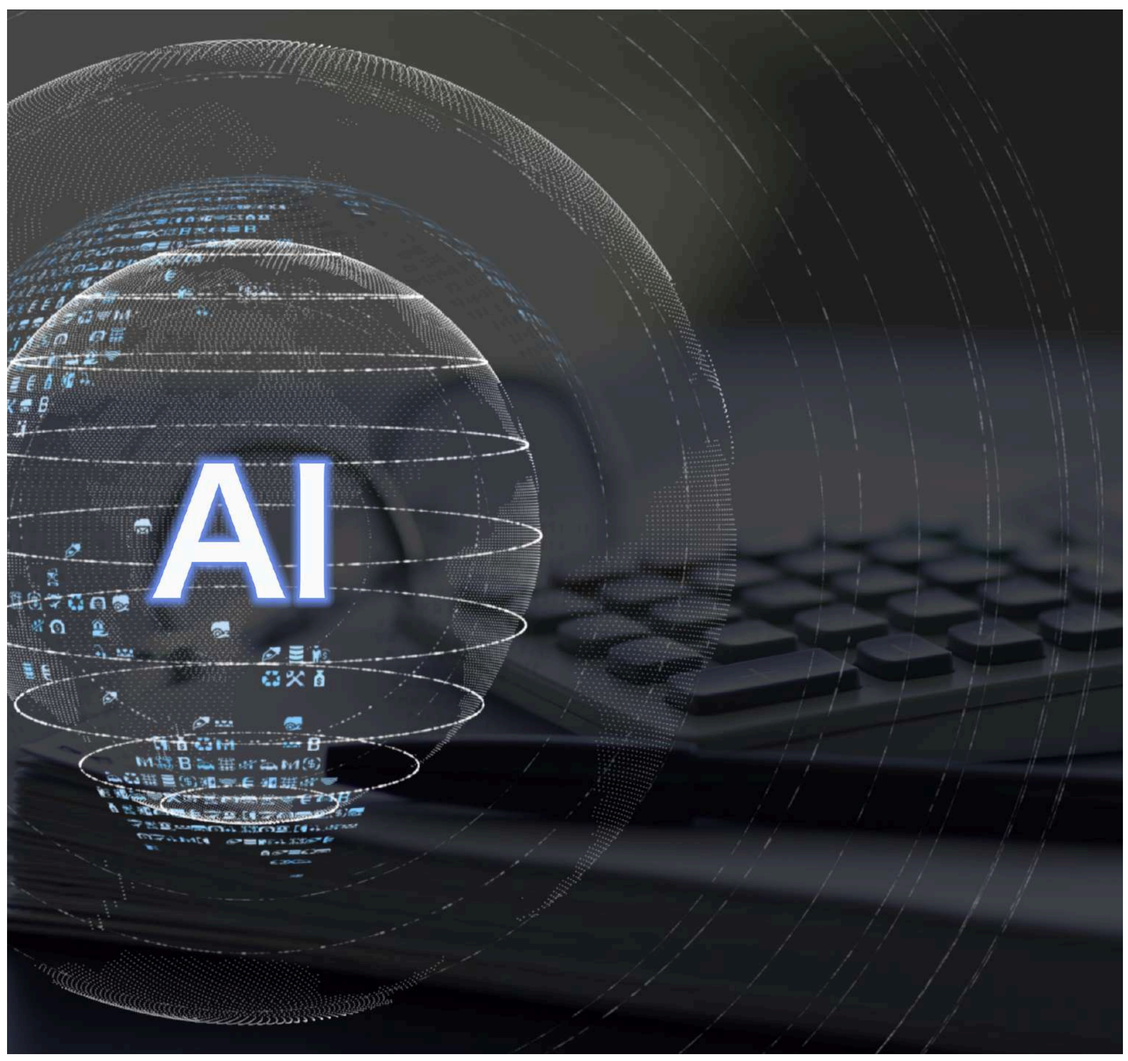
Ultimately, generative artificial intelligence engenders pathways for continuous education and independent knowledge acquisition. By offering self-directed learning environments that encompass a wide range of disciplines, AI makes educational opportunities accessible beyond traditional paradigms. Individuals are empowered to continue exploring new fields, augment their skills, and pursue both personal and professional development according to their individual preferences, thus expanding access to high-quality educational resources for individuals across the globe. (Joe Khan Omar Jian, 2024)

Cons of Generative AI in the Field of Education

Generative AI within the realm of education introduces several challenges, commencing with the absence of a human connection. Although AI possesses the capability to proficiently furnish personalized content, it is devoid of the emotional intelligence, empathy, and intuition that human educators inherently offer. Learners, particularly those in their formative years, derive significant advantages from the emotional and social dimensions of education that AI is incapable of emulating, which are essential for comprehensive development.(Luckin & Cukurova, 2019)

Another issue of significant concern pertains to the excessive dependence on artificial intelligence, which possesses the potential to diminish critical thinking and problem-solving abilities among students. When AI tools perpetually furnish answers, students may forfeit invaluable learning experiences that emerge from engaging with intricate problems. Such dependence could result in a decline in analytical reasoning and creativity, as students are not sufficiently compelled to devise solutions independently. (Holmes et al., 2023)

Data privacy and security constitute a paramount concern associated with the implementation of generative artificial intelligence in educational contexts. The extensive volumes of student data necessitated by AI systems, encompassing personal identifiers and learning patterns, elicit apprehensions regarding the methodologies employed for data storage, utilization, and safeguarding.(Huang, 2023) Any violations of this sensitive information could yield significant repercussions, thereby rendering data management an indispensable component of the integration of AI technologies within the educational sphere.(Morandín-Ahuerma, 2023)



Generative AI has the potential to exacerbate existing disparities in equity and access. Educational institutions with constrained resources may find it challenging to acquire the advanced technology essential for the effective integration of AI, thereby marginalizing disadvantaged students. Whereas affluent institutions gain advantages from state-of-the-art AI instruments, those situated in financially deprived regions may remain neglected, resulting in an expanding chasm in educational opportunities and outcomes. (Afzal et al., 2023).

Ultimately, ethical considerations emerge from the application of artificial intelligence within the educational sphere. Inquiries about the attribution of responsibility for inaccuracies in AI-generated material and the way AI addresses sensitive subjects predominantly remain unresolved. The formulation of ethical frameworks is imperative to avert inadvertent ramifications, thereby guaranteeing that AI contributes to education responsibly and equitably.(Roll & Wylie, 2016)

Conclusion

The ramifications of generative artificial intelligence within the realm of education are extensive and complex. Although AI possesses remarkable capabilities to augment individualized learning experiences, optimize content generation, and enhance the accessibility of education, it concurrently introduces challenges that necessitate meticulous consideration. The cornerstone of effectively assimilating AI into educational practices resides in achieving an equilibrium between technological advancements and the intrinsic human components of pedagogy. By leveraging the advantages of AI while addressing its limitations, educators can cultivate a future wherein technology serves to enhance, rather than supplant, conventional educational methodologies. Ultimately, the incorporation of generative AI in educational contexts should not be regarded as a panacea but rather as a formidable instrument. When applied with discernment, it has the potential to foster a more dynamic, inclusive, and efficacious educational environment

Cons of Generative AI in the Field of Education

educational landscape through an array of prospective applications. A significant domain is hyper-personalized learning, wherein AI will fluidly modify content, pacing, and pedagogical strategies by real-time data about students. This advancement may culminate in more tailored educational experiences, with AI proposing bespoke projects and evaluations that address the distinct requirements of each learner. Furthermore, AI will enhance its proficiency in tracking student progress and forecasting educational outcomes with increased precision.(Luckin & Cukurova, 2019)

Another prospective application pertains to AI-facilitated assessment, which will extend beyond mere grading to encompass more profound and holistic evaluations of student learning. Artificial intelligence has the potential to generate tailored assessments that dynamically adjust in real time according to a learner's performance, thereby facilitating more precise evaluations of comprehension and skill acquisition. This innovation could significantly alleviate the workload of educators while simultaneously delivering expedited and more substantive feedback to learners.(Holmes & Tuomi, 2022)

Reference

Afzal, A., Khan, S., Daud, S., Ahmad, Z., & Butt, A. (2023). Addressing the Digital Divide: Access and Use of Technology in Education. Journal of Social Sciences Review, 3(2), 883–895. https://doi.org/10.54183/jssr.v3i2.326

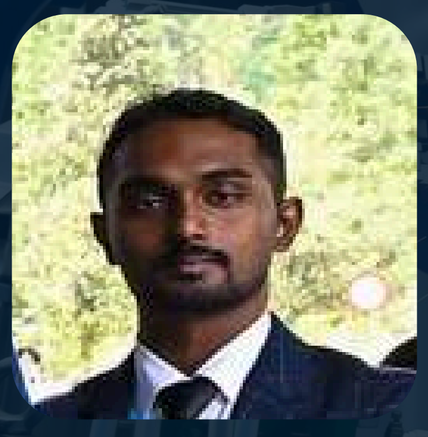
Challenges and Opportunities for Sustainable Development Education Sector United Nations Educational, Scientific and Cultural Organization. (2019). https://en.unesco.org/themes/education-policy-

García-Peñalvo, F. J., Llorens-Largo, F., & Vidal, J. (2024). The new reality of education in the face of advances in generative artificial intelligence. RIED-Revista Iberoamericana de Educacion a Distancia, 27(1), 9–39. https://doi.org/10.5944/ried.27.1.37716

Holmes, W. (2016). Intelligence Unleashed: An argument for AI in Education. https://www.researchgate.net/publication/299561597

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education. Promise and Implications for Teaching and Learning. https://www.researchgate.net/publication/332180327

THE APPLICATION OF 3D PRINTING TECHNOLOGY IN PRECISION COMPONENT MANUFACTURING.



Yathavan A/L Subramaniam,

Bachelor of Mechanical Engineering with Honours, Universiti Teknikal Malaysia Melaka(UTeM).

In recent years, 3D printing, also known as additive manufacturing, has gained considerable traction across various industries, offering transformative potential for precision component manufacturing. Malaysia has been quick to recognize the opportunities presented by this technology, especially in sectors like automotive, aerospace, electronics, and healthcare. As part of its broader push towards Industry 4.0, the Malaysian government has made efforts to promote advanced technologies like 3D printing, aiming to boost productivity, innovation, and competitiveness in the manufacturing sector. This essay will explore the application of 3D printing in Malaysia's precision component manufacturing, its benefits, the challenges faced by industries in adopting this technology, and its outlook.

3D printing works by creating objects layer by layer, based on a digital design model. Unlike traditional subtractive manufacturing, where material is removed to create parts, 3D printing builds objects from the ground up. This approach is highly advantageous for industries where precision and complexity are crucial. For instance, components with intricate geometries, custom designs, or lightweight structures can be produced with minimal waste, making 3D printing an ideal solution for precision component manufacturing. Given its potential, Malaysia has embraced this technology in line with its Industry4WRD policy, which seeks to integrate advanced technologies like additive manufacturing into the national manufacturing framework.

Key Industries Utilising 3D Printing in Malaysia

One key area where 3D printing is making an impact in Malaysia is the aerospace and aviation sector. In this industry, there is a constant need for lightweight, durable, and precise components. 3D printing enables the production of parts such as turbine blades, fuel nozzles, and engine parts with high accuracy. This is particularly important for improving fuel efficiency and reducing emissions in aircraft. Companies like Stratasys have collaborated with local Malaysian aerospace firms to manufacture 3D-printed components for aircraft, highlighting the growing significance of additive manufacturing in this sector. Similarly, the automotive industry in Malaysia has started to leverage 3D printing technology for precision component production. Major car manufacturers like Proton and Perodua are using 3D printing to develop engine parts, transmission components, and other high-performance parts. By utilizing this technology, these manufacturers can create prototypes rapidly, allowing for quick testing and refinement of designs before mass production. This not only reduces costs but also speeds up time-to-market, a crucial factor in a competitive industry. The healthcare sector in Malaysia is another area where 3D printing has found valuable applications. The ability to create patient-specific medical devices, implants, and surgical tools has revolutionized medical treatment, particularly in orthopaedics and dentistry. For instance, companies like Materialise Malaysia have been pioneers in using 3D printing to develop customized surgical guides and implants. This technology not only ensures better patient outcomes but also reduces surgery times and recovery periods. Precision, in this case, becomes a matter of life and death, and 3D printing enables the healthcare sector to deliver tailored solutions with exceptional accuracy. The electronics industry in Malaysia, known for its role in the country's manufacturing output, is also benefitting from 3D printing technology. The ability to produce intricate, miniaturized components is essential for advancing the development of modern electronic devices such as wearable technology and Internet of Things (IoT) devices. Companies like Eximus Design are applying 3D printing techniques to produce functional prototypes and specialized components, further cementing the role of additive manufacturing in Malaysia's industrial landscape.

Benefits of 3D Printing in Precision Manufacturing

The benefits of 3D printing in precision component manufacturing are numerous. First and foremost, the technology offers unparalleled design flexibility. Traditional manufacturing methods often struggle to produce complex geometries, but with 3D printing, intricate designs can be realized with ease. This opens up new possibilities for creating lightweight and optimized components, particularly in industries where efficiency and performance are paramount, such as aerospace and automotive. Additionally, 3D printing allows for cost-effective prototyping. Manufacturers can rapidly produce prototypes and test them without the need for expensive molds or tooling. This significantly reduces the cost of product development and accelerates innovation. Customization is another major advantage of 3D printing. The technology allows manufacturers to produce components tailored to specific requirements, whether for individual patients in healthcare or for niche automotive designs. Finally, 3D printing is an environmentally friendly manufacturing process. Since it is additive rather than subtractive, less material is wasted during production, contributing to sustainability in manufacturing processes.

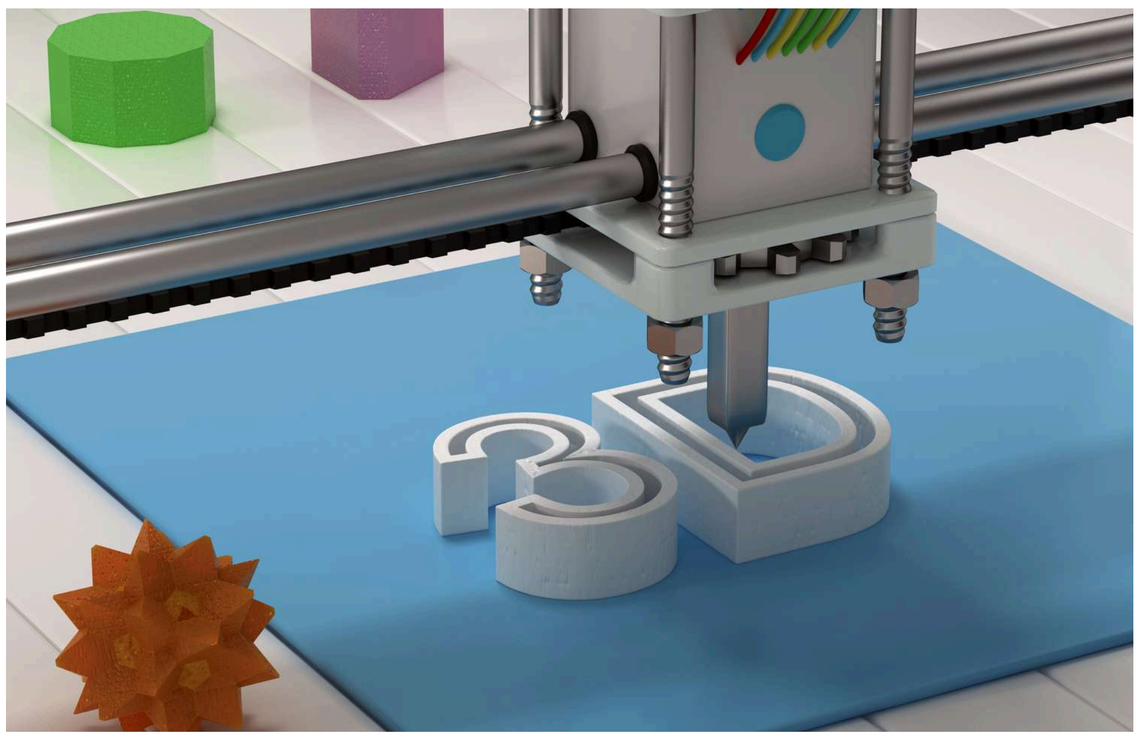
Challenges and Obstacles to Adoption in Malaysia

Despite its many benefits, the adoption of 3D printing in Malaysia's precision component manufacturing sector faces several challenges. One of the main obstacles is the high initial cost of 3D printing equipment and materials. Advanced 3D printers, particularly those capable of printing with metals or specialized materials, can be prohibitively expensive, especially for small and medium-sized enterprises (SMEs). This limits the accessibility of the technology to only larger firms that can afford the investment. Another challenge is the shortage of a skilled workforce. The successful implementation of 3D printing requires workers proficient in areas like Computer-Aided Design (CAD), additive manufacturing, and post-processing. However, there is currently a shortage of professionals with these skills in Malaysia, which hampers the widespread adoption of 3D printing technology. Material availability is another issue.

While 3D printing technology is advancing, the range of materials that can be used for precision component manufacturing in Malaysia is still somewhat limited. Metal 3D printing, for example, requires specific materials that are not readily available locally, making it more difficult to apply this technology in industries like aerospace and automotive. In addition, regulatory hurdles pose a significant challenge. In sectors such as healthcare and aviation, regulatory approvals are necessary before 3D-printed components can be used in critical applications. The lack of clear regulations and standards for 3D-printed products in Malaysia adds complexity for manufacturers, particularly in sectors where precision and safety are critical.

Prominent Advocates: Sujana Mohd Rejab's Contributions

A significant figure in promoting 3D printing in Malaysia is Sujana Mohd Rejab, a notable advocate for integrating 3D printing technology into various sectors, including education and manufacturing. Sujana has played a pivotal role in raising awareness about the advantages of additive manufacturing, particularly its capacity for customization and rapid prototyping. He has been involved in several initiatives that demonstrate the capabilities of 3D printing, ranging from educational workshops to industry collaborations. His efforts have not only contributed to the advancement of 3D printing technology in Malaysia but have also inspired many young engineers and entrepreneurs to explore its applications in precision manufacturing. Through his advocacy, Sujana has become a key figure in positioning Malaysia as a competitive player in the global 3D printing landscape, emphasizing the technology's potential to drive innovation and economic growth.

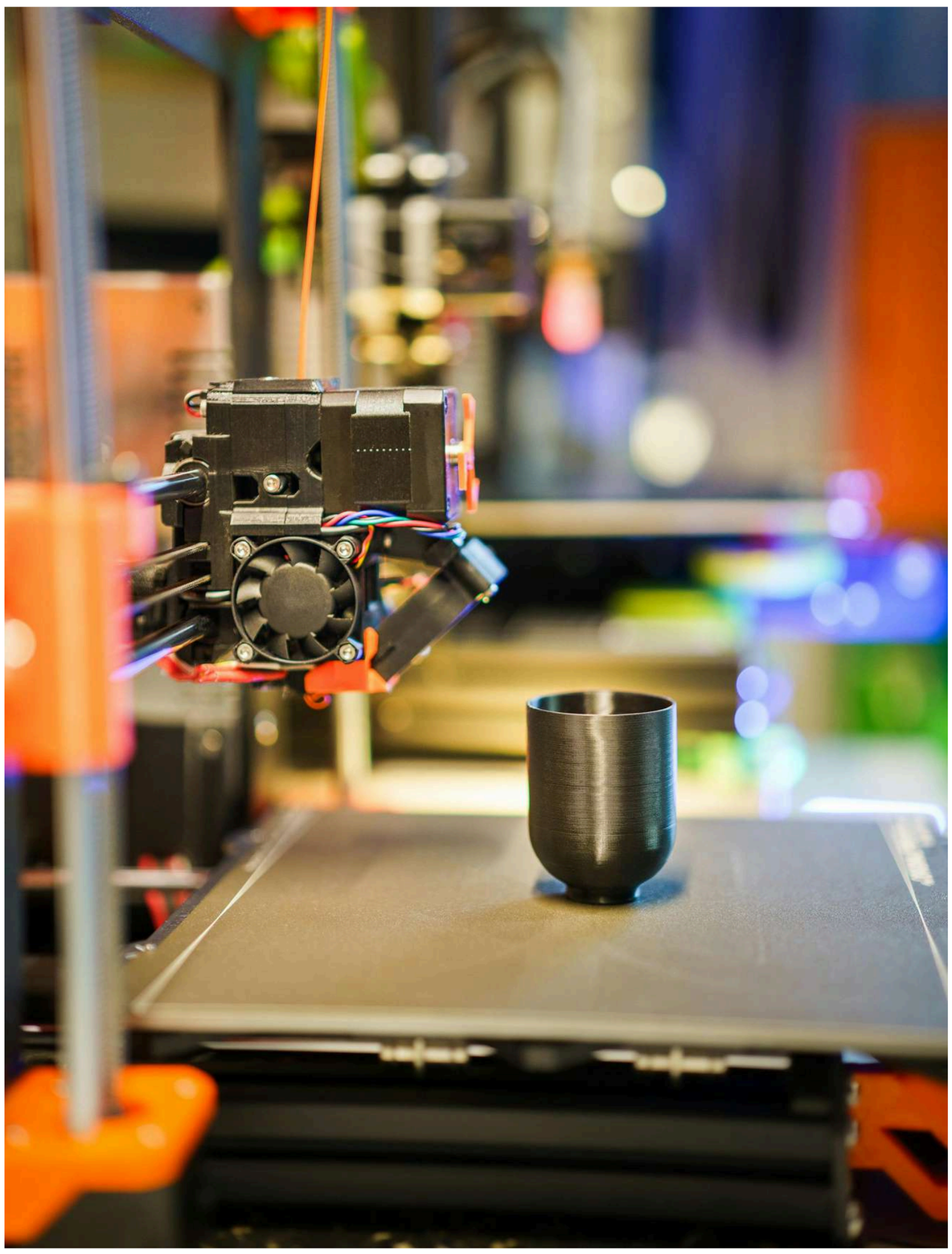


Outlook for 3D Printing in Malaysia

Looking ahead, the future of 3D printing in precision component manufacturing in Malaysia appears promising. The country's commitment to Industry 4.0 provides a strong foundation for the continued adoption of advanced technologies like additive manufacturing. As the costs of 3D printing decrease and skilled professionals become more available, the technology will likely become more accessible to a broader range of industries. Furthermore, ongoing advancements in materials and printing techniques will expand the potential applications of 3D printing in precision manufacturing, especially in high-growth industries like aerospace, automotive, and healthcare.

Conclusion

In conclusion, 3D printing technology has significant potential to revolutionize precision component manufacturing in Malaysia. From aerospace and automotive to healthcare and electronics, various industries are beginning to recognize the benefits of 3D printing, including design flexibility, cost-effective prototyping, and reduced waste. However, challenges such as high costs, a shortage of skilled labour, limited material availability, and regulatory hurdles must be addressed to fully unlock the potential of this technology. With continued investment in innovation and education, Malaysia is well-positioned to become a leader in 3D printing and precision component manufacturing in the years to come.



Reference

1.https://projet.my/additive-manufacturing-and-its-ecosystem-in-malaysia/

2.https://3dprint.com/143080/materialise-3d-printing-center/

3.https://www.digitalnewsasia.com/digital-economy/materialise-launches-3d-printing-rd-centre-malaysia

4.https://gaiapebbles.com.my/articles/the-role-of-3d-printing-in-boosting-malaysias-manufacturing-industry

5.https://www.thestar.com.my/lifestyle/people/2015/04/12/former-teacher-sujana-mohd-rejab-and-his-handy-handout/

6.https://digiconasia.net/news/bringing-it-all-together-3d-printing-electronic-prosthetics-road-safety-and-motor-insurance

7.https://www.freemalaysiatoday.com/category/nation/2016/04/12/msian-invents-3d-robotic-hand-for-disabled/

MIFA EVENT PLANNER 2025

01 January

Exco Meeting, Launch of MIFA In Action Issue 1/2025 & Launch of MIFA 100 Biz Club (MIFA Elite Club)

02 February

Karnival Kerjaya STEM / TVET by MIFA

03 March

Ehya' Ramadhan / MIFA Grand Ifthar / Eid Celebration

04 April

MIFA @ ASEAN (Jakarta)

05 May

Launch of MIFA In Action Issue 2/2025 & MIFA Centre of Excellence

06 June

MIFA x MSCA Showcase & MIFA Exco Meeting Courtesy Visit to the office of Melaka Chief Minister

07 July

MIFA wotking visit to MITI / SIRIM / MATRADE Courtesy Visit to the office of MOSTI Minister

08 August

MIFA working visit to MIGHT / CSM /DIGITAL MINISTRY - Kempen Sambutan Bulan Kemerdekaan & Hari Malaysia

09 September

MIFA MoU signing ceremony with UPM, UNIMAPSAS, UIA, UTeM

10 October

MIFA ACE : Smart Manufacturing @ MITEC (collab with MTE)

11 November

MIFA 100 Biz Club Retreat

12 December

Launch of MIFA In Action Issue 6/2025

TRAINING LIST OF TRAINING OFFERED BY MIFA ACADEMY 2024

PROGRAMMING LANGUAGES

NO	TRAINING TITLE	DAY(S)	PRICE (RM)
1.	JAVA	3	2,500
2.	PYTHON	3	2,500
3.	JSON	3	2,500
4.	NODE-RED	3	2,500
5.	R LANGUAGE	3	2,500
6.	FLUTTER PROGRAMMING	2	2,700
7.	JAVASCRIPT	5	2,600
8.	HTML5	2	1,500
9.	CSS3	2	1,500
10.	TYPESCRIPT	3	1,800
11.	JAVA – Entry level Java Programmer: JAVA SE7 Fundamentals	5	3,400
12.	JAVA – Professional Programmer: JAVA SE7 Fundamentals	5	3,400
13	JAVA - Servlet & Java server Pages (JSP) Developer	5	3,400
14.	PHP – Beginner to Intermediate	5	2,600
15.	PHP – Oriented Programming (OOP)	5	2,600
16.	PHP 7 Programming	5	2,600
17.	COLDFUSION – Beginner to Intermediate	5	2,600
18.	COLDFUSION - Advanced	5	2,600
19.	C# - Programming C# with Microsoft Visual Studio	5	2,600
20.	R Programming	4	2,200
21.	Secure Programming	5	2,600
22.	Unit Testing Programming	5	2,600
23.	LUCEE	5	2,600

ROBOTICS AND AUTOMATION TRAININGS

24.	PROGRAMMABLE LOGIC CONTROLLER - SIEMENS	3	3,900
25.	PROGRAMMABLE LOGIC CONTROLLER - MITSUBISHI	3	3,900
26.	PROGRAMMABLE LOGIC CONTROLLER - OMRON	3	3,900
27.	PROGRAMMABLE LOGIC CONTROLLER - PANASONIC	3	3,900
28.	PROGRAMMABLE LOGIC CONTROLLER – SCHNEIDER ELECTRIC	3	3,900
29.	PROGRAMMABLE LOGIC CONTROLLER - ABB	3	3,900
30.	INDUSTRIAL HMI	2	2,600
31.	SCADA SYSTEM	5	6,500
32.	ADVANCE PLC, HMI & SCADA SYSTEM	10	11,700
33.	ROBOTIC AUTOMATION	5	6,500
34.	ROBOT OPERATING SYSTEM (ROS)	3	4,700
35.	ARM CONTROLLER & IOT PROGRAMMING	3	3,500
36.	SCARA ROBOT (SELECTIVE COMPLIANCE ARTICULATED ROBOT ARM)	3	5,800
37.	PLC & IOT (PROGRAMMABLE LOGIC CONTROLLER)	3	3,500
38.	LINEAR ROBOT	2	4,500
39..	AUTONOMOUS MOBILE ROBOT	3	4,500
40.	MOBILE ROBOT DEVELOPMENT	3	5,700

INDUSTRY 4.0 – IOT & IIOT TRAINING

41.	FUNDAMENTAL OF INDUSTRY 4.0 & INTERNET OF THINGS (IOT)	3	3,500
42.	IOT FOR SMART AGRICULTURE	3	3,500
43.	IOT FOR SMART CITIES	3	3,500
44.	LORA-WAN TRAINING	3	3,500
45.	IOT WITH RASPBERRY PI (NODE-RED)	3	3,500
46.	IOT WITH RASPBERRY PI (PYTHON)	3	3,500
47.	IOT WITH RASPBERRY PI & FAVORIOT	3	3,500
48.	BASIC INDUSTRIAL INTERNET OF THINGS (IIOT)	3	3,500
49.	ADVANCE INDUSTRIAL INTERNET OF THINGS (IIOT)	5	4,850
50.	BASIC INDUSTRIAL INTERNET OF THINGS (IIOT) WITH SIMATIC GATEWAY – CERTIFICATION FROM SIEMENS	3	4,600
51.	ADVANCE INDUSTRIAL INTERNET OF THINGS (IIOT) WITH SIMATIC GATEWAY – CERTIFICATION FROM SIEMENS	5	6,500
52.	ARDUINO & IOT PROGRAMMING	3	2,700
53.	RIG : IOT ALL IN ONE	3	4,500

INDUSTRY 4.0 - CLOUD COMPUTING & BIG DATA TRAININGS

54.	CLOUD COMPUTING FOUNDATION	3	3,500
55.	DATA SCIENCE FOUNDATION	3	3,500
56.	BIG DATA ANALTICS WITH MONGODB ATLAS CLOUD	5	4,800
57.	BIG DATA ANALYTICS WITH AWS CLOUD	5	4,800
58.	BIG DATA ANALYTICS WITH HADOOP TECHNOLOGY	5	4,800
59.	DATA MINING AND WEKA SOFTWARE TOOL	3	4,800
60.	BASIC ARTIFICIAL INTELLIGENCE TRAINING	3	3,500
61.	MASTERING ARTIFICIAL INTELLIGENCE & DEEP LEARNING	5	4,800
62.	ANDROID PROGRAMMING AUGMENTED REALITY (AR)	5	4,800
63.	ANDROID APPS	3	2,700
64.	MACHINE LEARNING	3	3,700
65.	CLOUD COMPUTING	3	3,700
66.	BLOCK CHAIN	2	4,500
67.	MYSQL DATABASE ADMINISTRATOR	3	1,800
68.	MYSQL QUERYING	3	1,800
69.	DATABASE DESIGN	3	1,800

DATA ANALYSIS

70.	GOOGLE ANALYTICS	3	1,800
71.	BUSINESS INTELLIGENCE (BI)	3	2,600
72.	MICROSOFT EXCEL DASHBOARD	5	2,600
73.	WIRESHARK	2	1,800

WEB SERVICE

74.	JAVA	3	2,200
75.	PHP	3	1,800

DISTRIBUTED VERSION CONTROL

76.	GITN	3	1,800

MOBILE APPS

77.	CROSS-PLATFORM: PHONEGAP / APACHE CORDOVA	5	2,600
78.	CROSS-PLATFORM: REACT NATIVE	5	2,600
79.	UI FRAMEWORK: IONIC FRAMEWORK	5	2,600
80.	UI FRAMEWORK: FLUTTER FRAMEWORK	5	2,600
81.	NATIVE: JAVA FOR ANDROID	5	2,600
82.	NATIVE: SWIFT FOR IOS	5	2,600

UI FRAMEWORK

82.	ANGULAR JS	5	2,600
83.	NODE JS	5	2,600
84.	VUE JS	5	2,600
85.	EXT JS	5	2,600
86.	REACT JS	5	2,600
87.	METEOR JS	5	2,600
89.	BOOTSTRAP	3	1,800
90.	JQUERY - MOBILE	4	2,200
91.	JQUERY	3	1,800
92.	FOUNDATION	5	2,600

FRAMEWORK

93.	PHP – Laravel Framework	5	2,600
94.	PHP – CodeIgniter Framework	5	2,600
95.	PHP – Yii Framework	5	2,600
96.	PHP – Slim Framework	5	2,600
97	JAVA – Struts Framework	5	3,400
98.	JAVA – Liferay Framework	5	3,400
99.	COLDFUSION – Railo Framework	5	3,400

SERVER

100.	INSTALLING & CONFIGURE WINDOWS SERVER	5	2,600
101.	ADMINISTERED WINDOWS SERVER	5	2,600
102.	CONFIGURING, MANAGING & MAINTAINING WINDOWS SERVER	5	2,600
103.	UBUNTU QUANTEL QUATZEL	5	2,600
104.	VMWARE VIRTUALIZATION	5	2,600
105.	RED HAT SYSTEM ADMINISTRATION I (RH124)	5	2,600
106.	RED HAT SYSTEM ADMINISTRATION II (RH134)	5	2,600
107.	CENTOS FUNDAMENTALS	5	2,600
108.	CENTOS SYSTEM ADMINISTRATOR	5	2,600

ENGINEERING (USING LABVIEW)

109.	FUNDAMENTALS OF G PROGRAMMING USING LABVIEW	3	1,800
110.	BUILDING YOUR OWN DATA ACQUISITION SYSTEM	3	1,800
111.	IOT SYSTEM DEVELOPMENT USING LABVIEW	3	1,800

NETWORKING

112.	BASIC NETWORKING CERTIFICATION FOR PLANT CONTROL SYSTEM APPLICATIONS	3	2,550
113.	ADVANCE NETWORKING CERTIFICATION FOR PLANT CONTROL SYSTEM APPLICATIONS	3	4,550

Advertisement Section

T-ROBOT

HRD CORP CLAIMABLE

MBOT 10 CPD

3-in-1 Training:

Factory Digitalisation

1. Explore Lean Methods to Increase Productivity
2. Industrial IoT for Enhanced Machine Performance
3. Power BI Machine Learning for Forecasting Output

Meister Faiz

Outcome:
Able to build your own IoT Monitoring System and more.

Visit Us
www.datanam.com

FRESH ZERO PESTICIDE NUTRITIOUS

DATANAM

Precision Vertical Farming Technology

MALAYSIA DRONE SOCCER

LEARNING COURSE

- DRONE & FLYING THEORY
- DRONE ASSEMBLY
- SIMULATOR FLYING
- FIELD FLYING

RM 350
1 PERSON

Refreshment & Lunch Included

STEM-BASED COURSE

About Us

MyDroneSoccer is a comprehensive drone services company offering training, videography, photography, mapping, consultation, and trading, specializing in helping clients harness the power of drones for various applications while adhering to safety regulations and providing exceptional customer service. Gear up for aerial action !

Contact Us

014-685 9064

https://linktr.ee/MyDroneSoccer

sales@dronesolutions.com.my

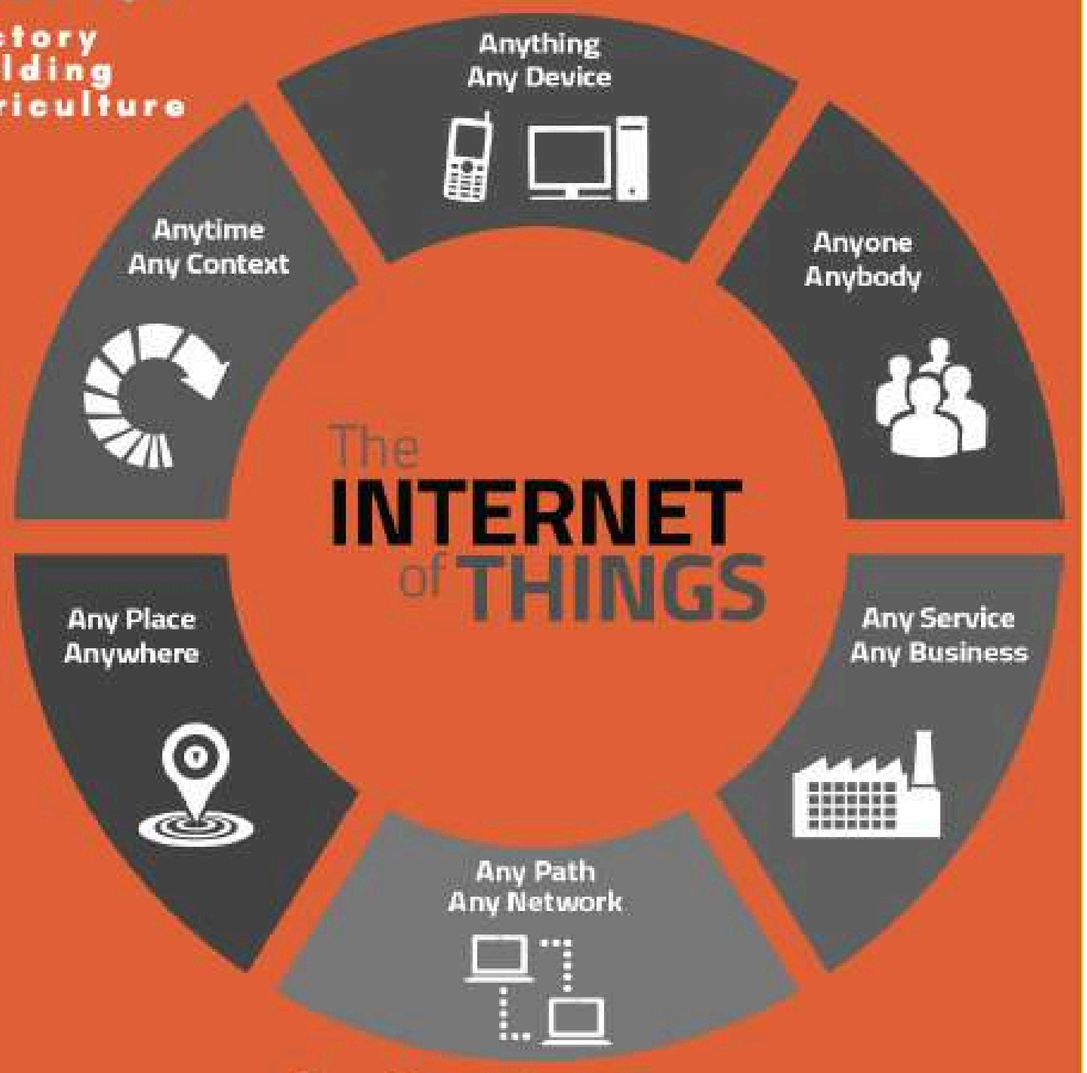
RESEARCH & DEVELOPMENT | IR4.0 CONSULTANCY
EDUCATIONAL & INDUSTRIAL TRAINING

Contact: (+60) 03 7831 6130 Email : zaihan@hadiventure.com

HADI ACADEMY CONSISTS OF INDUSTRY 4.0 EXPERTS IN CONSULTANCY AND TRAININGS FOR SYSTEM INTEGRATION, PRODUCT DEVELOPMENT & SMART IOT BUILDING DEVELOPMENT

SMART IOT

- Factory
- Building
- Agriculture



www.hadiventure.com

INGRESS TALENT SYNERGY SDN BHD (350966-U)

Talent Synergy Sdn Bhd, is another subsidiary of Ingress Group and it specializes in the design, fabrication and integrations of industrial automation system and sub-system also with robotic integration, industry 4.0 & technologies development

1. Robotics & PLC

- Robot size selection & accessories
- System programming & design
- System interlocking / interfacing

2. System Integrator

- Robot, machines, jigs & monitoring system
- Control system integration
- Fabrication & Installation
- Commissioning & Trial
- After sales & service

3. Simulation

- Automation process
- Validation & testing
- Working envelope check
- Workability
- Cycle Time & Output

4. Design

- Concept, ideas & design
- Robot, machines & jigs
- Concept layout
- Process design
- Electrical / HMI / PLC

5. Engineering Services

- Palletization
- Assembly line installation
- Machine refurbishment

6. Industry 4.0

- Collaborative Robot
- Internet of Things
- Big data analysis
- Cloud Computing

Talent Synergy Sdn Bhd

Call us now!

CONTACT US:

1. En. Rizal 012-6222247
nasyarizal@ingresscorp.com.my

2. En. Rosidi 017-614811
rosidi@ingresscorp.com.my

www.talentsynergy.com.my

LOVE & LAUGH GROUP

REVOLUTIONIZING CHILD DEVELOPMENT INDUSTRY INTO TECHNOLOGY-DRIVEN ECOSYSTEM

LOVE & LAUGH ECOSYSTEM PILLARS

- EDUCATION
- CARE & HOSPITALITY
- EDTECH
- RESEARCH CENTRE
- PARENT-CHILD DEVELOPMENT CENTRE

MOVE Robotic — Autonomous Mobile Robot

MOVE ROBOTIC SDN. BHD. (1349117-A)

ROS
ROBOT OPERATING SYSTEM

TRAINING WORKSHOP

"Everyone can program a ROBOT"

- Industry 4.0 Compatibility
- Skill Set Development
- Hands On Class Training
- High Demanding Job
- High Salary Income

SCAN QR TO REGISTER

Mr. Hazeli | 0176598017
hazeli@moverobotic.com

Mr. Faezal | 0174914200
hazeli@moverobotic.com

Move Robotic Sdn. Bhd.

www.moverobotic.com

UNLOCK THE POTENTIAL OF YOUR INDUSTRY WITH MES & ERP SOLUTIONS OF IOT SATA

IOTSATA PROVIDES DIGITAL TRANSFORMATION SOLUTIONS FOR INDUSTRIAL BUSINESSES TO INCREASE EFFICIENCY AND REDUCE COSTS. OUR EXPERTS UNDERSTAND THE UNIQUE CHALLENGES OF THE INDUSTRIAL SECTOR AND OFFER TAILORED SOLUTIONS TO MEET YOUR NEEDS.

WHY IOT *SATA*

- END-TO-END IOT SOLUTIONS
- RELIABILITY
- CUTTING-EDGE TECHNOLOGY
- CUSTOMER SERVICE
- EXPERTISE
- SCALABILITY

OUR PRODUCTS

IIOT ERP
- FINANCE
- HUMAN RESOURCES (HR)
- SUPPLY CHAIN MANAGEMENT
- WAREHOUSE MANAGEMENT

IIOT MES
- REMOTE MONITORING SYSTEM
- OVERALL EQUIPMENT EFFECTIVNESS (OEE)
- MANUFACTURING / PRODUCTION ORDER
- QUALITY CHECK (QC)/QUALITY ASSURANCE (QA)

SERVICES

INDUSTRIAL IOT SOLUTIONS
- INDUSTRY 4.0 (IOT & IIOT) CONSULTANCY FOR ENTERPRISES & SME
- INDUSTRY 4.0 (IOT & IIOT) LAB DEVELOPMENT
- PLC/HMI DESIGNING, PROGRAMMING, INSTALLATION & COMMISSIONING
- IOT BASED BUILDING MANAGEMENT SYSTEM (BMS) SOLUTIONS & SERVICES
- IIOT BASED CUSTOMIZED MES SOLUTIONS & SERVICES
- IIOT BASED CUSTOMIZED ERP SOLUTIONS & SERVICES

INDUSTRIAL IOT TRAININGS

INDUSTRIAL IOT CONSULTANT AND RECRUITMENT AGENT

TRAINING

- **PROGRAMMING LANGUAGES**
- **ROBOTICS AND AUTOMATION TRAINING**
- **INDUSTRY 4.0 – IOT & IIOT TRAINING**
- **INDUSTRY 4.0 - CLOUD COMPUTING & BIG DATA TRAINING**
- **INDUSTRY 4.0 – AI & AR TRAINING**

CONTACT US NOW

Call: (+60) 03 7831 6130
Email : info@iotsata.com
www.iotsata.com

MALAYSIA
INDUSTRY
FORWARD
ASSOCIATION

MIFA@Kanvas SOHO, Suite B-17-11
Kanvas Bold, Jalan Teknorat 6,
63000 Cyberjaya,
Selangor Darul Ehsan.
Tel/Fax: 03-7831 6130

E-mail: admin@mifa-i4.my