



Engineering Leading the Industry for Nation Building

Perspective From FMM

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Outline of Presentation

Manufacturing Catalyst of Economic Growth

Drive Manufacturing To Be Globally Competitive Via Industry 4.0

Automation & Digitalization of Manufacturing Industry On The Rise

Complimentary and Inclusive Roles of STEM and TVET

Creating Green Environment And Sustainable Manufacturing Industry

Challenges & Way Forward



Manufacturing catalyst of growth

1. Manufacturing remained catalyst of growth throughout Covid-19 period and after
2. Q3 and Q4 2020 - only sector with positive growth vis-à-vis other economic sector and continued to be key growth sector in 2021 and first half of 2022
3. Business very challenging due to pandemic and post pandemic impact.
4. Need to boost economic activities, support business recovery and resilience, increase efficiency and contain increasing cost of production.

Source: Bank Negara Malaysia

Growth by economic components	2019	2020				2021				2022	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Services	6.2	3.1	-16.2	-4.0	-4.9	-2.3	13.4	-4.9	3.2	6.5	12.0
Manufacturing	3.8	1.5	-18.3	3.3	3.0	6.6	26.6	-0.8	9.1	6.6	9.2
Mining and Quarrying	-1.5	-2.0	-20.0	-6.8	-10.6	-5.0	13.9	-3.6	-0.9	-1.1	-0.5
Agriculture	1.8	-8.7	1.0	-0.7	-0.7	0.2	-1.5	-1.9	2.8	0.1	-2.4
Construction	0.1	-7.9	-44.5	-12.4	-13.9	-10.4	40.3	-20.6	-12.2	-6.2	2.4

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Drive Manufacturing To Be Globally Competitive Via Industry 4.0

- Digitalisation and smart manufacturing is the way forward
- Industry 4.0 technology helps manage and optimise all aspects of manufacturing processes and supply chain – **drives efficiency improvement and competitiveness**
- **Continued support especially for SMEs** to drive technology adoption and Industry 4.0 – from the Government via Industry4WRD Intervention Fund (IF) (*As at 26 August 2022, a total of 250 SMEs have been approved for IF with total project cost of RM87.7million*) ; FMM via working group to drive Industry 4.0 adoption amongst members;
- **Engineering is critical support for digital transformation**

FMM Organising Industry 4.0 Conference

1st December 2022





Automation & Digitalization of Manufacturing Industry On The Rise

Updates on Robotics & Machineries Statistic in Malaysia

- According to International Federation of Robotics (IFR) report 2022, worldwide robotics installed in 2021 is **517, 385 units** & half of it (51%) are installed in China;
- Mainly installed in electrical & electronics, automotive & metal and machinery industry; globally China is the biggest user of robotics, followed by Japan, U.S. and Korea;
- Malaysia's annual installation of industrial robots in 2020 is **1,929 units** (↑ 37% and **0.4% of world wide** units installed)
- **Electrical, mechanical, and computer engineering key to supporting robotics**



Complimentary and Inclusive Roles of STEM and TVET

- Increasing percentage of new jobs would require TVET skills
- **TVET empowerment agenda** driven by the **National TVET Council** and the **Government-Industry TVET Coordination Body (GITC)** spearheaded by FMM
- STEM encourages **growth of innovators** to support **high value and technology manufacturing base and economy**
- **STEM promotes skills** such as problem solving, critical thinking, creativity, curiosity, decision making, leadership, entrepreneurship, etc which are critical skills **to support the TVET empowerment agenda**
- **STEM in TVET** is important for **securing skills for the future digital economy**
- Overall **enhances employability, mobility and value** of the Malaysian workforce in the global and digital era



Creating Green Environment And Sustainable Manufacturing Industry

- Environment and Sustainability Engineering is the type of engineering that seeks to undo past damage to the planet and work with the natural environment to create a better future for humanity and the places we live;
- The three traditional pillars of **sustainability-social, economic and environmental considerations**- engineers increasingly have to consider the ethical dimension, which includes goals such as poverty alleviation, social justice and the long term-consequences of engineering decisions;
- Example of sustainable engineering and FMM's proposal to the Government:
 - Fixing of solar panels on factory roofs is one of the most easily recognizable examples of sustainable practices. FMM has proposed for Large Scale Solar (LSS) installations in industrial parks to help the country achieve the Net-Zero Emission target by 2050
 - Use of life-cycle thinking in all engineering activities towards waste reduction, waste to energy initiatives, reduction in emissions, etc. FMM continues to promote such practices amongst members via talks and training



Challenges & Way Forward

Covid pandemic accelerated automation and digitalisation – fast forward by 10 years

Skills generated not matching and/or unable to keep up with the speed of transformation

Need more STEM graduates – 60:40 STEM policy yet to be achieved

Under supply of TVET / skilled graduates

Industries need to adapt and adopt to automation and digitalisation fast to remain competitive and sustainable

Opportunities in gig economy suits many to be their own boss

- Industry collaboration to address skills mismatch and in reskilling and upskilling initiatives
- Industry as ambassadors to promote STEM and TVET careers
- Concerted efforts in achieving 60:40 policy in favour of science & technical tertiary admissions
- Better coordination needed between supply and demand – GITC to play this role for TVET
- Continued support especially for SMEs in digital and automation adoption
- Promote gig opportunities in STEM and TVET to support industrial transformation



THANK YOU



Committed to Engineering Excellence

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