



MINISTRY  
OF EDUCATION  
MALAYSIA



*driving future talents...*



# TVET 4.0 (2018 - 2025) FRAMEWORK

Malaysian Technical University Network





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*driving future talents...*



# D I S C L A I M E R

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First Printing, 2018

Published by:

DEPARTMENT OF POLYTECHNIC AND COMMUNITY COLLEGE EDUCATION  
MINISTRY OF EDUCATION MALAYSIA

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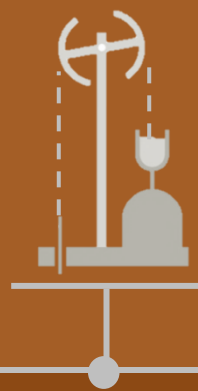
Perpustakaan Negara Malaysia

TVET 4.0 Framework

Ministry of Education Malaysia

ISBN 978-967-2243-52-6





1784  
INDUSTRY 1.0



1870  
INDUSTRY 2.0



1969  
INDUSTRY 3.0



Today..  
INDUSTRY 4.0

# INDUSTRIAL REVOLUTION



# TVET 4.0 FRAMEWORK

*driving future talents...*

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“

..We are going into the fourth industrial revolution. This is something that requires a complete change of attitude and a complete change in terms of our knowledge. We are living in the knowledge edge, and in this edge, we need to have as much knowledge as we can, in order to be able to cope with new ideas about how life is going to be, about how business is to be carried out..”

Tun Dr. Mahathir Mohamad  
Prime Minister of Malaysia  
World Chinese Economic Forum, 2018

## the guide

TVET 4.0 Framework is a guidance document and reference to all TVET Institutions under the Ministry of Education; The Malaysian Technical University Network - MTUN (UTHM, UNIMAP, UTeM, UMP), Polytechnics, Community Colleges and Vocational Colleges; as a preparation in facing the challenge of the 4th Industrial Revolution (4IR) for the next 7 years, starting 2018 to 2025. This guide explains how the 4IR revolution changes the social, political and national economical landscape and its effects towards the demand of work force in the future. Furthermore, this framework sets the six (6) main thrusts that supports the strategies and initiatives which drives the change of TVET landscape to produce skilled workers with a critical mind and compassion.



# P GOVERNMENT & EDUCATION POLICY



The economic agenda outlined in the Eleventh Plan is expected to create **1.5 million new jobs by 2020**, with targeted improvements in labour productivity and reduced dependency on low-skilled foreign workers, both of which are a result of the continuous shift from labour-intensive to knowledge- and innovation-based economic activities. **60% of the jobs that will be created are expected to require TVET-related skills.**



In that regard, **TVET is identified as a game changer** in how Malaysia produces skilled talent at scale. Collectively, these focus areas will produce the world-class talent base that Malaysia needs in the final leg of its journey towards becoming an advanced nation.





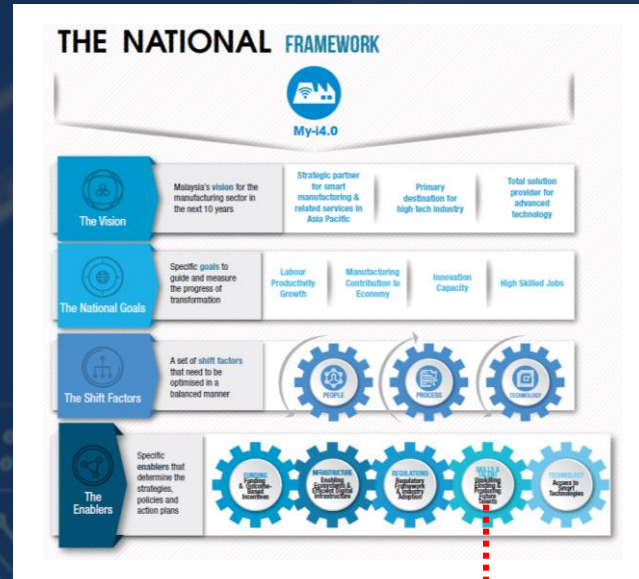


## THE 10 SHIFTS



The Ministry aims to be a **premier higher education TVET provider** that develops skilled talent to meet the growing and changing demands of industry, and promotes individual opportunities for career development.

The Ministry also aims to expand enrolment over the course of the next decade. The exact nature of the expansion in terms of both quantity of seats and profile of jobs will be determined in close collaboration with industry to ensure supply matches demand.




Industry 4.0 is fundamentally reshaping the jobs landscape and will foster significant changes in how industrial worker perform their jobs. New jobs with entirely very different skill requirements will be created, while others, especially manual tasks, will become obsolete.

**The shifting employment landscape has significant implications for industry, education systems, and the government.**

A qualified and skilled workforce is indispensable for the introduction and adoption of Industry 4.0. The technical knowledge required is high, and will be primarily recruited from the STEM (science, technology, engineering, mathematics) subjects. However, for some years the number of STEM graduates has fallen below expectations.

There is an **urgent need to create a skilled high income and diverse workforce both via up-skilling programmes for the existing labour pool and by attracting and developing future talent in the manufacturing sector.** Particular attention also needs to be given to re-skilling and re-deploying lesser skilled workers to other sectors and activities.





“..by the Fourth Industrial Revolution Era (4IR), the ministry does not only want to prepare the people to embrace the 4IR, but also to ensure that they are able to uphold the values, ethics and spiritual characteristics as well as maintain the Malaysian identity..

”

---

Dr. Maszlee Malik

Education Minister

National Seminar on Management and Education Leadership

Institut Aminuddin Baki (IAB), July 2018





# preamble

By the year 2020, Malaysia's aim to emerge as a technologically advanced nation will be achieved. Hence, effective Technical and Vocational Education and Training (TVET) is the stepping stone for the country to generate knowledgeable, highly skilled, innovative, and competent human capital at both regional and global levels. In parallel with this policy, the country's economic position is expected to remain competitive consistent with the industry demand as outlined in the 11th Malaysia Plan.



The Government is committed to pursue the agenda of producing skilled human capital by using TVET as a game changer. United Nations Organization for Education, Science and Culture (UNESCO) defines TVET as:

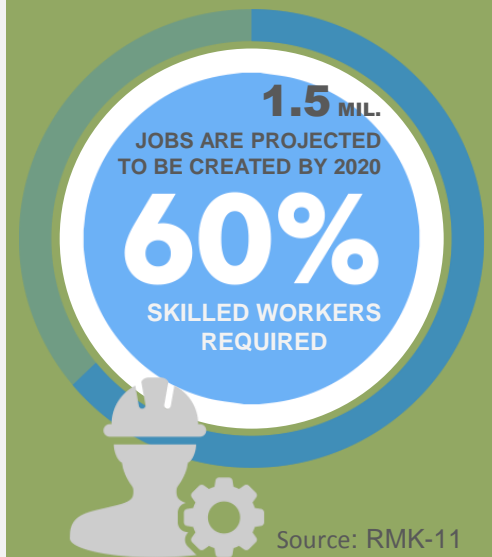


**..those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences as well as the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of economic and social life..”**



The 11th Malaysia Plan targets a total of 1.5 million new jobs to be created by 2020 consisting of 60% qualified TVET-related workforce.

Hence, the implementation of constructive and comprehensive efforts at the ministry's policy planning stage with smooth complementing coordination between MOE TVET Institutions (TVET Institutions) is imperative in order to produce trained graduates to meet the demands of the country's medium and high skilled workforce.



# NO. OF PUBLIC TVET INSTITUTIONS

## 2017

256



223



MINISTRY OF EDUCATION  
MALAYSIA

33



KEMENTERIAN SUMBER MANUSIA

21



KEMENTERIAN BELIA & SUKSES KANDIDAT

17



KEMENTERIAN PERTANIAN  
DAN INDUSTRI ASAS TANI

6



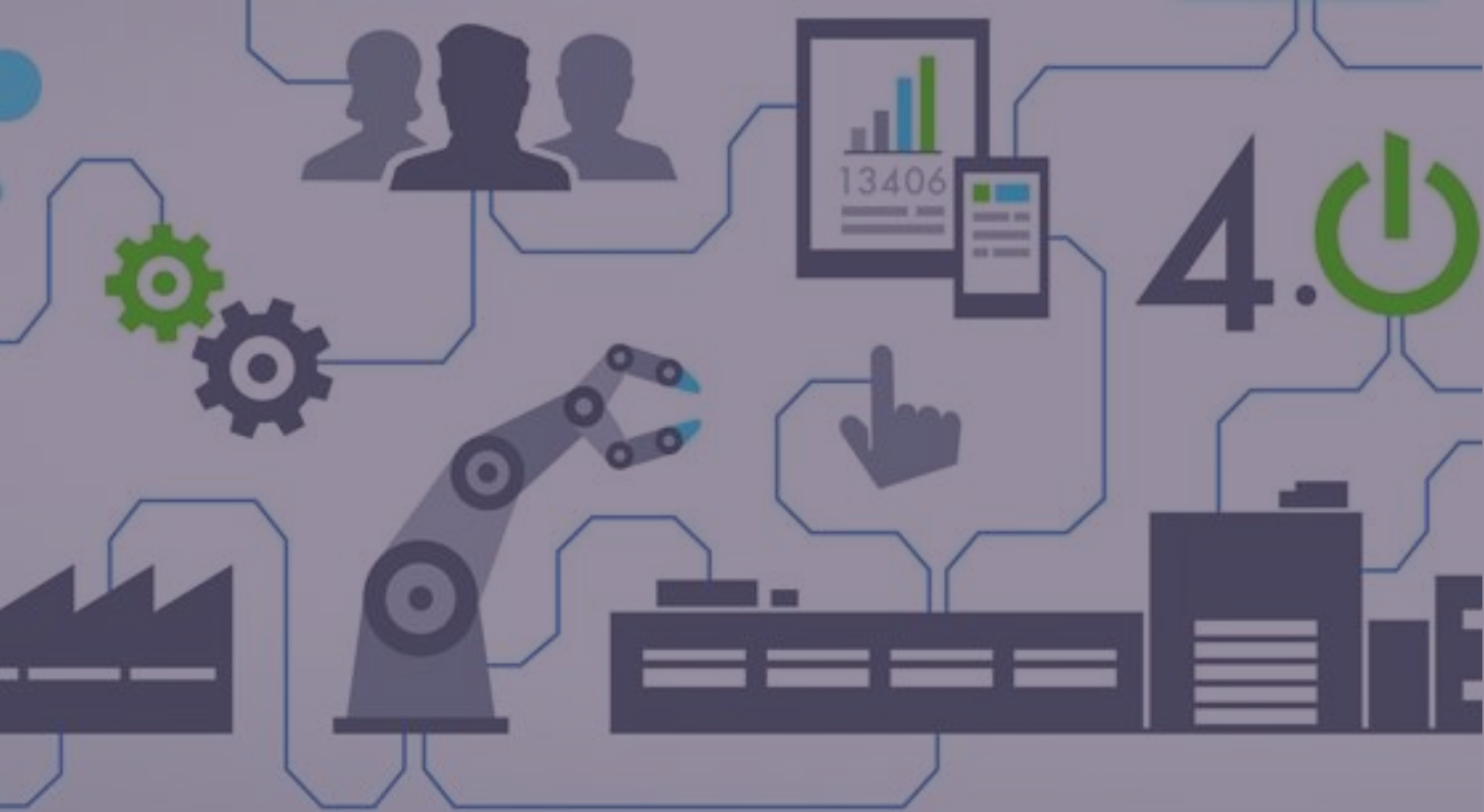
KEMENTERIAN  
KERJA RAYA

The Economic Planning Unit (EPU), Prime Minister's Department (JPM) has established in The TVET Rationalization Review Report 2012 that the **Polytechnics and Community Colleges is the largest TVET provider with 55% and 9% of total TVET graduates nationally**; compared to 8 other Ministries and Agencies involved such as the Ministry of Education Malaysia (MOE), Ministry of Human Resources (MOHR), Ministry of Youth and Sports (MOYS), Ministry of Rural and Regional Development (MRRD), Ministry of Agriculture and AgroBased Industry (MOA), Ministry of Health Malaysia (MOH), Construction Industry Development Board (CIDB), *Majlis Amanah Rakyat* (MARA) and state government-run training institutions.

## MOE's TVET INSTITUTIONS

### 2017

	MTUN Malaysian Technical University Network	POLITEKNIK MALAYSIA	KOLEJ KOMUNITI MALAYSIA	KOLEJ VOKASIONAL
NO. OF INSTITUTIONS	4	36	102	82
ENROLMENT	33,922	100,152	20,921	62,079
ACADEMIC STAFF	3,118	9,843	3,790	7,017
GRADUATES EMPLOYABILITY	82.2%	94.5%	96.7%	96.5%



“

..We are at the beginning of a revolution that is fundamentally changing the way we live, work and relate to one another..”

Klaus Schwab, 2016  
Executive Chairman of the World Economic Forum

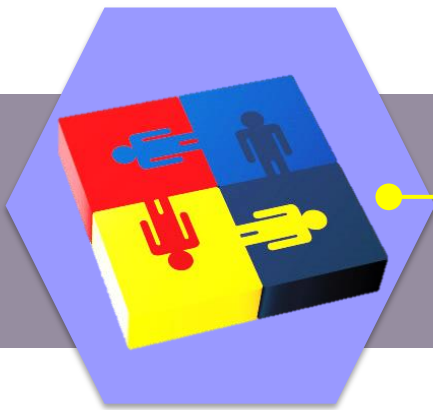


# ISSUES & challenges

The rapidly changing world economy has called on all parties to work collaboratively in dealing with the challenges and make adjustments accordingly. The latest explosion of the 4th Industrial Revolution (4IR) has erupted so rapidly with an impact so great that it is impossible to ignore. 4IR penetrates into all forms of industry and various technologies that drive the competitiveness which is expected to improve the quality of life.



Five (5) major challenges TVET institutions need to deal with in facing the 4IR explosion.



## Mismatch between industry's demands and TVET graduates supplies

Mismatch exists when the available skills do not meet the job market requirements. Mismatch is divided into:



The industry does not only requires knowledgeable and skilled workers in specific subjects, but they expect the graduates produced to have a complete package that includes:



The graduates' unemployment rate is also due to the mismatch between the specific skills required in the labour market with the quality of education and training provided by the TVET institutions.

In 2016, the PwC Study Report forecasted that there will be a mismatch of industrial demand and labour supply in 2020. Hence, the reviews for the demand and supply need to be carried out periodically in order to ensure that the programmes offered and the employability rates remain relevant and high respectively.

by **2020**

**64%**

TVET graduates supplied are high-skilled spectrum

(MASCO 2-3)

**78%**

Total jobs created will be in the semi-skilled spectrum

(MASCO 4-8)

Source:  
Study on the Demand and Supply of Human  
Capital Requirements on TVET, PwC 2016





The community tends to classify TVET as a second class or as a last resort in the education path. This is because, the negative stigma among the community that regards TVET as a field meant for secondary school leavers who are not quite excellent academically. Majority of industry players also are not able to see the correlation between the qualifications of TVET graduates with the improvement of productivity and the quality of work that the graduates can contribute. The industry still thinks that TVET graduates do not meet the desired quality in terms of technical, soft skills, attitudes and job attributes.

The new media-based branding strategy has enhanced the reputation of TVET institutions and attracted more secondary school leavers to join TVET programmes and thereby become the driving force of innovation in developing a technology-based economy in the country.



Source: Sinar, 10 November 2017

## Program TVET Malaysia dapat pujian UNESCO

**JOHOR BAHRU** - Pertubuhan Pendidikan, Saintifik dan Kebudayaan Pertubuhan Bangsa Bersatu (UNESCO) memuji komitmen Malaysia dalam memberi perhatian terhadap usaha melahirkan tenaga mahir dalam negara menerusi program Sistem Pendidikan Teknikal dan Latihan Vokasional (TVET).

Pengarah Pusat Pendidikan dan Latihan Teknikal serta Vokasional Antarabangsa UNESCO Pusat (Hong Kong), Dr. Margarita Pavlova berkata, Malaysia perlu menjadi contoh dan rujukan negara-negara lain tentang kesedaran terhadap kepentingan tenaga mahir TVET.

"Saya dimaklumkan ramai pelajar di negara ini memilih untuk meneruskan pengajian dalam bidang TVET dan ia merupakan pilihan yang bijak khususnya pada abad ke-21 ini. "Tidak seperti di Hong Kong dan China, para pelajar di negara-negara ini berrebut untuk menyambung pengajian di universiti dan melupakan bidang TVET. Ia membuatkan negara teras bekakurangan tenaga mahir tempatan bekerja dalam sektor industri di sana," katanya.

Beliau berkata demikian pada Persidangan Antarabangsa Latihan Teknik dan Vokasional (TVETIC) kali kedua anjuran Universiti Teknologi Malaysia (UTM) di sini semalam.

Hadir sama Timbalan Naib Canselor (Pendidikan dan Inovasi) UTM, Prof. Dr. Ahmad Fauzi Ismail merasmikan persidangan dan Pengarah TVETIC, Dr. Mahyuddin Arsat.

Prof. Dr. Ahmad Fauzi Ismail berkata, TVET adalah pilihan kedua atau terakhir untuk diberikan oleh mereka yang tidak mempunyai keupayaan akademik yang baik. "Sistem pendidikan dan latihan teknikal dan vokasional di negara ini mempunyai pelbagai dimensi dan ditawarkan dalam berbagai bentuk program oleh tujuh kementerian yang utama. "Oleh itu, kesemua institusi TVET di bawah pelbagai kementerian digesa bersepadu dengan tenaga sebagai kolaborasi untuk lagi bersepadu bagi melatih warga Malaysia khusus anak-anak muda untuk menjadi tenaga kerja teknikal yang berkemahiran tinggi," katanya.

Beliau berkata demikian pada Majlis Konokongsi Sistem Latihan Dual Nasional (SLDN) Peringkat Negeri Selangor dan Wilayah Persekutuan 2017 di

## Let's be wiser about TVET

Part of the work on this front is to streamline TVET and promote the growth of TVET institutions. This way, our workforce will have high-value and specialised skills that will improve industrial innovation and productivity, which will be integral to Malaysia's transformation into a high-income nation by 2020.

One of the 10 shifts outlined in the Malaysia Education Blueprint 2015-2025 (Higher Education) is the push to make the TVET pathway as attractive and valued as university education.

According to the 11th Malaysia Plan, 60% of the 1.5 million jobs that will be created between 2016 and 2020 will require TVET-related skills. This is why the five-year plan includes initiatives to enable industry-led TVET to meet the demand for such graduates.

It appears that there will now be a more coordinated approach to boosting TVET in Malaysia and that the private sector will partner the Government in these efforts.

The transformation should extend to the changing of mindsets. TVET deserves to be seen in a different light; it should not be an option of last resort.

TVET is no less a foundation for successful careers and businesses than the academic pathway. We must understand that talent and interest flows in many directions and that a nation is not built by white-collar workers only.

Source: KOSMO, 19 November 2016

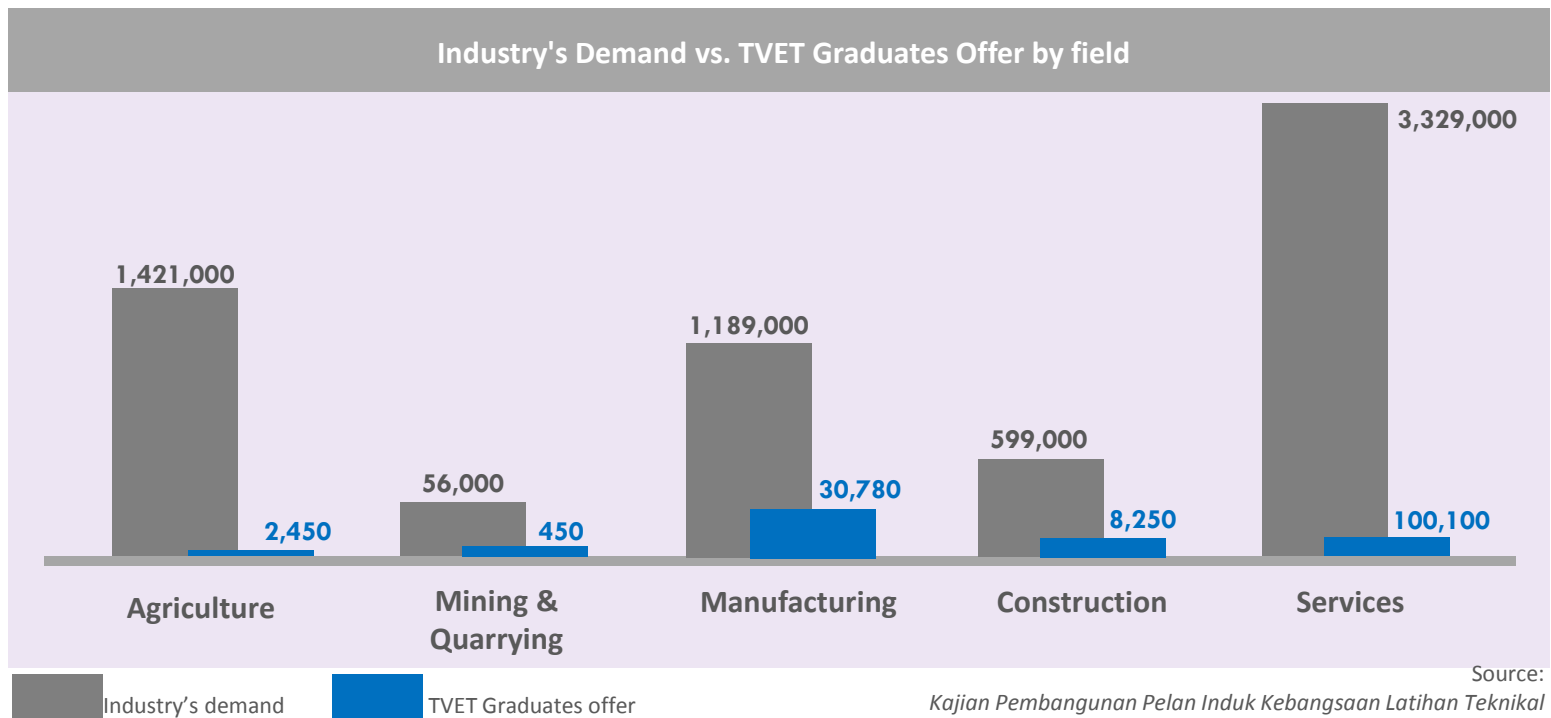
Source: Sunday Star, 1 Oktober 2017



### Dependency on foreign labours

According to the report by PricewaterhouseCoopers Malaysia (PwC) in 2018, the demand for TVET's workforce by the industry in 2015 was 6.6 million and is expected to increase to 7.98 million by 2030. Meanwhile, the offering of TVET graduates from the public and private TVET institutions was estimated at 142,000 in 2015 and is expected to increase to 188,000 by 2030. Malaysia however, is still unable to provide sufficient number of local TVET workforce to meet the demand of the industry in the country.

The country should ensure that the dependency on foreign labours is at the minimum level by developing and offering highly skilled study programmes specifically for the capital-intensive industries.



Source:  
*Kajian Pembangunan Pelan Induk Kebangsaan Latihan Teknikal dan Vokasional (TVET) Ke Arah Negara Maju Dan Halatuju Sehingga Tahun 2050, ILMIA, 2018*

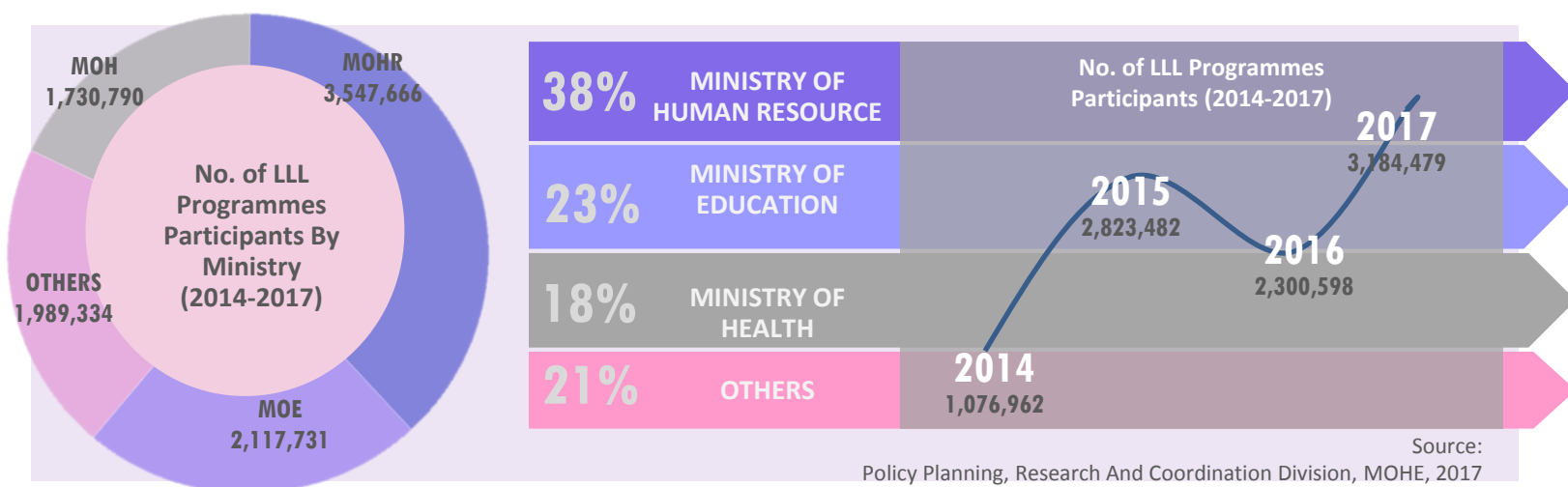


## #4

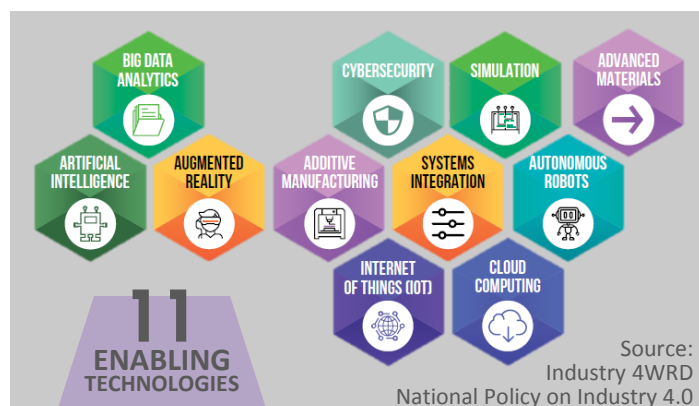
### Lifelong Learning Programmes that support skills enhancement



The Government emphasizes the Lifelong Learning agenda (LLL) to produce quality, knowledgeable and competitive human capital through the National Lifelong Learning Blueprint 2015-2025 and PPPM (PT) 2015-2025. There are 15 ministries that carry out the LLL programmes by offering knowledge-enhancing opportunities and upgrading existing workforce skills in specific industry sectors through reskilling and upskilling.



In order to address the 4IR challenge, the LLL programmes has to be in line with the demands of technological developments and add value to the existing skillset. Hence, it is a challenge to TVET institutions to explore 11 Enabling Technologies in designing relevant and competitive LLL programmes in the 4IR environment.

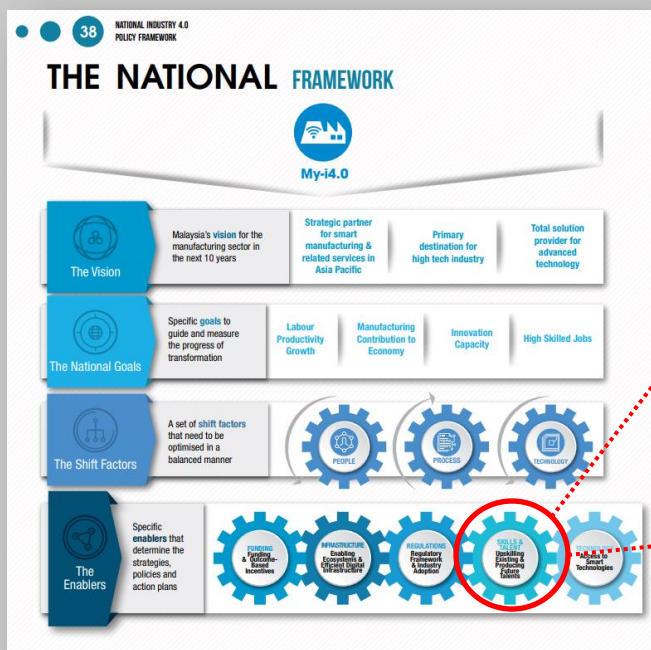




## Human Capital 4.0

In September 2018, The Ministry of International Trade and Industry (MITI) in collaboration with Malaysia Industry-Government Group for High Technology (MIGHT) and Academy of Sciences Malaysia (ASM) have developed a framework on 4.0 Industry (Industry4WRD) as a policy to be used in the services and manufacturing sectors.

Through this framework, the government is emphasis on five (5) strategies (The Enablers), with one (1) enabler is specially dedicated for MoE and MoHR in supplying the nation's workforce towards 4IR.



Source:  
Industry 4WRD – National Policy on Industry 4.0

### STRATEGY 1

Enhancing the capabilities of the EXISTING WORKFORCE through national development programmes (reskilling & upskilling)

### STRATEGY 2

Ensuring the availability of the FUTURE TALENTS by equipping students with skillsets to work in the industry 4.0 environment



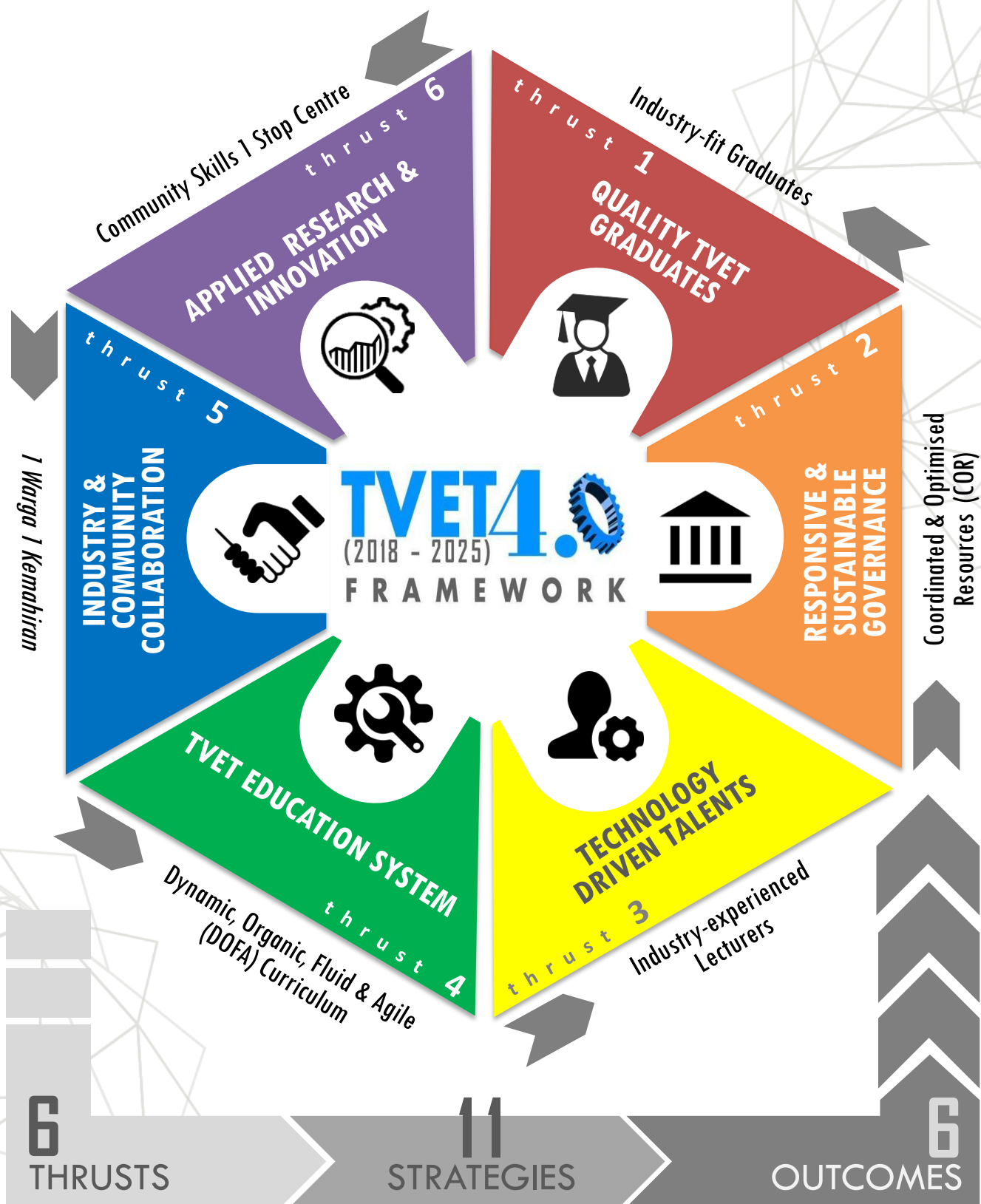
# TVET 4.0

(2018 – 2025)

## FRAMEWORK

The TVET institutions need to adjust the implementation method of their education and training based on science and technology by offering demand-driven courses, especially in closing the competency gap with the main players of the 4IR industry.

This TVET 4.0 framework is built upon six (6) thrusts and supported by 11 strategies in order to achieve six (6) expected outcomes in positioning the dynamic and competitive Malaysian TVET education system globally.



## 1 INITIATIVE

19. Industry Solution Providers

## 3 INITIATIVES

16. Industry Collaboration  
17. Government Agencies  
Collaboration

18. 4IR Community Programmes

## 4 INITIATIVES

12. Programme Alignment & Offers  
13. Learning with Industries  
14. Learning Spaces  
15. Apprenticeship, Upskilling &  
Reskilling Programmes

## 1 STRATEGY

11. Research and Innovation  
Ecosystem

## 2 STRATEGIES

9. Industry-Institution  
Network  
10. Smart Community

## 3 STRATEGIES

6. Programmes of Study  
7. Delivery Mechanism  
8. Access

1 Warga 1 Kemahiran





### 3 STRATEGIES

1. Graduate Employability
2. Entrepreneurship Ecosystem
3. Global Citizens

### 4 INITIATIVES

1. Graduate Employability Programme
2. 4IR Entrepreneurship Programme
3. 4IR Entrepreneur Incubator
4. 21<sup>st</sup> Century Graduates

### 1 STRATEGY

4. 4IR-driven TVET Institutions

### 4 INITIATIVES

5. 4IR awareness
6. 4IR Infrastructures
7. Autonomy in 4IR
8. Brand & Reputation

### 1 STRATEGY

5. Comprehensive Teaching Staffs

### 3 INITIATIVES

9. Experience Enrichment Programme
10. Leadership Programme
11. Educators 4.0 Programme



# THRUST #1 QUALITY TVET GRADUATES



TVET graduates are the youth who will contribute as the workforce in meeting the industry's demands and drive the country's economic growth.

In producing quality TVET graduates, TVET institutions need to stride strategically in enhancing graduates' marketability via enhancement of certain competencies that can provide competitive advantage in technical skills as well as soft skills.

Various intervention programmes through industry collaboration, professional bodies and training agencies are implemented to provide added value to TVET graduates.

## 3

### STRATEGIES

1. Producing highly employable graduates
2. Improving entrepreneurial ecosystem
3. Developing TVET graduates as global citizens

## 4

### INITIATIVES

1. Implementing high impact graduate employability programmes
2. Implementing 4IR entrepreneurial programmes
3. Creating 4IR entrepreneurial incubators
4. Promoting and cultivating global citizenship



Picture: <https://petaikidday.com.my/2012/04/bijak-bahagikan-masa-resepi-kejayaan-abd-malik/>

### 3

## OUTCOMES

1. Highly-skilled TVET graduates that support 4IR
2. Technopreneur TVET graduates
3. Smart TVET generation with 21st century skills



*Industry-fit  
graduates*

- ✓ *Coordinating with Others*
- ✓ *Negotiation Skills*
- ✓ *Emotional Intelligence*
- ✓ *Service Orientation*
- ✓ *Judgement & Decision Making*



The generation today leads an advanced lifestyle that is directly exposed to disruptive technology as described by 4IR.

TVET institutions need to develop students attributes that are not only excellent in terms of academic achievement and technical skills, but also in the universal values of civilisation and morality, humanity, tolerance and moderacy. Graduates need to swiftly adapt themselves with the 21st century skills.

The future TVET institution graduates are expected to contribute to the country's economy productively as well as to be known for their high human values to ensure the survival of the global civilisation.



# THRUST #2 RESPONSIVE AND SUSTAINABLE GOVERNANCE



TVET institutions need to be empowered through responsive and sustainable governance to address the development of 4IR-based technology.

The effort of institution reengineering towards 4IR is vital in ensuring that TVET institutions are prepared with the knowledge and infrastructure that can ultimately produce influential and advanced TVET organisations.

1

## STRATEGY

1. Empowering 4IR driven TVET institution

4

## INITIATIVES

1. Cultivating awareness and knowledge on 4IR
2. Providing 4IR featured infrastructure
3. Enabling TVET institution citizens
4. Elevating MOE TVET institutions brand and reputation

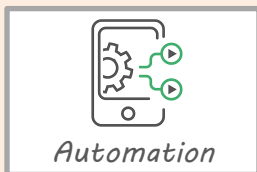
4

## OUTCOMES

1. Towards 4IR readiness
2. Adapting digital technology in TVET institution ecosystem
3. TVET institution as Game Changer at national level
4. TVET institution as students' and parents' preferred choice



Picture: MOE's Strategic Planning Development Workshop (Sub Focus05 - TVET)



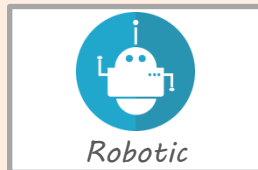
Automation



Big Data Analytics



Cyber Security



Robotic



Coordinated &  
Optimised Resources  
(COR)

# 4IR AWARENESS PROGRAMMES

Retrofit  
equipment  
towards 4IR  
requirements

TVET 4.0  
Framework Action  
Plan

Skills Competition  
Participation  
(national / international)

Student training  
towards 4IR

4IR enrichment  
programmes  
(talk & discussion, forum,  
seminar, conference)

Lecturers  
professional  
courses towards  
4IR

Collaboration  
with the leading  
4IR industry



THRUST #3

# TECHNOLOGY DRIVEN TALENTS



Picture:  
[http://www.sinarharian.com.my/polopoly\\_fs/1.654614.1491371118%21/image/image.jpg](http://www.sinarharian.com.my/polopoly_fs/1.654614.1491371118%21/image/image.jpg)

TVET institution is the largest TVET training provider and contributes 30% of the country's TVET workforce by 2020.

Hence, TVET institute talents should be enhanced from time to time in order to remain the quality of the programme offered.

1

## STRATEGY

1. Producing effective staff through comprehensive long term talent development programmes

3

## INITIATIVES

1. Implementing experience enrichment programme in industry
2. Implementing latest leadership development programmes
3. Implementing 4IR Teaching and Learning Professional Development and Enhancement Programmes



Multi-skilling

Structured Internship Programme (SIP)

Executive Management TVET

Upskilling Programme (PPK)

Federal Scholarship Scheme (SHLP)

Career Path Competency Matrix Courses (CPCM)

In-service training (KUDAP)

## LECTURERS TRAINING PROGRAMMES



CHARACTERISTICS  
of 21<sup>ST</sup> CENTURY  
**EDUCATOR**  
*By George Couros*

1

OUTCOME

1. Talent with 4IR experts



*Industry-experienced  
Lecturers*



Relationship  
Builder



Learner



Inclusive



Reflective



Networked



Innovator



Leader



Storyteller



Designer



Artist

# THRUST #4 TVET 4.0 EDUCATION SYSTEM



TVET institutions need to provide high-tech and high-value programmes to make the TVET route a preferred passage.

This strategy involves reviewing the curriculum to remain responsive to cater the industry's aspirations.

The goal of transforming the programme is to produce competent TVET graduates who are willing to meet the 4IR requirements.

## 3

### STRATEGIES

1. Transforming education programmes to meet industry demands
2. Increasing the effectiveness of delivery mechanism
3. Enhancing access

## 4

### INITIATIVES

1. Realigning and offering TVET programmes in line with 4IR demands
2. Implementing authentic and immersive learning in industry
3. Developing learning spaces with innovative learning qualities
4. Executing apprenticeship, upskilling & reskilling programmes





Picture: @audelearning

The 4IR based effectiveness mechanism emphasizes the 21st century pedagogy. Learning delivery approaches such as 'immersive learning' and 'student centered learning' are some of the initiatives these 4IR mechanism initiates.

TVET institutions need to expand the access to knowledge and skills enhancement through apprenticeship and upskilling and reskilling programmes of local industry workers.

## TVET Programmes



3

## OUTCOMES

1. Education programmes offered with 4IR attributes
2. Work-ready graduates
3. 21st century pedagogy



*Dynamic, Organic, Fluid & Agile (DOFA) Curriculum*



## Focus Sectors of Industry 4.0

## 21<sup>st</sup> Century Pedagogy



*Pedagogy*  
Teacher-oriented



*Andragogy*  
Adult learning



*Heutagogy*  
Self-determined learning



*Peeragogy*  
Peer-to-peer learning



*Cybergogy*  
Engaged learning online



# THRUST #5

## INDUSTRY & COMMUNITY COLLABORATION



Strengthening the industry network and the institutions of TVET is an integrated intervention programme to expand the collaborative networks within the 4IR industry and strengthen the cooperation with government agencies that advocates the 4IR thrust.

This strategic partnership can be realized in various forms with the goal of TVET graduates working in the 4IR industry.

### 2

## STRATEGIES

1. Strengthening the industry network among TVET institutions
2. Empowering 4IR community

### 3

## INITIATIVES

1. Expanding collaborations network between 4IR industries
2. Strengthening cooperation between 4IR government agencies
3. Adapting 4IR for community

### 2

## OUTCOMES

1. High-impact collaboration with 4IR industries
2. 4IR community



One of the indicators of a developed nation is the existence of a large community whom are advancing with the latest technology in everyday life.

Thus, the TVET institution needs to be a hub and catalyst for the public to adopt the latest technology by developing a pioneer of smart community.

## COLLABORATION MODEL



*1 Warga 1 Kemahiran*  
**Skills Community 1 Stop Centre**



## THRUST # 6



# APPLIED RESEARCH & INNOVATION



The development of an innovative ecosystems is among the surges outlined in the Malaysia Education Development Plan (Higher Education) - PPPM (PT) 2015-2025 to spur the country's economic growth in line with the demands of technological changes.

TVET institutions need to maintain the momentum of developing a competitive and innovative research culture among its employees and students, being a leader in research in thrust fields and increase quantitative and qualitative research results.

TVET institutions gives prioritization to its applied research and translation as well as a solution provider to community and industry issues.

1

### STRATEGY

1. Sustaining research and innovation ecosystem

1

### INITIATIVE

1. Inculcate research and findings / innovative products

1

### OUTCOME

1. Industry and community experts in problem solving





## CENTRE OF TECHNOLOGY (Politeknik & Kolej Komuniti)



## KPM's RESEARCH GRANTS

- ☐ Fundamental Research Grant Scheme (FRGS)
- ☐ Transdisciplinary Research Grant Scheme (TRGS)
- ☐ Prototype Development Research Grant Scheme (PRGS)
- ☐ Long Term Research Grant Scheme (LRGS)
- ☐ Malaysia Laboratories for Academia-Business Collaboration (MyLAB)
- ☐ Higher Education Center of Excellence (HiCoE)
- ☐ TVET Research Grant Scheme (TRGS)

*Industry and community  
solution provider*

Two (2) categories:

- ☐ TVET Research Grant Scheme (T-FRGS)
- ☐ TVET Applied Research (T-ARGS)
  - TRGS (Transdisciplinary Research)
  - PRGS (Prototype Research)
  - LRGS (Long-Term)
  - MyLAB

Five(5) research clusters:

- Engineering and Technology
- Information Technology
- Social Science
- Arts and Art Application
- Natural and Cultural Heritage





# Conclusion

**The Fourth Industrial Revolution (4IR) will have an impact on the TVET education delivery system and service in Malaysia. The developed TVET 4.0 framework aims to ensure TVET providers at MTUN, Polytechnics, Community Colleges and Vocational Colleges are able to maximize the human resources potential and contributing towards increasing the number of skilled manpower needed to drive the country's economy and competitiveness. The delivery of education and training that meets the industry's requirements including digital skills enrichment enables TVET graduates to stay relevant and fulfill the country's demand of 21st century workforce in the 4IR era.**



“

*Our world is changing; technology and politics are key drivers. Workforce planning has become even more critical for leaders. Success involves a deep strategic focus on re-training, hiring of different types of talent, and understanding the new nature of work..."*

Scott McDonald, CEO, OLIVER WYMAN



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# Note

# Acknowledgement

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Appreciation and gratitude to all involved in the publication of TVET 4.0 Framework (2018-2025) Ministry of Education Malaysia

Profesor Madya Dr. Razali bin Hassan; Tn. Hj. Azizan bin Itam; Pn. Noor Aidi binti Nadzri; Tn. Hj Rosli bin Idris; Dr. Zainal Azhar bin Zainal Abidin;  
Dr. Mohd Syahrizad bin Elias; Dr. Wan Nor Aishah binti Wan Omar; En. Mohd Zulkefli bin Ibrahim; En. Ahmad Wafi bin Mohd. Salleh;  
En. Mohamad Ali bin Hamzah; Dr. Mohd. Saifizi bin Saidon; Pn. Suzanah binti Hashim; Pn. Nur Haslinda binti Mohd Sailan





“

*The Fourth Industrial Revolution is still in its nascent state. But with the swift pace of change and disruption to business and society, the time to join in is now.”*

**Gary Coleman,**  
Deloitte Consulting



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