



**CHALLENGES AND APPROACHES OF
TVET FOR SUSTAINABILITY IN
POLYTECHNICS AND COMMUNITY
COLLEGES OF MALAYSIA**

WRITTEN BY

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Published by :
Temerloh Community College
Ministry of Higher Education
By Pass Batu 2, Jalan Temerloh,
Kg Chatin Ulu, 28400 Mentakab,
Pahang Darul Makmur.
Tel : 09-2701550/ 52/ 53
Faks : 09-2701551
Email : kkmb@kkmen.edu.my

eISBN 978-967-0819-09-9



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CONTENT

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Challenges and Approaches of TVET for Sustainability in Polytechnics and Community Colleges of Malaysia

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Abstract

Malaysia is one of the Asian countries that has ready and prepared abilities to ensure the emergence of new technologies in the industry 4.0 era. New technologies, in general, require sufficient human resources based on knowledge and great technical skills. This has a profound impact on education, technical training as well as in TVET training and job market. Skilled manpower is important to increase the value chain to have high income economics. This article will discuss the challenges and approaches in Technical and Vocational Education & Training (TVET) for sustainability especially in polytechnics and community colleges. This article explores general overview challenges and approaches TVET at polytechnic and community colleges in Malaysia and the current development based on desk research, documents analyses and interviews with related stakeholders. This article also identifies the strengths and the main issues in current systems. It also provides strategies and initiatives for improvement of sustainability in polytechnics and community colleges in Malaysia.

1. Introduction

Malaysia is one of the Asian countries predicted by economic experts to achieve the developed nation status by 2020. The target is based on the encouraging progress achieved by the current state and the transformation process of various sectors. The achievement of seven areas set out in the National Key Result Areas (NKRAs) also reflects progress and improvements. By 2020, up to an additional 3.3 million jobs will be created, of which 1.3 million will be TEVT-related. However, based on historical trends, it may be challenging for the current TEVT sector to meet the demands of a high-income status nation by 2020. Malaysia aspires to move up the value chain to become a high-income economy, with a GNI per capita of approximately USD 15,000 by 2020 [1]. Malaysia should be prepared to meet the workforce by being equipped

with the necessary skills and knowledge to support and drive the economy and thus receive the challenge of the Industrial Revolution 4.0 (IR4.0). Malaysia's Economic Development requires greater workforce as demands and bids have increased annually by 2%, (Twelve National Keys ETP) [1].

Malaysia's economy will require a larger workforce. Although labour demands and supplies have been growing annually at 2%, 12 National Key Economic Areas (NKEAs) are expected to create up to an additional 3.3 million jobs by 2020. Approximately 1.3 million (40%) will be associated with TEVT [2].

2. Background

The higher education sector is responsible for the operation of higher education institutions (HEIs) in Malaysia and is under the jurisdiction of the Ministry of Higher Education (MOHE). The education sector has always enjoyed the highest national development budget which symbolises the commitment of the Malaysian government towards education. With a multi ethnic population of about 31.19 million (2016), Malaysia has 20 public universities, 53 private universities and six foreign university branch campuses; 403 active private colleges, 33 polytechnics and 93 public community colleges in 2017. These HEIs offer a wide range of tertiary qualifications at affordable prices. MOHE is the governing authority for the Malaysian higher education sector. It oversees HEIs (both public universities and private higher educational institutions), community colleges, polytechnics and other government agencies involved in higher education activities such as the Malaysian Qualifications Agency, the National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional – PTPTN), the Tunku Abdul Rahman Foundation (Yayasan Tunku Abdul Rahman) and others.

2.1 The Department of Higher Education

The Department of Higher Education or popularly known as Jabatan Pengajian Tinggi was restructured and established on 27 March 2004 in line with the creation of the Ministry of Higher Education. The first restructuring exercise of this department was under the Ministry of Education on 1 October 1995. The Department of Higher Education is supported by several sectors, divisions and an administrative unit that is responsible for the development of both public and private higher education in Malaysia. It also ensures that the universities and colleges are of international standing.

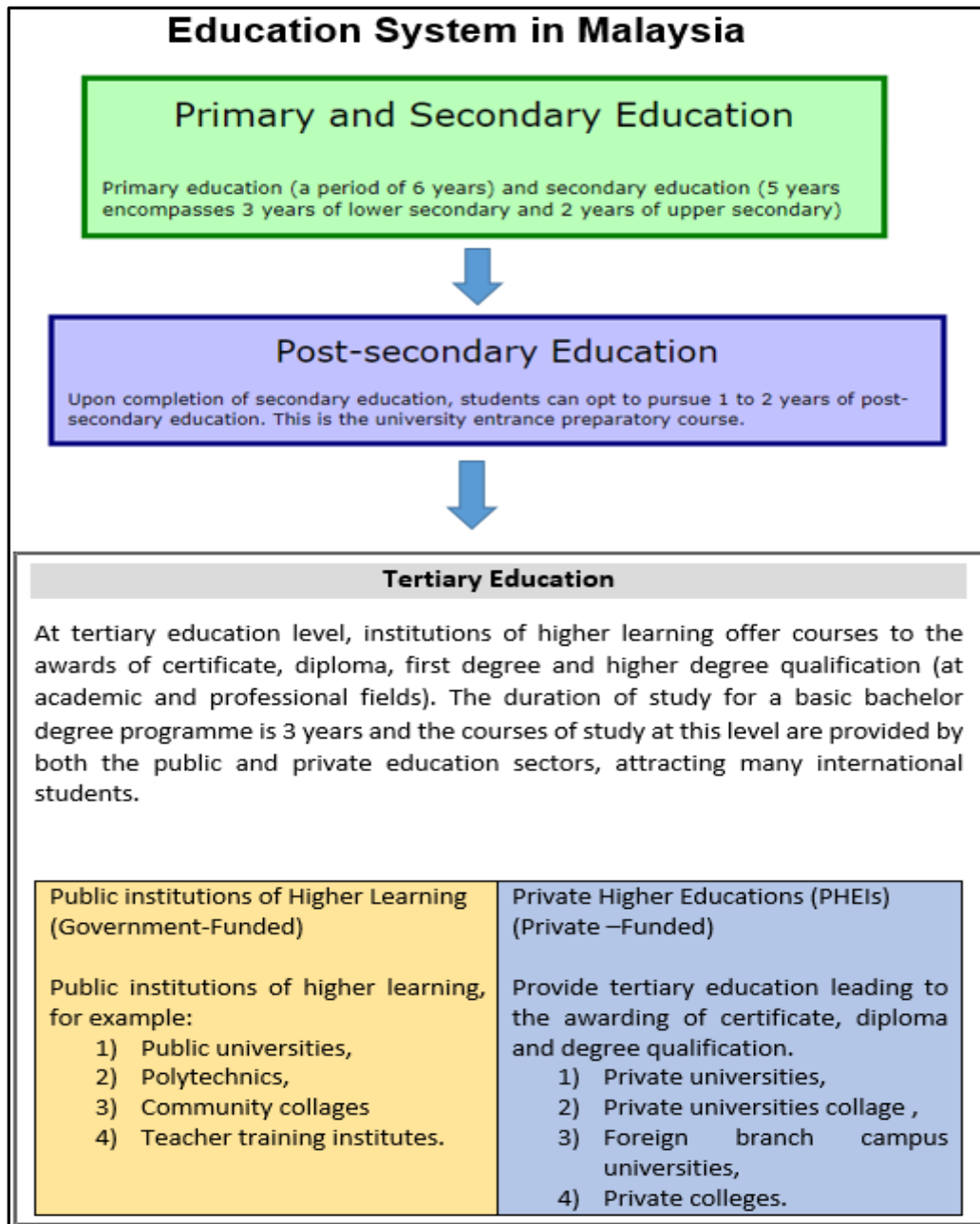


Figure 1: Education Structure in Malaysia

This Department is also involved in the marketing of Malaysian higher education internationally as well as being in charge of international students' welfare. The sector designated with the jurisdiction over public higher education is known as the 'Sector of Public Higher Education Management' while the sector designated with the jurisdiction over private higher education is known as the 'Sector of Private Higher Education Management'.

2.2 Department of Polytechnic Education

The formation of the Department of Polytechnic Education was a result of a restructuring exercise by the Department of Polytechnic and Community College Education (DPCCE) on

16 September 2009. The Department of Polytechnic Education has been entrusted to produce a generation of well-educated, skilled, creative, innovative, progressive and critical thinking youths who are highly employable. Apart from public universities, polytechnic education offers an alternative route for school leavers with SPM qualifications to further their education at diploma and advanced diploma levels. Polytechnic education is currently under major transformation with the aim of producing highly skilled graduates in line with the National Higher Education Strategic Plan (PSPTN) and the National Key Result Areas (NKRA). Polytechnics provide an alternative route that sufficiently produces highly skilled and qualified human capital which will ensure the success of a new economy based on innovation and creativity.

2.3 Department of Community College Education

The reorganisation of the Department of Polytechnic and Community College of the Ministry of Higher Education in 2009 has given rise to the birth of the Department of Community College Education (or better known as JPKK). Its mission is to increase the socio economic status of all levels of Malaysians through better access to education. This will be carried out through training programmes and the use of a life-long learning approach. JPKK is tasked with providing vocational-based training (programmes such as Sijil Modular Kebangsaan) leading to a certificate qualification for those who do not opt for the academic pathway. JPKK has taken aggressive measures to increase the students' enrolment at TEVT and enhances the overall training quality of upskilling and reskilling programmes for the workforces involved in the vocational fields.

2.4. Malaysian Qualifications Agency

This entity is responsible for quality assurance of higher education for both the public and the private sectors. The main role of the MQA is to implement the Malaysian Qualifications Framework (MQF) as a basis for quality assurance of higher education and as the reference point for the criteria and standards for national qualifications. The MQA is responsible for monitoring and overseeing the quality assurance practices and accreditation of national higher education.

3. General overview of the TVET in Malaysia

TVET System in Malaysia is divided into three streams i.e. higher education, technical and vocational education and vocational skills training. Vocational and technical education starts at junior secondary level, which lies under the purview of Ministry of Education (MoE). TVET delivery in Malaysia is fragmented as it is offered by Government ministries and their agencies, universities, state skills development centres and privately owned institutions. The separation

of terms and highly fragmented administration could result in poor coordination and duplication of responsibilities and is also likely to boost up the government funding in the TVET sector. Based on the study done by Economic Planning Unit (EPU), there is a distinct difference between qualifications for institutes under the Skills sector, which are administered by the Department of Skills Development (DSD) and those in the Technical and Vocational sector, which are administered by the MQA (Boston Consulting Group 2011).

The large overlap between the Skills and Technical and Vocational sectors, particularly in terms of the courses offered, results in poor coordination and duplication of responsibilities in calibrating learning outcomes for the TVET sector. There is also limited collaboration and sharing of best practices between the Skills and Technical and Vocational sectors.

4. Issues and Challenges

Malaysia's higher education needs to make changes and adaptability is in need for highly skilled human resources to close the present demand supply gap in various industries, particularly those driving economic transformation. The government has determined that the Technical and Vocational Education and Training (TVET) sector as the main route in providing highly skilled human resources and is also one of the key drivers of the economy for Malaysia to become a high income nation. While this study recognizes that initiatives have been taken to continuously improve the sector through the TVET transformation programs, it is imperative that the governance issues faced by the key stakeholder are systematically addressed to ensure that the operating and delivery system can be optimized. This paper provides an overview and an analysis of the TVET transformation programs and the governance issues including several challenges to the development of the TEVT sector. A review from various published documents to the present has been used to provide a comprehensive summary of the literature of Malaysia's TVET transformation and governance issues. Many studies and assessments of TVET implementation issues have been conducted until 2014. Most of these issues have been successfully addressed and implemented by policy makers and implementers themselves. Therefore, this study will bring issues and challenges beginning in 2014 that have been reviewed and evaluated.

Technical and Vocational Education and Training (TVET) in in Polytechnic and Community Colleges is not something new. The Malaysian government has been outlining for a transformation in economic towards Vision 2020, therefore the demands for K-Workers is increased. This goal can be achieved by developing human capital by providing TVET provision [3]. Nevertheless, challenges still exist due to lack of financial allocations in technical and vocational streams. Consequently, there is a huge opportunity for TVET providers to

attract school-leavers to take up TVET. With that, more than 100,000 school leavers join the labour market annually, after 11 years of formal schooling without pursuing further education or training [2].

To meet the industry Revolution 4.0, TVET's sustainability should be emphasized to ensure that it can comply with the challenges. The Ministry of Higher Education Malaysia through polytechnics and community colleges has been given the responsibility to provide human resources that can meet the needs of the modern industry and IOT application. The government has determined that the Technical and Vocational Education and Training (TVET) sector as the main route in providing highly skilled human resources and also as one of the key drivers of the economy in the industrial sector. Preparing Malaysians to thrive in this complex and ever-changing future will require an equally fundamental transformation of how the higher education system and higher learning institutions (HLIs) currently operate.

The number of students who choose TVET in polytechnics and community colleges keeps increasing throughout the years. Based on the data from [3], the total number of intakes in polytechnic and community colleges shows an increase since 2015 as in Table 2 and Table 3, while the number of graduates also shows an increase as the positive increments in student enrolment. Table 2 and Table 3 show the number of students who have graduated from 2015 to 2017.

Table 1: Polytechnic Enrolment and Graduate

	Institution	2015 (actual)	2016 (approximate)	2017 (approximate)
1	Conventional Polytechnic	25	25	25
2	Metro Polytechnic	5	5	5
3	Premier Polytechnic	3	3	3
4	Student enrolment	96,069	107,685	112,749
5	Certificate and Diploma graduate	25,388	31,319	33,521

Table 2: Community Collages Enrolment and Graduate

	Institution	2015 (actual)	2016 (approximate)	2017 (approximate)
1	Community collages	92	104	104
2	Student enrolment	18,529	18,052	20,000
3	Short Course Participation	279,760	250,000	250,000
4	Islamic Life Long Learning	15,706	15, 000	15,000
5	Community collages graduate	7,578	7,000	7,300

4.1 Quality of TVET Graduate

The major issue in quality assurance process for TVET qualifications is uncoordinated governance of quality assurance. Based on the MQF, accreditation and quality assurance of TVET programmes are under the purview of two agencies, namely the Malaysian Qualifications Agency (MQA) and the Department of Skills Development (DSD). The existence of two different accrediting bodies for TVET has led to confusion and concerns about the varying quality of the programmes. Additionally, it has led to unclear TVET articulations where the mobility of TVET graduates to continue their studies in institutions under different accrediting agencies is limited. For example, TVET diploma graduates accredited by DSD have limited access to continue their studies at degree programme (level 6 of MQF) in institutes of higher education due to more emphasis on practical components, as different quality assurance mechanism and the perception that these graduate are less academically inclined. Whereas, TVET graduates accredited by MQA have more accessibility to pursue higher education in institutes of higher education as their curriculum is inclined towards the academic track.

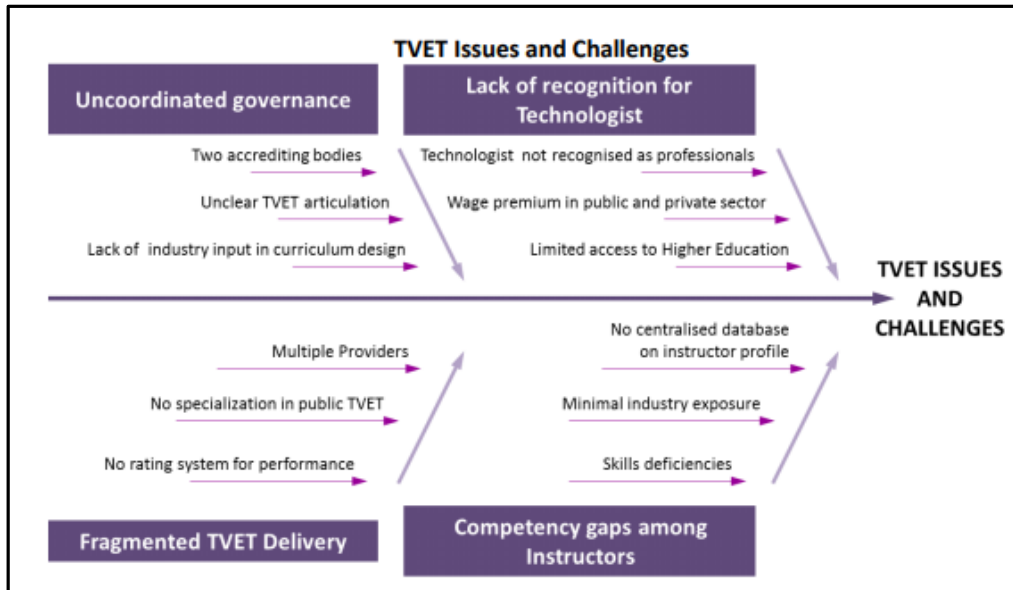


Figure 2: Issues and challenges [4]

i. Uncoordinated governance of quality assurance for TVET

Based on the Malaysian Qualifications Framework (MQF), accreditation and quality assurance of TVET programmes are under the purview of two agencies, namely MQA and DSD. The existence of two different accrediting bodies for TVET programmes has led to confusion and concerns about the varying quality of the programmes. Furthermore, the mobility of TVET graduates for continuation of study between institutions under different accrediting agencies is limited. Additionally, lack of industry input in curriculum design has resulted in the mismatch of skills required by industry and the skills attained by TVET graduates [5].

ii. Competency gaps among instructors

Through engagement with various stakeholders, it was highlighted that TVET instructors in public institutions are mostly lacking in skills and industry exposure. This has been attributed as one of the reasons that have hindered the effectiveness of training in meeting industrial requirements [4].

iii. Fragmented TVET delivery in Malaysia

TVET delivery is fragmented as it is offered by the government ministries and their agencies, universities, state skills development centres and privately owned institutions. There are 525

public training institutions under seven ministries which offer programmes that have been established since their establishment and may not necessarily specialise based on their niche areas. In addition, there are 813 private institutions registered with DSD and 12 state skills development centres conducting TVET programmes with varying quality and standards [4].

iv. Lack of recognition for technologists

TVET graduates and practitioners are classified as technologists but are not recognised by the Board of Engineers Malaysia (BEM) as professionals under the Registration of Engineers Act, 1967. Therefore, technologists do not have professional status and hence cannot demand higher wages and career enhancement. In addition, it was reported that there is difference in starting pay of TVET graduates from different

5. Strategies and initiatives of policy maker

5.1 Industry led curriculum

Lack of industry input in curriculum design has resulted in the mismatch of skills required by the industry and the skills attained by TVET graduates. Industries demand for work-ready TVET graduates who are competent and multi-skilled. Besides, industries are burdened by multiple requests for collaboration from the multitude of TVET institutions, and have highlighted the need for a coordinated platform for collaboration between the industry and TVET institutions. Through engagement with various stakeholders, it was highlighted that TVET instructors in public institutions are mostly lacking in industrial exposure. This has been regarded as one of the reasons that have hindered the effectiveness of training in meeting the industrial requirements (Government of Malaysia, 2015b).

To desired direction TVET, some efforts have been planned and set by the policymakers themselves (government agencies) and implemented by the implementing agencies. The Ministry's four strategies and corresponding initiatives are in line with the global strategy for TVET as recommended by UNESCO.

Industry-led TVET curriculum is key to ensuring that the quality and quantity of graduates meet industry requirements.

Strategy A: Enhancing industry-led curriculum

The Ministry's TVET providers will engage industries to facilitate the process of upgrading current programmes and making them more relevant. This includes developing better qualified trainers with appropriate industrial experience and certification. TVET curriculum will be strengthened to produce high quality TVET graduates that meet industry demand. TVET curriculum development will focus on critical and creative thinking as well as self-reliance learning among TVET students. "Problem, Project, Production" based learning modules which engage students in authentic, real world tasks intended to simulate actual workplace situations, will also be embedded in the curriculum to better prepare students for the working environment.

Initiative: Developing industry-led curriculum [3]

An industry-led curriculum design is expected to improve graduate employability and reduce the skills mismatch. Various measures need to be in place to intensify partnerships as well as facilitate closer and frequent collaboration:

- The Ministry will create a single contact point per industry to coordinate collaborations and reduce duplication of efforts and programme offerings amongst the Ministry's TVET providers;
- The Ministry's TVET providers will seek to collaborate with industry bodies such as CIDB, MMAM, MAI and MAH to align the TVET curriculum with the specific workforce requirements of each industry;
- The Ministry's TVET providers will incorporate foundational skills, transferable skills and industry-specific competencies in all industry-led TVET curriculum;
- The Ministry will shorten the process of approval for industry-led curriculum to within 3-months; and
- The Ministry's TVET providers will increase the number of partnerships under the Public Private Partnership (PPP) 10 programmes, particularly with government-linked companies (GLCs) and implementing authorities of economic corridors.

Strategy B: Creating integrated and coordinated governance structure

The Ministry will improve the governance of the TVET institutions within its purview by setting up a central coordinating taskforce to improve effectiveness and efficiency. The Ministry will also empower polytechnics and community colleges with greater autonomy to innovate as needed.

Initiative: Empowering Ministry TVET governance

The Ministry has set up an internal taskforce to oversee the performance of its providers. Through this taskforce, the Ministry's TVET providers will align their programme offerings with the national TVET demand and supply landscape. The taskforce will also facilitate greater collaboration in resource sharing, encourage income generation, and optimise the return on investment by maximising enrolment and keeping the cost per student in line with the Ministry's target [1].

Strategy C: Streamlining qualifications

The Ministry's TVET providers will align all programmes with the latest national qualification framework to ensure programme accreditation and recognition. To enhance the quality of TVET programmes, the providers will also seek international recognition from relevant bodies and institutions [1].

Strategy D: Rebranding of TVET

The Ministry's TVET providers will increase its offering of high technology and high value programmes that are associated with high salaries, and work with various stakeholders to brand TVET as an attractive career path [1].

Initiative: Establishing Polytechnic and Community Colleges Malaysia as a statutory body

The Ministry will give more autonomy to polytechnics in an effort to empower polytechnics to innovate as needed, and to reduce the day-to-day supervisory burden of the Ministry. Accordingly, efforts are underway for Polytechnic and Community Colleges Malaysia to be institutionalised as a multi-campus statutory body. This in turn will give the Ministry more bandwidth to focus on sector wide and strategic policy and regulatory work [1].

5.2 Increasing quality of teaching staff and programme delivery

To ensure quality, programmes will be delivered by teaching staff who have the right skills, competencies, and pedagogies, and are able to "deliver the skills the right way", namely:

- The Ministry will develop guidelines with regard to the minimum percentage of teaching staff who have competency certification and the minimum percentage of hands-on training and practical time in the curriculum;
- The Ministry's TVET providers will increase the number of skilled teaching staff and create programmes that continuously up skill and reskill the existing teaching force. For example, this could include introducing a compulsory industry attachment programme for staff

- working closely with industries to provide training venues for teaching staff, and recruiting staff from industry to teach;
- The Ministry's TVET providers will increase coordination with industry to provide internship and apprenticeship opportunities to students; and
- Given the limited opportunities for on-the-job training, the Ministry's TVET providers will also work with industries to set up industrial scale facilities on campus for teaching purposes.

5.3 Empowering Ministry TVET governance

The Ministry has set up an internal taskforce to oversee the performance of its providers. Through this taskforce, the Ministry's TVET providers will align their programme offerings with the national TVET demand and supply landscape. The taskforce will also facilitate greater collaboration in resource sharing, encourage income generation, and optimise the return on investment by maximising enrolment and keeping the cost per student in line with the Ministry's target [3].

5.4 Establishing Polytechnic and Community Colleges Malaysia as a statutory body

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5.5 Harmonising national TVET qualification

The Ministry will continue to work with other ministries and agencies to TVET qualification framework and standard into a single national system for TVET programme accreditation and recognition. The Ministry's TVET providers will update and align their programmes with the latest program national qualification framework to enable the accreditation and recognition of their programmes [3].

5.6 Obtaining international recognition and accreditation

There are many international bodies that give accreditation to TVET programmes. Recognition or accreditation by these bodies will improve the branding of local TVET provider, ease articulation of qualifications and global recognition for employment purposes, and enable

student mobility. The Ministry's TVET providers will therefore seek international recognition or accreditation from relevant bodies and institutions such as:

- Asia Pacific Accreditation and Certification Commission (APACC);
- Business and Technology Education Council (BTEC);
- City and Guilds;
- Sydney Accord and Dublin Accord Signatories; and
- Other international professional certification entities.

5.7 Developing high technology and high value programmes

The Ministry's TVET providers will identify programmes that require high technology and skills, and that are high in demand, but low in supply. These "high technology and high value" programmes are normally associated with high salaries, which in turn make them more attractive to students. Having a larger portfolio of such programmes would enhance the Ministry's current TVET brand [3].

5.8 Rebranding TVET

The Ministry will rebrand its TVET offerings by developing a database and showcasing success stories in order to make TVET an attractive choice for students and parents. In addition, promotional efforts will include proper career guidance, clear explanation on TVET pathways and career opportunities.

5.9 Implemented Initiatives at Institution

Many initiatives have been implemented by Polytechnic institutions and community colleges as encouraged by the Ministry of Higher Education.

Table 3: Transformation Initiatives [5]

Ministry	Implementing agency / Regulating body	Transformation focus / initiatives
Ministry of Education (previously Ministry of Higher Education)	Polytechnic	<ul style="list-style-type: none"> To be main TVET institution at the regional level Employability- at least 85% employed within 6 months after graduation To attract 50% of school leavers Focused on high income Graduate entrepreneurship program Industries engagement
	Community collages	



Figure 3: Initiative and implementation on JPPKK

6. Conclusion

The issues relating to TVET are not new in the country, they are nevertheless complex and may require more than just fundamental approach. A holistic and wide approach needs to be tackled effectively as well as in the planning process and should be put together before any strategic solution can be considered. Industry and employers involvement is crucial to provide inputs on the skill requirements of the economy. As this sector aspires to build a high-quality, world-class workforce capable of driving a high-income economy, it is of absolute importance to engage industry players on all levels, given that they are the end-users of TVET graduates, and know best the skills and knowledge they seek in potential hires. Finally, there should be a scope for active and ongoing industry engagement with their key responsibilities in ensuring the relevance of TVET education.

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Appendix



INDUSTRY & ALUMNI ENGAGEMENT @ COMMUNITY COLLEGE

NETWORK

01 INDUSTRY ON CAMPUS

02 ALUMNI ENGAGEMENT

03 ICON @CC

HUMAN CAPITAL

01 INDUSTRY PARTNERS

02 STRUCTURED OJT

03 ALUMNI JOB CREATORS

INDUSTRY & ALUMNI ENGAGEMENT @ COMMUNITY COLLEGE

NETWORK

ENTREPRENEUR COLLABORATION

GOVT AGENCIES & NGOs

ALUMNI ENGAGEMENT

HUMAN CAPITAL

ALUMNI JOB CREATORS

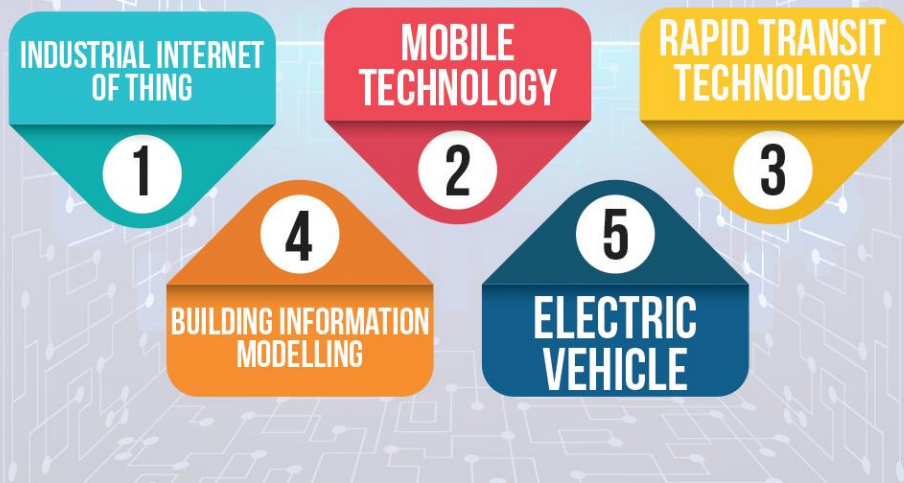
SUBJECT MATTER EXPERT

CULTURAL

ENCULTURATION PROGRAMME

STARTUP BUSINESS PROGRAMME

REDESIGNING TEACHING & LEARNING IN TVET TOWARDS INDUSTRY 4.0



THE STUDENT'S TRANSFORMATIVE JOURNEY IS AIDED BY:

