


Best Global Practices in Technical and Vocational Education and Training





Across the world there are unique vocational programs to nurture skilled workforce. These range from models of dual TVET, apprenticeship models, employer led training, TVET integration in formal education through credit systems, various PPP models and many more.



Skill development around the world is undergoing rapid transformation. Many developed countries and a few developing countries have established unique vocational programs to ensure efficient delivery of vocational education. Some best practices being followed across the globe, within the Technical and Vocational Education and Training (TVET) space, and relevant to India are discussed here.

Challenges with skill development vary with regions and their economies, and needs to be aligned with context, function and culture of the external environment. There are broadly two divisions of structure – one is the liberal market economies of English-speaking world, and the other are the countries with a long-established tradition of craft unionism. TVET is weighed higher in the countries where vocationally skilled labor gets well-paying jobs than in countries with polarized job structures. In some countries, vocational training signals competency to perform complex tasks, while in others vocational training is perceived to have low and narrow level of skills. Key themes focused by countries such as USA, Germany, Australia and UK include governance, fostering private sector partnerships, market-led models, industry relevant curriculum, outcome-focused skills qualification standards and quality assurance framework. Many developed countries and a few developing countries

have established unique vocational programs to ensure efficient delivery of vocational education.

The subsequent section underlines best practices in TVET that have been identified keeping in view current state of skill ecosystem in India, which is yet to unlock its full potential across the value chain with respect to technological advancement, optimum utilization of installed training capacity, upgradation of existing skills infrastructure, creation of quality skilled workforce, maximizing skills outreach, etc. at par with International standards.

Some of the key learnings from the global best practices include: Germany's dual training system in which part of the study is at school and part at the company (strong employer involvement) giving beneficiary hands on experience; UK's focus on trailblazer apprenticeship model wherein practical trainings are conducted at employer workplace whereas, technical training is provided by other training providers/colleges with world-class assessment and certification practices; USA's inter-twined network of employers and training providers whose operating model is to simultaneously provide training to students in Industry relevant skills while preparing them for post-secondary vocational education; Australia's credits for movement between formal and technical

education and national quality assurance framework, that provide multiple conduits to undertake a qualification either at school, workplace or training organizations; Malaysia's PPP model – Penang Skills Development Centre focused on latest technology and emerging skills; Canada's wide range of course offerings, designed to meet population and age group wise labor market needs and China's stringent performance matrix for service providers and fund distribution process among others.

In line with above, some adaptable and replicable models for India to explore can be: Identify ways to mobilize industry for 'Train and Employ' model, similar to German's dual training system, with an aim to strengthen the existing apprenticeship system in India; Explore some of the best available Australian methodologies to deliver training, Training of Trainer mechanisms, techniques for stimulating its industry for higher involvement in the dual learning, On-the-Job-Trainings

(OJT) and apprenticeship; Understand and adapt to learnings from Philippines to increase employer satisfaction and popularize technical vocational education to encourage employability in the country; Along the lines of USA, India can also understand the demand of advanced job roles in the field of emerging technologies e.g. Artificial Intelligence, Internet of Things etc. and identify ways to inculcate in its skill ecosystem.

The learnings from these models, if embedded into the skill ecosystem in India, would help the sector improve its accessibility and effectiveness to reach its potential; to create an impact on livelihood, especially of those being trained at the lower level of the pyramid; to create skilled youth ready for transnational employment opportunities and transform its policies and standards at par with global standards to ensure that the outcomes are accepted at global level. The learnings would also benefit India to enhance the capacity of government and private institutions in skill development sector to meet the current and future demand of industries and to bring in standardization which is deemed to inculcate growth in the Indian skills ecosystem.

Further, it is equally imperative to understand the downside of these models as it is to explore adaption of learnings. Some of the key challenges being faced at global level include: Change in demographic structure such as decline in vocational schools, apprenticeship opportunities leading to decrease in number of students in vocational education; Gender imbalance and lower enrollments from disadvantaged sections – indigenous people, people with disability; Misconception of recognition leading to opt for formal education over technical and vocational training; Limited knowledge of pathways from a formal and vocational education and limited focus on new-age/future ready job roles.



UNITED STATES OF AMERICA (USA)



Skilling Structure and Background

TVET in USA is commonly recognized as Career and Technical Education (CTE). It includes simultaneous training of student for the skills required in the labor market, while preparing them for post-secondary education. CTE programs are aligned to National Career Clusters and are delivered through a fragmented network i.e. high school, community or technical colleges and on-the-job-training.

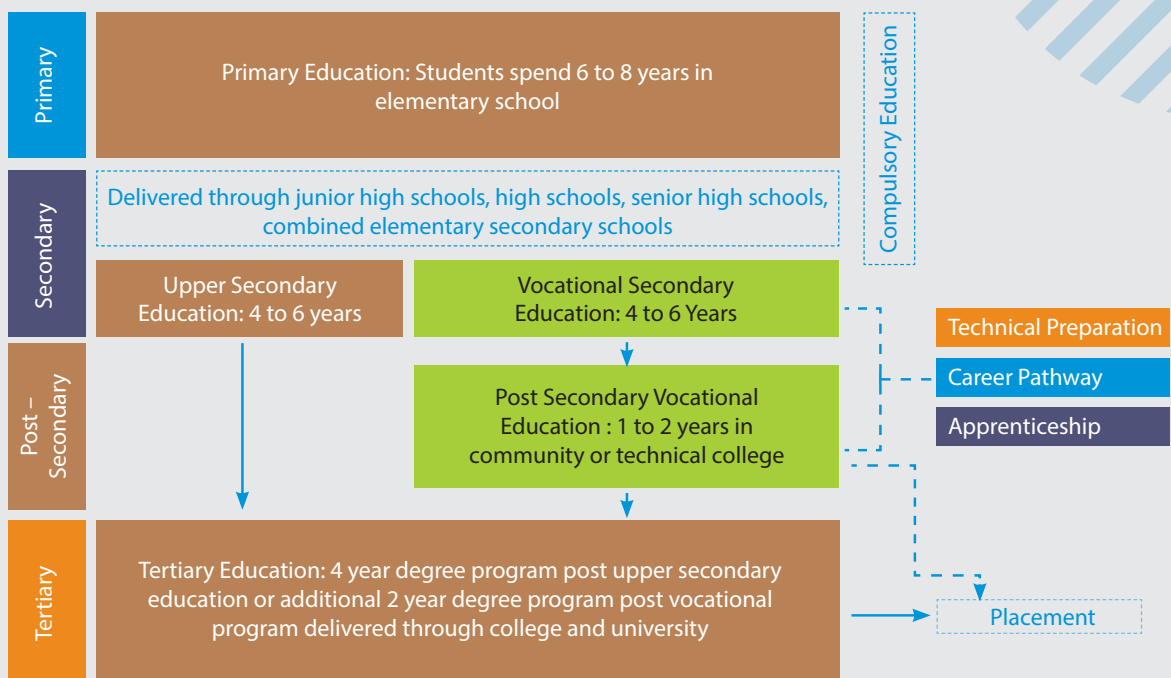
CTE's operating model is provided in figure 1. Apart from apprenticeship, two key areas linking education to employment opportunities are discussed below:

- Technical Preparation:** Tech prep is a vital school-to-work transition strategy, helping students to forge a connection between school and employment. It is a 4+2, 3+2 or 2+2 planned sequence of study in a technical field, beginning as early as the ninth year of school. The sequence extends through two

years of post-secondary occupational education or an apprenticeship program for at least two years, following secondary instruction and culminates in an associate degree or certificate. It requires articulation agreement between secondary and post-secondary consortium participants.

- Career Pathways (CPs):** This specifies the knowledge and skills that student must acquire at secondary and postsecondary levels in order to be better prepared for occupations within career clusters. CPs are adopted by the Office of Vocational and Adult Education (OVAE), USA and are defined as a coherent, articulated sequence of rigorous academic and career courses commencing in the ninth grade. CP is developed, implemented and maintained in partnership with secondary, post-secondary education and employers to support students in acquiring the academic, employability and technical skills.

Figure 1



Governance Structure

Governance of CTE in USA is decentralized. It comprises of a three-level structure wherein the federal government enacts legislations and makes funds available to the States who in turn disburses it to the local boards. The responsibility for quality assurance and policy development for education is given to each individual State who has to create legislative framework to be followed by schools and colleges within the state, together with playing a pivotal role in development of curricula, course content, course levels, certification and assessment process etc., in consultation with local boards. Additionally, they are involved in monitoring and overseeing the federal fund management.

Fund Mobility

The funding of CTE is done by all three levels of government i.e. Federal, State and local levels. Although the share of the funding from Federal government is lower than that from the State and local sources, Federal legislations and regulations have higher influence on the delivery. OVAE, a unit of the US Department of Education is responsible for implementing federal CTE legislations.

In order to receive federal funds, all States submit a plan to OVAE, detailing manner and pattern of utilization of funds and ensuring compliance to legislation requirements. The States further demand and consolidate plan from Local Educational Agencies (LEAs) for allocation of funds to schools and colleges in their respective jurisdiction, with strict adequate adherence to legislation requirements. LEAs govern community/technical colleges and high schools in their jurisdiction that utilize the funding received from federal and state sources. The community colleges also

charge tuition fee however it represents only a small proportion of total delivery cost. Post approval of the funding plan for the state, OVAE monitors and evaluates the utilization of the funds. They obtain annual reports from the state and local boards which includes details of utilization of funds and evaluation data on effectiveness of the programs that received the funds.

Current Scenario in Career and Technical Education

As per an estimate done by the state, 8¹ million out of the total 151¹ million high school students participate in a CTE course in a given year. However only 20 percent¹ of these students take up CTE courses for further studies. These estimates indicate that the number of transfer students (opting for four-year program) at community colleges are higher than the students enrolled in CTE. This has led to a situation wherein on one hand, employers are facing skill shortages and on other hand, students carry USD 1.5 trillion¹ in financial aid debt. The federal government is strengthening the legislation for involvement of stakeholders, especially the employers in delivery of CTE. Some of the current initiatives of federal government in CTE domain include investments in research, development of technology solutions, work-based learning and creation of standard national level skills policy.



¹ <https://perkins.ed.gov/pims/DataExplorer/CTEParticipant>

Select Case Study: Santa Barbara City College (SBCC)

Established in 1909, SBCC² is serving the South Coast of Santa Barbara County. The college is accredited by the Accrediting Commission for Community and Junior Colleges (ACCJC) of the Western Association of Schools and Colleges. SBCC, currently serving approximately 20,000 students who enroll in credit and noncredit courses along with an additional enrollment of 3,800 students in fee-based lifelong learning classes each semester, offers over 80 degree programs, about 50 certificate programs and various transfer programs that provide the first two years of study towards the Baccalaureate degree.

Responding to the community needs, the college's program addresses economic development, on-site workforce training, skill enhancement, job training and lifelong learning opportunities. SBCC have junior college focusing on education for high school graduates and part time students.

SBCC was awarded national co-winner for the prestigious Aspen Institute Prize for Community College Excellence for 2013–2015. The College was recognized for its quality and focus in four areas: Facilitating underrepresented and minority student success; Student learning outcomes; Degree completion and transfer rates and labor market success in securing good jobs after college.

CANADA



Skilling Structure and Background

In Canada, TVET is considered essential for all the residents to actively engage in the country's knowledge-based economy adopting a decentralized approach with every Canadian jurisdiction (province or territory) given their region-specific strategies, policies or legislations relating to TVET via education ministry. The TVET system in Canada is often referred as "skills development and adult learning" and is one of the four pillars of "Learn Canada 2020" mission. Launched in 2008, Learn Canada 2020 mission acts as a vision for learning and development adapted by the provincial and territorial ministers of education, through the Council of Ministers of Education (CMEC). Canadian TVET system includes wide array of activities such as programs offered in secondary schools, post-secondary training, apprenticeship programs, community colleges and workplace and workforce learning. The TVET programs are aligned to the needs of the

labor market for the different populations and age groups. The Canadian TVET is delivered through the following:

- **Vocational Education and Training:** Consists of a series of courses or multi-year program providing specialized training in a skill directly leading to a career. This is offered via:
 - **Secondary Schools:** Training courses are offered either alongside academic courses as part of the overall curriculum or in a separate vocational school, depending on the province. Upon graduation from these schools, students receive both high school diploma as well as industry certification. Upon completion of secondary vocational programs, the trainees have the option to either enter the workforce or opt for a post-secondary program to expand and enhance their skills or apply for an apprenticeship in their occupational area or trade.

² <http://www.sbccc.edu/>

- **Post-Secondary Level:** Canada has a formal post-secondary TVET program. Vocational Schools, Technical or Community Colleges play a pivotal role in delivery of TVET at post-secondary level. These colleges offer two-year program focused on occupational qualification instead of academic orientation as focused in a four-year course offered by regular colleges and universities.
- **Apprenticeship Programs:** These are typically two to four years long industry driven programs wherein practical training is delivered at the workplace by the employer and educational institutions provide the theoretical component
- **Workplace or On-the-Job-Trainings (OJTs):** These trainings are often developed in partnership with employers to provide learning and skills development opportunities directly at the workplace and specific to the industry needs

- Planning, implementing, and evaluating TVET policies in the region are done through consultation and partnership with organizations from other government/non-government sector and/or the private sector
- Funding TVET providers, create accreditation guidelines, rules and regulation for trainers/apprentices
- Curriculum development, assessment, Training of Trainers (ToTs) and technological innovation

Local Role: The local government plays a role in the actual delivery of the training. The local board operates within a framework of state legislation and regulations, which in turn is influenced by the federal legislation. Further, they are responsible for ensuring compliance to necessary regulations by the Training Providers or Universities maintaining their autonomy.

Governance Structure and Fund Mobility

Federal Role: Canada does not have a dedicated federal ministry of education, instead all the education initiatives are taken up by the respective 13³ jurisdictions (10 provinces and 3 territories). The Council of Ministers of Education, Canada (CMEC) is an inter-governmental body responsible for education in Canada basis of whose recommendations, the federal government invests in post-secondary education, training and literacy by providing funding/ finances to provinces and territories, research and infrastructure funding, and learners (for tuition fees in select cases).

State Role: The responsibility for quality assurance and policy development for education is given to each province who create legislative framework to be followed by schools and colleges within the state. The states undertake the following activities:

Financing

The federal, provincial and territorial and local government contribute towards financing of TVET. In all jurisdictions, every provincial and territorial government provides significant funding to the TVET, including funding of institutional providers, grants to candidates, special project funding or sponsoring cost of various programs



³ https://unevoc.unesco.org/wtldb/worldtvtdatabase_can_en.pdf

conducted via industry partnerships. Public funding for education comes either directly from the provincial or territorial government or through a mix of provincial transfers and local taxes collected either by the local government or by the boards with taxing powers. Provincial and territorial regulations, revised annually, provides the grant structure that sets the level of funding for each school board based on factors such as the number of students, special needs, infrastructure requirement and location.

Current Scenario

Canada currently has 131⁴ public and 255 private recognized institutions that offer post-secondary Vocational

Education and Training (VET) programs. An additional 35⁵ private institutions are authorized to offer specific post-secondary VET programs. Private colleges are estimated to have a combined enrollment of 1,15,000⁵ students in a given year, compared to 8,00,000⁵ students enrolled in all post-secondary programs. There has been an increased role and involvement of industry partners and employers in empowering the TVET delivery mechanisms through Project Advisory Committees. The main objective of this committee is to ensure that the VET delivered to the students is relevant to the industry requirements and delivers a job-ready workforce.

Select Case Study: The Humber Institute of Technology and Advanced Learning

Established in 1967, The Humber Institute of Technology and Advanced Learning, commonly known as Humber College is a publicly funded college in Toronto, Ontario with three main campuses - Humber North campus, Lakeshore campus, and Humber Orangeville campus.

Humber offers more than 180⁵ programs under eight departments including bachelor's degree, diploma, certificate, post-graduate certificate and apprenticeship programs, across 40 fields of study. More than 31,000⁶ candidates are enrolled under various programs at any point of time, with more than 1,800⁶ candidates under apprenticeship programs. Humber also offers over 1,400⁶ courses and 200⁶ continuing education programs spanning across 6 to 12 months, with a mix of classroom and on-the-job-training for career advancement of candidates.

Along with an emphasis on hands-on learning and practical experience, Humber emphasizes incorporation of key elements like industry linkages, wide range of credentials, pathways and applied research.

Humber College is governed by the Ministry of Training, Colleges and Universities, Provincial Government of Ontario and has an annual budget of CAD 430⁶ million. The college is funded partially by the tuition fees collected from the students along with a grant received from the Ministry of Education, Government of Ontario Province.

⁴ <https://www.oecd.org/education/a-skills-beyond-school-commentary-on-canada.pdf>

⁵ <https://humber.ca/search/full-time.html>

⁶ <https://humber.ca/about-humber/corporate-info/publications/files/humber-annual-report-consolidated-financial-statements-17-18.pdf>

UNITED KINGDOM



Skilling Structure and Background

TVET system across the United Kingdom viz. England, Scotland, Wales and Northern Ireland is similar in nature with the government and key skilling authorities, enabling an ecosystem to foster job readiness, cater to growing skill needs, encouraging social mobility and supporting overall economic development of the country. TVET system in the UK follows a decentralized approach with region-specific policies and skilling delivery structures to meet the needs of local businesses. The major pillars of UK's skill ecosystem are:

- **Demand Driven and Employer-Focused TVET System:** Employers are major contributors to skill development. They collaborate within their industry to develop standards, curriculum and skills solutions either independently or through Sector Skill Organizations and National Skill Academies together with offering support in inducting apprentices
- **Apprenticeship Program:** This follows a "dual system" model, which includes trainings at workplace of employer according to their self-defined standards. The technical/"off-the-job" training is provided by colleges or another training provider, customized to the needs of employer
- **Flexibility to Training Providers:** The delivery of TVET in UK is carried out by colleges, independent Training Providers, schools, universities and employers. The government provides significant flexibility, within a robust framework, and autonomy to meet local needs, generate commercial income from employers and leverage other sources of finance facility enhancement
- **High Quality Assurance Framework:** Qualifications and standards are developed by awarding organizations.

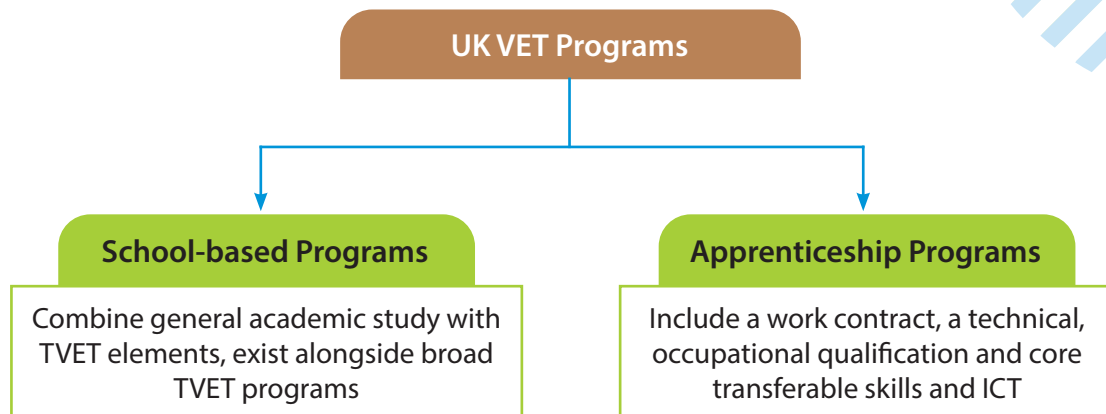
TVET delivery partners ensure that each qualification meets the national standards and are accountable to national qualification regulator such as Council for the Curriculum, Examinations & Assessment (CCEA, Northern Ireland), The Office of Qualifications and Examinations Regulation (OFQUAL, England), Qualification (Wales) and Scottish Vocational Qualifications. The Training Providers have to maintain an effective system and internal control mechanism to ensure compliance to approved qualifications and consistency in training delivery and assessment. The UK currently has 155⁷ awarding organizations approved to issue UK National Qualifications Certificates.

- **Labor Intelligence:** Labor market information is available at national and local levels for all the stakeholders to support decision making and identifying emerging trends. The UK Commission for Employment and Skills (UKCES) and the local Labor Market Intelligence System (LMIS) provide employment and skill data from core UKCES products at a local level, while Office of National Statistics provides national data annually.
- **Strong Quality Inspection Regimes:** The UK has one single quality assurance inspectorate which has powers to remove, suspend and/or terminate low quality and non-complaint Training Providers. They also have powers to award sanctions and fines for underperforming service providers.

TVET overview in the UK

TVET in the UK is available at secondary and higher education levels in the form of regular courses and specialized

⁷ <https://www.theewf.org/uploads/pdf/TVET-BROCHURE.pdf>



advanced trainings. Education or training is compulsory up to age of 16 years and for learners up to 18 years. There are broadly two VET programs in the UK.

Students holding vocational qualifications at upper secondary level may access first-cycle university programs. There is also an arrangement of non-formal trainings by employers for adults. Trade unions, employer organizations and other social partnerships are involved in providing adult education, developing learning resources and anticipating labor market needs.

Governance

The UK has a devolved system of governance that is majorly carried out at local levels within the contours of national policy and guidelines. Some of the common characteristics of governance model in UK are:

- National government is responsible for education, vocational learning and skills policy development
- Funding in England, Scotland, Northern Ireland and Wales is delegated to a funding council which determines priorities and allocation of funding
- Regional and local bodies are responsible for implementation of regulation and meeting local needs
- Approval of qualifications is responsibility of an accrediting body of each nation

- Sector Skills Organizations (SSOs) are responsible for identifying skill needs in economic sectors and for defining the occupational standards

Fund Mobility

Funding of TVET in UK is mainly done by government bodies such as National Learning and Skills, Education and Skill Funding Agency (ESFA), Scottish Further Education Funding Council (SFEFC), etc. Government funding for education and training is mostly provided from general tax revenue, and in recent time there is an immense pressure on government funding. Training Providers are promoted to look for innovative and enterprising ways of generating income and reducing costs while maintaining quality.

To increase the involvement of employers in funding and cost sharing, the Government in England has introduced a training levy on larger companies across UK which can be drawn by the government to pay for training and assessing apprentices offered by the employers. Small companies also receive a grant to cover their apprenticeship costs but still directly contact colleges and Training Providers.

Current Scenario

UK's apprenticeship system is very streamlined with it being a focal area in the government's approach on vocational

training in the UK. The main objective is to create a vocational pathway of equal value as that of the higher education, by improving the employment opportunity and earning capabilities of the individual.

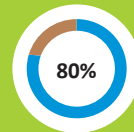
UK has a unique mode of degree/graduate apprenticeships program designed to support students propelling into the workforce and simultaneously learning the skills through customized courses offered at the university. It includes working at a full-time paid job and studying part-time at the university, allowing candidates an opportunity to obtain a complete Bachelor's or Master's degree. The program is

administered through a partnership between employers and universities or colleges by offering customized courses as per employer's requirement and delivery under a flexible teaching model such as distance learning, blended learning or block mode learning. There were over 1,6708 degree level apprenticeship programs between 2016 to 2017, including foundation degrees, higher national diplomas and honors degrees. Current reforms represent a serious attempt to develop an apprenticeship system focusing on four major strengths – delivering high quality standards, substantive and organized, transparent, and positive impact of Levy.

Select Case Study: Barnsley College⁸

Barnsley College is a large tertiary college serving Barnsley and the surrounding areas with 12 campuses. The college has three brands – Barnsley College, Barnsley Sixth Form College and University Campus Barnsley offering courses related to Further and Higher Education. Barnsley college provides over 300 full time and part time courses with over 21 major departments, which include courses for school leavers as well as apprenticeship programs. They also provide more than 80 apprenticeship programs and are currently training over 2,000 apprentices. The college has tie-up with over 1,500 employers for providing assistance in apprenticeship program, delivery of customized vocational training and development courses, recruitment services, etc. The college has more than 10,000 students and over 800 staff. The college has invested over GBP 100 million over the last five years.

Barnsley Apprenticeship Challenge⁹ was one of the successful initiatives to increase the number of apprenticeships. It was launched with the aim of 100 local companies committing to recruit or start training 100 apprenticeships in 100 days. The cost of training was kept free or at subsidized rate.



Barnsley College apprenticeship program has very high success rate of 80% compared to 69% success rate of national average.



Barnsley College also won Business and Technology Education Council (BTEC) apprenticeship award in 2017.



Barnsley College received grant of £ 30 million from Education and Skills Funding Agency (ESFA) in 2018.



Out of all apprentices, 91% students go on to take up work or higher studies.

⁸ <https://www.barnsley.ac.uk/>

⁹ <https://issuu.com/cronweb/docs/barnsley-apprenticeship-challenge>



GERMANY

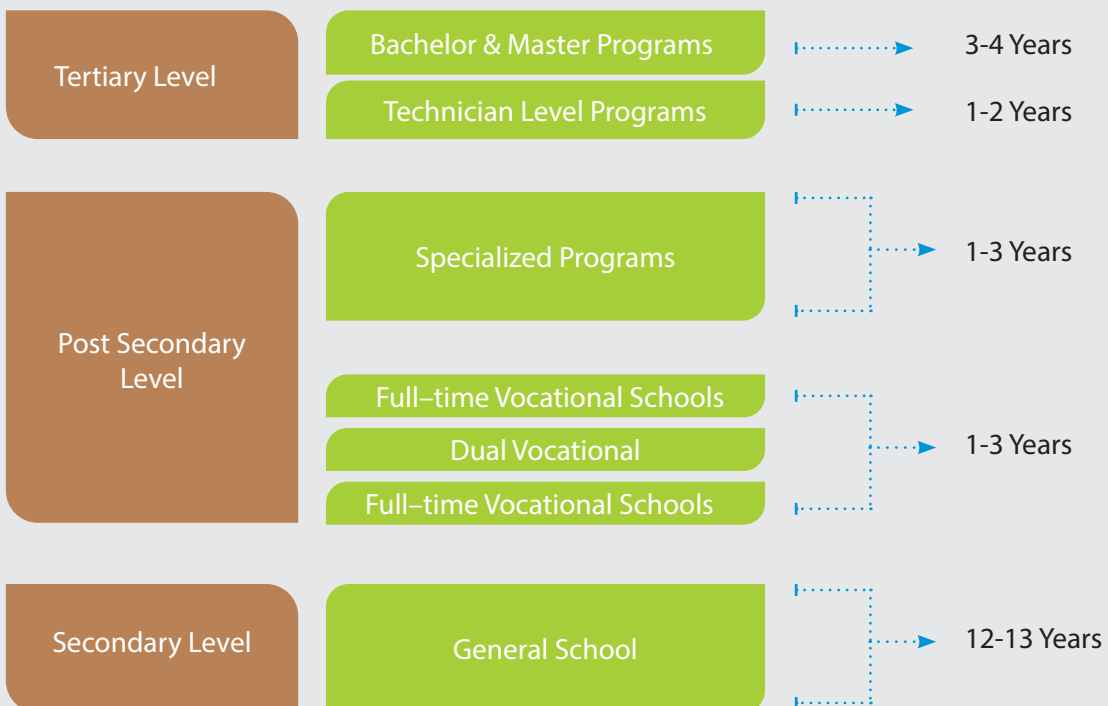
Skilling Structure and Background

With a long history of implementing TVET programs, demographic changes in recent years have led to a shortage of qualified workers nationwide. In order to overcome this challenge and to increase the supply of skilled labor, the government is focusing on establishing stronger linkages between the vocational education and training system and institutes of higher education.

In Germany, the federal government is responsible for in-company training (apprenticeship and on-the-job-training), while the states are responsible for the school-based part of vocational training. The German VET system, commonly known as 'Dual System' is firmly established in the German education system and the main characteristic is cooperation between mainly small and medium sized companies, on the one hand, and publicly funded vocational schools, on the other. The duality in the system is because training is provided in two places: companies



(practical knowledge) and vocational schools (theoretical knowledge). The social partners (employees and trade unions) have considerable influence on the content and structure of VET so as to ensure their requirements and interest are taken into account. As the vocational training in the dual system does not preclude future movement to academic education, it is a popular choice among German students, with two-thirds of students opting for it.



Initial TVET starts at the upper-secondary level when students, having completed compulsory education, may choose from the range of programs that include full-time general education and vocational schools and vocational training within the dual system. Continuing education is offered by municipal institutions, especially by adult education centers, as well as by private institutions, trade unions, various chambers of industry and commerce, political parties and associations, companies and public authorities, family education centers, academies, technical colleges, professional academies, institutions of higher education and distance learning institutions.

Governance

German TVET system is regulated by the Vocational Training Act of 1969, which defines the roles of the institutions. These are referred to as 'Competent Bodies' and play a crucial role at regional level. These include professional chambers as well as various federal and state authorities.

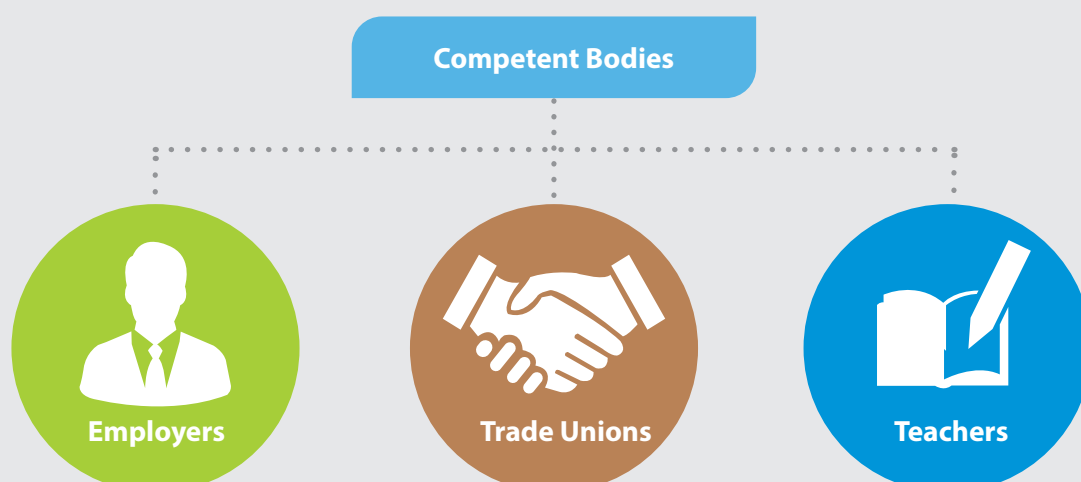
Major tasks of Competent Bodies are:

- Ensuring suitability of training centers
- Monitoring training in enterprises
- Advising enterprises, trainers and apprentices

- Establishing and maintaining lists of training contracts
- Organizing the exam system and holding final exams

Stakeholders and their Roles

- **Central Government:** The Federal Government is responsible for designing and promoting the dual training and responsible for providing financial support to students for training. It coordinates with Federal Employment Agency and undertakes measures to help students overcome economic difficulties that impede vocational qualification. The Federal Government also funds research for development of latest curriculum. Nationally, the Federal Institute for Vocational Education and Training (BIBB) is the core institution for implementation of VET.
- **State Government:** The state government is responsible for school education. State ministries of education and cultural affairs participate in standing committee to ensure a certain degree of uniformity and comparability in the school and higher education policies. Standing committee decisions are only legally bounded when it is passed by the individual state parliaments.

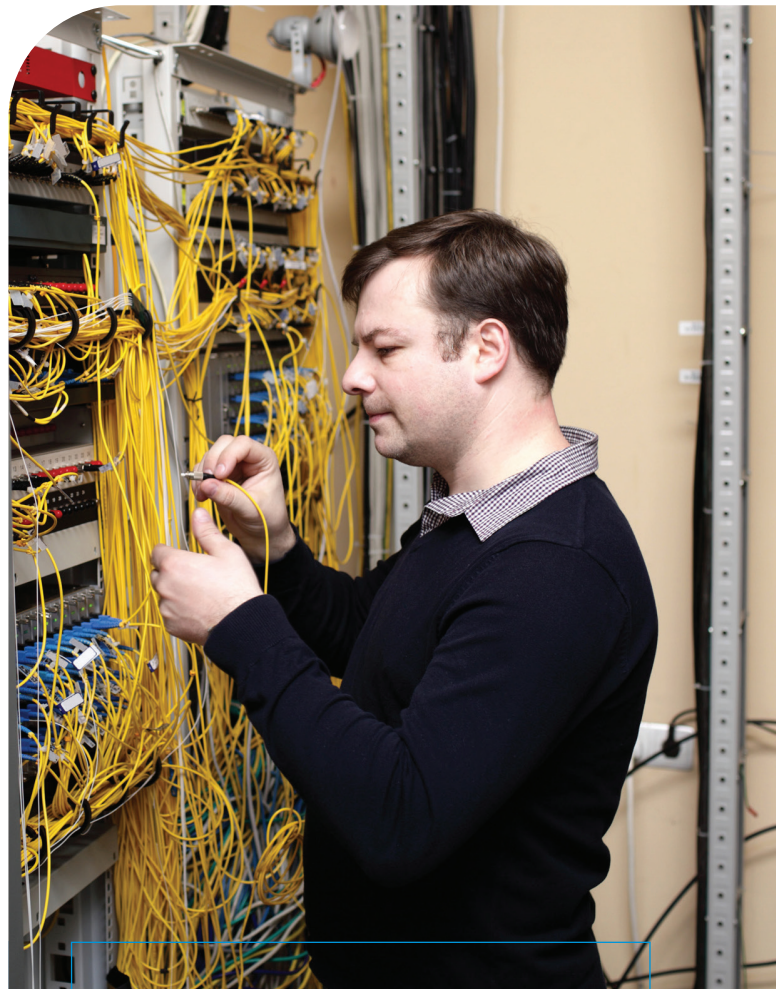


- **Industry:** Industry representatives play an important role at the national, state and regional/local, sectoral and enterprise levels. These representatives are members of BIBB and participate in vocational training committees. The members of the BIBB play an important role in curriculum design, training of trainers and selection of VET providers.
- **Continuing Education Stipendium:** Aimed for skilled employees under 25 to take part in professional vocational training. The upper ceiling of the support is €7,200, provided over a period of three years. The stipendium holder has to sponsor 10 percent of the training.

Fund Mobility

The funding mechanism of German VET includes various participants such as Federal Ministry of Education and Research (BMBF), the Federal Ministry of Economics and Technology (BMWt), the Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales, BMAS), the Federal Employment Agency (Bundesagentur für Arbeit, BA), and the States. Germany's Dual TVET system involves active participation and engagement from the employers including funding the cost of training delivery in the form of stipend or wage payment. Training in full-time vocational schools is solely sponsored from the state budget, however the out-of-school section of vocational training is funded entirely by the employers, who also pay training allowance to their trainees. Continuing TVET is financed by enterprises, the state, the Federal Employment Agency and private individuals. There are other financial support for adult learners from government such as:

- **Education vouchers:** Issued by the Labour Agency to cover 100 percent of the costs of participation, including transport, accommodation and food.
- **Bonus Coupons:** Finance a training for a total cost of up to 1,000 euros. This is available for people above the age of 25 and who work for 15 hours a week or more.
- **Career Enhancement Support:** Loans and grants for longer courses of at least 400 hours of instruction to cover 40 percent of the course fee and examination fee.
- **Career Development Stipendium:** Aimed at skilled workers who scored 1.9 or above in their trade



Germany's Dual TVET system involves active participation and engagement from the employers including funding the cost of training delivery in the form of stipend or wage payment.

- **WeGebAU:** It stands for “Continuing Education for the Low-skilled and Employed Older Workers in Enterprises”. The scheme is aimed at unskilled workers or those who have not been in a skilled job for at least four years, as well as employees in small and medium-sized enterprises. Under the scheme for a low low-qualified individual, the federal government sponsor 100 percent of training costs whereas in case of an older employees, it finance’s 75 percent of the training cost.

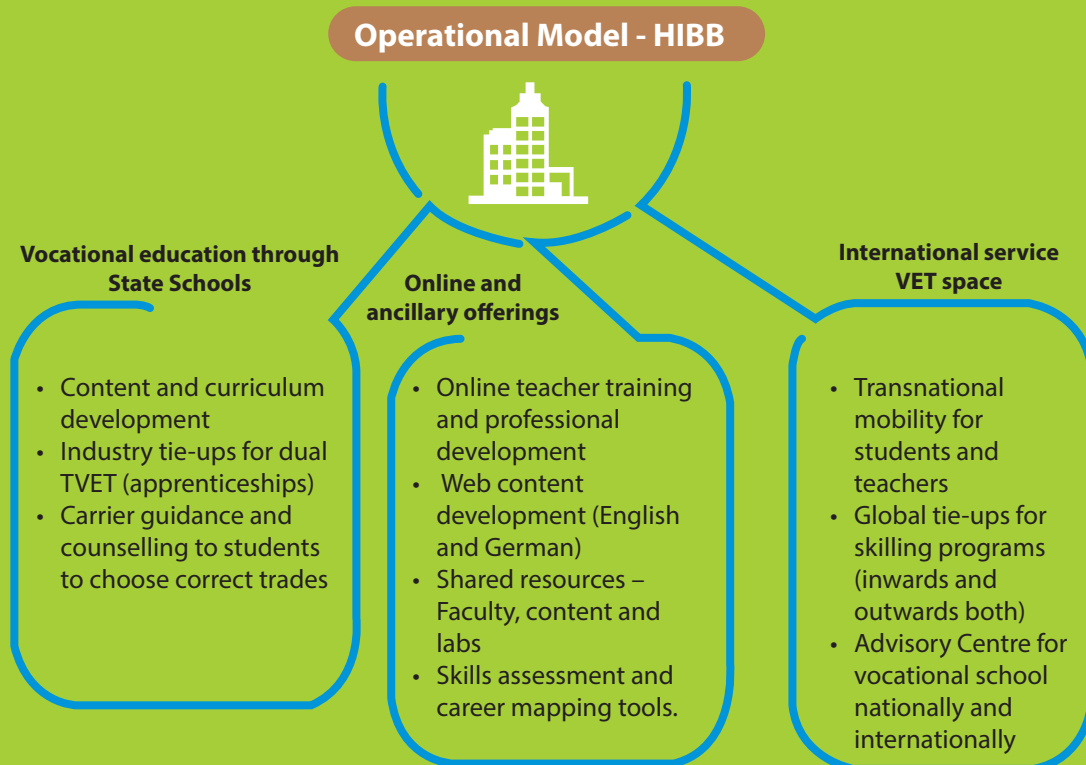


Select Case Study: Hamburg Training Model

Founded in January 2007 as an independent state owned management agency, Hamburg Institute of Vocational Education (HIBB) is governed by the Hamburg Ministry for Education and Vocational Training.

HIBB oversees the 32¹⁰ state-run vocational schools with more than 50,000¹¹ students and acts as their headquarters.

Its responsibilities include administration management, control and counselling, support and supervision of schools, the development of schools and vocational education, personnel and services as well as the staff-council public relations, strategic controlling and construction matters. Further, HIBB facilitates Quality Centered Development of the schools.



¹¹ https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1819/Quick_Guides/VocationalTraining

¹⁰ <https://www.tvet-hamburg.de/index.php/en/>

AUSTRALIA



Skilling Structure and Background

Over the past couple of decades, substantial efforts have been put in to reform VET system in Australia in order to meet the rapidly changing economic and social needs. Considerable emphasis has been laid by the federal government in order to develop the contemporary skills of the workforce, to enable Australia to better adjust to the rapid technological change and the world economy. The TVET in Australian education system starts at lower secondary level after seven years of mandatory primary education. The TVET training can be categorized into formal and informal systems of training and education.

Formal TVET Structure

- **Certificate I to IV:** These courses are normally offered after the primary education and provide introductory skills and training (basic numeracy and literacy). These courses aim to provide entry level industry specific knowledge and skills in communication ranging between six months to two years. Graduates from Certificate IV programs are able to proceed to tertiary vocational education and training programs, or academic tertiary education.
- **Diploma:** It aims to prepare students for industry, enterprise and para-professional careers. Diplomas typically require one to two years of full time study.
- **Advanced Diploma:** It provides higher level of practical skills for advanced works in areas such as accounting,

building design and engineering. Students can complete advanced diploma courses at university level. It may require one and a half to two years of full-time study.

- **Vocational Graduate Certificate/ Diploma:** The vocational graduate certificate and diploma are the equivalent of higher education graduate certificate and diploma. They provide high-level employment-related skills and knowledge. The graduate certificate usually requires six months to one year of full-time study, and the graduate diploma usually requires one to two years of full-time study.

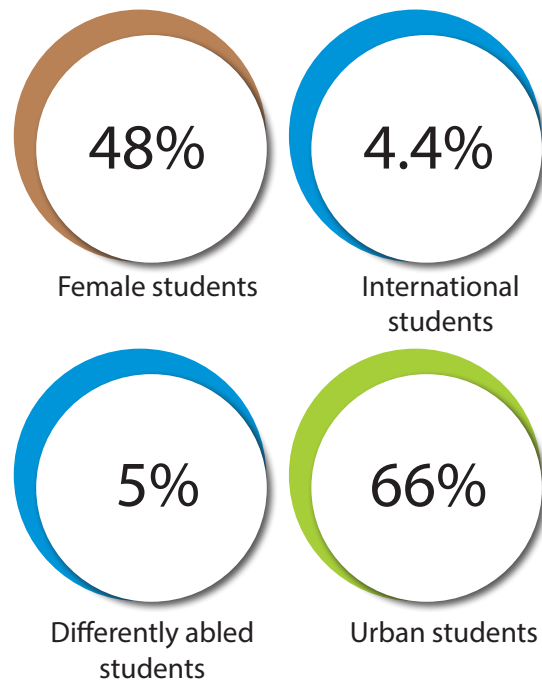
Informal TVET Structure

The Australian TVET sector is flexible with multiple pathways to and from the Australian Qualification Framework (AQF). Qualifications can be undertaken at school, in the workplace or in registered training organizations (RTOs). Informal TVET training is offered by multiple public, private, community and industry sector providers. Furthermore, it is also provided through the activities of civil society organizations or staff training and development programs for enterprises, government agencies and Training Providers. Delivery modes of training include full-time, part-time, online, self-paced or distance learning and can be extended through Apprenticeships and Recognition of Prior Learning (RPL). Individuals can apply to RTOs for assessment of their existing skills and knowledge acquired through informal channels.

Australian VET Scenario

An estimated 4.2¹¹ million students, representing almost a quarter of the Australian population between 15–64 years, are enrolled in Australian TVET programs. Highlights¹² of which is shown in figure 2:

Figure 2



VET Providers

In Australia, Training Providers must be registered under Australia Skills Quality Authority (ASQA) to receive government funding for the provision of VET courses. Currently, there are ~4,193¹² providers, 240²⁰ of who are not RTOs and are not accredited under ASQA to deliver VET services.

Governance

Strong partnerships between governments, VET institutions and industry representative bodies are driving force for implementation of VET in Australia. The Australian Government

Department of Education and Training (national department), state and territory governments are responsible for the development of VET policies.

Australia's VET system is led by a council made up of respective Australian provincial and territory ministers responsible for industry and skills. The private sector and industry play a leading role in the VET system to ensure the sector drives improvements in productivity and competitiveness across the economy. The Council of Australian Governments (COAG) and The Australian Industry and Skills Committee (AISC) provide leadership and direction for the sector.

The AISC provides advice to ensure training in each industry meets the needs of that industry's employers. In addition, a number of new SSOs have been established, supported by Industry Reference Committees (IRCs) to oversee the development of industry training packages.

Major Stakeholders

The Australian Parliament

Council of Australian Governments (COAG) Industry and Skills Council (CISC)

Australian Industry and Skills Committee (AISC)

Industry Reference Committees (IRCS)

Skills Service Organizations (SSOs)

¹² <https://www.aph.gov.au/>

Funding

The Australian Government Department of Education and Training (national department) and State Government Education Departments are the nodal bodies responsible for funding of TVET system. Along with the government funding, individual and corporates also pay for the cost of training in form of tuition fees, consultancy charges, contracting fees, etc. The value of contribution from private sector is similar to overall government spend. TVET in the formal education system is not fully sponsored by government, and students have to finance the fees from their own sources or through loans (Trade Support Loan). The decision of subsidizing a training is taken based on priority areas of skilling and its cost structures.

In recent period, a significant increase in investment from the national government

into TVET has been observed, whereas, the contribution from the state/territory governments has been decreasing. In 2015, 47 percent¹³ of operating revenue for government-funded VET came from the Australian Government, with 34 percent from state/territory governments, 11 percent from fee-for service, 5 percent from student fees and charges, and 3 percent from ancillary trading and others.

The Government also provides funding support to improve apprenticeships and traineeships through a dedicated skill funds known as Skilling Australians Fund (SAF). The funding under SAF is available between FY 2018-22, with equal contribution from states and territories. In June 2018, the Australian Government provided around AUD 187¹⁴ million from the SAF to support 50,000 additional apprentices, trainees, pre-apprentices, pre-trainees and employment related training.

Select Case Study: Technical and Further Education (TAFE) Queensland

Established in 1882, TAFE Queensland is one of the oldest vocational education providers in the country with 20 campuses across the state. TAFE currently provides over 180¹⁵ courses across 15¹⁶ study areas, ranging from entry level certificates to bachelor degrees. TAFE courses are typically more hands-on and focused on providing students with the workplace skills and training needed by employers unlike university courses which tend to have an academic focus. TAFE facilities provide students with industry-standard equipment that allows them to train outside the classroom, such as automotive workshops and training restaurants that are open to the public. TAFE courses are designed with industry needs in mind, and many offer opportunities to complete on-the-job training through work experience.

It also has dedicated programs for recognition of prior learning and transfer of credit for admission to universities in Australia and provides post-trade specialist training and courses for specialization and training license. TAFE Queensland offers training to approximately 125,000¹⁶ students with the help of 4,500¹⁶ trainers every year. About 86 percent¹⁶ of the graduates go on to work or further study.

TAFE Queensland Financial Performance¹⁶

Revenue US \$ 627 Mn

Profit US \$ 1.4 Mn

Assets US \$ 400 Mn

¹³ https://unevoc.unesco.org/wtdb/worldvetdatabase_au_en.pdf

¹⁴ <https://www.education.gov.au/skilling-australians-fund>

¹⁵ <https://international.tafeqld.edu.au/study-with-us/why-study-tafe-queensland>

¹⁶ <https://tafeqld.edu.au/assets/oneweb/PDF/about-us/annual-reports/TAFE-Queensland-Annual-Report-2017-18.pdf>

CHINA



Skilling Structure and Background

Skill development in China is generally referred to as VTE. The Chinese education system consists of six (primary) and three (lower secondary) years of compulsory general academic education. At the end of lower secondary level, students are streamed into the vocational and general academic streams for the three years of upper secondary schooling.

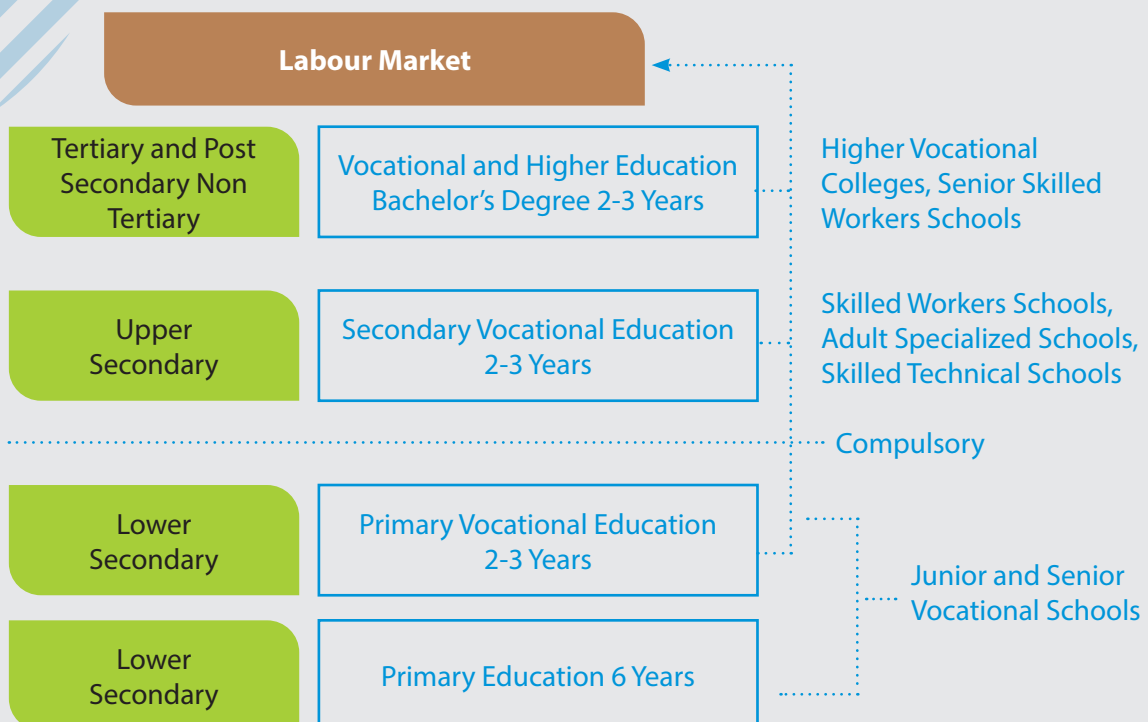
Graduates from upper secondary vocational education either seek work or advance to further education in TVET colleges at the post-secondary tertiary and non-tertiary level education. The TVET system includes vocational education at the primary, secondary and tertiary levels, delivered at Junior and Senior Vocational schools, Skilled Workers School, Skilled Technical Schools, Adult Specialized Secondary School, higher education institutes, and independent VET centres, etc. The broad structure of Chinese TVET has been captured in figure 3.

Another important characteristic of the Chinese vocational education at the secondary level is the curriculum design. One-third of the curriculum includes general academic training determined nationally by the Ministry of Education; another one-third caters to particular trades, while the remaining one-third relates to specific trades but are designed locally at the school level, in line with local enterprise needs.

In China, a great emphasis is placed on training of vocational teachers with a number of higher education institutions being set up to equip them with newer technologies and real time industry exposure, the teachers are required to undergo one month training every year in a particular industry with school authorities providing them financial support during the course of this training.

In addition, industry participation is also mandated by the 1996 Vocational Education (VE) Law, which states that enterprises should

Figure 3



provide vocational education to their staff, workers and persons to be employed. It also states that the enterprises may run, jointly or on their own, vocational schools and training institutions. It is explicitly mentioned in the Law that if any enterprise fails to conduct vocational education/training as mandated by the Law and also refuses to undertake the same on the orders of the local county government, then the enterprise should pay the requisite vocational education funds to be borne for VE in the locality.

Governance Structure

Formal VTE is governed by Ministry of Education, while Ministry of Human Resources and Social Security takes care of non-formal TVET. As per Chinese governance structure, the State Council has the prime role of coordinating TVET initiatives at various levels. The National Medium and Long Term Plan for Education Reform and Development (2010-2020) aims to establish mechanisms to encourage participation of other actors including industry, in the coordination of TVET programs.

The Ministry of Education develops and updates the TVET curriculum in collaboration with the National Industrial Committee for Vocational Education and Teaching. The Committee is founded and managed by relevant departments and industries. For TVET delivery, institutions need to be accredited by local education authorities, based on policies and regulations made by the Ministry of Education.

Fund Mobility

The State is the prime source that finances education in China. Since the Chinese economy is fiscally decentralized and school education is under the jurisdiction of the local governments, they bear the



major share of expenditure on education. For instance, ~80 percent¹⁷ of the total expenditure on vocational education was funded by the local government in 2017.

In addition, since 2009, the government has also taken an initiative to make tuition fees free of cost for upper secondary vocational school students. The government has also introduced a national scheme to provide CNY 1,500 per year as subsidy to VET students from rural areas, to cover their tuition fees and board/lodging expenses.

TVET in China is legally free as most of the funding comes from the government funds. However, new regulations have been introduced that encourage sharing of costs and benefits with the private sector.

Current Scenario

The Chinese Government spent approximately 15 percent¹⁸ of its GDP on education in 2015. The expenditure on secondary and post-secondary vocational education as compared to the total government expenditure works out to be approximately 10 percent.¹⁹ In terms of the capacity created across the TVET delivery network, there are over 11,000¹⁹ upper secondary vocational education schools and around 1,500¹⁹ higher vocational

¹⁷ China Statistical Yearbook 2017

¹⁸ <https://unevoc.unesco.org/go.php?q=World+TVET+Database&ct=CHN>

¹⁹ <http://www.worldbank.org/en/news/feature/2013/05/06/china-improving-technical-and-vocational-education>

colleges at tertiary level, as reported in 2015. Annually, 19.4¹⁹ million students are trained under the government subsidized training programs. Every year, it has been estimated that around 10¹⁹ million students enroll into technical and vocational schools, out of which 60 percent²⁰ of the students register in one of the top four specialties- information technology, processing and manufacturing, agriculture and fishery, and finance and trade. Over 22²⁰ million students

are part of secondary VTE and almost 10²⁰ million are in post-secondary VTE.

The Chinese Government has established vocational institutes near industrial hubs and train residential youth to meet work force demands. For example, proportion of students in tertiary education who enrolled in vocational institutes is as high as 50 percent²⁰ in the provinces like Guangxi, Fujian and Sichuan, in comparison to 25 percent²¹ in Beijing.

Select Case Study: Guiyang Vocational and Technical College²¹

Guiyang Vocational and Technical College, founded in April 2007, is a full-time, all-round and open institute, sponsored by Guiyang Municipal People's Government. The college has three branches, Rail Transport, Phosphorus Coal Chemical Industry, and Equipment Manufacturing; two vocational education groups; and seven departments. There are around 10,000 students enrolled in the college and over 600 faculty members. They have been able to achieve a graduate employment rate of over 90 percent over the years.

Guiyang Vocational and Technical College is a public institute which is co-managed by provincial and municipal governments. The college trains advanced-level technicians on the front line of production, construction, management and services. To support students financially, the college has established a work-study system and created work-study funds, for those who want to participate during their spare time.

The college appoints full-time teachers and part-time professional teachers (industry experts), covering all kinds of disciplines in a quality-oriented manner. Part-time professional teachers account for 30 percent of the total professional teachers.

The major objective of the college is to serve the local industry by providing occupation-oriented and service-targeted programs to the future workforce. For that, the college reinforces the construction of training base by integrating vocational education into factories or enterprises. The college established School-Enterprise Cooperation with key industries in Guiyang, thus making the enterprises a training base for students. The college has also forged a cooperation relationship with some enterprises such as Guizhou Kailin (Group) Co. Ltd., Southwest Tool (Group) Co. Ltd., Guiyang Urban Rail Transit Co., Chery Automobile Co. Ltd., and has a cooperation with the Educational Institute of American Hotel & Lodging in the US and Nilai University in Malaysia for the college's cooperation development.



Established in 2007, largest service center for international students



10,000 full time students and faculty number is 613



International tie ups- Nilai University, Malaysia, Canadore college, Canada etc.

²⁰ Challenge and Innovation in China's Vocational Education and Training System

²¹ <http://www.admissions.cn/gvytc/>

PHILIPPINES



Skilling Structure and Background

The education system in the Philippines closely resonates with the American structure. While other countries generally have 12 years of basic education, Philippines's elementary education is of six years and secondary education is of four years, which together with tertiary education comprises the formal education system. The non-formal education includes education opportunities outside school premises, especially for school dropouts or adult illiterates. Functional literacy programs for non-literate and semi-literate adults, which integrate basic literacy with livelihood skills training are the biggest example of skill development initiatives in the country.

Currently, there are three education subsectors in the country – basic, higher and TVET. The basic and higher education are managed by the Department of Education and the Commission on Higher Education, respectively. Under the Technical Education and Skills Development Act of



1994, a body called Technical Education and Skills Development Authority (TESDA) was created to manage and supervise TVET in the country. It integrated the functions of National Manpower and Youth Council, Bureau of Technical Vocational Education and the apprenticeship program of the Department of Labor and Employment.

Technical Education and Skills Development Authority (TESDA)

It is a government agency tasked to manage and monitor technical education and skills development in Philippines. TESDA was mandated by a Republic Act to “provide relevant, accessible, high quality and efficient technical education and skills development in support of the development of high quality Filipino middle-level manpower, responsive to and in accordance with Philippine’s developmental goals and priorities”.

TESDA’s core business is to provide national leadership in developing a skilled workforce particularly in ensuring a sufficient provision of skilled workers and technicians at an international standard, to meet the needs of the industry. TESDA registers the TVET programs/courses offered by the institutes prior to offering. There are sets of standards, called the Training Regulations, which TESDA develops with the assistance of industry experts that serve as basis in registering the programs. The TESDA Board is the highest TVET policy-making body, composed of public and private stakeholders.

TESDA programs that support skills development include scholarship programs, trainers’ development and technical assistance to the TVET institutes, networking with partners, social marketing and advocacy.

TVET Delivery Structure

TVET in Philippines provides education and vocational trainings in order to make students ready to join the workforce and provide options to undertake upskilling programs, resulting in enhanced employability and productivity. Returning overseas, Filipinos are also provided with vocational trainings in order to join the workforce. The four broad TVET delivery modes are:

- **Centre-based:** Short term, non-formal trainings undertaken by TESDA's regional and provincial training centres, form around 5 to 6 percent²² of total TVET
- **School-based:** Formal delivery by schools, TVET programs ranging from one to three years, forms around 25 percent²³ of TVET
- **Community-based:** Customized training programs catering to specified communities and resulting in self-employment opportunities, forms around 60 percent²³ of total TVET
- **Enterprise-based:** Forming approximately 10 percent²³ of total TVET, these involve training programs such as apprenticeship, dual trainings (carried out within the industry)

Quality Assurance in Philippines's TVET

TESDA ensures highest levels of quality assurance in its TVET design as well as in delivery. Key building blocks of its quality-assured TVET system are:

- **The Philippine National Qualification Framework (PNQF):** This covers all levels of formal and vocational degrees and diplomas. PNQF defines clear and ladder pathways, both in formal as well as technical and vocational education. Philippines also has a TVET



Qualifications Framework (PTQF), with four qualification levels (National Certificate Levels I to IV). TESDA issues national certificates to persons who have attained qualifications aligned with specific skills levels as defined in the PTQF. This PTQF is in parlance to India's NSQF with levels 1 to 9

- **Training Regulations (TRs):** These are developed in consultation with industry leaders and are advocated by the TESDA Board. TRs consist of competency and training standards, and assessment and certification standards. The development of TRs takes into account four essential components of training delivery - curriculum, qualification of trainers, tools and available equipment, and training facilities
- **Unified TVET Registration and Accreditation System (UTPRAS):** Under this, all programs have to mandatorily comply with a set of standards for TVET provision. This process involves compulsory registration of programs in compliance with the standards

²² <https://www.tesda.gov.ph/uploads/file/Phil%20TVET%20system%20-%20syjuco.pdf>

²³ Increasing Public Awareness of TVET in the Philippines by UNEVOC

prescribed in TR, and competency based system and voluntary accreditation

- **Assessment and Certification (A&C) System:** This ensures compliance with A&C norms, including accreditation of assessors, development of assessment tools (assessment guides, agreements, written exams, marking, etc.) as part of training packages, qualification of TVET trainers as assessors, recognition/accreditation of National Assessment Boards across various sectors

Fund Mobility

The funding for TVET in Philippines depends on the type of training delivery provider. For private TVET institutions, the funding is majorly through fee and tuition income from students. On the other hand, training by publicly owned TVET providers are subsidized or fully sponsored by the government.

The student fees for public pre-tertiary TVET providers is between 0.5 to 5 percent of total funding, whereas the same comprises almost 70 percent among for-profit private TVET providers. The industry and corporates fund apprenticeships and short courses, as well as give allowances to dual training system students. The government also offers tax incentives to encourage enterprise participation in TESDA-accredited apprenticeships or dual trainings and an agreed waiver for enterprises to pay trainees 75 percent of the minimum wage. The budget of TESDA Technology Institutes amount to approximately PHP 2.3²³ billion annually. Additionally, in order to provide financial support to trainees, TESDA has following major schemes (all voucher operated):

- **Private Education Student Financial Assistance:** For high school graduates from poor families enrolled at

private TVET institutions with TESDA-registered programs.

- **Training for Work Scholarship:** For out-of-school youth and adults, the assistance covers full training cost and either income support for displaced workers (at half the daily minimum wage per training day), or training support for others.
- **Special Training for Employment Program:** A community-based training program that addresses the specific skill needs of the communities and promotes employment, particularly through entrepreneurial, self-employment and service-oriented activities. Assistance covers full training cost, starter toolkits and training allowance.

Current Scenario

The TVET delivery network in the country consists of over 5,000 institutions (60 percent²⁴ of which are privately owned). Public TVET providers include more than 120 TESDA Technology Institutes located nationwide. Other public TVET providers include state universities and colleges, and local colleges offering non-degree programs; Department of Education (DepEd) supervising schools, and other government agencies providing skills training programs. Of the 20,000²⁴ plus programs being offered and monitored by TESDA, over 1200²⁴ programs fall under enterprise-based programs (i.e. apprenticeship, Dual Training System and Learner-ship programs). The main advantage of the enterprise-based training, over the other training delivery modes, is that it increases the probability of the trainee being employed and TESDA has established public-private partnership with TESDA approved companies.

²⁴ <https://www.nst.com.my/education/2018/11/433155/boost-tvet>

Select Case Study: Subic Drydock Corporation – Dual Training System (DTS), Enterprise-based Program

Established in 2006, Subic Drydock Corporation is a subsidiary of the prominent US-based ship repair service provider in the Philippines. Currently, it has 300 workers with expertise in the areas of mechanical engineering, machine shop calibration and ship repair.

Subic Drydock Corporation began accommodating DTS trainees in 2013. It partnered with Bataan Peninsula State University and Don Bosco School. On an average, the company accommodates about 50 DTS trainees annually. The DTS trainees render service in the company for about three to six months. After successfully completing the training program, DTS students with high performance ratings are given job opportunities in the company. Trainees under the DTS spend at least 40 percent of the training/learning time in school and 60 percent for practical training in the company. Typically, DTS students are offered skilled positions in welding, mechanical works, piping, and administrative work. The wages are 75 percent of the current minimum wage per day of duty which is mandated by the law.

The company cited many advantages of having DTS students, like an increase in productivity, and inculcating the company culture in students from their trainee days itself.

MALAYSIA



Skilling Structure and Background

Malaysia is focused on leveraging TVET in order to meet its expanding demand for skilled workers. These aspirations are captured in the Education Ministry's Malaysia Education Blueprint (Higher Education), which forecasts an increase in demand for an additional 1.3 million TVET workforce by 2020. These would be among the 12 National Key Economic Areas that have been identified in the Malaysian Government's Economic Transformation Program²⁴ In order to emerge as a developed nation, the government aspires to create a 60 percent TVET workforce and proactively improve enrollment in TVET programs in schools from 10 percent current enrollment levels to 20 percent, in order to develop as a high income nation.

Technical and Vocation Education in Malaysia comprises post-secondary education. TVET programs are offered by over 36 polytechnic institutions, 102 community colleges and 90 vocational colleges. These public institutions are estimated to constitute over 50 percent of total TVET institutions. It is estimated that over 98,000 students enroll in the TVET programs offered by these institutions.

While total capacity is over 0.23 million, around 30 percent seats are vacant. The overall structure of the Malaysian Education system is summarized in figure 4 (page 25). As indicated, there are multiple points for facilitating movement between formal education systems and TVET systems.²⁵ While the entry qualifications for vocational and technical skill certificates is completion of secondary school, the entry qualification

²⁵ <https://www.nafsa.org/uploadedFiles/.../Vocational%20Education%20Malaysia.ppt>

Figure 4

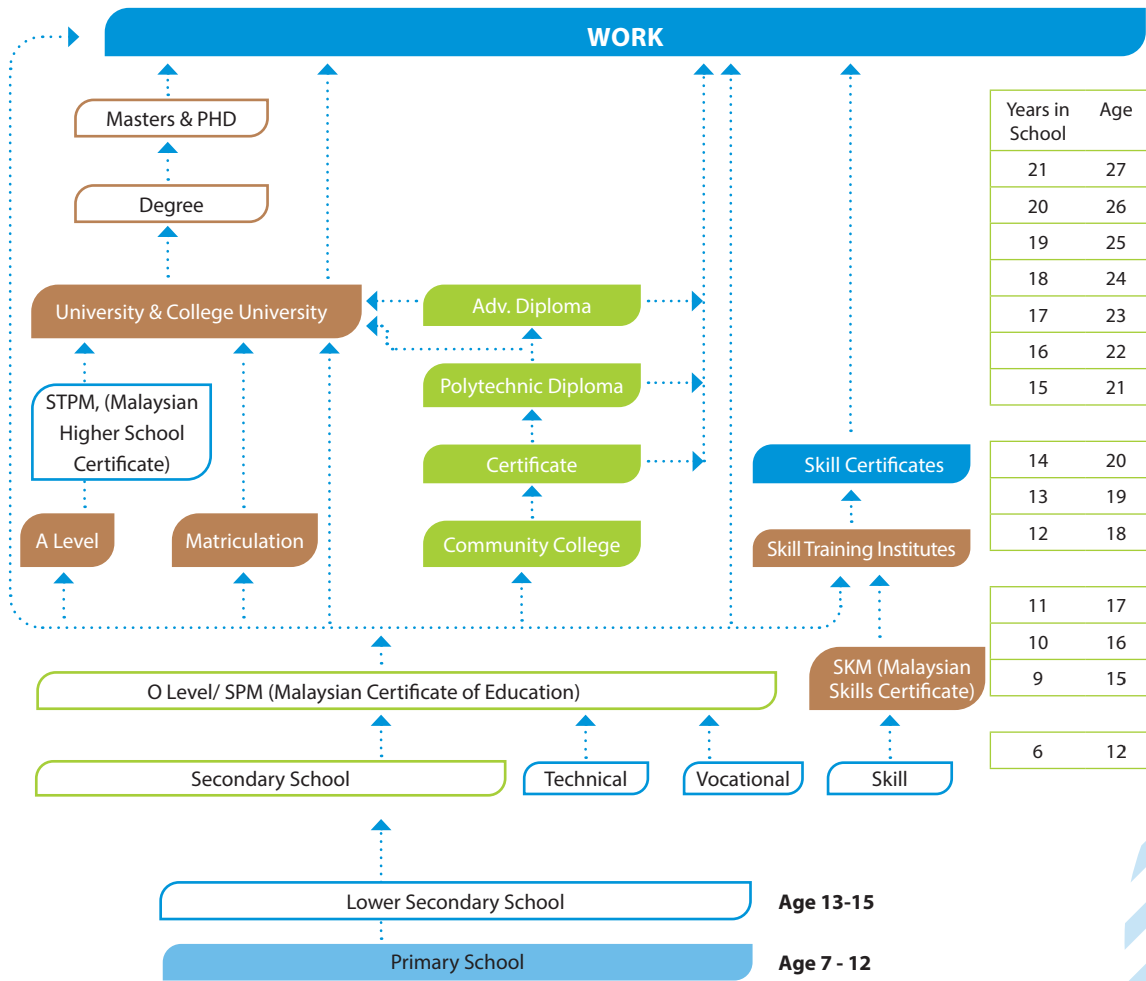
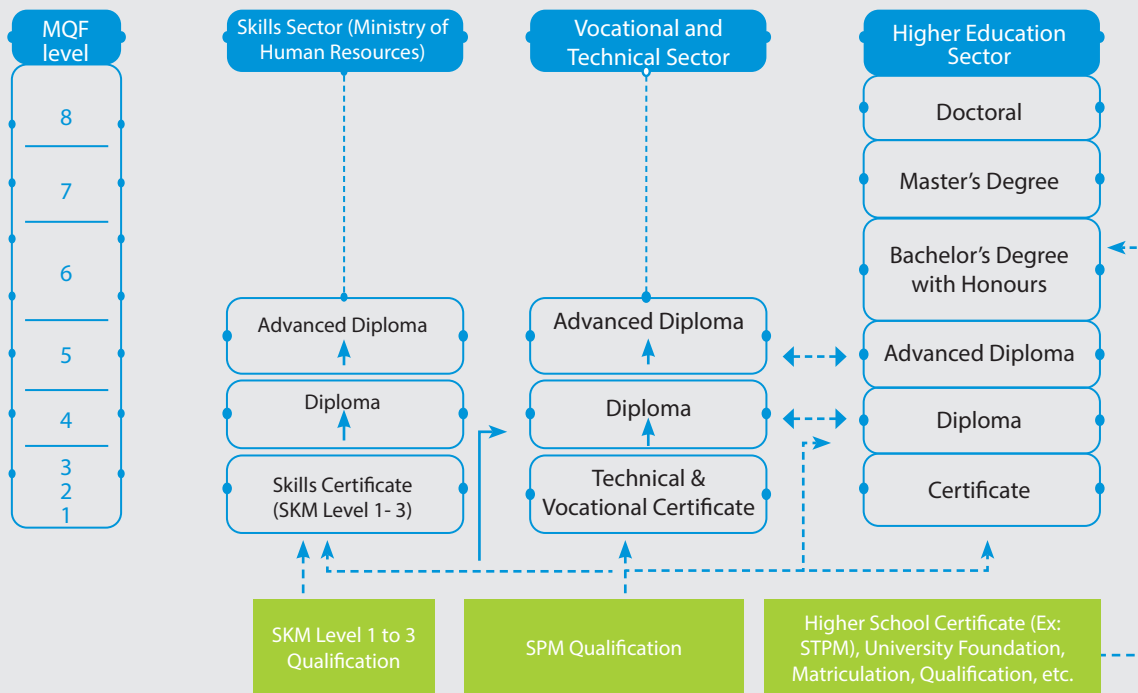


Figure 5



for a diploma is a certificate from a community college. Certificate courses could last for four semesters, with one semester devoted to industrial training. Diploma could last for at least seven semesters. The assessment methodology has sufficient weightage for hands-on-work based training, theory (classroom assessment techniques), and practical. The figure 5 depicts the Malaysian Qualification Framework level equivalency for all education levels.²⁶

Funding

In order to nurture a vibrant and competitive ecosystem for skill development and training, the Malaysian Government has assured to set aside over RM 30 million (~USD 7.26 million) funding for creation of a TVET Fund. This would help support industry oriented training programs and augment the overall skill ecosystem.

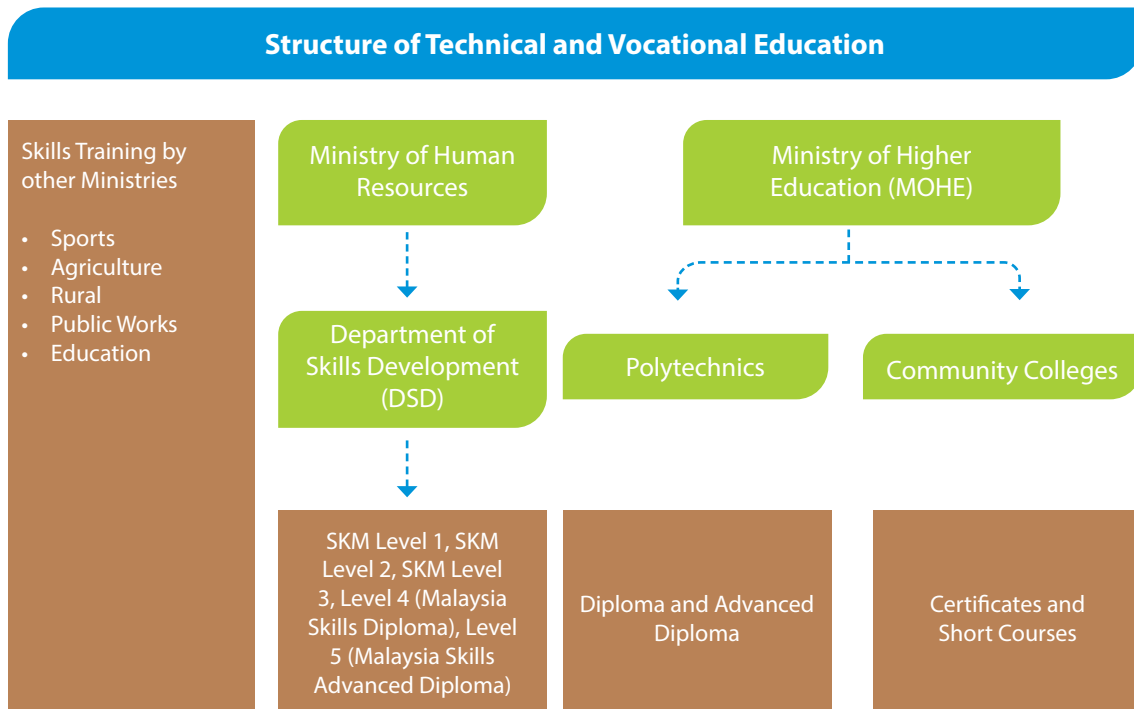
Regulators and Policies

TVET is primarily overseen by the Ministry of Higher Education, which caters to the highest number of students through its various TVET programs. TVET programs in Malaysia are offered at certificate, diploma and degree levels by six other ministries, apart from the Ministry of Higher Education and the Ministry of Human Resource Development. These include the ministries for sports, agriculture, rural, public works and education. While the Polytechnics and Community Colleges are under the purview of the Ministry of Higher Education (MOHE), Malaysia, the Skill Training Institutes are overseen by the Department for Skill Development (DSD) of the Ministry of Human Resources.²⁷

The polytechnics offer Diploma and Advanced Diploma, which involve education and training for semi-professional

²⁶ <https://www.studymalaysia.com/education/top-stories/technical-and-vocational-education-and-training-in-malaysia>

²⁷ <https://www.studymalaysia.com/education/top-stories/technical-and-vocational-education-and-training-in-malaysia>



technical, commerce and service fields. This is an alternative pathway to enter higher education for students who have dropped out of secondary school education. The Community Colleges offer certificates and short courses aimed at training and reskilling for industrial skills. These could also be considered as an alternate pathway to open opportunities in higher education for secondary school dropouts.

The Malaysian Qualifications Agency (MQA) accredits the qualifications for academic (higher education) and vocational education that are offered by the universities, polytechnics and the community colleges under the Ministry of Higher Education. The MQA benchmarks itself with the accreditation agencies in Australia, United Kingdom and New Zealand. The Department for Skill Development of the Ministry of Human Resources accredits the programs offered by the Skill Training Institutions.

TVET education is a focus area for many other ministries apart from the Ministry of Higher Education and Ministry of Human

Resources Development. The industry also plays a crucial role in promoting TVET education in the country. Some of the initiatives include:

- The Youth and Sports Ministry supports TVET through the National Youth Skills Institute's (IKBN) TVET module which is based on the Teaching Factory module from Germany
- School of Skills (SoS) has been established by the CKL Group to cater to the pressing skill needs of the local automotive industry. The courses offered include Sijil Kemahiran Malaysia in Automotive after Sales Servicing, Diploma in Automotive Technology and Advanced Diploma in Automotive Diagnostic Technology. The advanced diploma is followed by a three-month internship in the group's company. Students are also imparted training on soft skills including English communication skills, personal grooming and self-assessment. The school is also set to introduce a non-automotive program on Electronic, Plumbing and Air-conditioning (EPAC)²⁸

²⁸ <https://www.nst.com.my/education/2018/09/408470/tvet-relevant-choice>



The government also focusses on forging international collaborations to assimilate international best practices in TVET. Recently, delegations from vocational colleges have visited Chinese TVET institutions to identify best practices in the learning environment, technology and equipment applications in various

technical courses. Efforts are also being undertaken for enabling opportunities through joint and international certification training programs, to further enhance the employability of TVET graduates. These include alliances with Shenzhen Polytechnic in China and Siemens Mechatronic Systems Certification Program.

Select Case Study: Penang Skills Development Center

The Penang Skills Development Center was established in 1989 and is the first tripartite in Malaysia with strong industry linkages. The Center aspires to become the largest Centre of Excellence (CoE) for Industry 4.0. The Center has a 99 percent employability rate with over USD 19.3 million investments in development of state-of-the-art world class infrastructure. Through collaborations with over 200 member companies, the Center offers engineering programs for school dropouts. The Center has collaborations with renowned institutions in Australia, Germany and United Kingdom. The University also offers shared labs and rental services. Over 29 years of operations, the center has successfully trained over 0.2 million trainees in more than 10,000 courses.

TVET Programs: The Center offers academic programs on precision machining technology, industrial automation technology, quality assurance technology, computer engineering, electronic engineering, mechatronic engineering and German Dual Vocational Training (GDVT). The outcome could include certificates (nine months), diploma (12 months), and bachelors of engineering (four years). The GDVT could range from 12 months to 36 months.

Corporate Training: The Center offers corporate training in areas including Operational Excellence, Technical Training (on Precision Machining and Mechatronics), Industry 4.0 (leadership, Internet of Things, Augmented Reality, Autonomous Robot, etc.) applied engineering, digital technology (Excel, Autocad, LabView, etc.).

Other Services: The Center also has other revenue generating streams such as rental services (event management, training rooms, meeting rooms, computer labs, etc.) and Shared Labs (lab infrastructure services).

CONCLUSION

The report has exemplified different approaches and implementation models of TVET across the globe. In few countries, there is a focus of introducing skill development and vocational training right into formal education, while some approach it as an alternate route of secondary and higher secondary education integrating it with on the job training. Each of these

models have learnings for India. Indian TVET space is evolving from long term diploma space, to introduction of short term modular private sector led trainings, aspirational skill universities providing degree in vocational studies, increased focus on apprenticeship and integration of TVET in school education to name a few.

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About National Skill Development Corporation (NSDC): National Skill Development Corporation, working under the aegis of Ministry of Skill Development & Entrepreneurship, is a unique public-private-partnership which aims to catalyze creation of quality vocational training ecosystem in India. The organisation provides funding to build scalable and profitable vocational training initiatives. Its mandate is also to enable support system which focuses on quality assurance, information systems and train-the-trainer academies either directly or through partnerships. Since establishment in 2009, NSDC has trained more than 2 crore people through its partnership with 600+ training partners, wide a robust network of 11,000+ training centers spread over 600 districts across the country. NSDC has institutionalized 37 Sector Skill Councils and is also implementing Government's flagship skill development schemes such as Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Pradhan Mantri Kaushal Kendra (PMKK), National Apprenticeship Promotion Scheme (NAPS), among others.

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