Singapore

WORKFORCE DEVELOPMENT

SABER Multiyear Country Report
2012

Status

1. Strategic Framework

A growing emphasis on strategic leadership and cooperation is evident from Singapore's early years as a developing country in the 1960s, to today as an advanced economy with well-established, effective national systems. Key features include: workforce development as integral to national economic strategy, with advocacy from all stakeholders via tripartite agreement since the early 1970s; evaluation of economic prospects was systematized over time, underpinning a highly demand-led system based on input from stakeholders and a central advisory role for business and industry; a piecemeal structure in the 1960s was restructured to ensure a high level of coordination, cooperation, system alignment and consensus on policy goals; and regular review to meet economic demands.

2010	Advanced
1990	Advanced
1970	Established

2. System Oversight

Oversight improvements have occurred to support creation of a high quality workforce development system. Notable elements are: the systematic approach to program development formulated during the 1980s-90s, which continues to be enhanced today; efficiency is promoted through a range of measures, although the primary emphasis is on meeting economic objectives; partnership has been a core element of the system since the 1970s; major programs have been created to support workforce development although higher levels of articulation and creation of new pathways to provide broader lifelong learning opportunities are still in development; and ensuring high standards of provision and management has been a major concern since the 1980s.

2010	Advanced
1990	Established
1970	Emerging

3. Service Delivery

A focus on workforce development's relevance to national economic development has always been evident, with an increased emphasis on quality since the 1980s. Key developments include: relevance of training programs is high on the policy agenda, with strong emphasis on stakeholder input, which has formalized over time; since the late 1970s, stakeholder input has been supported by systematic planning, through mechanisms such as the national manpower planning process; industry has acted as a close partner in design and delivery of training to meet skills demands at the company and national level; standards of delivery have been developed and continuously enhanced through education reforms and legislative change, ensuring that, while provision is expanded, excellence remains a key goal of the system.

2010	Advanced
1990	Established
1970	Emerging

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Executive Summary

Skills as a driver for rapid economic development in Singapore

The Singapore economy has seen rapid economic growth since the 1970s. The workforce development (WfD) system has been able to move effectively to deliver the skills required to support economic restructuring, from primarily labor-intensive industry (1960-70s), through a more capital-intensive phase (1970s-1980s) and, since the 1990s, to a policy focus on building a knowledge-intensive and higher value-added economy. The system's effectiveness in delivering demand-led skills has been enabled by the close tripartite partnership between government, union and stakeholders, and a coordinated approach within government. The workforce development has been central to meeting the government's strategic economic plans and coping with current and future change in a highly open economy.

"The system's effectiveness in delivering demand-led skills has been enabled by the close tripartite partnership between government, union and stakeholders and a coordinated approach within government."

Methodology

The study benchmarked levels of support for workforce development in Singapore and identified measures that helped to progress workforce development within the framework of human capital development. The study piloted a new diagnostic tool (SABER-WfD) to assess Singapore's workforce development for three time periods: 1970, 1990 and 2010. This case illustrates the progressive development of a strategic workforce development system in a small city-state with a rapidly changing economy that shifted from a developing to advanced economy in just a few decades. The tool is part of the World Bank's initiative on Systems Assessment for Better Education Results (SABER), focusing on several policy domains including workforce development. Three broad functional dimensions of workforce development policies were assessed based on a wide range of primary and secondary evidence: strategic framework; system oversight; and service delivery. The findings show that Singapore has made continuous progress on all dimensions, representing a highly advanced system by 2010 but also one that continues to adapt and innovate nonetheless.

"Careful focus on growing human capital and skills to meet rapidly changing demand while also maintaining a strong focus on excellence and quality"

Key reform elements at the strategy level

Major reforms that can be seen in the Singaporean system include: development of a strong tripartite partnership (early 1970s), providing advocacy and support for workforce development policy, implementation and delivery; development of a systematic approach to gathering and using skills demand information to inform policy (late 1970s onwards); early reform of general and technical education (1970s and 1990s) followed by reform of continuing education and training for the workforce as demands and pressures changed (1980s-2000s); and a careful focus on growing human capital and skills to meet rapidly changing demand whilst also maintaining a strong focus on excellence and quality via reform. For example, reforms upgraded technical education provision (1970s and 1990s), particularly with creation of the Institute of Technical Education (ITE) in 1992. Along with major investment in infrastructure, this consolidated the existing vocational system, transforming the image of technical education from what was seen as a route for lower achievers and instead providing world-class technical and vocational education that continues to meet national skills demand and receives international recognition.

Reforms to improve the oversight of the education and training system

Systems for ensuring accountability and excellence have continued to develop over time, supporting a high quality workforce development system that spans public and private pre-employment and continuing education and training. Funding is tied closely to national economic policy goals and directions set by the manpower planning process. Early developments included: a major education review identified the need for greater attention to quality and standards (1979); school examinations were centralized and standard protocols developed (early 1970s); and further reform after the second major education review improved primary education testing and secondary level entry requirements (1991). More recent reforms include: private education standards and accreditation strengthened through establishment of the Council for Private Education (CPE) and the Private Education Act (2009); and reform of continuing education and training in the 2000s, starting with a National Skills Recognition System (1999-2004) and leading to creation of the Singapore Workforce Development Agency (WDA) and Workforce Skills Qualifications (WSQ), to support quality of provision and certification of workforce training.

Reforms to improve management of training institutions and programs

Following major education reviews (1979 and 1991), a more systematic approach was taken to the management of training institutions and programs, with further reforms in the 1990s and 2000s including: introduction of performance-based measures at institutional and individual level across public service, which includes institutions and educators (1990s); reform of the National Institute of Education (NIE) to provide high quality training and qualifications (early 1990s) and later to build a stronger pedagogical research function to inform policy and practice (from 2003); recent enhancement of qualifications and requirements for adult educators such as the Advanced Certificate in Training and Assessment (ACTA) related to Workforce Skills Qualifications (WSQ) programs. The relevance of training has always been of importance, supported by development of close partnerships between education and training institutions and industry, including: industry-government partnerships like the Joint Industry Training Scheme (1980s-1990s); and close cooperation with employers by the ITE and Polytechnics as well as the universities, including feeding through to national policy as has recently occurred in the emerging area of water technology.

Reflections on lessons from Singapore

This study highlights how a small city-state has been able to make strategic use of workforce development in order to achieve impressive economic growth and necessary restructuring over time. A number of factors have underpinned that success, including: national policy and workforce development shaped by a strong vision for where the country needed to go; a pragmatic, strategic and focused approach to workforce development; the tripartite arrangement has provided the basis for a stable workforce, facilitating attraction of major companies, initially to grow jobs and now to develop more knowledge-based work (e.g. finance, R&D), and creating consensus on the role of workforce development in achieving national policy objectives; demand-led policy and provision that is able to shift with changing economic circumstances and future plans; rapid implementation of policy is possible due to the level of consensus, which is vital to a small, open economy that is highly subject to global fluctuations; the willingness of the government (from 1960s), to learn from other countries as well from industry in order to build national systems and industrial capacity; careful review of economic conditions helped to drive the workforce development system, with manpower planning becoming a core policy mechanism (from 1979). There have been challenges also, such as balancing a strong demand-led system – that aims to ensure a good match between skills and opportunities in the labor market – with the possibility of creating wider pathways and opportunities to support equity and individual aspirations. This aspect is, however, an area that continues to be examined and new policies are emerging.

Introduction

Singapore provides an example of a small nation in which workforce development (WfD) has been a primary component of economic development from the outset. WfD has received consistent support and advocacy as a result. WfD in this context refers to preparation of the future workforce via basic through to tertiary level education, and up-skilling of the existing workforce via continuing and professional education and training, covering a broad span of activities. As will be seen in the report, the early years of nationhood saw a much greater emphasis on basic, universal education and technical skills, to support the policy of growing jobs and reducing high unemployment. Whereas, from the 1980s, changing economic circumstances meant that upgrading the skills of the existing workforce took on increased importance.

The system has progressed over time in line with the changing makeup of the economy, as well as the government's strategic policy emphasis on future manpower planning. The latter is particularly evident from the early 1980s. This meant a shift from an initially low-skills, labor intensive and low value-added economy (1960s-70s), through a more capital-intensive phase (1970s-1980s) and, since the 1990s, to an emphasis on building a knowledge-intensive and higher value-added economy. That is not to say that low skills work is no longer present, but the core policy focus is on growing the higher value-added end of the economy through investment in education and skills as part of a package of measures to promote such industries. 'Knowledge work' such as financial investment, scientific and technical R&D and education now make a significant contribution to GDP. Nevertheless, manufacturing remains vital to the economy at this stage. Notably, there is recognition that parts of the economy may decline or relocate in time. The WfD system is positioned as a vital mechanism, along with productivity, technology etc., to enable a positive transition for workers and the economy (Lee, 2012).

A New Diagnostic Tool

The tool, known as SABER-WfD, is a product of the World Bank's initiative on Systems Approach for Better Education Results (SABER), which focuses on several policy domains, including workforce development (WfD).[1] SABER-WfD aims to document and assess a country's policies and institutions in light of global good practice. It focuses on three broad Functional Dimensions of policies:

(1) ***Strategic Framework*** which refers to the praxis of advocacy, partnership, and coordination in relation to the objective of aligning WfD in critical areas to priorities for national development;
(2) ***System Oversight*** which refers to the arrangements governing funding, quality assurance and learning pathways that shape the incentives and information signals affecting the choices of individuals, employers, training providers and other stakeholders; and
(3) ***Service Delivery*** which refers to the diversity, organization and management of training provision, both state and non-state, that deliver results on the ground by enabling individuals to acquire market- and job-relevant skills. (see Figure 1).

Figure 1: Functional Dimensions of WfD Policies

Source: Tan *et al,* 2012.

From the perspective of the line ministries, typically education and labor, strategy is about sensing, influencing, and responding to the external environment for WfD; oversight is about governing the activities of all stakeholders with a direct interest in WfD activities; and delivery is about managing the activities of those responsible for training provision.

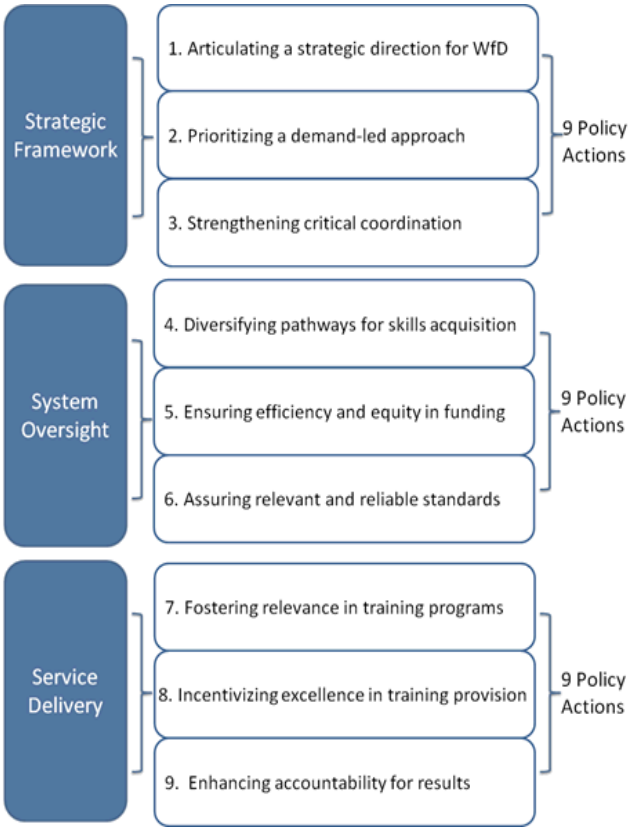
These three Dimensions constitute a closed policy-making loop and, when taken together, allow for analysis of the functioning of a WfD system as a whole. Each Functional Dimension is composed of Policy Goals (see Figure 2) spanning three broad areas: governance, finance and information. Each of the Policy Goals is in turn further defined by three tangible Policy Actions, making a total of nine Policy Goals and 27 Policy Actions.

SABER-WfD tool uses the foregoing analytical framework to create a structured data collection instrument for gathering information on a country's policies and institutions for WfD. For each of the 27 Policy Actions, the data collection instrument (DCI) poses a set of questions relating to the corresponding aspect of the WfD system. Each question is answered by choosing from a list of closed options corresponding to stages of development. The choice is substantiated either by documentary evidence or by

[1] For details on SABER see http://www.worldbank.org/education/saber

information supplied and corroborated by knowledgeable and credible informants (see Box 1). As in the other countries selected for this pilot phase, the collection of data using the SABER-WfD instrument was led by Principal Investigators (PIs)[2].

Figure 2: Analytical Framework of SABER-WfD

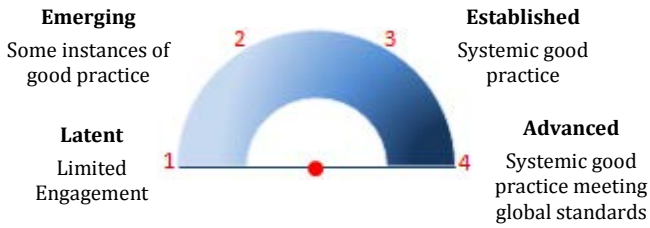


Source: Tan *et al,* 2012. See Annex 1 for more details.

Data Processing and Scoring. For each of the 27 Policy Actions, the information gathered by the PIs is scored according to standard rubrics. These rubrics correspond to four stages of maturity in policy and institutional development for WfD, as follows: (1) latent, (2) emerging, (3) established and (4) advanced. A summary description of the rubrics appears in Figure 3 while the details are explained in Annex 6.

The scores on the Policy Actions *form* the basis for scoring the nine Policy Goals. The approach involves the application of simple weights to aggregate the scores on the Policy Actions that relate to each Policy Goal, typically 1/3 for information relating to policy concepts and design and 2/3s to information relating to policy implementation. In the interest of parsimony in data collection, the SABER-WfD study accepts reviews and evaluations of policies and related follow up actions as evidence of implementation. Finally, to obtain the scores for the three Functional Dimensions considered in the SABER-WfD framework, the scores for the Policy Goals that relate to each dimension are aggregated with equal weights. This algorithm yields composite scores on a 1-4 scale for every level of aggregation in the data; naturally, the composite scores are rarely whole numbers.

Figure 3: Rubric for Benchmarking WfD



Source: Tan *et al*, 2012.

Note that in order to conform to standardized presentation of reports under the overall SABER initiative the dimension-level SABER-WfD categorical ratings shown on the cover of this report are based on the corresponding composite scores which have been converted to the relevant categories.[3] In the rest of the report, the composite scores are presented in the form of a dial, as shown above, in order to retain the detail they reflect.

Box 1: A Note on Documentary Sources

This report is based on data collected through interviews and supporting information from credible informants (see Annex 4) and a desk study drawing on over 350 documents for the years 1960-2012. These include:

- National development plans, strategy documents, legislation and parliamentary debate;
- National labor market and skills studies and international observer reports;
- Profiles of management, organization and delivery;
- Annual Reports of provider institutions and agencies;
- Existing academic analyses, archival material and national media reports.

A panel of reviewers was also invited to provide detailed comments and feedback; see Annexes 3, 4 and 5 for complete information on the sources).

[2] For Singapore, the PI was Dr Arwen Raddon who is a consultant based in Singapore and also an Honorary Associate Researcher at the Oxford Learning Institute, University of Oxford, UK..

[3] For a given composite score, X, the conversion to the categorical rating shown on the cover is based on the following rule: $1.00 \leq X \leq 1.75$ converts to "Latent"; $1.75 < X \leq 2.50$, to "Emerging;" $2.50 < X \leq 3.25$, to "Established;" and $3.25 < X \leq 4.00$, to "Advanced."

Country Context

Introduction

The Republic of Singapore is a relatively 'young' city-state. It has a parliamentary system, based originally on the British political system. The People's Action Party has led the country since 1959, when Singapore was a self-governing country within the British Commonwealth. Singapore claimed independence from Britain in 1963 and, after a short time as a state within the Federation of Malaysia, became an independent Republic on 9th August 1965.

Despite challenging early years, Singapore has since seen rapid economic and social development, shifting from a developing to advanced country in a matter of decades (Ngiam, 2011; Sung, 2006). For 2011-12, it ranks 2nd in the Global Competitiveness Index, moving up from 3rd place for 2009-2011 and 5th place in 2008-2009. GDP has grown substantially since the 1960s.

Table 1: Annual GDP at Current Market Prices, 2010

Year	S$ mil	US$ mil
1960	2,157	705
1970	5,876	1,920
1980	25,793	12,046
1990	70,391	38,836
2000	162,584	94,312
2010	310,037	227,383

Source: Singapore Department of Statistics, 2010

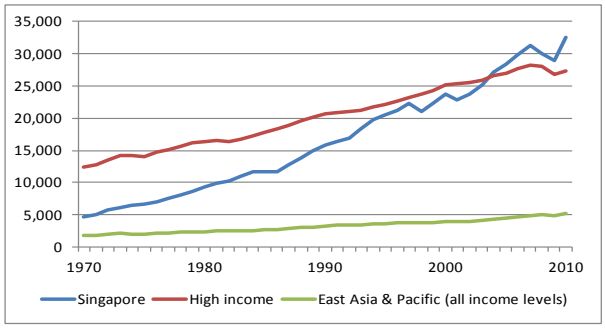
Workforce development and related policy has been integral to that progress, as part of a 'Developmental State' approach (Ashton *et al*, 1999). Namely, the government has taken a more strategic and interventionist approach through which the market is incentivized to work towards government objectives and the workforce development (WfD) system is organized in order to meet the skills needs of the market, promoting economic development. Thus a central feature of Singapore's economic development has been a close focus on the strategic alignment of economic policy and the WfD system. The result being that, when national economic policy shifted emphasis and sought to take the nation up the economic ladder, WfD policy equally sought to provide a system that would deliver the kinds of skills required both by the current economy and that planned for the future (Sung and Raddon, 2013). The following discussion provides an overview of some key economic and social indicators and the structure of the current system.

Economic Trends

Economic Restructuring. The government has taken an active role through policy and incentives to restructure the economy. Following Porter's (1990) model, in 1970, Singapore was a heavily 'Factor Driven' and labor-intensive economy (Law, 2007) with a largely low skills workforce. Having shifted through a capital-intensive economy (1970s-80s), by 1990, it had become a 'Investment-Driven', knowledge-intensive economy, classified as a Newly Industrialized Economy (NIE) and one of the 'Asian Tigers'. The government set out its goal of reaching advanced economic and developed country status by 2030 in the Strategic Economic Plan of 1991. In fact, Singapore was one of the highest income countries by the late 1990s and is now recognized as an advanced economy, some decades earlier than aimed for. Whilst not a member of the OECD, Singapore has signed up to various OECD protocols such as on fiscal agreements.

Growth. Singapore's economy is heavily linked into the global economy and international transactions, as a strategic location for production, shipping and trade. There were recessions in the mid-1980s, a brief downturn in the early 2000s following the SARS epidemic, and the financial crisis of 2008-2009. Nevertheless, the economy continues to grow and weathered the downturns well. In 2010, growth was at an exceptional high of 14.7 per cent (from the previous year's low base), although it has seen slow down since, with more modest growth levels of 2.1 per cent in 2011. Further slow down is expected in 2012 in light of problems in the Eurozone. GDP per capita is high and continues to rise, however, costs of living are also high.

Figure 4: GDP Per Capita (constant 2000 US$)

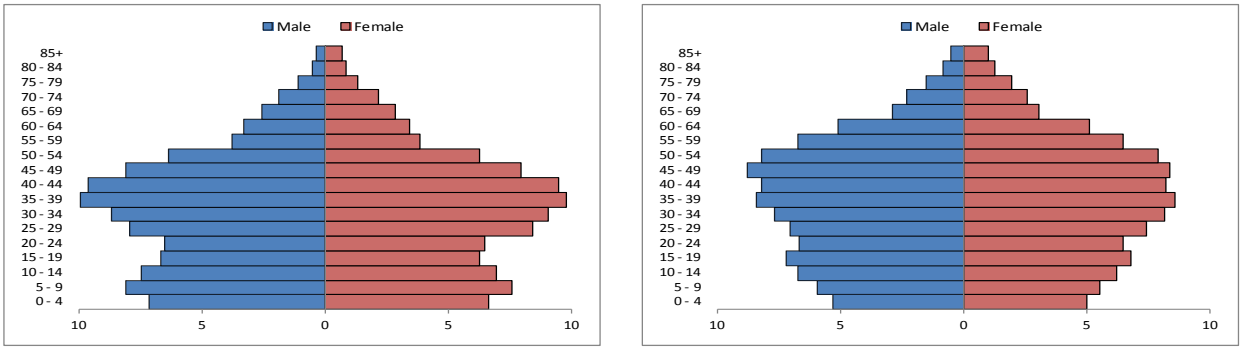


Source: WDI 2012

Productivity. Productivity has been a focus of policy on and off since the 1980s, recently re-emerging as an issue of national importance and driving new policies. A particular concern is that, whilst growth is consistently good, productivity levels are stubbornly low, despite a range of government programs over the last 30 years. The 2000s saw an average productivity growth level of 1% (Straits Times, 2011).

Demographics and Employment

Figure 5: Population Pyramid 2000 and 2010

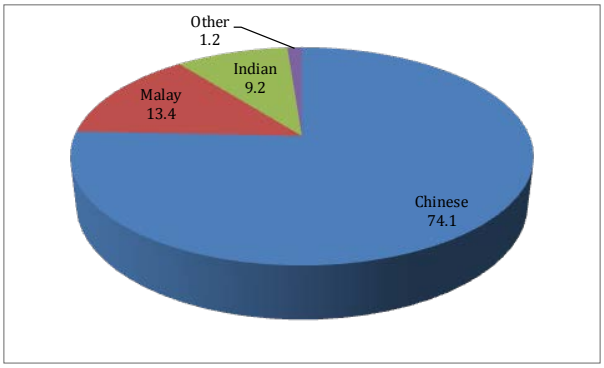


Source: Yearbook of Statistics Singapore, 2011

Population. In 2010, the population topped 5 million, including over 1.3 million non-residents. The female population has become greater than the male over time, with 974 males to every 1,000 females. Singapore has an ageing population, the median age shifting from 34 to 37.4 from 2000-2010 (Fig. 5).

Singapore's pre-independence history as an entrepôt and British colony created a diverse resident population (Fig. 6). The ethnic make up of the resident population has not altered greatly since the 1970s, with only the Indian and 'other' groups seeing a growth of 2.2% and 2.1% respectively between 1970-2010.

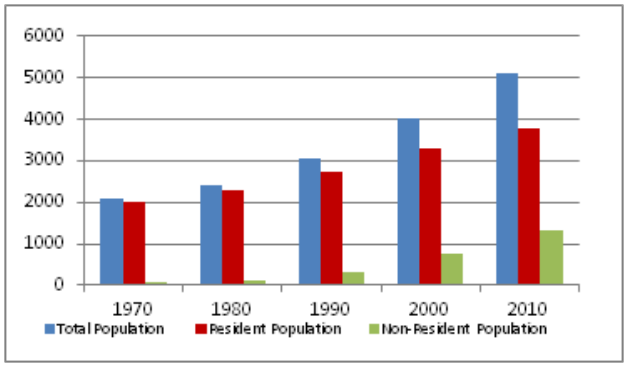
Figure 6: Ethnicity of Resident Population 2010 (%)



Source: Singapore Census, 2010

Census data does not cover non-residents, including expatriates and foreign workers without resident status. However, this population has grown significantly since the 1990s (Fig. 7). Reports indicate that 30% or more of the workforce is made up of foreign workers (resident and non-resident). This is a topic of much debate at present. On the one hand, the foreign worker population is argued to depress wages and cause social problems. On the other, it is argued that inflation will rise and some important industries will not remain in Singapore if the number of foreign workers is cut through policy measures.

Figure 7: Total Population – Resident and Non-Resident ('000) 1970-2010



Source: Singapore Census, 2010

Much of the growth in Singapore's manufacturing and low skills sectors that are less popular jobs with the resident population (e.g. food and beverage, construction, cleaning) has been supported through migrant labor. However, since productivity levels have not increased in a similar fashion over this period, if migrant labor were to be reduced radically, this may have a negative impact on growth unless productivity measures are also able to have greater impact. Community and other events have been organized by the government with the aim of improving relations and understanding between citizens, permanent residents and foreign workers.

Employment. Employment rates are fairly high amongst the working-age, resident population. In 2010, 66.2% of the population were in the workforce. Participation rates are 56.5% for females and 76.5% for males (Singapore Census, 2010). The average unemployment rate in 2010 was 2.2%. Such indicators compare favorably with other developed economies in Asia and globally. However, the retirement age is relatively low, with individuals able to draw on their Central Provident Fund (CPF) retirement funds from age 55. Retaining older workers in the economy is an important policy focus at present. The CPF is a key

socio-economic tool, representing an enforced savings scheme which helps fund individual education, housing, medical insurance and retirement. Both individuals and employers pay into the CPF. Thanks to a strong social housing scheme via the Housing & Development Board (HDB) and with the CPF, 87.2% of residents are homeowners (Statistics Singapore, 2011). Among other things, these policy mechanisms have created what is recognized as a 'stakeholder' society, with benefits for citizens, unions, industry and government.

Tripartite Cooperation: Another reflection of the 'stakeholder' emphasis is the strong tripartite cooperation underpinning economic development policy and implementation since the 1970s, including the area of WfD. The tripartite relationship has taken a central role in Singaporean policy making and society since the late 1960s-early 1970s. This includes not only a 'symbiotic partnership' between NTUC and the PAP party (Ee and Leong, 2011: 53), which is quite unique, but also a very strong advisory role for employers, creating a robust demand-led approach in WfD. In effect, union and employers are close partners with government in the development of policy and practice. All parties benefit from – and are incentivized by – the sharing of high-level information about economic performance, trends, forecasts and futures. Having such information in effect creates consensus and a common objective.

The background to cooperation lies in the early conditions of the mid-1960s, a period marked by labor and political unrest and high unemployment. The first move to tripartism came in 1965 with agreement amongst unions, employers and government on a Productivity Code of Practice and a Charter for Industrial Progress (Ee and Leong, 2011). In 1968, changes were made to the Employment Bill and amendments to the Industrial Relations Act., supported by the National Trades Union Congress (NTUC). The tripartite vision was based on cooperation in order to reduce industrial action to support the government's industrial strategy of providing an attractive location for MNCs, inward investment and thus job growth. In WfD terms, this meant creating a universal basic education system and ramping up technical education and industrial training (Chiang, 1998).

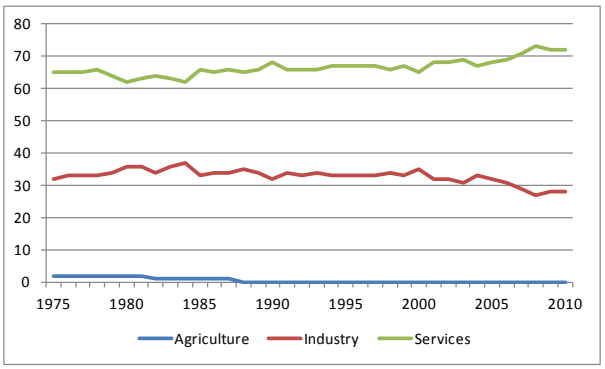
With the settling of labor-management relations (1968-70), the economy saw major growth: unemployment was falling, GDP average growth in the period was 13.7 per cent, 240 new factories provided 52,000 additional jobs (Ee and Leong, 2011). Then, by 1972, Singapore experienced rapid industrial growth and an increasingly tight labor market. The tripartite National Wage Council (NWC) was established in 1973, following NTUC recommendations, to help control wage increases (Ee and Leong, 2011). NWC still plays an important role today in guiding wage increases that are pegged against productivity and economic conditions, as well as informing economic policy and manpower planning. Notably, it was the NWC that set up the Skills Development Fund (SDF) in 1979 to encourage investment in training and skills upgrading (Lim, 1998). The tripartite agreement and ensuing industrial relations practices (such as agreement to reduce employer CPF contribution to temporarily cut labor costs in the late 1980s-early 90s) are regarded as one of the national mechanisms that Singapore has been able to use in order to emerge relatively quickly from several serious economic downturn periods (Chew, 2010) and a fundamental source of long term social and political stability (Kuruvilla, 1996).

Demand for Skills

Labor Shortages: The emergence of a tight labor market in the early 1970s also led over time to a strong reliance on importing foreign labor both at the low skills and high skills ends, initially from neighboring Malaysia and then later from China, the Philippines and India among others. The preponderance of foreign low-wage workers has been a policy concern since the 1970s. Whilst talent attraction at the high end is not regarded as a significant problem, bringing value, innovation and investment, legislative changes and tougher restrictions have been phased in since 2010 to reduce the lower skills economy.

Sectoral Restructuring. Since the 1970s, when manufacturing and industry was considered the core of the economy, there has been a significant shift towards services. By 2007, 76% of the working population were employed in the service sector, compared to 22% in industry (WDI, 2012). As an urban economy, agriculture and primary sectors are minimal. Indeed, the number of residents working in services expanded from just over 1 million to more than 1.5 million between 2000-2010 (MOM, 2011 Table 4.6). Interestingly, whilst the perception has been that manufacturing was the heart of the Singaporean economy for many decades, the *combined* industries under services have always outstripped goods production in terms of contribution to GDP (Fig. 8 and 9).

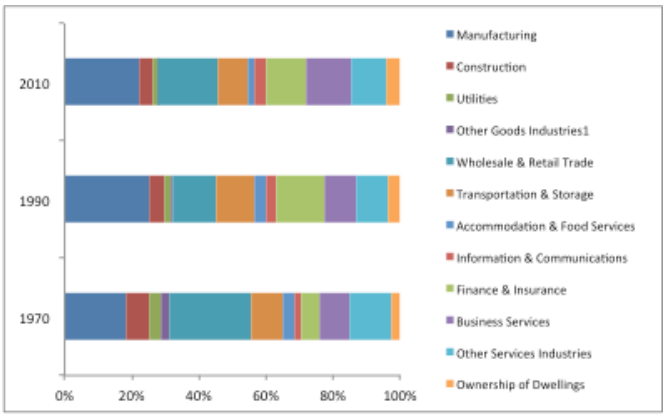
Figure 8: Sector Shares of GDP (%)



Source: WDI 2012.

As well as strong retail, hospitality and tourism sectors, this includes significant growth in finance, business services and education. Following a range of regulatory reforms and incentives in the 2000s, Singapore is now one of the world's leading financial hubs. Nevertheless, manufacturing and production remains an important element of the export economy, particularly high-tech, high-value areas such as petrochemical, electronics and precision engineering. Indeed, during the recession of 2008-2009, manufacturing was both the first industry to face major downturn and the first to see growth, making a significant dent in GDP and growth for 2009.

Figure 9: GDP by Industry (%)



Source: Singapore Department of Statistics

Supply of Skills

Education: Compulsory schooling is in place between ages 7-16. Among the adult resident population, in 2011 the literacy rate is 96.1%, the mean years of schooling 10.2, and 92.2% have at least secondary education. Increasing numbers now have post-secondary qualifications, with a noticeable shift over the 2000s (Statistics Singapore, 2011). Singapore scored highly in the 2009 OECD Program for International Student Assessment (PISA) review (OECD, 2011a)

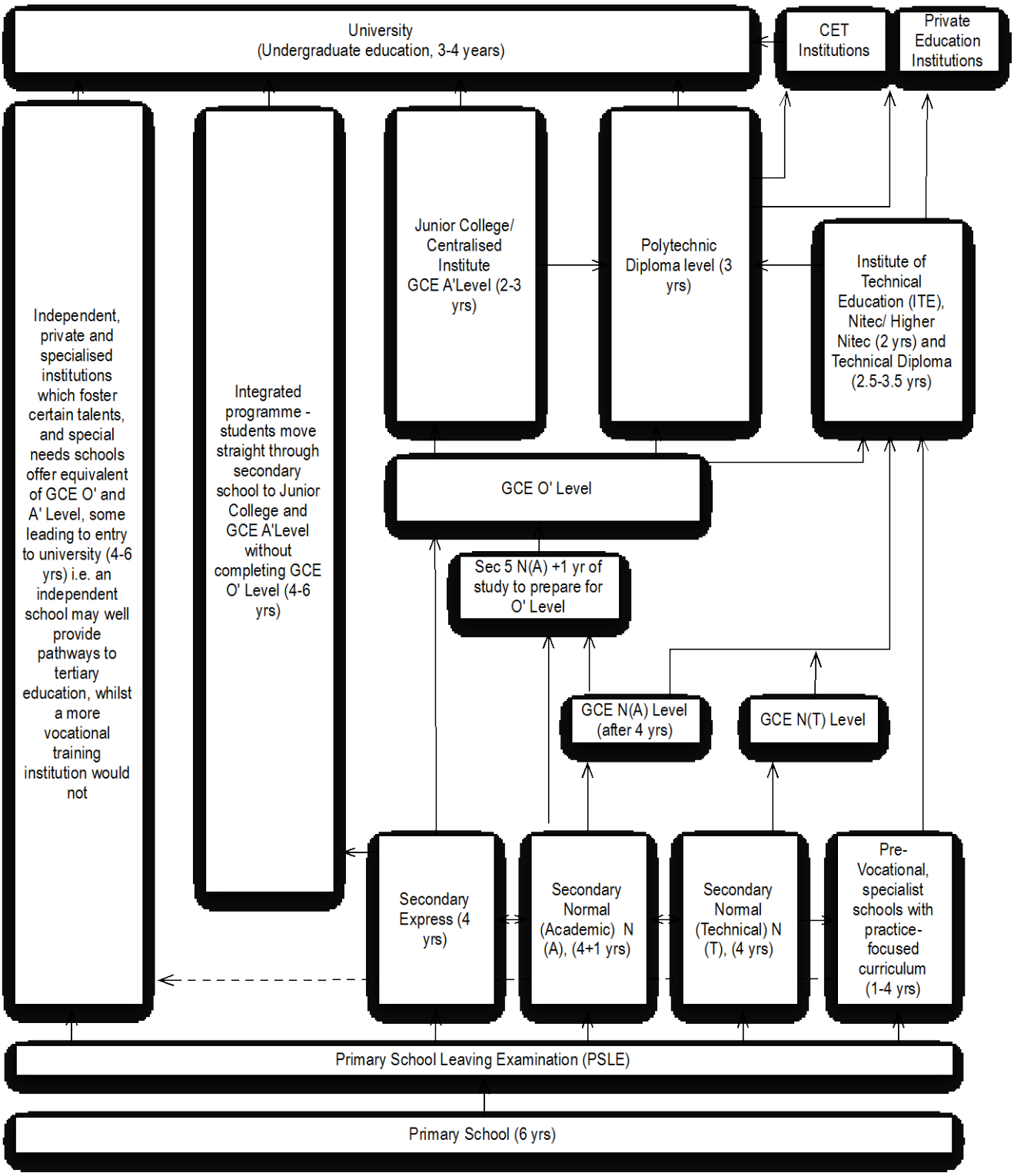
Internal Labor Mobility: The fact that Singapore is a city-state makes internal movement of labor relatively easy. From 1979-1981 a high wage increase policy under the National Wage Council (the Wage Correction Policy) aimed to reduce reliance on low value-added industry but also reduce the practice of 'job-hopping', or individuals moving jobs frequently to gain small improvements in pay and conditions (Ngiam, 2009; 2011). However, voluntary turnover remains a concern to employers and government in Singapore as in the region generally. Comparative data in the early 2000s shows rates in Singapore as the highest in Asia (Khatri et al, 2001).

WfD Provision

Institutional Structure. WfD is separated into Pre-Employment Training (PET) – covering the general and technical education system and those who have yet to enter work – and Continuing Education and Training (CET) for those in the workforce, including lifelong learning. PET falls mostly under the remit of the Ministry of Education (MOE). Vocational CET comes under the Singapore Workforce Development Agency (WDA) (since 2003) and academic CET comes under the MOE. Since 2007, MOE has also played an increasing role in the provision of CET through programs such as part-time Certificate, Diploma and Degree-level programs delivered by the institutes of higher learning. Pathways through PET and CET are quite distinct. The following diagram shows the various pathways that can be taken through the PET system. Pupils are streamed for secondary level, with Express representing the most academically inclined stream, the Normal (Academic) stream providing extra time for students to prepare for the GCE O' Level or to follow technical routes, and the Normal (Technical) is the pre-vocational route intended for those who would do better in a practical-focused education and training program.

Places are made available within the post-secondary PET system for 28% of the cohort to enter Junior College, 44% the Polytechnics, 22% the ITE. In 2010, over 97% of the Primary 1 cohort progressed on to Junior College, the Centralized Institute, ITE or Polytechnics. Following a review by the Committee on University Education Pathways Beyond 2015 (CUEP), the Cohort Participation Rate is to be raised to 40% for tertiary education by 2020, along with expansion of part-time degrees and an applied degree pathway (Lee, 2012), although there are concerns about the 'over-vocationalization' of higher education (Tan, 2012).

Figure 10: Singapore PET System



Source: Adapted from Ministry of Education, Singapore and updated through discussions

The vocational CET system sits parallel to the PET and academic CET system, with many overlaps in reality, such as Diploma level and professional training in the Polytechnics and Universities. The core of the vocational CET system is, since 2005, the Workforce Skills Qualifications framework: a national vocational qualifications system. Certification covers 'bite-size' modules, which lead to a Statement of Attainment (SOA), through to Graduate Certificate/ Diploma level.

Following targets set by the 2008 CET Masterplan, the publicly-subsidized CET system caters to around 80,000 resident workers. As well as the WSQ, a broad range of

privately-funded vocational and professional training for those in the workforce is available at all levels.

Although PET and CET have been kept quite separate under the purviews of the MOE and MOM respectively, the MOE is now looking to expand CET provision, including promoting part-time study routes and recognition of prior learning and relevant work experience for working adults. There is now an ongoing taskforce to establish linkages between academic and vocational CET tracks and greater alignment of policy, planning and provision.

It is important to note that the funded national education and training system caters for citizens and permanent residents, with some differences in subsidies for these two groups. Given the high percentage of foreign workers in the economy, this has implications for the development of the stocks of workers in the labor force. Employers are only eligible for government training subsidies and the WSQ program for foreign (including low wage) workers in special circumstances. For example, during the recession period, foreign workers in the construction industry were able to complete a specific range of WSQ Units of Assessment, although not a Certificate. Some health and safety courses also attract subsidies. Large employers are generally able to cover training costs for their foreign workers, but this may present a greater challenge for small-medium sized enterprise (SMEs). On-going debates about this topic are somewhat beyond the remit of this benchmarking exercise.

Figure 11: The Workforce Skills Qualifications (WSQ) Framework

Source: Adapted from WDA, Singapore

Governance. Legislative Acts outline the governance of PET providers as well as Statutory Bodies that are involved in delivering WfD.

Education Market. A wide range of education and training is available from public and private institutions. This covers both PET and CET, spanning from Primary through to University and professional level, with heavy public subsidies for Primary education as well as WSQ programs for citizens. The government has partnered with top overseas private providers to build Singapore as an 'Education Hub'. Legislative reforms have recently been made to ensure quality among private providers.

Financing Skills Development

WfD receives a high level of funding with contributions from government, industry, unions and individuals. Public funding is significant, with Education coming second only to Defense in the national budget. The estimated budget for FY2010 showed a budget of $11.4 million for defense and $9.6 million for education. The major element of CET is funded through two sources. Firstly, an employer levy, the Skills Development Fund (SDF) and secondly the larger Lifelong Learning Endowment Fund (LLEF), which provides a fairly protected source of public funding for CET, as will be highlighted in the report.

Issues Shaping WfD Policy For the Future

A number of challenges are shaping future WfD policy. Among these are the above-mentioned ageing population. Measures are being taken to keep older workers in the labor market and to facilitate that through skills upgrading. Another issue is the heavy dependence on foreign workers, particularly in low wage work. Restrictions have been raised on employment of foreign workers but there are also measures to ensure continued attraction of high-end talent to support the knowledge economy. However, there remains concern about the preponderance of low-skills, low-pay workers more widely in the population and evidence of growing income disparity. The Gini coefficient rose from 43.4 in 2000 to 45.2 in 2011 after adjusting for government transfers and taxes (Gog, 2012 citing Department of Statistics). Furthermore, although the average monthly household income has risen a little for the lowest 10% of workers, it has almost doubled for the highest 10%.

Table 2: Average Monthly Household Income from Work Per Household Member ($, including CPF)

Year	Lowest 10%	Highest 10%	Top 10% Over Lowest 10%
2000	315	5,801	18.4
2005	297	7,004	23.6
2011	422	10,543	25.0

Source: Gog, 2012 citing Ministry of Manpower, Report on Wages in Singapore, 2010 and Singapore Yearbook of Manpower Statistics, 2011.

Current WfD policy in CET includes a focus on upgrading the skills and job options of Singaporean workers including the Professional, Managerial and Executive (PME) group. Cohorts for different education and training pathways are expanding following a 2012 review. Two more local universities (totaling 6) will be established through expansion of Singapore Institute of Management, a private University for adult learners, and the Singapore Institute of Technology.

Summary | Benchmarking Results

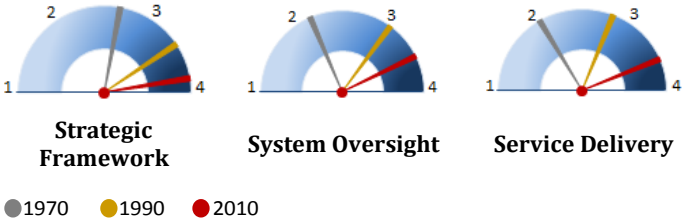
Introduction

The results from the SABER-WfD Benchmarking process highlight that Singapore made continuous progress and significant improvements in its workforce development (WfD) system from 1970 to 2010. This has created a clear and coherent system with highly a developed policy and institutional framework. It continues to be subject to review and enhancements, where needed, to respond to shifting policy challenges and economic demands.

Overview of Results

Singapore's overall scores for each of the three functional dimensions in the SABER-WfD framework appear in Figure 12. They reveal a consistent and sustained pattern of improvement between 1970, 1990 and 2010 in the country's WfD policies and institutions. By 2010, the scores put Singapore's WfD system at a high advanced level of development for strategic framework, and at an advanced level for system oversight and service delivery.

Figure 12: Benchmarking Results – Dimension Level



Note: the above composite scores are the same as the categorical ratings shown on the cover of this report. They have been converted using the rules indicated in footnote 3 on page 6.

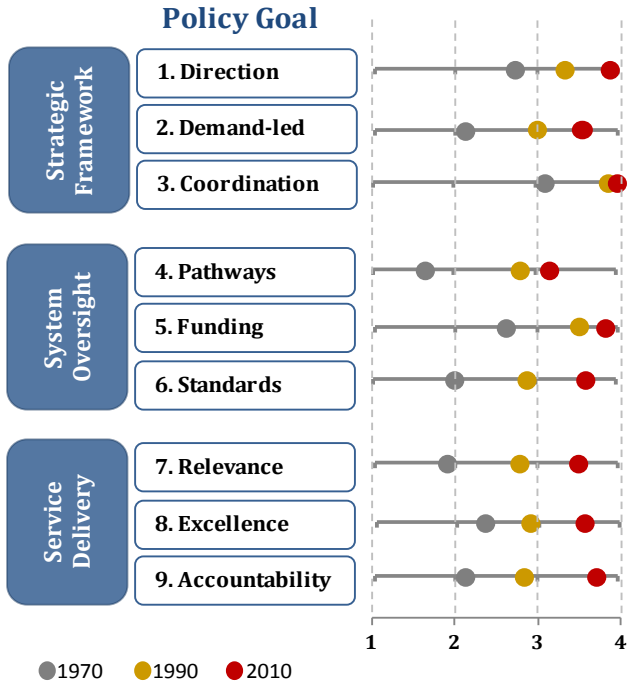
As elaborated in the introduction, the score for each functional dimension is an aggregation of the scores for the underlying Policy Goals associated with it (see Figure 13). The results show that not all aspects of policies and institutions for WfD in Singapore were equally developed in 1970 and that progress in the subsequent 40 years has been faster in some areas than others.

Landmarks in the Journey of Reform

Highlights are presented below on Singapore's experience in strengthening its WfD policies and institutions in the three broad functional dimensions considered in the SABER-WfD framework.

Strategic Framework. By 2010, Singapore's Strategic Framework for WfD is at an advanced level. A holistic approach is taken – WfD is fully integrated into national policy and economic strategy, as evidenced by its centrality in the national Economic Strategy. Indeed, WfD has been a core priority since the 1960s, developing in line with Singapore's different economic development stages as it shifted from a developing to advanced economy.

Figure 13: Singapore Benchmarking Results



Clear leadership and funding are in place to support a broad range of WfD priorities. Continuous improvements are made, with forecasting to meet future demands and opportunities, as well as rapid reaction to newly-emerging challenges. The Skills Program for Upgrading and Resilience (SPUR) is a useful example of a policy-driven activity that was rapidly put in place with tripartite backing during the economic downturn of 2008-2009. SPUR aimed to help companies retain employees during the downturn and prepare for the recovery period. It combined funding, including absentee payroll subsidies, with training and upskilling programs.

The Tripartite Alliance is fundamental to the WfD system. This is both in relation to policy development and, crucially, in enabling successful implementation. The National strategy is demand-driven and well informed, being shaped by informal, formal, occasional and systematic analyses. Economic forecasting has consistently been a core activity for government since the 1960s, with input from a range of stakeholders and sources. The high-level manpower planning process has been a particular feature of Singapore's WfD system, with specific attention to the match between demand and supply for current and future skills needs, focused on supporting national economic development and competitiveness.

Some landmark reforms and developments that brought about significant improvements in the strategic framework include:

1. A Tripartite Alliance – between unions, employers and government – which was established in the early 1970s and remains a core feature of the WfD system today in relation to WfD policy direction and development, implementation and even provision;

2. The early and continued creation of Statutory Boards have helped to create a system which is both highly structured but also benefits from an internal autonomy and flexibility. This supports a demand-driven approach, even as demands shift quite rapidly in line with economic advancement, e.g. Economic Development Board (EDB) (est. 1967), Industrial Training Board (est. 1973)/ Vocational & Industrial Training Board (1979)/ Institute of Technical Education (ITE) (1992), Singapore Workforce Development Agency (WDA) (est. 2003);

3. Pre-employment education and training (PET) (i.e. school, college, ITE, Polytechnic, University) has always benefitted from a high level of advocacy and clear lines of responsibility and leadership. Since the 2000s, CET now benefits from a further integrated approach. This helped enhance critical coordination to meet national WfD priorities through clarity of responsibility and a clear mandate for the WDA.

System Oversight. By 2010 the System Oversight dimension also reaches an Advanced level. Whilst the pathways for skills acquisition element comes out somewhat lower overall, opportunities for lifelong learning and particularly CET have nevertheless expanded over time. More diverse pathways are emerging and, moving forward, this aspect is under review. There has been significant and continued improvement in accreditation systems and standards for WfD providers in both PET and CET, helping to ensure quality of provision. In particular, the creation of the Council for Private Education (CPE) (2009) enhanced the national standards and quality assurance framework for private providers. Equally, under the WDA the national Workforce Skills Qualifications is underpinned by a robust accreditation and standards system.

To support improved practice and following a period of recession, the early 1990s saw the introduction of government efficiency measures and review of resources through performance measurement. These practices have remained in place or been enhanced over time. Across the board, effective use of resources to achieve desired outcomes remains a primary drive. Funding, performance reviews and targets (where these are used) are closely aligned to national WfD priorities.

Landmark reforms and developments that brought about significant improvements in system oversight include:

1. Major education reviews of 1979 and 1991 led to reforms in a wide range of areas, with improvements and raised standards in both general and vocational/technical education;

2. School examinations were centralized and standard protocols developed in the early 1970s. The 1991 review also led to changes to primary leavers' testing standards and entry requirements for secondary general and technical education. This helped to raise the overall standard of secondary and technical education, particularly with the establishment of the Institute of Technical Education (ITE) in 1992;

3. From 1999-2004, the National Skills Recognition System (NSRS) was developed, being replaced in 2005 by the Workforce Skills Qualifications (WSQ). WSQ supports standards-based training and certification to meet both sectoral and generic skills needs. The WSQ certifies work-related learning against industry-identified standards and competency-based assessment, covering 23 sectors in 2010 (30 sectors by 2012) and much of the economy;

4. In 2006, the National University of Singapore (NUS) and the Nanyang Technological University (NTU) were corporatized, taking on Autonomous University Status (previously being Statutory Boards). In 2009, more stringent legislative requirements and auditing were introduced for private education providers through the aforementioned CPE, being supported and enforced under the Private Education Act (2009).

Service Delivery. By 2010, WfD Service Delivery scores at an advanced level. Major improvements have been made across the board, with particular development in the outcomes element, with enhanced accountability for WfD results. Well-established structures are in place to ensure the relevance and high quality of training and of institutions. Industry makes significant input into training provision, including acting as providers, such as with the WSQ. Systems supporting recruitment and training of staff in PET have improved over time. Monitoring systems are in place to ensure credibility of training, testing and certification in PET and CET. A particular feature in the last decade has been the promotion of a diversity and quality of training providers.

Landmark reforms and developments that brought about significant improvements in WfD service delivery include:

1. The 'Singapore Education' strategy was launched in 2003 to position Singapore as a global and regional 'Education Hub'. High quality education institutions have been attracted to set up in Singapore through the Economic Development Board's Global Schoolhouse Program, leading to diversity and high quality provision. There are clear incentives and penalties in place to ensure quality and to meet WfD policy goals through partnership with private PET and CET providers;

2. The WSQ system has an in-built framework of incentives and penalties, with continuous monitoring by the WDA;

3. 1979 and 1991 education reviews led to reforms to enhance recruitment, training and performance of educators in the PET system. More recently, as part of CET reform, the Institute for Adult Learning (IAL) was created to provide capacity-building and WSQ qualifications for the training profession, as well as developing research on CET;

4. Industry's input into training provision has always been strong and has formalized over the decades. For example, ITE and Polytechnics work closely with industry on technical education, and the WSQ has industry input at its core, with involvement from the identification of training standards through to provision;

5. The structures to monitor skills demand, supply and outcomes have formalized over time, with more systematic measures coming into place from the mid-1970s. This includes a national Labor Force Survey (est. 1974) and a manpower planning council (est. 1979) that draws on a range of information to forecast future skills needs and targets for PET institutions.

Reflections on lessons from Singapore

There are many things we can learn from the development of Singapore's WfD system since the 1970s. The following reflects on just a few important aspects.

Crucial factors that helped to build Singapore's WfD system. WfD was identified as a pillar of economic development and rapid industrialization from the outset. An OECD (2011a: 159) study on PISA results notes that education in Singapore has always 'serve[d] as the engine of human capital to drive economic growth'. The leadership had a vision about where the country was going, and how WfD fit into that, creating a strong advocacy for WfD. However, it is evident that other factors were vital. Firstly, creation of a clear and coherent WfD system. The system inherited from the colonial government in the 1960s was piecemeal. There was no national system of education or examinations, standards and curriculum varied between institutions, basic education was lacking in the population and technical/vocational education was poor. Early education was based along ethnic community lines, being provided by charities and community groups, fuelling racial tensions and divisions according to the language medium of schooling (Gopinathan, 1974; Gopinathan et al, 1999). Thus one of the first WfD policies pursued by the government was basic, universal education. Alongside this was reform of the technical education system and creation in 1968 of the Technical Education Department at the MOE, a new authority to advance technical education. This required rapid investment in areas such as a basic infrastructure and crash courses to train teachers (Chiang, 1998). In other words, economic development would not have come about without the combination of a clear vision, consistent leadership and a strong practical focus on clarifying the PET system (including lines of responsibility and a mandate for action), building basic infrastructure and investing funding to implement the policy goals. The driving force behind this emphasis was that WfD needed to be aligned with economic development. For countries in the early stages of economic development, noteworthy is that CET in the 60s-70s was characterized by a series of activities and authorities, but did not constitute a distinct, strategic system. CET was regarded as important in supporting employer demand for skills and the rapid emergence of new industries, which PET can be naturally slower to respond to. However, PET was the core policy focus and where emphasis on building a system lay in the 60s-70s. From the 1980s, the CET aspect of the WfD system took on greater importance and quality and standards also emerged as a new driver for policy and practice across all areas of WfD.

A second fundamental factor is the engagement of stakeholders as a basic underpinning principle. As noted, the Tripartite Alliance was created (1970s) and made it possible for later developments to occur, underpinning the WFD system ever since. The union-government relationship in Singapore represents a rather distinctive element of Singaporean policy. This is not just the case in WfD but in all aspects of society, with a range of cooperatives providing services to support the cost of living and thus facilitate wage regulation. Furthermore, the labor-management relationship is based on building consensus, co-management of labor issues and knowledge-sharing. From the mid-1960s and particularly from the creation of National Wage Council (NWC) (est. 1972), this method of tripartism has helped to inform policy but also ensures that it can be implemented effectively by engaging all relevant partners. The partners can also be involved in delivering strategic WfD programs. Stakeholders are thus engaged from the national strategy and policy development process through to implementation and provision. For example, the

backing of unions and employers has been vital to the design, introduction and wide acceptance of the Workforce Skills Qualifications (WSQ) framework, a major development for vocational CET (from 2005).

Another important factor has been the ability of the WfD system to shift with economic growth – both actual and strategized – to reflect the resulting changes in WfD demands. The engagement of employers in the tripartite partnership has again been fundamental to development of a highly demand-led WfD system. Information is shared between the tripartite partners to identify current and future skills issues, as well as opportunities. Thus the early stages of economic development strategy (60s-70s) required a combination of industrial training for current workers (such as EDB's training for retrenched workers from the British army bases) alongside a heavy emphasis on 'front end' primary education and technical education (Chiang, 1998). The latter geared up the supply of skilled workers as well as preparing for a future move up the value chain. In PET, this resulted in a strong focus on science, math, technical subjects and the English language medium (Gopinathan et al, 1999). With rapid industrialization in the early 1970s-80s, and following the first recession in the late 80s, a more systematic approach was developed in CET. At the same time, a primary education review led to technical education being upgraded to post-secondary rather than post-primary level. There was heavy investment in the infrastructure and a transformation in the image of technical education in 1992 with the creation of the Institute of Technical Education (ITE). ITE caters for a quarter of the secondary cohort and provides important opportunities for many young people. It has been garnered with international awards in recognition of its work (ITE, 2012). Indeed, a noteworthy aspect of the WfD system is a willingness to invest substantially in vocational education and training, producing leading-edge provision and facilities at the ITE and Polytechnic level, particularly from the 1990s, and substantially raising the profile of technical and vocational education (Law, 2007).

Another important lesson is the obvious willingness and desire of the government and WfD providers to learn lessons from elsewhere. Rather than borrowing policy, Singapore has distilled fundamental policy elements and re-interpreted these to meet the government's political objectives and local socio-political context. This represents a valuable lesson for other countries looking to transfer policies for economic development. In the 1960-70s, the learning process involved working with overseas experts to review possible approaches to economic development; the most famous being the engagement of Albert Winsemius from the Netherlands. Winsemius suggested formation of the Economic Development Board (EDB), which remains a key agency in Singapore, whilst many other EDBs around the world failed. From the 70s-80s onwards, overseas study visits have commonly helped inform policy review and redesign. For example, the German apprenticeship system was studied when reforming technical education in the 1990s. In the same way, learning from industry about skills needs and capacity building has been important to WfD. When building the economy and industrial base in the early years, the government quickly recognized that the domestic industry did not have the necessary capacity and unemployment was a major social and political issue. An 'open-door policy' to learn from foreign companies, talent and technology quickly set Singapore apart from other developing countries and facilitated industrial restructuring (Pang, 1982: 5).

Challenges faced. There are of course areas in which Singapore has faced challenges or scored lower on the benchmarking tool, and from which we can also draw reflections. For example, implementation often appears to have been prioritized over regular, systematic, and public evaluation of policies or implementation, as indicated through aspects such as the effect of specific programs or funding formulae.

Policy reviews are often restricted to government access, reducing their effectiveness as a potential learning tool across stakeholders. An emphasis on internal government research also creates a rather limited ability for research institutions and independent researchers outside government to link in with policymakers and providers to review and enhance policy and practice or to forecast (Low *et al*, 1991). Interestingly, the recently established Council for Private Education (CPE) adopted a more transparent approach, making information on private education institutions publicly accessible and searchable online, including their registration periods, EduTrust award tier and any enforcement action taken. This followed the New Zealand model and helps to inform individuals who are choosing where to study but also allows higher-quality institutions to distinguish themselves.

Another challenge has been that of balancing policy goals with providing opportunity and equity, illustrating some of the limitations of manpower planning. Systematic manpower planning and a highly demand-led WfD approach have been key characteristics of the system since the late 1970s. However, it can be challenging to balance these practices with creation of opportunities for transfer across the WfD system, lifelong learning that spans beyond immediate economic needs and meeting individual demand for learning. Thus following manpower planning and economic strategy, a Cohort Participation Rate (CPR) sets the percentage of secondary school leavers to enter each stream of PET (technical and academic), to ensure a good match with

opportunities and industry demand. In tertiary education, this meant a focus on fields such as STEM and careful management of university places. There was some feeling that this strategy narrowed the range of topics that could be studied in national universities and limited individual choice (Low *et al*, 1991). There are recent calls to expand opportunities for ITE students to progress to Polytechnic and Polytechnic students to University.

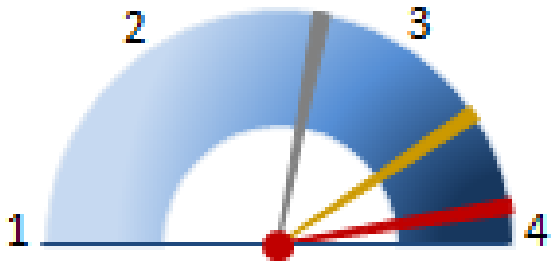
Demand for tertiary education continues to outstrip the places available in national public institutions. Those who cannot secure places can now study with private institutions that have campuses in Singapore. Young Singaporeans also opt to study overseas due to the competition for places, availability of chosen subject and opportunities for international exposure (Davies, 2011; Parliament of Singapore, 2012a), reflecting a general trend in Asia more recently (OECD, 2011b). In 2008, over 150,000 citizens studied and worked overseas (Parliament of Singapore, 2008). An Overseas Singaporean Unit in the National Population and Talent Division informs Singaporeans studying or working abroad about opportunities in Singapore (Parliament of Singapore, 2012b). There has also been gradual expansion in national higher education provision and policy to grow areas not traditionally covered within the system. Tracking shows that around 27% of the Primary 1 cohort now goes on to enter full-time publicly-funded undergraduate degrees at local universities. This is set to expand to 40% by 2020 (Lee, 2012). Applied degrees will be a particular focus, facilitated by the establishment of two more national universities (totalling six). It will be achieved through expansion of two existing institutions: 1) UniSim (est. 1992) a private university for adult learners and part of Singapore Institute of Management (est. 1964 by EDB), and 2) the Singapore Institute of Technology (est. 2009), which offers applied degrees in partnership with reputable overseas institutions. Other recent changes include a strategy to attract leading international institutions to build tertiary arts provision, including Lasalle School of the Arts and the Nanyang Academic of Fine Arts. In 2013, a new liberal arts college within the NUS, Yale-NUS college, will matriculate its first intake.

Manpower planning has generally worked well for Singapore. Given the rapidity with which change can occur in the economy, it was increasingly recognised that flexibility is required in manpower planning. For example, forecasting needs to look a long way ahead, but students going into today's system will not be geared up quickly to cope with any immediate demand, leaving potential for skills gaps that either require rapid CET provision for existing workers or to bring in foreign talent. Two areas presenting such a dilemma are medicine and law. To avoid a forecasted over-supply of medics, legislation was adopted in 1993 controlling the number of training places (Lim, 2010). However, the much-expanded medical sector now lacks sufficient supply of doctors. Foreign labor has been targeted, as well as policies to bring back Singaporeans studying overseas. According to reports, since the medical industry started expanding in 2005, around 60% of doctors hired have been foreigners (China-Asean Online, 2011). After this problem became apparent, the government expanded places at the NUS medical school, established a second Duke-NUS Graduate Medical School and now plans to form a medical school at NTU (Lim, 2010), though it will take time to fill the skills shortages. One of the important factors supporting the process is the 'uniquely integrated' way in which ministries and government agencies work together to coordinate and align policy to meet core economic objectives (OECD, 2011a: 165).

Policy failure as well as success can provide valuable lessons. One example was the Wage Correction Policy that proposed increases from 1979-81. The aim was to form part of a policy package to take Singapore's economy up the value chain, shifting from a labor- to capital-intensive focus, and reducing use of low-skills, foreign labor. Wage increases continued beyond this period and higher than recommended, along with rising CPF payments (Library of Congress, 1989). Singapore subsequently experienced recession and key government figures and independent analysts later identified this policy as a key contributor, among others that the government swiftly reversed (Ashton et al, 1999; Low, 1993; Ngiam, 2009). As noted by the Economic Review of 1986, wage increases were double productivity levels (Singapore Government, 1986). Thus the NWC reversed the wage increase, pegging increases to productivity. Despite the link between the policy and downturn, there is also recognition that willingness to be pragmatic and reverse policy rapidly aided return to growth. Another critique was the relatively late stage at which the government sought to tackle the need for education beyond the primary level (1991). Early economic growth required basic education but it became clear this hampered restructuring and placed workers at risk. The second national education review of 1991 was vital in reforming not just primary but secondary and post-secondary education and possible pathways.

Detailed Results

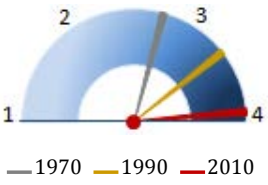
Dimension 1 | Strategic Framework[4]



Policy Goal 1	**Articulating a Strategic Direction for WfD**
Policy Goal 2	**Prioritizing a Demand-led Approach**
Policy Goal 3	**Strengthening Critical Coordination**

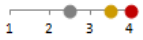
[4] The composite scores shown in the dial are the same as the categorical ratings shown on the cover of this report. They have been converted using the rules indicated in footnote 3 on page 6. The categorical ratings conform to the standard presentaion of results in the SABER intiative, while the presentation in the dials reveals more detail.

Policy Goal 1 | Articulating a Strategic Direction for WfD



The first policy goal examines the level of strategic direction within the workforce development (WfD) system across the three time periods. Overall, for 1970 this scores as Established, reaching Advanced status by 1990. This highlights a growing emphasis on strategic leadership and cooperation from the early years of a new and developing country in the 1960s, to today when Singapore is an advanced economy with the national systems to match. This Policy Goal covers: the extent to which WfD is a priority within economic development policy; evaluation of skills needs and future requirements; the alignment of skills demand and supply via policy.

▣ Advocate for WfD as priority for economic development



At the action level, this scores as **Established** for 1970 and **Advanced** for 1990 and 2010.

Overview 1970-2010: There has been concerted support and advocacy for WfD from the mid-1960s onwards, even when the system itself was still in formation. As a new nation lacking natural resources, and hastened by the announcement of an early withdrawal of British troops, in the late 1960s the government identified industrialization as the key economic development strategy. Over the decades, clear leadership and funding have been mobilized, via national economic strategy, to meet changing policy priorities and economic growth. Initially this focused on PET but, in the 1980s and particularly from the 2000s, CET has also benefitted from clear representation in the system, with creation of new government and provider bodies to meet national CET demand and policy goals. From the early 1970s, a Tripartite Alliance was formed, engaging stakeholders in policy making and creating strategic advocacy for WfD across government, employers, unions and community groups alike.

1970: There was sustained support for WfD, particularly from government, although the national systems and relations between stakeholders were in the early stages of development. WfD featured as an important strategy in early national economic development plans. Noteworthy is that, although in a formative stage, the system benefitted from a relatively stable government, the pragmatic attitude of policy makers and civil servants including educators, and the existing basic but workable WfD infrastructure. A landmark feature was the tripartite alliance that was born in this period (see Country Context and Box 2), which has underpinned the high level of advocacy for WfD as an economic priority ever since.

Box 2: Establishing Tripartism

- **1965** – Amended Productivity Code of Practice
- **1968** –Amended Employment Bill and Industrial Relations Act to facilitate employers' hiring and management of staff and to attract FDI;
- **1969** - National Trades Union Congress (NTUC) Seminar for the Modernization of the Labor Movement;
- **1972** - National Wage Council (NWC) set up as a forum for tripartite cooperation on economic and social issues. Stakeholder approach, still a key player in economic development;
- Tripartite relationship identified as key factor in rapid growth of inward investment and employment in **early 1970s**. Continues to be central to advocacy for WfD and broader policy development.

Source: Ashton et al., 1999; Ee and Leong, 2011; Tan, 2004.

As a 'factor-driven', labor-intensive economy in the late 1960s to early 1970s (Law, 2007), political leadership focused on driving up employment, improving labor relations and meeting the national industrialization strategy. There was strong advocacy for PET and a growing focus on technical education. Technical and vocational education was primarily within schools, legislated for under the general Education Act until 1973, when the Industrial Training Board was formed to represent and renew technical and vocational education and training (TVET) more broadly.

The leadership and policy framework for CET were fairly *ad hoc* and dispersed among a number of different agencies and ministries.

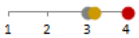
1990: By this period, there was support for WfD across government, unions and employers, building on the tripartite system. Advocacy for WfD was institutionalized and integrated, with a clear message from all stakeholders on the centrality of WfD to national socio-economic development. Top level leadership and priorities were provided through: national Economic Reviews of 1986 and 1990; the Council for Professional and Technical Education (CPTE), a national ministerial manpower planning council which drew on input from stakeholders; and the tripartite National Wage Council (NWC). After

weathering its first recession in the mid-1980s, Singapore had transitioned to a newly industrializing country (NIC), rapidly returning to growth in the 1990s. However, a result of the recession was consensus among stakeholders that the CET level of WfD required attention. A significant percentage of workers had not obtained secondary education: something that had not been required by the low skills economy of the 1970s but which did not meet the needs of economic growth and a restructured economy. A landmark policy development in this era was the introduction of a suite of national CET programs (detailed later), focused on upgrading the skills, education and literacy of the existing workforce, and with a clear budget. The implementation of this upgrading policy was enabled by all stakeholders and was subject to a series of evaluations and improvements.

2010: Following the global financial crisis of 2008-2009, WfD remains a central priority for stakeholders and policy as a means to enhance competitiveness, with advocates at all levels. WfD is integrated within the national Economic Strategy Committee (ESC) reports of 2002 and 2010, and features in regular ministerial speeches including the Annual Budget. It is a central element of NTUC campaigns and activities, with a strong drive to raise awareness of the importance of WfD among the working population.

Since the 1990s, advocacy for WfD and its leadership is now further integrated and holistic, particularly with a clearer line of responsibility for CET. A high-level review under the Economic Review Committee's Sub-Committee on Enhancing Human Capital (2002), led to a number of key developments. The Singapore Workforce Development Agency (WDA), a Statutory Board specifically responsible for development of the workforce (vocational CET) was established under the Singapore WDA Act in 2003. A CET Masterplan was created in 2008 to set the direction for the WDA, vocational CET providers and other stakeholders. Union and employers are key partners in the CET system. There is now a clear national message about the role of learning and skills for employment across the lifetime, and the link to social and economic outcomes at all levels.

▣ Evaluate economic prospects and implications for skills



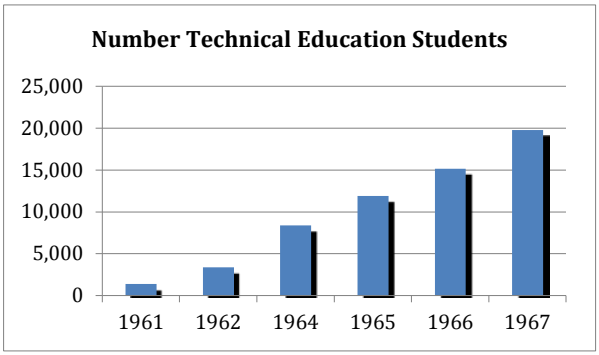
This action scores as **Established** for 1970 and 1990 and **Advanced** for 2010.

Overview 1970-2010: Evaluation of economic prospects has been core to the government's activities since the late 1960s. It has driven national economic reviews and the work of both government ministries and, from the early 1970s, various strategic national committees. There has been continued strategic forecasting of global economic and skills challenges across a number of ministries and statutory boards, with these practices becoming more systematic and formalized from the late 1970s. Systematic manpower planning for current and future skills needs has been a leading feature of economic development and policy formulation since 1979 when the CPTE (later renamed the National Manpower Council, NMC) was created.

1970: The government rigorously evaluated economic prospects. For example, one of the key remits of the EDB was to identify and attract investment from future growth industries and to work with other parties to ensure that appropriately skilled workers were in place. Although, in reality, this might better be described as 'opportunistic', rather than fully strategic in this period, reflecting the 'survival' focus of the time. A confidential Second Development Plan (1966-1970) exists, and a range of *ad hoc* studies was carried out in vital industries. As a result, literacy, math and science became a core focus for the education system and funding was made available to support skills development in key industries. In the late 1960s, a review of technical education was conducted. As a result, technical skills were boosted in general education and the first reform of the TVET system was established in order to better meet rapidly changing skills demands.

Box 3: Growth of Technical Education

Technical education provision was very low when the PAP entered government in 1959. By 1961 there were just two vocational and technical schools, but major investment led to significant growth. Reforms in the early 1970s also helped to improve the quality of the system.



Source: Chiang, 1998

1990: The national Labor Force Survey (est. 1974) and other systematic manpower analyses that were established in the late 1970s onwards, helped inform both a Sub-Committee on Manpower within the Economic Review and the forecasts of the Council for Professional and Technical Education (CPTE) which was established in 1979 to provide strategic, high-level manpower planning. These activities helped to create demand-driven WfD strategy and policy. Along with the MOF and MTI, CPTE had a pivotal role in identifying the links between economic prospects and skills requirements, connecting directly to budgets and implementation, and setting specific education targets.

Internal government reviews and research also informed national strategy. For example, attaining developed country status was a core strategy of the 1986 Economic Review, leading to concentration on raising skills and education levels at the lower end of the labor market, whilst growing and attracting high-end talent. The national Economic Review of 1991 led to major PET reforms and a new interest in on-the-job CET. As part of these reforms, technical education was also boosted in 1992-3 by the replacement of the existing Vocational and Industrial Training Board (VITB) with the Institute of Technical Education (ITE), which remains a key education institution today and caters to a quarter of secondary school leavers. As well as increasing funding for technical education provision and facilities in the early 1990s, this reform raised ITE's profile, thereby helping to meet national targets based on forecasts of the existing and future technical skills needs of that time.

Box 4: The Institute of Technical Education (ITE)

VITB has been discussed here at length, since this was the technical education authority and provider in 1990. However, in 1992 the system was revamped and the ITE was created. This was an important step in raising the profile of technical and vocational education and developing internationally recognized provision.

1991 – Second national education review focused on primary education, highlighting the need for VITB to upgrade to a post-secondary rather than post-primary institution;

1992 – VITB became the Institute of Technical Education (ITE), remaining a Statutory Board and with a remit to transform technical education as a post-secondary and attractive route for young people;

1990s-present – ITE has been vital in supporting equity and opportunity, as well as national policy objectives. It caters to a quarter of secondary cohort with world-class technical education that is closely linked to demand;

Winner of international awards in recognition of provision and management excellence, and ITE students often win prizes at international skills competitions;

2000 – ITE introduced a 'Total Training Philosophy' to create a unique kind of education experience, integrating theory, practice and hands-on experience;

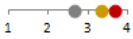
2010 – more ITE graduates wish to go on to polytechnic and maybe even tertiary education, which was less common in the past. New policies are being developed to open up more pathways, such as articulation between ITE and polytechnic programs via credit recognition;

2011-2012 – continued expansion of ITE to cater to new demand and further enhance infrastructure.

Sources: Chiang, 1998; ITE, 2012; OECD, 2011a

2010: The government's 2002 and 2010 ESC reports evaluated and set clear objectives for WfD, informed by national and sector analyses and wide stakeholder consultation. The ESC forms every 5 years, or more often as required by economic circumstances. Although manpower planning has somewhat relaxed since the 1990s, the NMC continues to set strategic targets for PET provision, with clear funding to ensure implementation. This is now also being considered as an option for CET, helping to ensure a good match between supply and demand. As well as the continued range of national analyses provided by ministries such as the Ministry of Manpower, high-level, internal evaluations are also made across government and statutory boards. Since the WfD system is generally regarded to work well, rather than major reform at this stage there are continuous improvements and rapid response to any gaps. For example, the financial crisis of 2008-2009 highlighted an unforeseen need for CET and employability support targeted at the Professional, Managerial, Executive and Technician (PMET) group, which was unexpectedly hard hit by the downturn. Similarly, an over-reliance on foreign and low-cost labor has been identified as a threat to economic and social development, with subsequent review of labor laws and talent attraction.

▣ Develop policies to align skills demand and supply



This action scores as **Established** for 1970 and **Advanced** for 1990 and 2010.

Overview 1970-2010: Alignment of skills supply and demand has been a feature of WfD policy and implementation since the mid-1960s and particularly since the 1980s. The process has formalized over time. Initially, policy was informed by mostly occasional assessments of demand and supply and the involvement of stakeholders was *ad hoc*. Since the mid-1970s, more routine and systematic analyses and assessments have been in place. From 1979, the CPTE has closely monitored supply and demand, forecasting for future trends and opportunities. A key feature that helps to ensure a good match between demand and supply has also been the increased involvement of employers and other stakeholders in informing policy development.

1970: Economic policies successfully addressed the high unemployment rate of the 1960s, by focusing on attracting MNCs and providing basic universal education. However, near full employment and a tight labor market quickly emerged in the early 70s. Policy was informed by internal assessments, forecasting such as that of the EDB and by occasional independent research focusing on key industries. Under the 1970 Economic Expansion Incentives (Amendment) Act, incentives were put in place to grow a value-added economy and policy was developed to deal with serious wage pressures. This led to the creation of the NWC, which provided guidelines to align pay and productivity. In order to raise skills levels and the supply of educated workers, PET institutions were expanded, including technical and secondary education. Policies were subject to in-house review and, as a developing country, international bodies also

reviewed the economy, policies and education system, providing technical and financial assistance as a result.

1990: Both occasional and routine government assessments, as well as independent research, informed WfD policy to meet skills demands, particularly via the Economic Review. CET policy initiated in the mid-1980s focused on raising skills and literacy levels of workers, as well as promoting upgrading for productivity more widely. A number of important programs were introduced to upgrade skills in the workforce and to meet changing demand for skills as the economy moved up the value chain (see box 13 for further details). At the same time, reforms in the PET sector included measures to: improve bilingual education; increase retention levels in technical education; keep young people in education and training for at least 10 years; reposition ITE as a post-secondary institution; expansion of the polytechnics and response to the high demand for tertiary education. Labor and immigration laws focused on meeting skills shortages at the top and bottom ends of the labor market. Stakeholders fed into government policy via strong engagement with ministries, Statutory Boards and the CPTE. Independent academic reviews were published on national WfD policy, but internal policy reviews were usually confidential.

2010: A range of assessments informs the policy-making process and a key feature of the system is the significant input of stakeholders in policy and provision. The close match between demand and supply is core to national WfD policy development. Although tertiary education has been restricted in the past, focused on matching demand and supply, it has been expanding in more recent times. National policy and demand has led to development of new universities both nationally and through private partnership with overseas institutions. In the 2012 National Day Rally, the Prime Minister announced an expansion of the publicly-funded university participation rate from 26% to 40% of the cohort (Lee, 2012). CET is also high on the policy agenda, with expansion of a national qualification framework, the Workforce Skills Qualifications (WSQ).

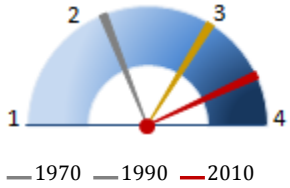
Box 5: WSQ Participation and Outcomes

Total 2005-2010	
Participants	606,365
Low skills participants	426,829
Statements of Achievement (SOAs) issued	1,784,872
Full WSQ qualifications awarded	32,556

Source: Willmott, 2011 citing WDA, 2010

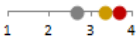
Policies are usually reviewed internally and end-of-program. External evaluation of policy therefore focuses on limited public documents and on visible outcomes.

Policy Goal 2 | Prioritizing a Demand-led Approach



Policy Goal 2 examines the extent to which business and industry stakeholders are able to influence national WfD priorities and future skills supply, and how far engagement is promoted and incentivized. Overall scores are Emerging for 1970, Established for 1990 and Advanced for 2010. Over time, stakeholders have taken on a progressively greater role in identifying and delivering on national WfD priorities. Policy Actions examined include: the role of business and industry in determining WfD priorities; how far employer demand for skills and productivity are incentivized; and future skills assessment.

▣ Promote demand-driven approach



This action scores as **Emerging** for 1970 and **Advanced** for 1990 and 2010.

Overview 1970-2010: Responding to industry demand for skills has been a core feature of the WfD policy and system from the outset. In the early stages, employers' associations and companies had a more informal but nevertheless influential advisory role in some areas of WfD policy development, such as working closely with the Economic Development Board (EDB) to identify the skills required by existing and emerging industries. Over time, new bodies have been formed both in industry and government. Employers feature strongly within high-level councils, committees and Statutory Boards that influence WfD policy and priorities. From the mid-1970s, as well as government assessments and research, a range of studies and input from stakeholders inform the demand-driven approach.

1970: A range of information helped to inform a demand-driven approach to WfD, although this was in the early stages of formation. Business and industry informally shared important information on future industry trends through engagement with the EDB and government. Employers associations, government and academic researchers conducted occasional studies, such as future skills issues in the burgeoning petroleum and electronics industries. Employers and representative groups such as the Singapore Manufacturers' Association also helped to implement policy through their involvement in provision of industrial training organized by EDB.

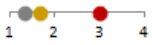
1990: There was a gradual consolidation of WfD systems in the late 1970s-1980s. From the mid-1970s, priorities were identified based on a range of inputs, with the establishment of routine national assessments and tripartite arrangements such as NWC. Employers took on a more systematic role in identifying WfD priorities, with a formal advisory role as well as executive authority via representation in high-level bodies. For example, employers were represented on the National Productivity Council that set strategy on workforce training. Equally, PET institutions such as the VITB (ITE from 1992), had industry board members and was advised at the policy and implementation levels by Industry Lead Bodies (ILB) and VITB Training Institute Advisory Committees (TIAC). The Singapore National Employers' Federation (SNEF), the employers' trade union (est. 1980) was the key representative for employers within the tripartite framework.

2010: Industry continues to play a fundamental role in shaping a highly demand-driven WfD approach. Important recent developments have been in CET, with employers playing strong advisory roles. A review in 2002 led to creation of the WDA and WSQ, providing targeted assessments of CET.

Box 6: Enhancing CET in the 2000s

- 2002: Recommendations of Economic Review's Sub-Committee on Enhancing Human Capital (Singapore Government, 2002);
- 2003: Singapore Workforce Development Agency (WDA) established under the WDA Act. Statutory Board responsible for CET;
- 1999-2004 National Skills Recognition System (NSRS) piloted and then expanded to cover 69 industries by 2004;
- 2005 onwards: WDA developed WSQ framework to promote and certify workforce skills through training designed as a result of sectoral needs and demand;
- Industry Skills and Training Councils and Manpower Skills and Training Councils (ISTCs/MSTCs) created as advisory bodies, now represents 23 key sectors;
- 2008: Institute for Adult Learning (IAL) established under WDA to provide training and certification for CET trainers and conduct research to inform CET practice and policy.

▣ Strengthen firms' demand for skills to improve productivity



This action scores as **Latent** for 1970 and 1990 and **Established** for 2010.

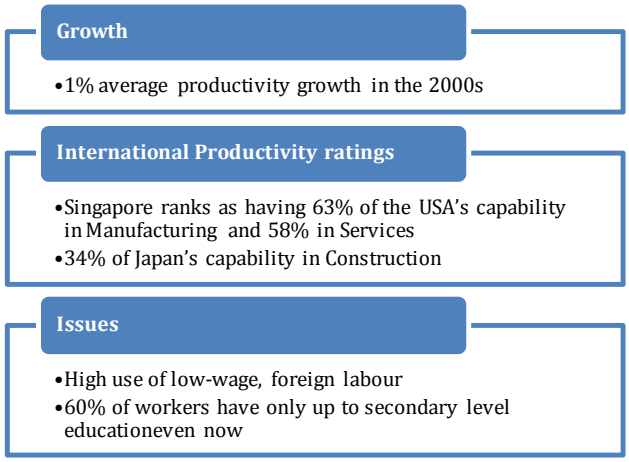
Overview 1970-2010: In 1970, productivity was not a key priority. Its importance started to emerge in 1972 when the tight labor market led to establishment of the tripartite National Wages Council (NWC). From the 1980s, productivity emerged as a bigger issue, with greater government incentives to engage employers in upgrading technology and related skills for productivity and stronger systems to promote productivity measures. Comparatively low productivity levels means it continues to be a national concern.

1970: The National Productivity Board (NPB) and Council (NPC) were established in 1967 under EDB. NPC provided courses and in-house training for companies, as well as consultancy to industry and government. The 1970 Economic Expansion Incentives (Amendment) Act included incentives to promote restructuring and capital-intensive industry, with some reduction in existing incentives for labor-intensive industry. Nevertheless, productivity was a relatively low priority until 1972. In the Economic Plan of 1970 productivity was identified as a means to remain competitive, whilst moving away from a labor intensive economy. However, some productivity strategies identified in the 1970 annual budget and Economic Plan were stalled until later in the decade, due to the oil crises of the early 70s.

In 1972, NPC was upgraded to a Statutory Board renamed the National Productivity Board (NPB). The tripartite NWC was also formed, its first set of guidelines recommending that wage increases be linked to productivity. In 1971, the EDB's Economic Research Division conducted a productivity assessment and wage survey, which informed the NWC guidelines, but there is little other evidence in the public domain of evaluation in this area.

1990: It has been argued that Singapore's significant growth in the 1970s and into the 1990s came without improvements in productivity (Krugman, 1994; Yuan, 1985). From the 1980s, a range of fiscal incentives was introduced under the Productivity Movement, targeting technology and skills upgrading. Employers could draw on the Skills Development Fund (SDF) to upgrade machinery and provide related skills training. Whereas MNCs were the main focus in the 1970s, from the 1980s the NPB and a Small Enterprise Bureau provided targeted assistance to SMEs. The 'SME Masterplan' was published in 1989, aimed at upgrading operations and training provision in SMEs. This was later assessed to have had a major impact, with funding from 1989-1994 being higher than that of the previous two decades put together (Thiam-Soon, 1994). In 1989, NPB launched 'P2000', the national Productivity Plan to be met by the year 2000. A Productivity Standards Board (PSB) was created in 1996 as a Statutory Board under the MTI, focusing on ensuring local companies understood international benchmarking systems like ISO9000. There is little in the public domain, but it seems that reviews were made of the system.

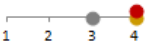
Box 7: Singapore's Productivity Challenges



Source: Straits Times, 2011

2010: In 2002, NPB and PSB evolved into the Standards, Productivity and Innovation Board, now SPRING. Routine productivity assessments are made by SPRING as well as by the ESC. Productivity has again arisen in the 2000s as an important policy focus. The 2010 Budget launched a new 5-year program, the Productivity and Innovation Credit (PIC) to promote innovative practice in industry to raise productivity, particularly aimed at SMEs. Tax deductions are available for investment in areas such as automation, investment in R&D and training. There are tax incentives for growth or target industries, such as financial services, maritime, legal and aircraft. Following ESC recommendations, the tripartite National Productivity and Continuing Education Council (NPCEC) was established in 2010, under the MOM and MTI. NPCEC aims to raise productivity by 2-3% each year for the next 10 years (AsiaOne, 2011), focusing on 12 key sectors. A new National Productivity Fund (NPF) provides incentives for innovation, benchmarking and upgrading through cross-industry and company grants. The government committed $2 million to the NPF, half of which was used in 2010 (AsiaOne, 2010).

▣ Address critical challenges in the future supply of skills



This action scores as **Established** for 1970, and **Advanced** for 1990 and 2010.

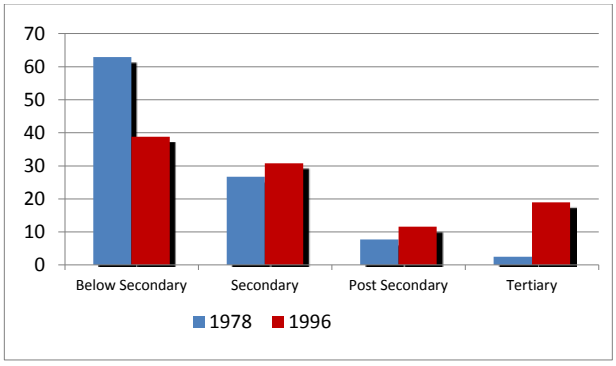
Overview 1970-2010: Attention to future skills supply and human capital has always been a key feature of the policy framework, due to the lack of natural resources. Over time, the skills assessments have become increasingly formalized, systematic and economy-wide, shown in the rising scores between 1970 and 1990/2010. There is a notable culture of rapid implementation and WfD targets that are matched with a defined budget.

1970: Routine assessments were made of key industries and future growth areas. The Ministries of Finance, Labor, Education, and Science and Technology carried out reviews related to education and skills, although these are generally not in the public domain. Government agencies and Statutory Boards also reviewed skills and WfD. For example, the EDB carried out formal and informal research, discussions and regular reading of Trades magazines to identify sector developments. EDB identified national strategies to compete with other emerging, low-wage economies in the region like Vietnam and Thailand. Such strategies were quickly translated into policy and supported with funding, such as the large investment in industrial training under the EDB. The Technical Education Department (TED) at the MOE also carried out research from 1968, including a review that appears to have led to rapid reforms in the 1970s, with technical skills being introduced into the general education curriculum for a large percentage of girls and boys, and the restructuring of vocational institutions.

1990: A more formalized, routine assessment was made of the future supply of skills, benefitting from the addition after the mid-1970s of: the annual Labor Force Survey; CPTE manpower planning review, which identified future skills needs and suitability of supply and set specific targets with a related budget for implementation; the NWC which reviewed industry trends and mapped out guidelines on pay; and the Economic Review, which set national strategy for 5 years. The latter was economy-wide, with manpower issues being informed by a specific sub-committee report. Much policy in 1990 was shaped by the Economic Review of 1986, which responded to the recession of the mid-1980s. The 1991 Economic Review set out strategy to attain developed country status within 30-40 years, including the need for raised education levels. The extent to which recommendations were met was reviewed within parliamentary debate, speeches, ministry and statutory board annual reports, and the subsequent economic review.

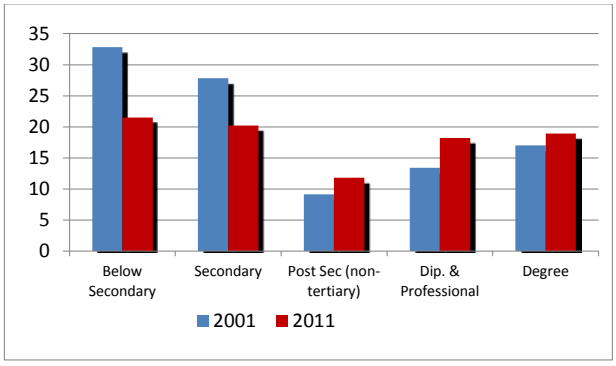
2010: The ESC retains its central function in setting the overall economic strategy, which includes identifying future skills needs and how to achieve the supply. Various ministries carry out regular reviews for future skills planning. For example, within divisions of the Ministry of Trade and Industry, reviews are carried out on areas such as manpower planning, forecasting for inward investment, and sunrise industries. The Manpower Planning and Policy Division at the Ministry of Manpower (former MOL) carries out manpower planning studies for the National Manpower Council (NMC) as well as studies of participation rates, foreign worker and talent attraction policy, and the Labor Force Survey. Whilst the manpower planning process has somewhat relaxed since the 1990s, targets are nonetheless set for PET providers to meet, and funding is provided to ensure swift implementation. MOE works with data from both the MOM and MTI to forecast supply requirements and public provision of PET, including top-end professions. MOE also collects data on school and post-secondary leavers to identify flow into the workforce and the different post-secondary education and training pathways. General planning numbers are given to PET institutions, which have responsibility for implementing course planning and identifying areas for growth. A policy concern over the decades has been the large proportion of the population that has not benefited from post-secondary education. As well as upgrading through the WSQ, the government set targets in sectors such as childcare for workers to have at least Diploma level qualifications by 2015.

Box 8: Rising Education Levels



a) Qualification Level of Employed Individuals Aged 15+, 1978 and 1996 (%)

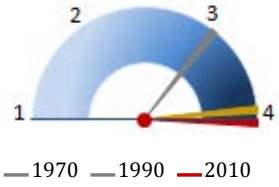
Source: Singapore Labor Force Survey, 1978 and 1996



b) Qualification Level of Resident Population 2001 and 2011 (%)

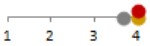
Source: Singapore Labor Force Survey, 2001 and 2011

Policy Goal 3 | Strengthening Critical Coordination



Policy Goal 3 examines how far stakeholder input and interactions are coordinated as part of the workforce development (WfD) system. Overall scores on this policy goal are Established for 1970 and Advanced for 1990 and 2010. The system has benefited from a range of formal and informal structures to support stakeholder engagement and cooperation, and a strong culture of delivery on policy goals. Policy Actions covered are: coherence of key strategic WfD priorities; institutionalization of stakeholder roles and responsibilities; and mechanisms to facilitate communication among stakeholders.

▣ Ensure coherence of key strategic WfD priorities



This action scores as **Advanced** for 1970, 1990 and 2010.

Overview 1970-2010: In the 1960s, whilst there was great political will to identify and support WfD priorities, the system to enact them gained greater coherence from the mid-1970s. The technical education system benefited from reforms in the 1970s and 1990s, whilst CET saw major reforms and a greater coordination in the 2000s. A significant early development was the tripartite agreement of the 1970s. It provided the basis for close cooperation and stakeholder involvement in shaping national strategy and policy, but also an environment in which rapid implementation has been possible due to stakeholder 'buy-in'.

1970: Leaders at the apex level of all stakeholder groups were fairly actively involved in strategic WfD matters. Leaders were brought together through both formal and informal means. Following social unrest in the 1960s, much of the focus between government, unions and employers was on calming labor relations and stabilizing wages, as opposed to WfD and skills issues specifically. Nevertheless, the agreements that came out of such negotiations led to a strong tripartite system and a level of consensus that significantly benefited WfD implementation from the early 1970s onwards.

1990: From the mid-1970s, there was an increased coherence and formality of measures to bring leaders together. The tripartite relationship meant that NTUC was represented within government and provided a high level of consensus between government, employers and unions around WfD and more broadly; part of a symbiotic 'win-win' relationship (Sung, 2006). Members of stakeholder groups often chaired high-level committees, councils and boards, ensuring involvement in strategic matters and decision-making. The CPTE represented another flagship development, not only providing strategic manpower planning but ensuring coordination between policy priorities, provision and partners.

Box 9: Manpower Planning

Creation

- 1979 - Council for Professional and Technical Education (CPTE) established with remit for national manpower planning and coordinating parties involved in WfD;

Goals

- Set targets and funding for PET institutions (schools, technical education and tertiary sectors) and, later on, Statutory Boards such as PSB. Identified policies to meet national skills targets where local provision not sufficient, e.g. high-skills talent immigration;
- Targets set for 5-year periods with reviews and reporting every 2 years;

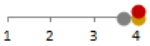
Changes

- 2000s - recognised that flexibility required to meet changing demands and that institutions, with stakeholder engagement, have vital role in determining how to meet skills needs. CPTE replaced by National Manpower Council (NMC);
- NMC is informed by assessments and information from various bodies.

The Economic Review Committee was and remains a vital forum for stakeholder communication, convened by the Prime Minister every 5-10 years, depending on economic conditions. With stakeholder representation on both the Committee and sub-Committees, it takes several months to gather evidence, including public discussion, before reporting via a national, public report published by the MTI.

2010: A key feature in the 2000s has been the greater coherence developed in the CET sector following establishment of the WDA; one of a number of reforms resulting from a high-level government review (see Box 6). Further coherence and coordination has come through the engagement of employers, professional bodies, unions and other relevant parties in skills development and delivery via the ISTCs/MSTCs, and the creation of industry, cross-functional and generic standards under the WSQ system. Also as a result, MOE and WDA are now enhancing their practices of working together on CET policy and practice. For example, MOE now works more formally with WDA on CET manpower planning, which tended in the past to be left to the various CET authorities, due to the traditional divisions between PET and CET.

▣ Institutionalize the structure of WfD roles and responsibilities



This action scores as **Advanced** for 1970, 1990 and 2010.

Overview 1970-2010: The tripartite agreement has meant that legal Acts are not felt to be necessary in order to engage stakeholders in WfD strategy. Acts tend to focus instead on governance of the respective parties as organizations. However, the key WfD-related legislation to be introduced over this period was the Skills Development Act (est. 1979), mapping out the responsibilities of employers to pay into a national Skills Development Fund (SDF), which remains in place now.

1970: Various legal frameworks stipulated the governance of parties involved in WfD. There was a clear division, albeit in practice rather than via legal Acts, between different areas of education and training provision, delineated between PET and CET. The MOE covered general education from primary through to tertiary, the TED (under MOE) covered technical education, the Adult Education Board (AEB) (under MOE) covered adult education and over-age learners, and the EDB (under MOF) covered industrial training. There were relatively few private providers. The various WfD authorities had a clear mandate and were able to formulate budgets and request resources in a transparent manner. Annual Reports for most of these bodies outlined budgets and spending. Whilst Statutory Boards, such as the AEB and EDB, were able to tackle policy issues rapidly and effectively, due to a high level of autonomy, the TED's status as a department of the MOE provided challenges. TED 'was not ideally placed to bring industry and labour together, nor was it structured to respond rapidly to new, emerging needs of industries for technical manpower' (Chiang, 1998: 38). In 1973 the Industrial Training Board (ITB) replaced TED, facilitating a more proactive role. This and other policy changes around 1973 were an early turning point in clarifying the lines of responsibility for technical education.

1990: Employers' and unions' roles and responsibilities in WfD were both clarified and expanded under the tripartite system. For example, from the 1980s, NTUC promoted skills upgrading and acted as a provider for basic education programs, as part of its role in supporting both workers and national strategy to ensure good jobs for citizens and a competitive economy. The Skills Development Fund (SDF) was introduced in 1979, supporting a range of CET activities. Levies have been abandoned in some countries due to lack of results (Sung et al, 2006). However, given the high level of government coordination, SDF has been an important mechanism to promote training and upgrading. Furthermore, a distinctive feature of the Singaporean system is the level of commitment and 'buy-in' from workers. Upgrading policies benefit not just from the tripartite partnership, but from the engagement of workers to commit to upgrading with a view to supporting the intended 'win-win' outcome of restructuring industry, supporting economic growth, expanding higher level jobs and future opportunities for individuals (Sung, 2006).

Box 10: The Skills Development Fund (SDF)

Origin

- 1979 - SDF established under the Skills Development Levy Act. Obligatory payroll levy system to encourage employers to train and upgrade skills;

Goal

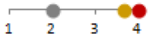
- Grants for training, technological upgrading, improvement of in-house company training provision etc. Initially targeted employers with low skills/ low pay employees to 'encourage the right kind of manpower training' (EDB, 2011).

Evolution

- Levy first set at 2% or $5, whichever is greater, for each employee receiving $750 or less per month' (Rodan, 1985: 18);
- 1980s-90s - SDF supported strategic national WfD programmes e.g. BEST, MOST, WISE;
- 1988 - 240,000 places funded, 20% of workers covered (Singapore Government, 1989d);
- 1989 - $60m committed annually for training (Singapore Government, 1989b);
- 2010 - Levy covers all workers at 0.25% for the first $4,500 of gross monthly remuneration or min. $2. Continues to support WfD strategy such as the WSQ.

2010: A major development has been the consolidation of CET. As noted, a review of CET led to reforms, including the establishment of the WDA, a Statutory Board with specific responsibility for CET. Prior to this, a number of bodies had some level of involvement in CET. In addition, SPRING, governed by the SPRING Singapore Act, has a clear role and responsibility for productivity-related initiatives and SMEs, which can involve training and development as part of upgrading. As Statutory Boards, both WDA and SPRING have clear mandates, their own budgets and the ability to request resources to support implementation of policy driven by national strategy, as well as developing a range of additional activities to foster CET. WSQ qualifications were incorporated into the Singapore Standard Education Classification (SSEC) framework in 2010.

▣ Facilitate communication and interaction among all WfD stakeholders



This action scores as **Emerging** for 1970, and **Advanced** for 1990 and 2010.

Overview 1970-2010: Over time, the structures to support interaction between stakeholders have been formalized and strengthened. From a nascent tripartite system in 1970, this has become the basis on which communication takes place. Furthermore, more systematic structures were introduced in PET and CET to engage stakeholders in identification of skills needs, implementation of policy and even delivery.

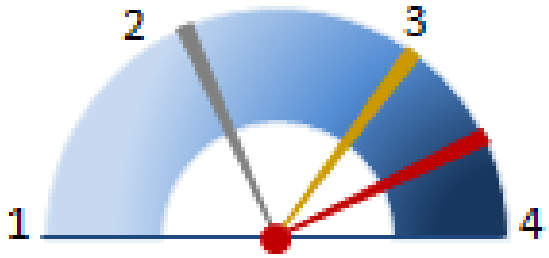
1970: Entering the decade, primarily informal communication structures were in place. Moreover, WfD was not the key focus of the more formal early tripartite discussions. Social unrest in the 1960s, and concerns about Communist groups and regular strikes, the settling of difficult labor relations was the main focus. From the early 1970s, creating overlaps between the chairs and members of boards and committees helped to establish formal communication between different stakeholders in the WfD system. A number of bodies provided an effective interface between government and other stakeholders. EDB mobilized industry support and engagement in WfD projects. Such interactions were able to advance WfD priorities by, for example, bringing about partnerships to form EDB's industrial training centers in collaboration with employers, as well as collecting important information about industry trends and skills.

1990: The structures of communication and interaction between stakeholders were formalized during the 1980s, with extensive interactions taking place. The tripartite system underpinned communication among WfD stakeholders, with cooperation and consensus around WfD as part of general industrial relations activity. There were clearer roles for government, unions and employers and cooperation on key national WfD projects such as BEST, WISE and MOST (see Box 13), as well as smaller-scale programs. NTUC had high-level representation in government, facilitating partnership and cooperation on policy issues. The government focused on 13 target sectors at this stage.

2010: There is a continued high level of cooperation between stakeholders, creating consensus on WfD policy and priorities across the sectors. For example, the WSQ – a key CET policy – has engaged business and industry across 30 sectors by 2012. Furthermore, stakeholders tend to cooperate to implement new national WfD programs. For example, the 'e2i' Employment and Employability Institute (see Box 14) originally started as a smaller NTUC program, but now has government backing and involves public and private providers, including lead employers. Likewise, subsidized training under the discontinued SPUR program (including e2i activities) involved NTUC, government and employers in tackling problems caused by the global financial crisis.

Detailed Results

Dimension 2 | System Oversight[5]

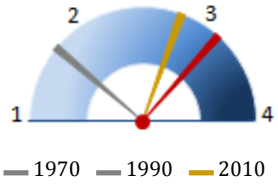


Policy Goal 4	**Diversifying Pathways for Skills Acquisition**
Policy Goal 5	**Ensuring Efficiency and Equity in Funding**
Policy Goal 6	**Assuring Relevant and Reliable Standards**

[5] The composite scores shown in the dial are the same as the categorical ratings shown on the cover of this report. They have been converted using the rules indicated in footnote 3 on page 6. The categorical ratings conform to the standard presentaion of results in the SABER intiative, while the presentation in the dials reveals more detail.

Dimension 2 | System Oversight

Policy Goal 4 | Diversifying Pathways for Skills Acquisition



Policy Goal 4 assesses the pathways within WfD to support learner progress and recognition at different levels, and how far a systematic approach is taken to program development. Overall scores on this policy goal are Latent for 1970 and Emerging for 1990 and 2010. This reflects that, whilst structures are in place, articulation is not necessarily incentivized and recognition of prior learning is still in development. Policy Actions covered are: fostering articulation across different level of WfD; promotion of life-long learning and recognition of prior learning; and standardization of policies and procedures involved in renewal of publicly-funded programs.

▣ Foster articulation across levels and programs

This action scores as **Latent** for 1970, **Emerging** for 1990 and **Established** for 2010.

Overview 1970-2010: Pathways through the WfD system have remained fairly standardized. Some depend heavily on performance and streaming in early education. The manpower planning approach since the late 70s has created limits on the numbers entering different areas of WfD, although this has been partially relaxed over time in response both to economic need and learner demand. As a result, incentives are not widely applied to promote movement across the system. Nevertheless, in recent decades the high quality of students exiting the technical stream facilitates progress for some to higher learning. This is a fairly new area for policy consideration and some changes from late 2011/early 2012 are noted here, such as between the WSQ and post-secondary programs.

1970: Few arrangements were in place to facilitate articulation, with little evidence of incentives. Vocational schools were regarded as a way to keep lower performing students in education. Despite reforms in the late 1960s, there remained a connotation of failure around the 'vocational' school stream, leading the TED to remove the crafts and vocational stream and to turn vocational schools into technical institutions in the early 1970s (Chiang, 1998). Once a primary or secondary pupil was streamed into the TVET pathway, they would often have little option but to end their education at secondary level. As such there were few or no formal transfer mechanisms in place at this time. The first National Junior College opened in 1970 and considered general education students from all language streams if they achieved the requisite grades. In reality it was highly competitive, focusing on pre-university education. The main emphasis was on direct, competitive application by suitably qualified individuals.

1990: Articulation arrangements were *ad hoc* with some level of incentives across secondary and post-secondary institutions. Individual application remained the primary transfer method. Exceptions included a range of automatic transfer procedures at secondary level. To reduce wastage from primary education, early leavers were encouraged to enter the reformed technical education system. Also, those who left primary school on completion of the monolingual course, which precluded some pathways into further education, and those unable to progress to secondary, went into the automatic registration scheme for VITB. 80% of young people leaving education at primary level at this time took this route (Parliament of Singapore, 1990 column 365). The education system was highly competitive and there were some critiques of the narrowing of higher-level opportunities, leading to identification of the need for expansion at the upper end (Parliament of Singapore, 1990 column 363).

In CET, major skills upgrading programs were certified using the National Trade Certificate (Box 11). This enabled motivated learners to seek articulation, although there appear to have been no formal agreements or specific incentives to pursue post-secondary education from upgrading programs such as WISE.

Box 11: National Trade Certificate (NTC) system

Creation

- 1973 - NTC established under ITB to certify workers' skills learned partially or fully on the job;

Use

- Used primarily by ITB/VITB, along with a Public Trade Test system;
- Attained through full- and part-time vocational and technical education courses and Apprenticeship training;
- Public Trade Test meant skills developed on the job were tested to nationally-recognised standards; workers could sit public exams and gain certification at Semiskilled (NTC-3), Skilled (NTC-2), and Master Craftsman (NTC-1) levels;
- Common standards and recognised certification ensured rapid acceptance by industry. By 1989, there were two courses provided by the Government Training Centres under EDB leading to Master Craftsman level. This included a course in Precision Engineering (Tool & Die Making);

Evolution

- From mid-1980s - national upgrading programmes like MOST (Box 11) also led to Certificates of Competency (COC) and counted towards NTC.

2010: On the whole, WFD remains clearly delineated into different types and levels. Manpower planning allows certain percentages of each secondary cohort to go into each sector of WfD, mostly following individual application (Box 12). Other articulation arrangements and incentives remain *ad hoc* in nature. For example, ITE students applying to Polytechnics may be granted credit exemption if they receive good grades in a relevant area, whilst Polytechnic graduates may be eligible for University credits. This is regarded as a means to incentivize performance and recognize merit. Given the high-level technical skills covered in Polytechnics in areas like Engineering, some students gain up one year's exemption against four-year University programs. Indeed, Polytechnic graduates can apply to a 2-year 'top up' program at the Singapore Institute of Technology, completing a Degree in two years of full-time study but without compromising quality or rigor. From 2013, the MOE will also introduce two new through-train pathways or Secondary 4 Normal (Academic) students who perform well at the N-Levels to enter the Polytechnics directly via Polytechnic Foundation Programs (PFP), or through ITE via the Direct-Entry Scheme-to-Polytechnic Program (DPP).

Box 12: Primary 1 cohort entering post-secondary education

Institution	2005	2006	2007	2008	2009	2010
Institute of Technical Education (ITE)	21.3	21.9	21.0	21.0	21.2	21.0
Polytechnics	39.8	39.8	41.7	42.9	42.9	43.4
Junior Colleges/ Centralized Inst.	28.1	28.2	28.3	28.0	27.7	27.7
Universities (national)	23.7	23.8	23.9	24.8	25.4	26.0

Source: MOE, 2011b

2010 saw the introduction of new arrangements, allowing selected secondary pupils to study modules at ITE level (within the existing school), or to complete Applied Subjects at O' Level designed by polytechnics, potentially leading to Polytechnic credit exemption. Within CET, a Mutual Recognition System was established in 2008 between ITE and WDA to link the National ITE Certification (Nitec) and the WSQ. There are discussions taking place about recognition of alternative qualifications by other post-secondary institutions. This is a new area of dialogue and raises some challenges given the streaming process and potentially manpower planning targets, which already specify certain percentages of cohort capture.

▣ Promote life-long learning

This action scores as **Emerging** for 1970 and just into **Advanced** for 1990 and 2010.

Overview 1970-2010: Lifelong learning (LLL) and recognition of prior learning (RPL) have gained importance over time. There was little concept of these in the 1970s, with emphasis on simply providing universal basic education; representing a 'front end' or 'supply' focus. From the 1980s, economic restructuring and recession highlighted the need for remedial measures for the existing 'stocks' of workers. CET started to gain prominence in its own right. Today, CET is a core element of national WfD policy and the range of public and private providers continues to grow. There are many opportunities for privately-funded LLL (professional development is very common), and the WDA and MOE's vocational and academic CET systems respectively support a large framework of publicly-funded work-related CET. RPL is an emerging area, partly shaped by the relatively low level of articulation permissible across the current system.

1970: Resources and arrangements to foster what we now call LLL were largely *ad hoc*. Given the high unemployment, low skills levels and social unrest of the late 1960s, policy focused on growing jobs and universal basic education, rather than disadvantaged groups. Thus the WfD focus was on 'front end' provision of primary and secondary education for new generations. Nevertheless, the AEB played an active role in fostering LLL. Despite relatively low levels of funding, AEB provided an impressive 'parallel', publicly-funded primary and secondary education system for 'over-age' individuals who did not complete their education, including literacy, numeracy and preparation for public examinations (Skolnik, 1976). The private Singapore Institute of Management (est. 1964 by EDB) was also important in providing professional training for mid-level professionals and managers. There was relatively little systematic provision of careers guidance.

1990: CET opportunities were much expanded, particularly via the flagship skills upgrading programs introduced in the 1980s (Box 13). Recession in the 1980s impacted heavily on low skills workers and a national focus on economic restructuring led to consensus on the need for skills upgrading among those who missed out on the growth of secondary and post-secondary education in the 1980s. A significant proportion of the working population, particularly older workers, was at risk during downturn or structural change. The aim was to raise most of the workforce to secondary level.

Though such programs were taken up by many workers, in 1993, 50% of the working population was either unskilled or without a primary education (Kumar, 1994). The National University of Singapore Extension Department and Singapore Polytechnic Continuing Education Department (est. 1979) were also created specifically for CET.

Box 13: National Training for Basic Skills Upgrading

- Major national upgrading (CET) programs introduced for workers in the 1980s-1990s, aimed at supporting economic restructuring and social development, including:
  1. Basic Education for Skills Training (BEST) - workers with no qualifications but basic math and English, or Primary School Leavers' Exam certificate but who needed to upgrade English (est. 1983);
  2. Modular Skills Training (MOST) – those who did not complete Primary education but wanted to upgrade certain areas (est. 1986), certified through NTC;
  3. Worker Improvement through Secondary Education (WISE) - those who completed BEST or had primary education (est. 1987);
  4. Core Skills for Effectiveness and Change (COSEC) – for service sector (est. 1987).
- Stakeholder approach to implementation and delivery;
- SDF funded, managed by NPB, plus state investment in delivery and infrastructure;
- 1983-1987: SDF invested S$24 million in BEST (Singapore Government, 1989c);
- 1989: 200,000 individuals engaged in CET, half studying under VITB and half under NPB. VITB had 38,000 BEST trainees, 22,000 on WISE and 17,000 on MOST (Parliament of Singapore, 1990, column 367).

Provision for other disadvantaged groups was expanding. For example, Residential Committees attached to public housing 'HDB' areas (traditionally linked to the People's Action Party but more recently non-political), acted as grassroots organizations, supporting unemployed residents and those facing redundancy or social problems. Equally, under national legislation, fee subsidies promoted education for Malay children through to tertiary level (excluding independent schools). Research had found the Malay community to experience lower performance in the education system and higher incidence of low pay work. RPL was usually negotiable on a case-by-case basis, although the NTC and VITB Public Trade Test system were important developments (Box 11). Various school- and community-based resources were available in the public and private sector to identify training needs and opportunities.

2010: A variety of integrated systems are available for citizens and PRs to locate career and training opportunities, including public and private, one-stop and online resources. Important examples are the WDA's Career Centers, which are located in the CDCs, and the Employment and Employability Institute (e2i). There are six WDA Career Centers located around Singapore, including CaliberLink, a one-stop shop specifically for PMEs. E2i is a union-led program under the NTUC and its activities are fully integrated with national policy and WfD programs such as the WSQ.

Many LLL options are available and well publicized, some receiving generous public funding (e.g. WSQ) and others individually-funded (e.g. professional qualifications, postgraduate and international education). RPL usually occurs on an individual basis, although, as noted, there are now a number of agreements in place to facilitate credit transfer. In 2011, MOE enhanced its CET qualifications framework, with courses made more compact and modular, to cater better to adult learners and allow them to customize the pace of their learning. Under the enhanced qualifications framework, relevant work experience and alternative qualifications can also be considered for admission. MOE also increased subsidies for Singapore Citizens for its academic CET programs. Equally, Continuing Education and Training Centers (CETCs) and Approved Training Organizations (ATOs) can develop modules within the WSQ framework that include RPL. For example, Singapore Institute for Retail Studies (SIRS) runs an 'Assessment Only Pathway', in which RPL means that certain modules can be completed without additional training.

For disadvantaged groups, MOE financial assistance aims to ensure that all qualified citizens can access post-secondary education, regardless of socio-economic background. Generous bursaries are available to those in the lower and middle-income brackets, covering the lower two-thirds of the population by household income and fees are kept relatively low. More than 90% of each school cohort enters post-secondary institutions, although there have been questions in Parliament about the percentage of lower income individuals going on to Diploma and Degree level studies, with fewer in this income bracket progressing to the tertiary level of study (MOE, 2011a). There are, however, generous bursaries for the lower income percentiles, which were expanded in 2011, and individual institutions are expected to target disadvantaged students through their programs.

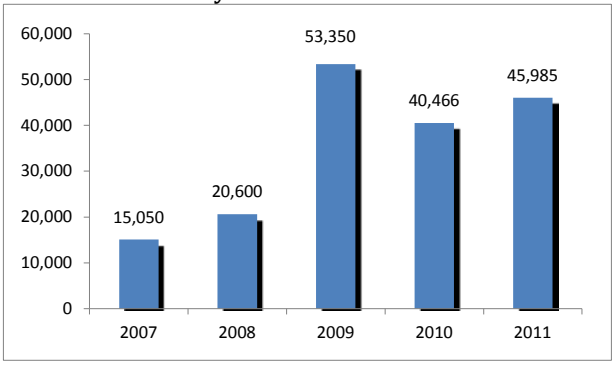
In CET, the Polytechnics and ITE have also set up divisions dedicated to coordinating and promoting CET. Numerous programs are in place, some open to all qualifying individuals and others targeting disadvantaged groups. Two notable developments are the MOM and WDA's Workfare Income Supplement (WIS) and Workfare Training Support (WTS) schemes, and delivered with e2i and the Community Development Councils (CDCs). They target low wage and older workers, a high policy priority, by providing

heavily subsidized WSQ training (up to 95%), absentee payroll for staff attending off-site training, and salary supplements to promote upgrading and retain older workers. In 2010, it was estimated that WTS would be backed by state funding of S$190 million over three years.

Box 14: Employment and Employability Institute (e2i)

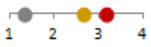
- 2008 - e2i officially launched. NTUC program supported by WDA, Singapore Labor Foundation (SLF) and Singapore National Employers' Federation (SNEF);
- National, publicly-funded assistance program for the unemployed and workers at any level seeking to upgrade, including PMET;
- Provides evaluation, training, job matching, information via job fairs and in-house resources in one location;
- Special programs target disadvantaged groups, e.g. Employability Camp Program for long-term unemployed. Women back to work programs funded by e2i and organized within NTUC;
- 2010-2011 - S$19 million government grants disbursed, including $6.3m for unemployed skills upgrading, $8.2m for worker skills upgrading, $4.5 for company productivity-boosting activities, including gain-sharing for employees.

Workers assisted by e2i 2007-2011



Source: e2i, personal communication

▣ Set policies and procedures to renew programs



This action scores as **Latent** for 1970 and **Established** for 1990 and 2010.

Overview 1970-2010: From the 1990s, the policies and procedures for the renewal of publicly-funded programs became clearer and more formalized. Manpower planning has played an important role in identifying areas for development but also means there are certain flows able to move through the system. The biggest change over time has been in the CET area, following the establishment of the WDA and the WSQ framework. The latter is now supported by standardized requirements for providers and centralized application systems. Moreover, input from stakeholders has become an increasingly important element of program renewal both for PET and CET.

1970: PET Institutions were subject to the Education Act and/or other Acts under which they were created, and the MOE had overall responsibility for the PET system. The MOE provided a fairly strong guide over operations in the PET system. Procedures had not been standardized at this point, being more *ad hoc* and reviewed on a case-by-case basis between the institutions and MOE. In CET, the AEB formed sub-committees in various areas of provision to inform its programs. The EDB designed its own programs, although it often worked with PET institutions and MOE, and the Ministry of Labor (MOL) oversaw EDB plans.

1990: Processes to open, adjust or close WfD programs were fairly standardized at the PET level. Apart from the legislative Acts setting out basic governance, PET standards were not generally published. Secondary institutions submitted requests to MOE, reporting on ability to meet requirements such as staffing and resources, with negotiation on details. Notably, secondary education was quite standardized under the MOE framework and curriculum. Although independent schools had a higher level of autonomy to introduce new curriculum approaches, the nature of the national curriculum and emphasis on exam results meant that they rarely took innovative approaches (Gopinathan and Tan, 2000). For vocational or technical courses run by the VITB and within secondary schools, institutions were expected to consult relevant stakeholders. VITB and then ITE, a Statutory Board, WFD authority and provider, had responsibility for its own PET and CET programs and consulted closely with its own industry advisory councils.

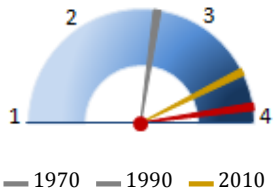
In post-secondary PET, manpower planning played an important role in the renewal of programs. Targets meant that when one course was expanded, another might need to be reduced or closed. New courses were also introduced at the direction of the MOE when the government identified a strategic need. Such a request might arise from the manpower planning process or from EDB's engagement with employers to identify future skills needs.

2010: Today, ITE and polytechnics need to approach MOE regarding development of new programs, and if seeking additional funding for strategic developments. The public universities have the autonomy to mount new programs but need to consult MOE if this requires additional public funding. Labor market analyses inform WfD provision, to ensure good employment prospects and that curriculum supports industry needs. As part of the manpower planning process, MOE works with other ministries and agencies such as MTI, MOM, EDB and industry to identify future

directions, as well as gather input from employers about labor market trends. The National Manpower Council's national and institutional targets also shapes renewal processes. When designing and altering programs in technical, vocational and post-secondary PET, relevant stakeholders are consulted as a matter of course. If a PET program has professional standing or licensing function, such as in Engineering, professional bodies must be involved.

In CET, the WSQ system incorporates a standardized process and requirements. CET providers present proposals for any major, new programs as well as changes, to the WDA. Approval takes place via the standardized course accreditation process and online 'Skills Connect' system. Providers determine exactly how to involve stakeholders in decisions about course development. As part of the renewal process, WDA also examines the course quality assurance system and process.

Policy Goal 5 | Ensuring Efficiency and Equity in Funding



Policy Goal 5 examines the resources supporting the workforce development (WfD) system. In particular, the systematization of WfD funding strategy and allocation, and how far partnership between stakeholders is institutionalized and facilitated. Overall scores are Established for 1970 and Advanced for 1990 and 2010. The significant level of resources for WfD reflects its centrality to government strategy and policy, but has also helped establish a strong system with effective implementation. Generous funding perhaps also means there has been less urgency for cost-cutting measures and efficiency drives, which may have been necessary and desirable elsewhere. The Policy Actions covered are: fostering articulation across different levels of WfD; funding allocation tied to efficiency; and fostering partnership between government and other WfD stakeholders.

▣ Articulate Funding Strategy

This action scores as **Emerging** for 1970, **Established** for 1990 and **Advanced** 2010.

Overview 1970-2010: Over time a more coherent WfD infrastructure has been established. This occurred in the early years for the PET level, but the CET level remained less coherent until the 2000s. The funding strategy has equally formalized, although flexibility exists to allow for some legacy systems that deliver WfD effectively in certain sectors. Notably, CET funding is not channeled through one sole authority. Instead, manpower is recognized as an issue relevant across government. Funding is thus made to various ministries and agencies for different strategic areas of WfD. Nevertheless, a major stream of vocational CET funding goes via the WDA for WSQ and non-WSQ training. The Lifelong Learning Endowment Fund (LLEF) is a major development for CET in the 2000s.

1970: A fairly systematic approach to WfD funding was in place from the mid-1960s, determined by government ministries. However, the infrastructure to support WfD was still being created. As such, the strategy included a process of diverting funding, in some cases quite rapidly, to deal with emerging skills challenges and to build up provision swiftly.

Funding to Ministries such as MOE was systematic, and funding to PET institutions from MOE was similarly fairly formal and systematic, although there was room for additional funding applications when strategic issues arose. For example, expansions were made in 1968-70 to the Polytechnic system and University programs. International aid was received for a number of activities in technical education for school children. As a Statutory Board, the AEB also applied for funding through the MOE, covering both PET (for adults) and CET activities within that budget.

CET funding was channeled through a number of ministries, including Finance, Labor and Education. CET funding contained strategic and *ad hoc* elements, which tended to be more reactive to the changing situation. This reflects that CET was fairly dispersed across different authorities and providers. For example, manpower development was part of the EDB activities. The Ministry of Finance funded the EDB, including dedicated tranches of funding for WfD programs. Employers and unions also sponsored training programs, which would have added to the overall spend on WfD, although there were no formal mechanisms to promote such funding. Allocation of public funding was reviewed on an annual basis when agencies and providers applied to ministries for funding. There is no public evidence of evaluations of the overall funding strategy.

1990: From the early 1980s, with a more strategic approach to WfD including the manpower planning process, the WfD funding plan was determined with advice from key stakeholders as well as cross-ministry discussion. The Economic Review and the work of the CPTE shaped funding strategy at both the national and institutional level, effectively providing a review of priorities for funding and making resources available from the MOF. As well as the ministries involved in CET in the 1970s, a new Ministry of Trade and Industry (est. 1979) acted as a further channel for WfD funding, becoming the parent ministry for agencies such as the EDB and PSB. The Skills Development Fund was in place from 1979.

As part of regular review processes, PET institutions reported a spending plan along with overall direction and provision to the MOE. Although having a higher level of autonomy than secondary institutions, the ITE, Polytechnics and Universities submitted detailed annual plans to MOE for approval. Statutory Boards went through a similar process when requesting funding from ministries. Line-item allocation, detailed spending plans and incentives for performance

featured in annual budgeting practice. As part of the funding strategy for CET, the SDF was well established by 1990. The employer levy provided a significant additional source of funding to promote employer investment. The levy amount was reviewed internally to inform national policy.

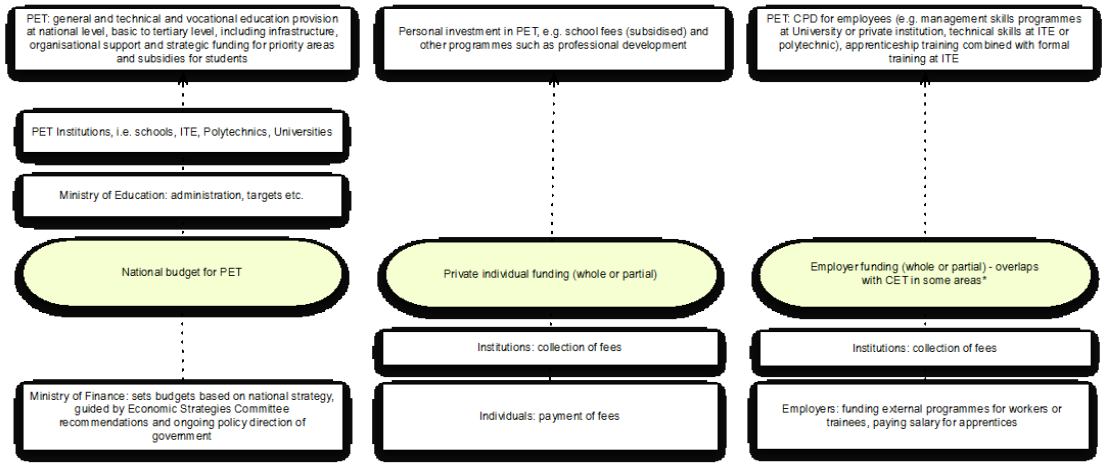
2010: WfD funding strategy is formalized across a number of levels for both PET and CET. The overall national WfD funding plan for PET and CET is based on 'strategic importance', developed by the government through discussion with Ministries and stakeholders. PET funding comes under the MOE. The education budget has always been substantial (Box 14), second only to defense in 2010 as a proportion of GDP. Manpower Planning continues to shape PET targets and funding. The manpower planning process is a ministerial level meeting involving negotiations with a range of stakeholders and agencies. Targets are given for key areas of provision, rather than across the board, impacting on some areas of institutional funding. PET providers submit annual performance reports to MOE as well as future funding plans, which are negotiated with the MOE. The MOE has the final decision over funding, but priorities are shaped by discussion with other ministries and key stakeholders.

The funding strategy for CET is quite different. As noted, different ministries and their related agencies receive an element of funding for WfD activities. This includes funding for academic CET courses under the MOE, such as through subsidies. The three main streams of CET activity come from a) worker (via employers) and unemployed training for WSQ, b) non-WSQ training funded by the SDF, and c) institutions funded by MOE. The CET programs conducted by MOE-funded institutions lead to academic qualifications, and are mostly extensions or modifications of PET programs where there is CET demand. Many are conducted as part-time certificate, diploma and degree level courses.

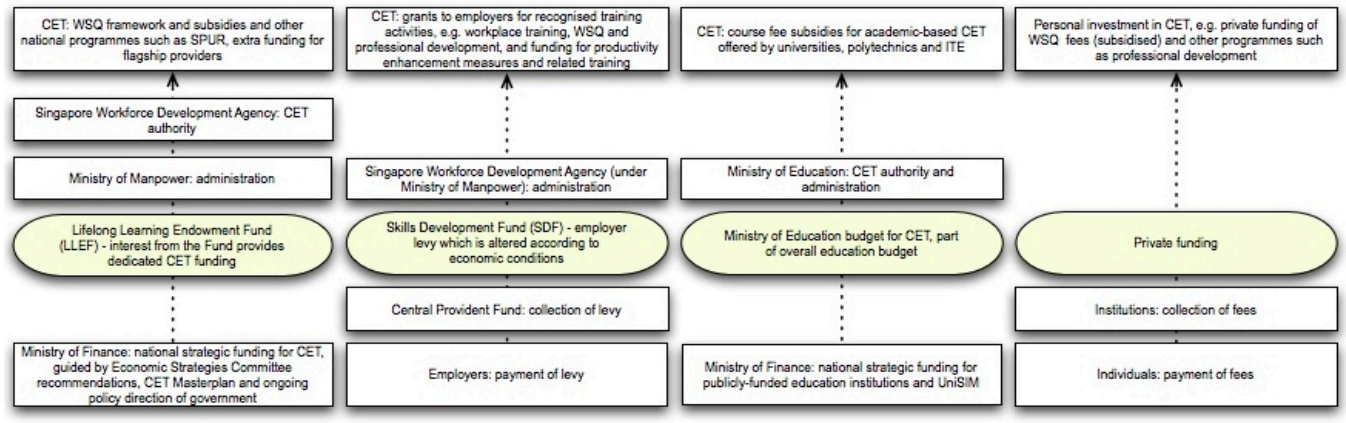
With regards to funding, WDA's main funding sources come through two important sources; namely, the Skills Development Fund (SDF), and now the far larger Lifelong Learning Endowment Fund (LLEF) which is state-funded and regularly 'topped up' as part of national strategy. This is separate from the MOE budget for CET programs leading to academic qualifications and provided by PET institutions.

Box 15: Diagram of the financing system

PET Funding Mechanisms



CET Funding Mechanism



The overall WDA funding strategy, in essence entirely geared towards WfD, is formulated through a range of inputs, including cross-ministry discussions filtering down from the MOM. Budgeting for the WSQ is identified through 'ground-up' processes within WDA. The WDA has 5 Frontline Divisions (FD) responsible for looking at industry sectors. Each FD determines which sectors it engages with, the demand for WSQ and the budget required. As such, 'corporate planning' at the FD level feeds up into the WDA funding strategy. At the next level down, CETCs submit reviews and funding plans to WDA for approval. For ATOs, which generally do not receive public capital funding but a subsidy per trainee, performance is reviewed prior to renewal of approved status (Box 15).

▣ Allocate funds to achieve efficient results

This action scores as **Established** for 1970 and **Advanced** for 1990 and 2010.

Overview 1970-2010: Allocation of funds has been tied closely to achieving national economic and educational objectives. The 1990s saw a shift towards efficiency drives in government. However, perhaps due to the permanently high investment in WfD, but more importantly due to the close link made between WfD and achieving economic policy, the primary focus has not necessarily been on efficiency. Rather, the priority is effectiveness and outcomes, i.e. producing the desired results. For example, since the 1980s, a specific amount of PET funding has been linked directly to targets set by the manpower planning process. Its goal has been to match supply and demand and to support changing national policy objectives such as industrialization (1970s), value-added growth (1980s), the shift to an advanced economy (1990s), and retaining competitiveness and high-skills in a global, highly interdependent economy (1990s and 2000s).

1970: Fairly explicit criteria shaped the allocation of funding to the WfD system, targeted at meeting national economic development goals e.g. universal basic education, industrialization. There was no published evaluation of the criteria for funding. However, institutions reported to WfD authorities and were reviewed when applying for the annual budget.

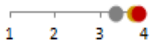
1990: Efficiency became an important focus following major recession in the late-1980s, including ensuring money was well spent in the education system (Tan, 2002). Shortly before 1990, the government introduced the Management Accounting System for Ministries to monitor spending and outcomes as part of reducing public spending costs, so the costs of education programs would have been reviewed by the MOE.

As well as the Economic Review, the top-level decisions and reviews of allocation of WfD funding were through the CPTE and the MOF. National priorities and the results from PET institutions were crucial factors. For example, following policy drives in the 1970s, there was mass expansion of secondary and post-secondary education in the 1980s. Resource use was also reviewed through annual reports of PET providers to the MOE. In CET, funding for programs such as skills upgrading and EDB activities were explicitly linked to national policy and skills requirements.

2010: More targeted annual institutional performance reviews have been in place since the mid-1990s for PET. Box 17 shows that whilst PET funding has continued to grow year on year, expenditure on areas such as development peaked in the 2000s and has slowly declined since. This perhaps reflects both the maturity of the PET system and the strong emphasis on public-private partnership to achieve the 'Education Hub' growth. With the greater consolidation of the system has also come the identification of more explicit funding criteria.

In CET, subsidy funding for the WSQ is explicitly tied to successful completion of units or qualifications of the WSQ, and only goes to accredited providers. To ensure efficiency, funding is targeted at areas of highest impact, such as sectors that employ a good proportion of citizens. The results are reviewed by WDA in relation to numbers going through and entry into relevant employment, based on data provided by CETCs and ATOs. The WDA carried out a study on the impact of the WSQ for individuals, and IAL is carrying out evaluations on different dimensions. For example Willmott (2011) analyzed the outcomes and impact of the Employability Skills Program, which caters for generic skills. In 2011, no cost benefit analysis had been made of the system, although its size and the prevalence of generic skills training make this challenging. Efficient use of funding is very important, but it is the achievement of outcomes that really drives the system. Where reforms are identified as necessary, they are rapidly implemented.

▣ Foster partnerships



This action scores as **Advanced** for 1970, 1990 and 2010.

Overview 1970-2010: A demand-led approach has been a key feature of the WfD system. Due to aspects such as the tripartite alliance, structural reforms, and increased involvement of community groups, partnership to achieve this has strengthened over time. Benefits for, and investment by, stakeholders similarly grew. The Statutory Boards can be seen to play an important role in engaging stakeholders and

supporting their needs in return. The level of partnership in the WfD system reflects the emphasis on cooperation and the adoption of what could be described as a managed market mechanism. The latter aims to support effective implementation with results that simultaneously meet national strategy and demand.

1970: There was a good level of partnership between the MOE and PET institutions. The TED, focusing on technical education, did not manage to foster good links with industry (Chiang, 1998). Reforms led to its replacement by a Statutory Board in the early 1970s, partly on that basis. The AEB, however, had good links with industry, covering both PET and CET. EDB also formed excellent links with industry, feeding information through to other agencies, as well as developing its own programs in response to industry needs. The tripartite partnership was only emerging at this point, nevertheless, the unions were active in promoting recognition of differential skills levels via wage bargaining.

Stakeholders benefited from the partnerships in a range of ways. EDB and other agencies acted as important sources of information and funding to update industry, providing a two-way relationship. EDB put significant resources into WfD activities for the workforce in areas less easily covered by existing PET institutions, and received applications for funding for in-house and external company training. MOE made facilities available for PET and CET activities in partnership with EDB and other PET institutions. EDB, the PET institutions and AEB seconded staff to provide training in-house for companies under EDB schemes. In return stakeholders contributed a range of resources for WfD, including funding, equipment, facilities, and technical personnel. Community groups also made a significant contribution to establishing the WfD infrastructure: the Chinese community helped create and fund Nanyang University in 1965, the first Chinese medium university in South East Asia, merged in 1980 to create the National University of Singapore. The Ngee Ann Kongsi established Ngee Ann Polytechnic in 1963.

1990: Stakeholder partnership was institutionalized via the tripartite alliance of the early 1970s. Tripartite representation on committees, councils and boards became commonplace, as well as union representation in government. Cross-ministerial cooperation to meet WfD goals became standard practice. Equally, covering PET and CET, the VITB had forged a much stronger partnership with industry than its predecessor the TED, and this continued with the ITE from 1992. The SDF from 1979 had helped to create more buy-in from employers, initially supported by fiscal incentives and incentivized through ability to draw on SDF to fund restructuring and technology upgrading. EDB's relationship with MNCs was also used to leverage a stronger co-financing approach to industry training when compared with the situation in 1970.

Box 16: EDB's Joint Industry Training Scheme (JITS)

Creation

- December 1971 - National Industrial Training Council approved EDB and TED's proposal to run joint industry training centres under the JITS;

Activity

- Precision engineering new national and sectoral growth area, led to a Tata-Government Training Centre (TGTC), providing 'crash' training for 'tool-makers, precision machinists and other skilled craftsmen vital to Singapore's rapidly industrializing economy' (Soon, 1993: 242);
- Landmark partnership for EDB's WfD activities, led to similar partnerships, e.g. Rollei and Phillips;

Key feature

- The companies agreed to train individuals to meet their needs and the same number again to go into wider industry. Provided industry-led training, built capacity by drawing on MNC capabilities, and skilled workers to feed growth in new industries;

Evolution

- Early 1980s - partnerships also formed between the EDB and several national governments to train highly-skilled technologists.

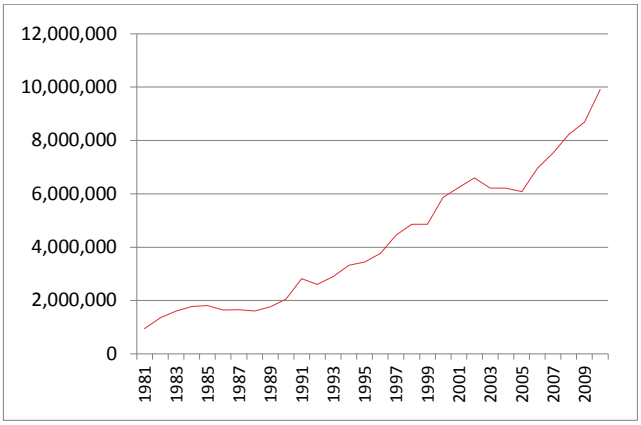
Stakeholders beyond the tripartite alliance were engaged in the system, with a particularly important role for community groups representing the different ethnic populations. The benefits of partnership also expanded. The NTUC's representation in government gave it an important role in decision-making and awareness of emerging issues. PET institutions benefited from partnership with the MOE and other agencies, such as sharing expertise and personnel for key projects, which remains common in the government. For example, in order to set up Nanyang Polytechnic (NYP) in the early 1990s, key staff were seconded from the EDB Manpower Development Division. This allowed the prestigious EDB Institutes of Technology to later transfer successfully to NYP. Stakeholders also benefited from access to high-level information on the labor force and economic trends, as well as feeding into future WfD policy and planning.

2010: Much of the basic structure has remained since the 1990s. However, in CET, the creation of the WDA and WSQ framework further engaged industry in the system. This occurs right from the identification of sectoral skills needs and how WSQ can meet those, through to program implementation. As well as access to substantial subsidies for training, CET providers can apply for funding to develop innovative pedagogies and practices under the IAL CET Innovation Fund. Whilst the latter is on a small scale, this helps to build provider capacity, both public and private.

Via partnership, funding is also made available for new industry initiatives, such as projects to attract employees to new sectors. For example, the government partnered with industry through e2i initiatives to promote jobs within the recently-

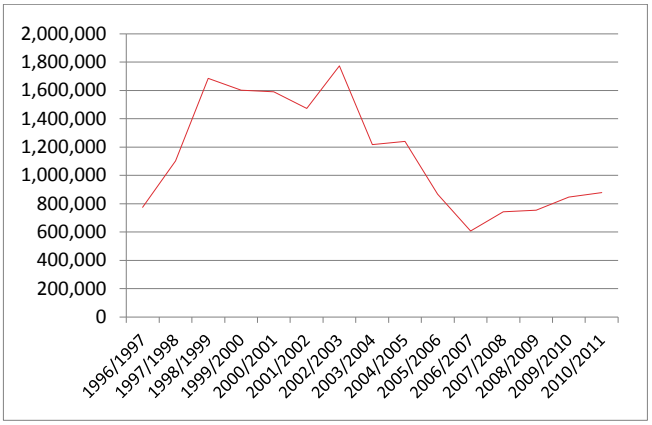
launched Integrated Resorts industry. Furthermore, where gaps are identified in current WfD provision, the government works with private sector providers and industry to develop new areas of capability. In the last decade, an important policy focus has been developing Singapore as a 'higher education hub', partnering with prestigious overseas institutions and industry to create a much-expanded range of tertiary institutions.

Box 17: National Education Expenditure (PET)



a) Total government expenditure on education (S$'000)

Source: MOE data from data.gov.sg, accessed 2012



b) Total government expenditure on education development (S$ '000)

Source: MOE, 2011 (* Preliminary figures for 2010/11)

Policy Goal 6 | Assuring Relevant and Reliable Standards

Policy Goal 6 considers the extent to which quality assurance mechanisms are in place in the form of standards and provider accreditation, and the use of competency-based testing. Overall scores on this policy goal are Emerging for 1970, Established for 1990 and just into Advanced for 2010. The quality and standards of providers became more important from the 1980s and 90s. Since 2009 this has been particularly in relation to private providers, leading to recent reforms. Policy Actions covered are: specification of accreditation standards for providers; strengthening of skills testing and certification; and measures to ensure the credibility of the accreditation and certification systems.

▣ Specify accreditation standards for training providers

This action scores as **Established** for 1970 and 1990 and **Advanced** for 2010.

Overview 1970-2010: In the early years of state formation, quantity was a greater issue than quality, with a government drive to provide universal basic education. Following a major education review in 1979, commonly called 'the Goh Report', the public PET and CET system have been subject to a range of quality measures and a stronger review system. International recognition of Singapore's education system attests to the quality of provision. Nevertheless, private PET and CET providers have only recently come under closer scrutiny. New legislation has created a greater level of accountability for major providers that do not receive public funds and 2009 saw the establishment of the Private Education Act and Council for Private Education (CPE).

1970: From the 1960s, the MOE set standards required of PET institutions, and governance arrangements were established through the Education Act, or other Acts covering providers. Acts covering WfD providers (PET and CET) were subject to occasional review. PET Institutions were also reviewed by the MOE, the General Education Department (GED) and TED, via school inspections and reviews. At this stage, quality levels were not the priority in PET, the key focus being on building a universal basic education system, with some expansion in the post-secondary and tertiary levels. The University of Singapore was not autonomous at this time, so would have been guided more closely by the MOE in terms of standards. For the private sectors, however, there were few, if any, accreditation standards. Even with the public system, issues were noted with quality and mixed standards across institutions, given the diverse and shifting nature of provision at this stage (Low et al, 1991). In CET, the AEB and EDB were subject to the terms of governance set out in the respective Acts under which they were created. Programs organized under the EDB were run by EDB, as well as through existing PET institutions and AEB (using MOE facilities in some cases), and in-house programs where new capacity was needed quickly. As such, MOE, TED, AEB and EDB established the standards for the provision and would carry out visits, reviews and audits.

1990: Following major educational reform in the 1980s, and a much-enhanced WfD infrastructure, quality of provision was of growing importance. Standards were clearly in place for the PET level, with the MOE primarily setting standards and carrying out reviews. International quality assurance standards were drawn on by the MOE when dealing with overseas institutions or professional fields such as medicine and management. Private providers from overseas, such as tertiary institutions working with local partners, applied for a one-time registration from the MOE to run courses. However, there were no published standards other than the Education Act, or those such as the Singapore Polytechnic Act, which covers basic governance, and applications to MOE were considered on an individual basis. The system of quality assurance for private PET institutions was regarded as fairly 'disjointed and piecemeal' at this time (Lim, 2009: 80). For TVET private providers at the post-secondary level, the VITB acted as the accreditation agency. It developed an accreditation framework for companies wishing to train to VITB standards and to meet certification requirements. Standards were set in consultation with industry and the MOE.

2010: A new Statutory Board overseeing the regulation and quality assurance of private education institutions, the Council for Private Education (CPE) was established in 2009 under the Private Education Act (Box 18). With the aim of raising the quality of private education further, CPE recently commenced reviewing both the registration requirements and criteria under the EduTrust certification scheme.

Box 18: Registration and Certification of Private Education Institutions

Creation

- 2009 Private Education Act and Council for Private Education (CPE) introduced;

Key Features

- All private education institutions (PEIs), including many PET and CET providers, must now meet the stricter requirements to be registered under the Private Education Act. PEIs that can meet higher requirements can also attain the EduTrust quality mark.
- PEIs' registration periods and EduTrust award tiers, courses and teachers are listed on CPE website, differentiating quality and facilitating learner choice.

Scope

- The Immigration and Checkpoint Authority of Singapore has made EduTrust certification mandatory for PEIs that wish to enrol foreign students. Only a handful of PEIs that were set up to meet strategic national needs have been exempted. Other PEIs may also seek EduTrust certification as a quality mark.

Current Situation

- 2011 - About 350 registered PEIs offer courses leading to qualifications spanning Certificate to PhD level, as well as preparatory institutions for foreign students seeking to enter mainstream secondary education system (e.g. students from China joining upper primary in a national school).

At the CET level, providers wishing to offer WSQ training must obtain accredited status from the WDA. In 2011, there were 45 CET Centers and around 400 ATOs. Providers that do not offer WSQ or courses to overseas students do not need to obtain accreditation, e.g. micro enterprises or sole training consultants.

▣ Strengthen skills testing and certification

This action scores as **Latent** for 1970, **Emerging** for 1990 and **Advanced** for 2010.

Overview 1970-2010: The concept of competency-based skills testing emerged in the 1990s, but did not come to full fruition until the mid-2000s with the WSQ. Its introduction has brought benefits, although it is also recognized that this is not a 'cure-all' for skills and development challenges. Nevertheless, it represents one of the key developments in the WfD system, providing a much-enhanced position for CET and new opportunities for certification outside the general education system. It is certified centrally to meet current quality standards, and does not specify IT-based testing, meaning that it does not meet the Rubric criteria for an Advanced system. However, it represents a significant development within the Singaporean context and is seen as fit for purpose at this time.

1970: There is no evidence of a competency-based testing system up to 1970. The technical education system was just expanding from the late 1960s and only latterly emerging as a key player in WfD, having been rather neglected prior to the period of full self-rule after 1959 and a 1960 'Commission of Enquiry into Vocational and Technical Education in Singapore', which recommended expansion of technical education to support industrialization. The main focus was thus on rapidly providing a better infrastructure and growing teacher numbers.

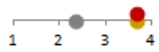
1990: The NTC was a key development in 1973 (Box 9). The framework continued into the 1990s. It applied to a range of critical occupations, covering manufacturing, as well as shipping and the trades; manufacturing being the mainstay of the economy. NTC was just being developed for retail and other service industries by 1990. Testing involved a mix of theory and practice and was centrally administered and certified by the VITB as the WfD authority, even when the training was provided in-house by Approved Training Centers (e.g. employers approved by VITB) and as part of the Apprenticeship system. Since the education system was well funded, cutting costs in testing and certification was not a key priority at this time. NTC is now regarded as a predecessor of the current WSQ system, albeit a less developed framework since it did not have wide coverage.

2010: Following piloting, a competency-based framework called the National Skills Recognition System (NSRS) ran between 1999-2004. It was piloted with the hotel, marine and cleaning industries and spanned 69 industries by 2004. However, it was found that standardized, government-devised assessment plans were not as effective as they might be, since providers could not adapt them. A third-party evaluation was commissioned in 2004 to review the effectiveness of the NSRS, including industry engagement. From 2003, WDA examined how assessment could be decentralized, studying international models. The resulting WSQ system, launched in 2005, provided a standardized competency-based training and testing system. By 2010, it covered 23 sectors.

Under the WSQ, providers set the assessment plans allowing for industry needs. Exceptions would be for sectors (such as security), in which WDA engages a central assessment agency to ensure consistency and to meet professional licensing purposes. Another exception would be where a sector is assessed to have weaknesses, such as curriculum development. In such cases, quality standards are maintained by identifying a limited number of providers in the sector to assess training, although a larger number may be able to provide training, or the use of standardized assessment plans. Testing is competency-based and is carried out by the training providers (with the exceptions mentioned). Certification for the learner is provided by the WDA as the CET authority. The online WDA Skills Connect System supports the WSQ system right from accreditation of providers through to issuing certificates to trainees. Some level of competency-based training and testing will also occur

outside the WSQ within PET institutions such as the Institute of Technical Education (ITE) that replaced the VITB in 1992 and which tests training and certifies post-secondary technical programs.

▣ Credibility of accreditation and of skills certification



This action scores as **Emerging** for 1970, and **Advanced** for 1990 and 2010.

Overview 1970-2010: Legislation outlines the governance systems of public education institutions. Institutional accreditation standards, as previously noted, were introduced progressively for private providers. Protocols were established and standardized testing introduced from the early 1970s onwards, providing a uniform and credible examinations system for primary and secondary education. Technical education accreditation and certification has tended to come under the remit of the relevant authority, ensuring credibility and standards. At post-secondary and tertiary levels, the extent to which public PET institutions maintain the level of standards also forms part of regular performance review. There is a high level of stakeholder involvement in identifying standards and systems draw on international practice where relevant.

1970: School examinations were centralized as part of building a universal basic education system. The MOE Examinations Division introduced standard examination protocols in 1970, and in 1971 an integrated examination system for the different language streams (English, Malay and Tamil). This established the Singapore Cambridge General Certificate of Education and created a 'uniform standard, irrespective of the language used' (Gopinathan, 1974: 44). Examination standards were publicized and enforced as part of the reform.

The AEB, covering PET and CET, had its own examination and certification system, as well as preparing 'over-age' students for public exams at primary and secondary level. However, it seems that a good part of CET provision was 'stop gap', often being uncertified and primarily to aid retrenchment or skills upgrading for immediate needs, such as that provided by the EDB. There was little emphasis on non-state providers.

1990: Standardized examination processes were well established within general secondary and post-secondary education. Accreditation standards were publicized and, in effect, underpinned the license to operate for PET institutions, with maintenance of standards forming part of the annual performance review. In general education, the Singapore Cambridge General Certificate of Education was based on UK standards and adapted to meet MOE requirements. At tertiary level, testing and examinations were the responsibility of the respective institutions, with credibility coming through institutional governance and academic procedures (e.g. exams board, external examiners, academic boards, faculty process etc.).

Training under the VITB included both certified and non-certified courses. Standard VITB courses met NTC standards and testing, including training and the Apprenticeships provided by ATCs. VITB centers also conducted training and testing to meet industry-licensing standards. Stakeholders were involved in setting standards in a number of ways. In 1987 VITB standards existed for 66 trade skills, developed by VITB in consultation with employers as well as NPB, SDF and industry associations. As of 1990, skills standards were identified and developed with industry through Training Institute Advisory Committees (TIACS), e.g. Trade Advisory Committee, Wood-based TAC and Electrical TAC. A robust system was in place to implement standards, and inspections and reviews were carried out by VITB. In 1987, to help build capacity and ensure standards of in-house training such as that under the ATCs, the NPB recommended specialist development for personnel carrying out workplace training (Singapore Government, 1987).

'Improving Primary Education', the second major national education review in 1991, led to reforms in the early 1990s. These included changes to primary leavers' testing standards and entry requirements for secondary general and vocational/ technical education. VITB was also reformed as a result, becoming the Institute of Technical Education (ITE) in 1992 and a post-secondary rather than post-primary institution. In the 1980s, 75% those who entered VITB with a primary-only education were, on graduation, unable to get work in the fields they trained for at VITB, and 60% were unable to pass NTC-3 courses (Kow, 2011). Changing to a post-secondary institution, with $300 million investment in infrastructure, helped to raise the profile of technical education and ensured that pupils were better prepared to meet the demands of courses and certification, as well as employer demand for secondary-educated workers as a minimum.

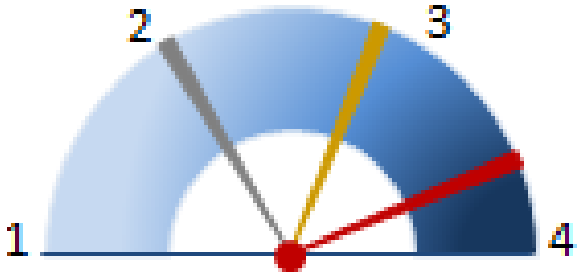
2010: Key changes in the 2000s included the establishment in 2004 of the Singapore Examinations and Assessment Board, a Statutory Board under the MOE. SEAB was formerly the Examinations Division at MOE. Being changed into a statutory board gave it greater operational flexibility to meet changing local and regional needs in education. SEAB works closely with MOE to ensure that national examinations are aligned with the national curriculum. It also provides assessment expertise to other Asian countries, allowing them to benchmark their students' performance against Singaporean education

standards. As noted, the CPE was also established, bringing into place a major new regulation and quality assurance framework for PEIs at both PET and CET level.

In CET, the major development has come through the WSQ system. The WDA publicizes and enforces the mandatory accreditation and registration for all WSQ providers. The accreditation standards and a list of approved providers are published and open access on the Skills Connect website. Training and assessment must meet the skills standards agreed by stakeholders when designing WSQ courses, and audits help ensure that training meets these effectively.

Detailed Results

Dimension 3 | Service Delivery[6]

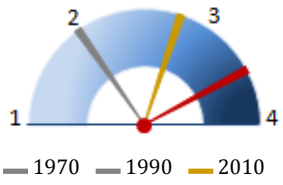


Policy Goal 7	**Fostering Relevance in Training Programs**
Policy Goal 8	**Incentivizing Excellence in Training Provision**
Policy Goal 9	**Enhancing Accountability for Results**

[6] The composite scores shown in the dial are the same as the categorical ratings shown on the cover of this report. They have been converted using the rules indicated in footnote 3 on page 6. The categorical ratings conform to the standard presentaion of results in the SABER intiative, while the presentation in the dials reveals more detail.

Dimension 3 | Service Delivery

Policy Goal 7 Fostering Relevance in Training Programs



Policy Goal 7 examines how links with industry and research institutions ensure the relevance of workforce development (WfD) provision, and whether recruitment, retention and development standards are in place to enhance the competence of WfD providers. Overall scores are Emerging for 1970, Established for 1990 and Advanced for 2010. Over time, links have been formalized and recruitment measures have been enhanced. Policy Actions covered are: strengthening linkages between training providers, industry and research institutions; the role of industry in program design; and measures to improve the competence of administrators and instructors.

▣ Link training, industry, and research institutions

This action scores as **Emerging** for 1970, **Established** for 1990 and **Advanced** for 2010.

Overview 1970-2010: Links with industry have been strong throughout the periods studied, being recognized early on as important to ensure relevance of education and training. Over the decades, connections between independent research and practice have not always been as evident. The fact that much internal research within government remains confidential appears to make such links more challenging.

1970: Formal and informal links were in place between training providers and industry, with significant collaboration in some areas. For example, covering PET and CET, the AEB had good links with industry as well as other stakeholders. AEB was regularly called on to provide bespoke courses. Equally, EDB developed excellent links with industry, helping to ensure its training programs were highly relevant. Such connections led to the establishment of EDB's JITS (Box 16) and technology centers. PET institutions such as the Polytechnics had good links with industry. Although it was reported that the polytechnics were, in the 1980s, 'amazed' at the world-class facilities that EDB had built up in industry training through employer and foreign government partnership, which were later integrated primarily into Nanyang Polytechnic in the 1990s. As noted, the TED, as a department of MOE, did not prove as successful in engaging employers in technical education. This was recognized, and the Industry Training Board (ITB) replaced TED in the early 1970s. ITB had a strong remit to engage industry and greater flexibility due to its Statutory Board status.

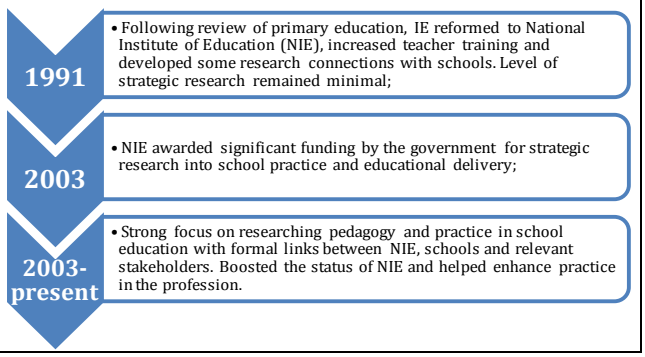
There were some links between research institutions and providers. Ministries housed their own research units and had mostly informal links with researchers in the universities, helping to inform policy development. In PET, the MOE research unit developed policy recommendations that shaped practice. An Economic Research Centre at the University of Singapore (now NUS) was set up with funding from the Ford Foundation in the mid-1960s. By the 1970s, the MOF took over funding the ERC and requested projects, many focused on labor force issues and there were clear connections between research and policymakers.

1990: Industry engagement continued to be recognized as important to ensure relevance of education and training. Business and industry were significant members of the boards and committees of PET institutions. Industry also partnered in areas such as apprenticeships, placements and sharing industry knowledge through staff, particularly for technical training within VITB. Industry was engaged at the faculty level when designing new programs or via demand for bespoke courses. It was common to have Memorandums of Understanding (MOUs) between providers like the VITB or Polytechnics and industry. Industry donated equipment to public providers to help ensure that training met industry requirements.

The ERC was closed in 1985 and WfD research functions were developed within the government, such as within MTI and MOM where national studies are still carried out. Research carried out by the ministries was not generally shared with the wider body of researchers, tending to be internal and confidential. Thus the level of linkage into practice may be more prevalent than public evidence would suggest. Some sociologists and economists were conducting analyses independently, but there was a lack of formal links to training practice. The Institute of Education (IE) had some limited research capacity. However, at this point, there was little if any link between researchers at the IE and WfD institutions. Within Polytechnics and Universities, research carried out by teaching and academic staff and administrative functions is likely to have had a direct influence on program design. For example, Polytechnics and

Universities conducted graduate surveys, noting the outcomes of different disciplines and programs.

Box 19: National Institute of Education (NIE): Building Institutional Research Capacity for School Education



2010: There has been a greater formalization of links between most training institutions, industry and research institutions, with collaboration across a range of activities. It is a standard practice for PET providers to engage with industry in order to ensure provision is relevant and meets demand. In technical areas these linkages provide various opportunities, such as Polytechnic students carrying out project work to gain experience and provide solutions for employers at the same time. The growing number of private education institutions (PEIs) are, by nature, commonly part of the industry in which they are providers and are also are more exposed to the market. Since PEIs aim to make a profit from their operations, delivery of sought after courses is a key driver. This includes world-class institutions that have been attracted to partner in the 'Education Hub'. As noted, in public CET, the WSQ system involves extensive links between training providers and industry as a core element of the framework for designing skills standards and the resulting WfD programs.

In terms of research, the NIE's strategic research into school practice was much enhanced from 2003 (Box 19). In CET, the Institute for Adult Learning (IAL) was created partly in order to provide research to inform the practice of training professionals and WfD policy, as well as providing training and certification in CET. Under an IAL CET Innovation Fund, CET providers can apply for funding to carry out WSQ-related research projects to both enhance practice and build research capacity within the providers themselves.

▣ Design training with industry inputs

This action scores as **Emerging** for 1970, **Established** in 1990, and **Advanced** for 2010.

Overview 1970-2010: Over time, the involvement of industry in training design has become more formalized and is now integrated into PET and CET provision. Industry advice has always played an important role in ensuring WfD meets demand, and it has increasingly gained a decision-making as well as advisory role in areas such as the WSQ.

1970: From the 1960s, industry had an advisory role in identifying and prioritizing publicly funded WfD. There was some involvement at design level, although often informally in the initial stages. This role was particularly evident in technical education and CET. For example, the EDB training centers set up in the late 1960s involved industry experts from overseas in the design and specification of programs, including materials and equipment. However, this was not without its challenges, given the different specifications, equipment and demands of what were at that stage international donors (Chiang, 1998).

1990: Industry had an advisory role on the technical, professional and CET side, via formal engagement with the VITB and tertiary institutions in particular. Within the VITB, apprenticeships and on-the-job training schemes were used to engage employers and ensure that trainees were familiar with the latest technology and equipment. MOUs were signed with key industry partners to help share technology and resources, with trainers able to update their knowledge and students having access to the latest practice. For technical and professional programs in the PET system, industry experts made input into program design and curriculum via faculty boards, exam boards, advisory groups at the post-secondary and tertiary institutions. The TIACs gave guidance to VITB on curriculum including syllabus, course structure, equipment and facilities and staff training. Professional accrediting bodies had input in areas such as accounting, medicine, law and management. For general education, the MOE would periodically consult industry, although industry was engaged in other ways at the policy direction level.

2010: Industry has a strong advisory role in identifying, prioritizing and designing publicly-funded programs in most training institutions. By nature, this linkage is still strongest in relation to more technical and professional provision. It is a standard expectation that PET institutions will engage stakeholders, including industry experts, at board level but also at faculty and program level to ensure programs are industry and work-relevant. Since this engagement helps to build networks and collaboration, it has significant benefits for PET institutions and is thus a general practice and well supported. Industry advises on priorities and is engaged in decision-making via representation on top-level committees and boards, but ultimately the funding priorities are decided by MOE in line with education policy and national economic direction, and aspects such as the National Manpower Council targets.

In CET, industry involvement, including experts and industry associations, is central to the WSQ framework. Industry experts, among others, have advisory and endorsement roles via the ISTC/MSTCs. The boards and committees of CETCs and ATOs also involve industry experts. Indeed, some providers are actually lead employers in the industry.

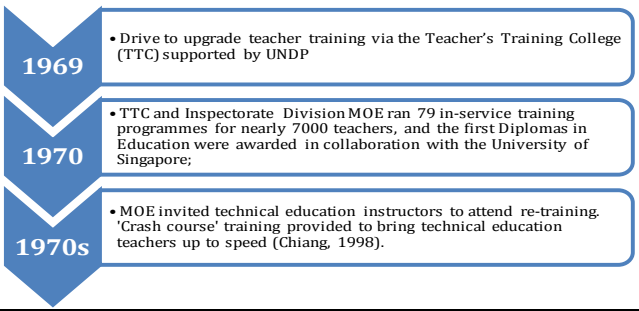
▣ Improve competence of administrators and instructors

This action scores as **Latent** for 1970 and **Established** for 1990 and 2010.

Overview 1970-2010: In the early years, the emphasis was on quantity of instructors rather than quality, simply to support the demand and need for WfD. Following education reviews, recruitment criteria and development for instructors have been agreed upon and set out more clearly. Development opportunities for Heads and instructors have been expanded and formalized to improve standards and competency, although the specific criteria are less standardized and publicized than that of instructors.

1970: Fairly limited measures were in place to raise competence of institutional heads and instructors. Under the Education Act, PET Institutions were required to report to the MOE on their staff. It is not clear whether recruitment criteria were identified by MOE. Performance-based recruitment and retention were not in place at this stage. For instructors, few recruitment standards existed at this time in public training institutions, with more emphasis on rapid expansion to meet the goal of universal basic education and growth of technical education.

Box 20: Early Teacher Training



A variety of PET Institutions existed, some still run by charities, churches and ethnic groups, leading to diverse standards among teaching staff. As a result, there was concern about differential performance levels and low morale among teaching staff across the whole system (Low et al, 1991). Such issues were a key focus for the 1979 'Goh Report', the first major education review.

1990: Much of the system to build competence was established in the 1980s. The 1979 review brought reforms to improve quality and standards, as well as on-going changes over the 1980s. For PET, separate promotion routes were established for graduate and non-graduate Principals employed as part of the Civil Service. MOE normally set the requirements and established a system of succession planning for PET heads. Before 1984, training for principals and vice-principals in schools was *ad hoc*. A more formal system emerged after this time, meaning that Heads and Instructors had access to 100 hours of training per year, a practice that continues today. A program of leadership training was made available at the Civil Service College, with standardized leadership training. There was a large budget for a variety of activities. A Diploma in Educational Administration (DEA) program was established in 1984 as a mandatory one-year full-time course for departmental heads and vice-principals, after piloting by MOE and IE in 1982 with initial funding from the UNDP. This was followed by the Further Professional Diploma in Education Program (FPDE). The MOE could also elect to send heads for IE courses at the higher level and for overseas advanced management programs.

For PET instructors, educational reforms of 1991 led to more stringent recruitment requirements for primary and secondary education instructors. Industry experience was likely to be required for technical educators. A range of development opportunities was in place for PET instructors including seminars, workshops, conferences and television-based programs, e-learning for in-service teachers and classroom learning. However, the quality of training and development for teachers remained under question and the government faced difficulties recruiting to what was seen as a lower profile profession (Goh and Lee, 2008).

Box 21: Review of Teacher Training

- 1989-1990 - review of higher education by Lord Dainton (1989) and of teacher training by the IE and the College of Physical Education (1990) commissioned by MOE;
- 1991 onwards - upgrading teacher education, 'new era' for the compulsory education sector (Goh and Lee, 2008: 99);
- NIE able to provide university-level education and development for teachers for the first time, previously the National University of Singapore (Goh and Lee, 2008; Gopinathan *et al*, 1999);
- 4 year undergraduate program to upgrade primary educators;
- 'Universitization' of teacher education (Gopinathan, *et al*, 1999: 4) aimed to raise the quality as well as profile and professionalism of teaching staff.

Institutional performance measures were in place by the 1990s.

2010: A number of reforms took place over the 1990s and 2000s that further enhanced this area. In PET,

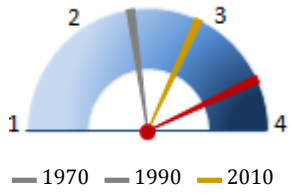
around 1998, the MOE adopted a 'Currently Estimated Potential' (CEP) tool to identify future potential of high-level staff (Chew, 2001). CEP is also used for appraisal of other school staff and more generally across other public sector agencies. This added to the already established succession planning through which MOE identifies a list of individuals suitable to take over headship positions in PET institutions. The recruitment criteria for heads of PET institutions are set by the institution rather than by MOE, although changes of headship must be reported to MOE. It is explained that the driving force is the maintenance of quality and the reputation of an institution, rather than standardized criteria for leadership. Thus the right person to lead the ITE may be different to the right person to lead a Polytechnic or University.

Recruitment criteria for CET heads are generally set by the CET Centers and ATOs on an individual basis; although when there are changes of leadership WDA would expect to be informed. It is felt that the CET Centers and ATOs are best placed to identify the right leadership, particularly as industry-facing organizations. Development opportunities for PET heads and instructors remain numerous. For CET heads, there is access to general provision. At present WDA hosts a WSQ forum to share best practice and enhance capability, including at the management level. IAL is looking to develop specific programs for CET and ATO heads. Trainers too are now required to complete adult educator qualifications, are covered by the WSQ as well as general PET qualifications, such as the Advanced Certificate in Training and Assessment (ACTA) and the Diploma in Adult and Continuing Education (DACE).

Performance measures are more in evidence in the 2000s within the PET sector, having been introduced late in the 1990s alongside changes in the Civil Service. The Enhanced Performance Management System, which involves appraisal and performance tracking of leaders and teachers in education, was introduced by MOE in 2005 as part of routine annual evaluations.

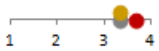
Dimension 3 | Service Delivery

Policy Goal 8 | Incentivizing Excellence in Training Provision



Policy Goal 8 considers the use of incentives to promote excellence in workforce development (WfD), including range of provision, adherence to standards and a demand-led system. Overall scores are Emerging for 1970, Established for 1990 and Advanced for 2010. Over time, increasing use has been made of incentives to shift away from a primarily public WfD system to a highly diverse mix of public and private providers in PET and CET. Adherence to standards has increased, leading to the reforms already noted for private providers. The demand-led aspect has always been a key feature of the WfD system. Policy Actions covered are: promoting diversity of provision; incentivizing private providers to meet standards; and motivating demand-led provision by public providers.

▣ Promote diversity in training provision



This action scores as **Advanced** for 1970, 1990 and 2010.

Overview 1970-2010: The legacy WfD system in place when Singapore gained self-rule in 1959 incorporated many different types of providers. Moving to a largely state-focused provision of WfD in the 1970s, incentives and legislation have since facilitated growth of a range of public and private providers. In the 2000s, Singapore has positioned itself as an 'Education Hub', aiming to promote and incentivize diversity and quality in education and training provision.

1970: A range of non-state providers were involved in PET and CET from the 1960s, although, more through legacy than by design. Providers included a variety of religious, ethnic community and international schools, even up to tertiary level with the previously noted Nanyang University (est. 1965), the latter established to fill the gap in tertiary level education for the Chinese-speaking population and later integrated into the public system. Following the drive for universal basic education, by 1970, only a small number of PET institutions in primary and secondary level were entirely private. In CET, key providers were Statutory Boards such as the AEB, EDB and the People's Association.

Some incentives existed to promote diverse provision in CET. For example, employers, including MNCs, could apply to EDB for funding to support in-house training. In the case of MNCs, this was regarded as an incentive to invest in Singapore. Furthermore, EDB seconded training staff to companies, saving the need for existing personnel to take on the function. Examples of more TVET private training providers included Singapore Institute of Management (SIM), a spin-off from EDB's management training provision in the 1960s, which was set up with a start-up grant from EDB. SIM developed a number of management skills Diplomas in the 1970s.

1990: Pre-employment TVET tended to come under VITB and the ATCs, including companies accredited for Apprenticeship training. TVET numbers were still relatively low, and the technical stream was regarded as a more remedial measure for lower performing students, making this a less competitive area for other private providers. A small number of specialist voluntary institutions existed, such as those for young people with disabilities.

Most PET institutions at secondary and post-secondary level were state-funded or –aided. Reforms were introduced to create grant-aid schools that were part-funded by the MOE and thus applied standard curriculum and organizational practices. New independent schools were freed up in the late 1980s from some of the MOE requirements and able to charge differential fees to create a more competitive market for students, teachers and leaders. There was a market for private providers at the tertiary level, with local companies acting as partners for international institutions, proving popular in areas such as professional education and training. A wide range of small, private training companies and independent trainers existed by this time, often working directly with companies.

In terms of incentives, VITB provided support for Apprenticeship development, and supported ATCs in areas such as curriculum development and materials. SDF funding also helped defray many costs of CET for in-house and company-related training, including making use of consultants. It was also available to upgrade company training personnel, building in-house capacity. On-the-job training was an important policy focus at this time, to provide job-relevant training for company and industry growth. As such, many incentives were at the company level rather than promoting larger private providers *per se*. However, the ability of employers to purchase

training, once approved under the SDF scheme, meant that the number of private training providers grew. Where a strategic need was identified, the government provided considerable incentives to private providers via capital grants, buildings and so on, with the aim of building national capacity. For example, presently large training organizations such as Management Development Institute Singapore (MDIS) started as small private companies and were encouraged to expand through public investment, in order to meet demand and increase stocks of management skills.

2010: Building on the growth in the 1990s, the range of providers is highly diverse, including many state and non-state providers. In 2003, the 'Singapore Education' strategy was launched, aiming to build Singapore as a regional and global 'Education Hub'. A range of incentives is available, including those aimed at building national capacity by attracting leading PET and CET providers from overseas. For example, a recent strategy has been to attract leading liberal arts institutions to support the development of creative education and activities that have not been traditionally covered in the national institutions. Incentives incorporate technical support for set up and the ability to defray costs, as well as capital grants and land provided by the government to attract key players. This both builds national capacity but also acts to create an attractive destination for international students. The involvement in this multi-agency strategy of the Singapore Tourism Board underlines the importance of the latter. There is no evidence of evaluations of such incentives in the public domain.

▣ Incentivize private providers to meet WfD standards

This action scores as **Established** for 1970 and 1990 and **Advanced** 2010.

Overview 1970-2010: In the 1970s, legislation and a predominance of public providers helped to ensure that provision met WfD standards. Few incentives were in place to encourage private providers. Since then, as well as growth of financial incentives to promote private education provision, adherence to standards has increasingly become part of the license to operate for private providers, particularly via the CPE, creating a strong incentive to meet standards.

1970: Most providers were state-funded by this point, believed to provide a stronger amount of leverage for the government to maintain standards. Public institutions were subject to review by the MOE's GED or TED. The Education and other Acts were the key governance tools and the MOE set the standards that PET institutions had to maintain. The main incentive to maintain standards was to retain a license to operate and continued funding, as well as being able to issue certification. There is no evidence of standards or incentives for private providers at this time.

1990: There was a wider range of private providers. Financial and non-financial incentives and audits were in place to promote adherence to standards. Private providers under MOE had a one-time registration process via MOE and had to meet the national standards for education unless they outside the national curriculum. Moreover, aspects such as exam results were key performance measures. As noted, private providers required ATC status, and needed to meet standards, to offer VITB-certified training. ATCs could attract significant subsidy and defray training costs via the SDF fund and ATC training was recognized against NTC certification under the Public Trade Test System. The VITB carried out inspections and reviews of its own institutions and ATCs, and worked closely with ATCs to ensure standards were met, with various types of assistance available.

In the 1980s to early 1990s, EDB's JITS program involved partnerships with leading companies to provide training to meet the partner company's skills needs as well as that of the industry more widely. Dedicated training centers were set up in which partner companies contributed experts and courseware and EDB covered the costs of the building, furniture, equipment and operating costs. Key incentives for maintaining high standards were that 50% of trainees would remain with the company, whilst 50% went into the wider industry, and subsidies were available to support training via the SDF. Visits and audits were carried out to maintain standards. There is no published evaluation of private providers, or incentives.

2010: Introduction of the CPE and Private Education Act introduced higher corporate and academic governance standards and a regular review process. It encouraged adherence to standards in order to maintain the license to operate. PEIs aspiring to meet the higher EduTrust certification requirements may be eligible to apply for government funding to help with costs of obtaining consultancy services to improve their systems and processes. The results of EduTrust certification are publicly visible, forming part of the profile of providers and a selling point, acting as a further incentive to engage in the process.

Similarly, CETCs and ATOs offering the WSQ go through an accreditation and review process, needing to meet standards in order to maintain the license to operate and to attract subsidies for WSQ training. CETCs tend to receive capital grants and public funding, and ATOs can also attract public funding where strategic needs are identified. The WfD authorities carry out regular reviews of providers.

There are no formal evaluations of the incentives system in the public domain.

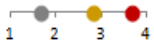
Box 22: EduTrust Certification

The EduTrust certification system was introduced in 2009. It is administered by CPE and replaces CaseTrust, formerly administered by the Consumers Association of Singapore (CASE). Certification is obligatory for PEIs enrolling international students and voluntary for others. It acts as a quality mark, promoting higher quality provision.

Certification	Validity	Features
EduTrust Star	4 years	PEIs that excel in all areas of management and provision, and demonstrating continued improvement
EduTrust	4 years	PEIs that show satisfactory to commendable performance in management and provision
EduTrust Provisional	1 year	PEIs that meet minimum requirements in management and provision and have been guided on areas for improvement before next audit

Source: Adapted from CPE (2012) and personal communication with key informants

▣ Motivate public institutions to respond to demand for skills



This action scores as **Latent** for 1970, **Established** for 1990 and **Advanced** for 2010.

Overview 1970-2010: There has always been a strong drive for providers to adopt a demand-led approach and this remains a key feature of the system. However, since the 1980s and the introduction of manpower planning, the use of more explicit targets emerged. The latter has been central to WfD policy and strategy for PET and has driven institutional targets and funding. In CET, a more incentivized approach to meet policy goals has emerged as part of the WSQ funding mechanism.

1970: Some targets were in place, although manpower planning was not yet established. The Ministries conducted confidential tracer studies to calculate the returns to education, tracking employment outcomes of PET students (Skolnik, 1976). It is not clear whether there was a formal system in place to reward institutions that met targets. Government funding was raised over time across the board for education. Well-performing institutions would have received increased funding for strategic areas, particularly given the emphasis on promoting mass entry to basic education. Equally, since the education and training system was very mixed in terms of performance, well-performing institutions were recognized publicly, creating an incentive. Where institutions failed to meet government objectives or requirements, funding reductions and closure of programs and institutions could occur. For example, the craft and vocational institutions were reviewed, reformed and eventually closed down. Many of the technical training institutions and bodies went through changes around this time.

1990: Targets for PET were standard practice by this point, with the CPTE setting overall targets for places within institutions and disciplines. Public-funded providers were expected to meet certain targets on repetition and graduate rates, as well as employer and trainee satisfaction. Job placement rates were tracked by MOE and institutions, but not necessarily subject to targets. CET was treated separately from PET. Skills upgrading programs such as BEST and WISE had national targets set at the highest policy level and transferred through to providers such as VITB and NTUC. WfD providers were expected to meet a range of goals beyond targets, linked to national economic development and educational excellence.

Well-performing PET institutions were recognized and thus highly sought after, with competitive entry, and could be considered for independent status. WFD institutions in general were well funded and strategic areas could attract additional funding. On the other hand, when institutions were under-performing, funding was reduced where necessary. However, support was provided before any move to close or discontinue a program or institution. There is no public evaluation of the targets system, although academics analyzed the manpower planning process (e.g. Cheung, 1994).

2010: A system of targets and broader goals is set for providers that receive public funding, with a robust system of reviews, incentives and penalties. Such measures help to ensure that skills provided are job-relevant and meet employer demand as well as broader socio-economic goals.

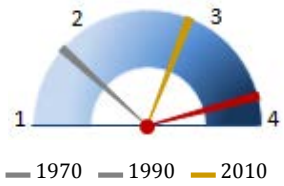
Targets are in place for public PET providers, however, the process of target-setting and manpower planning has become more flexible over time. Post-secondary institutions under MOE are given flexibility and autonomy to set their own strategic directions in view of national policy related to the economy, sectors and institutions, as well as individual institutional need, corporate direction and targets. There are a small number of areas where the government may set more explicit targets, including those related to manpower planning (i.e. numbers each institution needs allocate places for in certain study areas). For example, in the case of the ITE, the government stipulates the manpower planning targets for each course cluster, within some allowed variability parameters. It also closely monitors institutions' outcomes such as graduate employment and attrition rates. ITE then sets its own 'Strategic Performance Indicators', including graduate employment rates,

which can be important in demonstrating training value and quality to the public. Private providers do not have targets unless they receive some form of public funding. However, given their market-facing operations, it is felt that PEIs are by nature likely to focus on meeting demand. No public evaluation is available on the PET incentives and penalties.

In CET, the system of incentives to meet demand is clear and is, in effect, linked to funding. Individual CET Centers and ATOs agree on general targets with WDA, which are monitored through various channels such as quality audits and joint committee meetings. e2i also has targets which it agrees with WDA for successful completion of its programs. WSQ financing is based on subsidy funding when an individual trainee successfully passes a unit of assessment or program, rather than targets in terms of trainee numbers. Instead, successful completion is the main goal and this is incentivized since the public subsidy is paid in tranches. Thus CETCs and ATOs have to report on trainees entering and remaining in the respective occupation or sector for a certain period before the final tranche of subsidy is paid out. In other words, if a program is not delivering demand-led skills, it is unlikely that the providers will be able to claim back the subsidy, making low-demand areas unattractive for private providers and requiring public providers where there is market failure. Thus e2i, as a publicly-funded company which helps to create solutions for employment and employability, similarly needs to show that individuals going through its programs, including the unemployed, are entering the relevant work area successfully. Overall, this provides a clear system of reward and penalty to support desired WfD outcomes. On the downside, trainees can be difficult to track once they leave the WSQ provider or e2i, which can present some challenges. CET Centre and ATO programs that perform particularly well may be invited to become flagship providers and receive additional resources. Institutions that are less successful are supported to improve problem areas or have accreditation withdrawn if required. There is no public evaluation of incentives and penalties related to the demand for skills.

Dimension 3 | Service Delivery

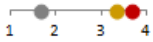
Policy Goal 9 | Enhancing Accountability for Results



Policy Goal 9 examines the extent to which measures are in place to improve accountability in workforce development (WfD) delivery. Overall scores on this policy goal are Latent for 1970, Established for 1990 and Advanced for 2010. Reflecting the general formalization of WfD structures, processes to ensure accountability have also increased over time. However, monitoring and evaluation results are generally not made public.

Policy Actions covered are: strengthening WFD monitoring and evaluation processes; specifying the reporting requirements of providers; and increasing the focus on outcomes, efficiency and innovation in service delivery.

▣ Strengthen monitoring and evaluation



This action scores as **Latent** for 1970, **Established** for 1990 and **Advanced** for 2010.

Overview 1970-2010: More systematic monitoring and evaluation has been established over time, with public reporting of some data from government reviews. Particular developments have come in national monitoring of skills and labor force data. However, a high level of confidentiality remains with most government studies and documents which weakens sharing of information –a potential learning tool – not only publicly but also within government itself.

1970: There was some monitoring and evaluation of skills demand and supply, although mostly *ad hoc* and occasional rather than systematic. These were carried out across a range of bodies. Informal channels would have been a key source of information, since the government infrastructure was still being developed. Many documents were classified, meaning they could not be referenced even in reports by policymakers, and were not shared with independent researchers or the public (Low et al, 1991). For example, there was a 1970 Population Census, but few systematic surveys of skills in the workforce. The first real Manpower Survey is regarded to have been carried out in 1969-1970 under the guidance of the Economic Research Centre (Skolnik, 1976). ERC also carried out forecasting studies with projections on the workforce and institutional enrolments, which helped to inform government policy. The MOE, MOL, MOF and the Ministry of Science and Technology carried out occasional studies on different industries. The 1970 National Plan would have provided an important review of skills at the national level, but it cannot be accessed or cited.

1990: Analyses and evaluations were more systematic and carried out across a number of ministries and statutory bodies. Even so, informal channels like individual researchers and government staff remained an important source, since there was no one key source that could provide an overview of the data available. An important development was the 1973 Statistics Act, governing the national collection of data by public agencies, and the annual Labor Force Survey commenced in 1974. Government ministries and agencies continued to conduct a range of research, although much of it was restricted access. Indeed, in 1983, the government stopped funding the ERC, which was based within a university, and instead set up an internal Manpower Research Unit within the MOL. The MOL released selected data through national reports (Ministry of Manpower from 1999).

The national Economic Review continued to be the most impactful review of economic development and WfD. The national Economic Review Committee included a high-level review of skills supply and demand, meeting around every 5 years. The CPTE also provided an important review on a 1-2 yearly basis, drawing on research and information provided through the ministries and other stakeholders.

2010: Routine government surveys as well as regular internal and commissioned studies help to monitor and evaluate skills supply and demand. For example, since 2009 the WDA conducted an Outcome Evaluation Survey on WSQ among employers and employees (WDA, 2011). The Manpower Research and Statistics Department at MOM conducts a range of research, ranging from surveys on adult training in 2000 and 2005 (MRSD, 2001; 2006) and on employer supported training in 2008 and 2010 (MRSD, 2009; 2011), to one-off studies such as analysis of premiums related to field of study (Yeo et al, 2007. Thus a range of government reports are available online. Nevertheless, much of the research, evaluation and monitoring remains confidential and is not necessarily shared across government. Media releases give brief details of government studies that have been carried out and that are not in the public domain. The Statistics Singapore website provides national data, including some analyses of the census.

Individual PET Institutions publish some data via press releases and Annual Reports. CETCs and ATOs release limited data about their trainees and results of satisfaction surveys. At the CET level, the research function of the IAL is more widely publicized. IAL has responsibility for carrying out research within the CET sector in line with adult learning, skills and productivity and evaluation and innovation. It is producing a number of CET research reports and briefings, including a national skills utilization study and a review of destinations of IAL graduates from the WSQ programs. Rather than a consolidated website, there are a variety of sources that can be used to access different WfD data.

▣ Specify reporting requirements by training institutions

This action scores as **Latent** for 1970, **Emerging** for 1990 and **Advanced** for 2010.

Overview 1970-2010: This aspect has seen considerable improvement over time. Reporting systems have been formalized and increased, being linked as already seen to accreditation, funding and access to incentives.

1970: The scoring for 1970 partly reflects the low level of evidence available on this aspect. It appears that public PET Institutions would have been required to report to the MOE on student numbers, completion rates, since such data appears in publications of the time. Training providers would have maintained their own data systems. Private providers that did not receive any public funding would have few if any reporting requirements.

1990: More systematic reporting procedures were in place, with standard reporting procedures for schools from 1980, including administrative data, enrolments and graduation statistics. Post-secondary and tertiary institutions reported similar data to the MOE, including graduate placement, employment and wages. Polytechnics and Universities carried out post-graduation surveys amongst alumni and employers. Equally, public post-secondary and tertiary providers applied rigorous internal procedures as part of their governance (e.g. department, council, board, faculty and senate level reporting practices).

Unless receiving some form of public funding, private providers were only requested to report basic information to the MOE, such as administrative information (staffing, budgets, enrolments). PEIs also had to provide updates to the MOE such as reporting plans for new courses, newly appointed staff and other relevant supporting documents to gain approval from MOE to run new courses. Under immigration law, if the PEI recruited foreign students, such as those from nearby Asian countries, mandatory reports were made to the MOE and Immigration Singapore, including attendance lists and enrolment numbers.

Public and private institutions maintained their own databases, but the MOE also collected training data, particularly on PET, to enable the preparation of customized reports. Providers were informed by the MOE when they were not in compliance with reporting procedures.

2010: Reporting procedures are more rigorous in some areas and tied to clearer incentives. In PET, registered public and private institutions must collect, maintain and report on a comprehensive range of data, including learner and employer feedback. Public institutions report to the MOE, whilst PEIs report to the CPE, as previously outlined. The range of data is greater for public than for private providers. It is recognized that PEIs are good at meeting market demand, but also that government leverage is lower without some form of public funding.

In CET, CET Centers and ATOs report to the WDA on infrastructure and governance. Some also report to the CPE as PEIs. For example, the At-Sunrice Global Chef Academy, an international culinary school, is a National CET Institute (since 2009) offering the WSQ and other programs to an international student body. As of 2010 it has received EduTrust certification from CPE. Submission of reports to the WDA and CPE is supported by integrated online databases managed by the respective authorities. Compliance with reporting procedures is incentivized in a number of ways, including: maintenance of the license to operate; funding reviews for public providers; and receipt of public subsidies for WSQ providers based on trainees successfully graduating from the programs and taking up work in a relevant occupation/sector. Reviews are also strategic. For example, increased or new sources of funding might be made available where a provider or program is seen to be meeting national WfD objectives and deemed worthy of expansion.

▣ Increase focus on outcomes, efficiency and innovation

This action scores as **Emerging** for 1970, **Established** for 1990 and **Advanced** for 2010.

Overview 1970-2010: From a low level of occasional evaluation and monitoring, monitoring processes such as those to measure performance have particularly developed over time. There is now greater public access to information on WfD outcomes, including online information on graduates. Evaluation remains a less developed area with an emphasis on internal review, a tendency not to use high level evaluation until later stages in programs, and confidentiality of government studies.

1970: Evaluations and monitoring of training services were occasional at this time. Basic data were collected on administrative aspects of PET institutions, including management, enrolments and examination results. Reviews in the public domain included a TED evaluation of technical education in the late 1960s, with an audit of provision that brought about major reform in 1970.

Some public information was available on the labor market outcomes of graduates from different WfD institutions, particularly National University of Singapore. Government data on pay differentials for different ethnic groups across different institutions was analyzed by academic authors (Rodan, 1985; Skolnik, 1976). However, permission was usually necessarily to access such data.

1990: There was increased focus on outcomes and efficiency by this point, leading to more routine monitoring of several aspects of training activity. Costs were not always a high concern, since education was funded very generously. The main driver was to meet policy goals rather than reduce resources. However, recession in the mid-1980s brought about some efficiency measures for government and public institutions, leading to introduction of performance monitoring. PET institutions submitted an annual plan to the MOE, with standardized reporting procedures covering a range of areas. The review process included an annual self-appraisal system and audits every 4-5 years. The reviews were used to provide feedback to providers and to prioritize funding allocations to programs and institutions. As noted, major education reviews were published in 1979 and 1991, identifying options and recommendations for system-level improvements in service delivery. At the school level, MOE provided a set of standard procedures as a form of guidance to improve the organizational capacity and capability of leadership and school management teams. At the same time, a major element of efficiency drives in PET at this time was to reduce wastage and student drop out, which the 1991 education review identified as a problem in the primary to secondary cohort and the technical stream.

Under the VITB and later particularly under the ITE post-1992 audits and site visits of its own institutions and ATCs were carried out and reviews highlighted options for improvement. For example, in the 1990s, VITB/ ITE identified programs where there was a low demand and less popular trades. Developing policies to retrain and retain staff on such courses was high on the agenda of the newly relaunched ITE in 1992.

Some information was available on the destinations of cohorts from secondary institutions via annual reports, and the post-secondary institutions carried out graduate surveys with some data available publicly. CPTE carried out regular analyses of the flows of graduates coming through from PETs and whether they met skills needs and projections, although these were not made public. Low *et al* (1991) argued that the paucity of public data in the 1980s was an issue for young people trying to make informed occupational decisions.

2010: A range of developments occurred over the 1990s-2000s. Monitoring and, to some extent, evaluation are now institutionalized for both public and private providers in PET and CET. Performance audits are used to identify good practice, improve provision and prioritize funding, although evaluations are not made public in most cases. For private PET providers under the CPE, regular audit is in place on a number of key indicators, including the capacity to run courses and infrastructure. However, the actual provision of programs is not reported on or reviewed (i.e. there is no audit through observation of classes or teaching methods as may occur in public PET). As noted, CPE actively adopted an open policy on information, with much useful information on PEIs is available for open access online. This includes registration periods and EduTrust award tiers, as well as enforcement action that is taken against institutions that are not meeting their obligations.

In CET, CET Centers and ATOs regularly report on a range of standard indicators, such as successful trainee completion. The reporting is tied to re-accreditation and subsidy funding. WDA conducts annual surveys to track the outcomes of WSQ training, and MOM conducts regular surveys to monitor adult training and employer-supported training participation. The IAL's research function has carried out an analysis of methods of evaluating impact for the WSQ (IAL, 2011). So this may be an area for future development.

No recent major, national education reviews have been published, but there are on-going reviews in place. For example, a high level review is being made of tertiary level provision, focusing on issues such as the percentage that can enter higher education and leading to new policy in 2012. Full evaluation of WfD programs and provision is not routine. There is a strong emphasis on implementation and rapid reform when issues arise. Evaluation thus tends to take place some years after implementation, at the end of programs or when a portfolio is handed to a new management team. It is carried out internally within government or within providing institutions. Such activities might provide a valuable learning tool, however, internal studies are not necessarily shared widely even within government and are rarely published.

Varying levels of data on labor market outcomes of graduates is available for most institutions. For private providers this tends to be limited to promotional materials. As of 2008, the MOE publishes a table of data online, showing employment rates and salaries for tertiary graduates 6 months after graduation, by faculty

and course. MOE intends potential students to use this data when making course choices, thus meeting some of the earlier critiques. Data covers NUS, NTU and SMU graduates. The Singapore University of Technology and Design (SUTD), the fourth national public-funded University, was only established in 2010 and will matriculate its first intakes in 2012.

Annex 1 | Analytical Framework of SABER-WfD

Dimension 1: Strategic Framework

Aligning WfD to national goals for productivity, growth and poverty reduction

Policy Goal 1: Articulating a strategic direction for WfD

Policy Action 1: Advocate for WfD as a priority for economic development

Policy Action 2: Evaluate economic prospects and its implications for skills

Policy Action 3: Develop policies to align skills demand and supply

Policy Goal 2: Prioritizing a demand-led approach to WfD

Policy Action 4: Promote demand-driven approach

Policy Action 5: Strengthen firms' demand for skills to improve productivity

Policy Action 6: Address critical challenges in the future supply of skills

Policy Goal 3: Strengthen critical coordination

Policy Action 7: Ensure coherence of key strategic WfD priorities

Policy Action 8: Institutionalize WfD roles and responsibilities

Policy Action 9: Facilitate interaction among all WfD stakeholders

Dimension 2: System Oversight

Governing the system to achieve desired goals

Policy Goal 4: Diversifying pathways for skills acquisition

Policy Action 10: Foster articulation across levels and programs

Policy Action 11: Promote life-long learning

Policy Action 12: Set policies and procedures to renew programs

Policy Goal 5: Ensuring efficiency and equity in funding

Policy Action 13: Articulate funding strategy

Policy Action 14: Allocate funds to achieve efficient results

Policy Action 15: Foster partnerships

Policy Goal 6: Assuring relevant and reliable standards

Policy Action 16: Specify accreditation standards

Policy Action 17: Strengthen skills testing and certification

Policy Action 18: Assure credibility of accreditation and of skills certification

Dimension 3: Service Delivery

Ensuring tangible results on the ground

Policy Goal 7: Fostering relevance in training programs

Policy Action 19: Link training, industry, and research institutions

Policy Action 20: Design training with industry inputs

Policy Action 21: Improve competence of administrators and instructors

Policy Goal 8: Incentivizing excellence in training provision

Policy Action 22: Promote diversity in training provision

Policy Action 23: Incentivize private providers to meet WfD standards

Policy Action 24: Motivate public training institutions to respond to demand for skills

Policy Goal 9: Enhancing accountability for results

Policy Action 25: Strengthen monitoring and evaluation

Policy Action 26: Specify reporting requirements by training institution

Policy Action 27: Increase focus on outcomes, efficiency and innovation

Annex 2 | Benchmarking Scores

Dimension	1970	1990	2010	Policy Goal	1970	1990	2010	Policy Action	1970	1990	2010
Strategic Framework	2.6	3.4	3.8	Articulating a Strategic Direction for WfD	2.7	3.3	3.9	Advocate for WfD as priority for economic development	2.5	3.5	4.0
								Evaluate economic prospects and its implications for skills	3.0	3.2	4.0
								Develop policies to align skills demand and supply	2.7	3.3	3.7
				Prioritizing a Demand-led Approach to WfD	2.1	3.0	3.6	Promote demand-driven approach	2.0	3.3	3.7
								Strengthen firms' demand for skills to improve productivity	1.3	1.7	3.0
								Address critical challenges in the future supply of skills	3.0	4.0	4.0
				Strengthen Critical Coordina-tion	3.1	3.9	4.0	Ensure coherence of key strategic WfD priorities	3.7	4.0	4.0
								Institutionalize WfD roles and responsibilities	3.7	4.0	4.0
								Facilitate interaction among all WfD stakeholders	2.0	3.7	4.0
System Oversight	2.1	3.1	3.5	Diversifying Pathways for Skills Acquisition	1.6	2.8	3.2	Foster articulation across levels and programs	1.3	2.5	2.8
								Promote life-long learning	2.3	3.3	3.5
								Set policies and procedures to renew programs	1.3	2.7	3.2
				Ensuring Efficiency and Equity in Funding	2.6	3.5	3.8	Articulate funding strategy	1.8	2.8	3.7
								Allocate funds to achieve efficient results	2.7	4.0	4.0
								Foster partnerships	3.3	3.8	3.8
				Assuring Relevant and Reliable Standards	2.0	2.9	3.6	Specify accreditation standards	2.7	3.0	3.8
								Strengthen skills testing and certification	1.0	2.0	3.3
								Assure credibility of accreditation and of skills testing	2.3	3.7	3.7
Service Delivery	2.0	2.8	3.6	Fostering Relevance in Training Programs	1.9	2.8	3.5	Link training providers, industry and research institutions	2.5	2.8	3.5
								Design training with industry inputs	2.0	3.0	4.0
								Improve competence of administrators and instructors	1.2	2.6	3.0
				Incentiviz-ing Excellence in Training Provision	2.3	2.9	3.6	Promote diversity in training provision	3.3	3.3	3.7
								Incentivize private providers to meet WfD standards	2.0	2.5	3.3
								Motivate public training institutions to respond to the demand for skills	1.7	2.8	3.7
				Enhancing Accountabil-ity for Results	1.7	2.8	3.7	Strengthen monitoring and evaluation	1.7	3.3	3.7
								Specify reporting requirements by training institutions	1.2	2.5	3.8
								Increase focus on outcomes, efficiency and innovation	2.2	2.7	3.7

Annex 3 | References

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Annex 6 | Benchmarking Rubrics

Functional Dimension 1: Strategic Framework					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
1. Articulating a Strategic Direction for Workforce Development	*Advocate for WfD as a priority for economic development*	▪ WfD is **not prioritized** in national economic development.	▪ Political and other leaders **recognize the importance** of WfD for economic development; economic development plans have identified a few WfD priorities.	▪ Political and other key leaders in industry provide **sustained support** for WfD; economic development plans assess and specify several WfD priorities that are being implemented.	▪ WfD is fully integrated into national policies and strategies, reflecting a holistic approach[7] to WfD; economic development plans formally assess and specify a wide range of WfD priorities that are supported by implementation plans and budgets, these are subject to **continuous evaluation and improvements**.
	Evaluate economic prospects and its implications for skills	▪ The concept of a demand-driven approach[8] to WfD has **yet to emerge**.	▪ A demand-driven WfD strategy is **beginning to take shape** but policy reforms are often impeded by various difficulties.	▪ A demand-driven WfD strategy **informed by appropriate analyses** is accompanied by some policy reforms that have been implemented.	▪ A well-informed demand-driven WfD strategy with **continuous evaluation and improvements** has been internalized as a standard practice.
	Develop polices to align skills demand and supply	▪ Policies are being developed but are **not based on formal analyses** of skills demand.	▪ A few policies have been developed on the basis of **occasional assessments** to address imbalances between skills demand and supply; these policies and interventions are subject **to in-house reviews**.	▪ A range of policies based on **occasional and routine assessments** by government and independent WfD stakeholders have been implemented to address skills imbalances; these are subject to **routine in-house reviews and independent external evaluations**.	▪ Policies are formulated on the basis of **well-informed analyses**, including assessments by independent organizations, and they are **routinely reviewed and updated** with inputs from relevant stakeholders to ensure program offerings fit the economic climate and demands for new skills.

[7] A holistic approach is one that addresses multiple dimensions of skills development, including: (a) aligning skills training to employers' needs and national goals for productivity, growth and poverty reduction; (b) governing the system to achieved the desired national goals, and (c) ensuring tangible results on the ground.

[8] In a demand-driven strategy, the demand for skills drives the supply of training services. Arrangements to achieve this relationship between skills supply and demand include: the involvement of employers in shaping training policies and provision, financing tied to employment outcomes, etc.

Functional Dimension 1: Strategic Framework					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
2.Prioritizing a Demand-led Approach	*Promote a demand-driven approach*	▪There is **limited or no attempt** to incorporate business and industry inputs in establishing and implementing WfD priorities.	▪Business and industry play an advisory role in establishing and implementing WfD priorities **based on occasional studies and assessments**.	▪A demand-driven approach to WfD is in place with business and industry providing inputs for setting WfD priorities **based on routine assessments** provided by government agencies, employers, trade associations and labor unions.	▪A demand-driven approach to WfD has been fully established with business and industry **playing both advisory and executive roles** supported by routine assessments from government agencies, other key WfD stakeholders and independent organizations.
	Strengthen firms' demand for skills to improve productivity	▪**Few incentives and services** exist to support skills development for technology upgrading by firms.	▪**Incentives and services** are in place to provide selective support for technology-related skills upgrading; incentive programs are **subject to occasional reviews** but often without adequate follow-up of recommendations.	▪Incentives and services enable firms to expand the skills sets of workers to facilitate technology adaptation and adoption for greater productivity; these measures are supported by **routine reviews** followed by implementation of some review recommendations.	▪Incentives and services enabling firms to address skills constraints impeding their ability to upgrade technologies and productivity are well established; these are routinely reviewed and adjusted for impact; **all key review recommendations are implemented**.
	Address critical challenges in the future supply of skills	▪There is **limited or no formal assessment** of the future supply of skills.	▪Future supply of skills is **assessed on an occasional basis**; recommendations from assessments are implemented with some delay, often without adequate funding and assignment of responsibility for implementation.	▪Assessments of future skills supply are **routinely conducted** for key sectors at the regional and national levels; recommendations are implemented with **little delay**; responsibilities for implementation of recommendations are made explicit but without explicit attention to monitorable goals.	▪Future skills supply is routinely assessed for multiple industries and sectors at the national and international levels; **recommendations are implemented promptly**; responsibilities for implementation are clearly spelled out and attention is given to the realization of monitorable goals.

Functional Dimension 1: Strategic Framework					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
3. Strengthening Critical Coordination	*Ensure coherence of key strategic WfD priorities*	▪ There is **no mechanism** in place to ensure coherence of key strategic WfD priorities among WfD leaders.	▪ Coherence of key strategic WfD priorities at the leadership level is achieved through **informal processes** that yield limited WfD outcomes.	▪ Coherence of key strategic WfD priorities at the apex leadership level is achieved through **formal and informal mechanisms** that yield positive WfD outcomes.	▪ Formal mechanisms overseeing coordination and implementation of WfD strategies are in place and they support strengthening structures of WfD policy development, budget allocations, and assessments of future skills demand and supply.
	Institutionalize the structure of WfD roles and responsibilities	▪ Roles and responsibilities for WfD **are not formally defined**, leaving the WfD authority without a clear mandate.	▪ Roles and responsibilities of WfD stakeholders are **poorly defined**, leaving the WfD authority with a limited mandate and limited resources to discharge its responsibilities effectively.	▪ Roles and responsibilities are **well-defined** and supported by legislation and resources that enable the WfD authority and key stakeholders to discharge their respective functions effectively.	▪ Clear WfD roles and responsibilities have been institutionalized through legislation and **the WfD authority has the mandate** to formulate and request resources that are needed for the relevant authorities to discharge their responsibilities in a transparent and effective manner.
	Facilitate communication and interaction among all WfD stakeholders	▪ **No formal process** exists for engaging all stakeholders.	▪ **Informal structures** exist that facilitate communication and interaction among key stakeholders.	▪ **Formal structures** exist in key economic sectors that support extensive communication and interaction among the relevant stakeholders.	▪ Formal structures fostering **extensive interactions** among WfD stakeholders that culminate in consensuses on WfD priorities and policies are in place in most sectors.

Functional Dimension 2: System Oversight					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
4. Diversifying Pathways for Skills Acquisition	*Foster articulation across levels and programs*	▪ **No functioning articulation arrangements**.	▪ *Ad hoc* articulation arrangements exist within secondary schools and post-secondary institutions; **only *ad hoc* incentives** are in place to foster articulation across levels of instruction.	▪ *Ad hoc* articulation arrangements exist across institutions at the secondary and post-secondary levels; a **program of incentives** is in place to foster articulation arrangements.	▪ **Standardized articulation arrangements** exist across secondary and post-secondary programs as well as between TVET and higher education; a system of incentives is in place to foster articulation across programs and levels of education and training.
	Promote life-long learning	▪ **No arrangements or public resources** are in place to support life-long learning, recognition of prior learning, and disadvantaged groups.	▪ ***Ad hoc* private resources and arrangements** support life-long learning and recognition of prior learning; publicly-funded training programs exist with for disadvantaged groups subject to some restrictions.	▪ **School- and community-based resources and arrangements** support life-long learning and recognition of prior learning; publicly-funded training programs with minimal restrictions are available for most disadvantaged groups.	▪ **Integrated regional or national system with one-stop online resources and standardized arrangements** support life-long learning and recognition of prior learning; publicly-funded training programs provide open access to all disadvantaged groups.
	Set policies and procedures to renew programs	▪ There are **no set policies** to manage program offerings; training providers may introduce, adjust or close publicly-funded programs at will.	▪ Introduction, adjustment and closure of publicly-funded programs are made through ***ad hoc*, non-standardized processes**; applications for these changes must be done personally and are vetted by *ad hoc* committees.	▪ Introduction, adjustment and closure of publicly-funded programs are based on a **few explicit and standardized requirements**; applications can be made online and they are vetted by formal committees with some representation from other WfD stakeholders.	▪ Management of publicly-funded training programs are made on the basis of **comprehensive and explicit requirements** that include labor market analyses; applications can be made online and they are vetted by formal committees with representation from other WfD stakeholders and they operate with a commitment to act in a timely manner.

Functional Dimension 2: System Oversight					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
5. Ensuring Efficiency and Equity in Funding	*Articulate funding strategy*	▪ *Ad hoc* funding of WfD by multiple stakeholders; **no evaluation** of funding allocation and strategy.	▪ Systematic funding of WfD is determined by government agencies with annual budget appropriations and line-item allocations; **only occasional evaluations** of funding allocation and strategy.	▪ Systematic funding of WfD is determined by government agencies with advice from key stakeholders; annual budget appropriations are supported by detailed spending plans; there are **routine evaluations** of funding allocation and strategy.	▪ Systematic funding of WfD is determined through consensus building among government agencies and key stakeholders; annual budget appropriations are supported by detailed spending plans to foster improved performance; routine evaluations of funding allocation and strategy are **accompanied by appropriate reforms** as needed.
	Allocate funds to achieve efficient results	▪ **No formal process** for allocating public funds for WfD.	▪ **A formal process without explicit criteria** is in place; there are no reviews of allocation criteria.	▪ A formal process for allocating public funds based on **explicit criteria** exists; there are periodic reviews of the criteria but recommended changes face relatively long implemented lags.	▪ Allocation of WfD funds is based on explicit criteria aligned with WfD priorities, including efficiency in resource utilization; there are frequent reviews of the criteria and recommendations are **implemented in a timely manner**.
	Foster partnerships	▪ **Limited or no partnership** between WfD authority and stakeholders in business and industry; key stakeholders provide few, if any, resources toward meeting WfD priorities.	▪ **Limited partnership** with business and industry is in place; partners have access to some public resources; key stakeholders contribute a small range of resources toward WfD priorities.	▪ **Extensive partnership** between WfD authority and key stakeholders in business and industry; partners have access to some public resources; key stakeholders contribute a broad range of resources for WfD.	▪ An **institutionalized partnership network** with open membership for all WfD stakeholders is in place; partners have access to wide range of public resources; key stakeholders contribute an extensive range of resources to meet WfD priorities.

Functional Dimension 2: System Oversight					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
6. Assuring Relevant and Reliable Standards	*Specify accreditation standards*	▪ **No accreditation standards** have been established; training providers are free to offer any program.	▪ **Some accreditation standards** have been established; standards are infrequently reviewed; accreditation applies to public institutions only.	▪ An **accreditation agency has been established** with standards developed jointly with relevant stakeholders; standards are reviewed internally on a regular or as needed basis; accreditation applies to public institutions and non-state providers receiving public funding; **renewal applies to the latter only**.	▪ An accreditation agency with standards reflecting international best practices is in place; accreditation standards are reviewed frequently both internally and by independent parties; **accreditation and renewal of accreditation is compulsory for all** public institutions and non-state training providers, regardless of their sources of funding.
	Strengthen skills testing and certification	▪ Competency-based testing has **yet to be introduced; testing** is largely based on theoretical knowledge and administered by training providers themselves.	▪ Competency-based testing **applies to critical occupations in key sectors**; testing may focus on a mix of theory and practice and is administered and certified by independent third parties.	▪ A standardized competency-based testing system is in place and **applies to most occupations**; testing may focus on a mix of theory and practice and is administered and certified by independent third parties.	▪ A standardized competency-based testing system has been established for most occupations; **IT-based testing** focuses on theory and practice and is administered and certified by independent third parties.
	Assure credibility of accreditation and of skills certification	▪ There is **limited attention** to accreditation standards.	▪ Accreditation standards are established through *ad hoc* arrangements; some support is provided to encourage non-state providers to seek accreditation; credibility of skills testing is ensured through explicit **standardized testing protocols**.	▪ Accreditation standards established with inputs from WfD stakeholders apply to all institutions and providers receiving public funding; credibility of skills testing is ensured through explicit standardized testing protocols and **accreditation of testing centers**.	▪ A license to operate is issued only to institutions and providers meeting accreditation standards determined by key WfD stakeholders; credibility of skills testing is ensured through standardized testing protocols, accreditation of testing centers and **random audits**.

Functional Dimension 3: Service Delivery					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
7. Fostering Relevance in Training Programs	*Link training industry and research institutions*	▪ **Weak or no links** between training institutions and industry and research institutions.	▪ **Informal links** exist between some training institutions and industry and research institutions to improve training relevance and quality.	▪ **Formal links** exist between **some** training institutions and industry and research institutions, leading to significant collaboration in several activities.	▪ **Formal links** exist between **most** training institutions and industry and research institutions, leading to significant collaboration in a wide range of activities such as the provision of industry internships and training, and the introduction and redesign of training programs.
	Design training with industry inputs	▪ **Industry has limited or no role** in identifying, prioritizing and designing publicly-funded programs.	▪ **Industry has an advisory role** in identifying, prioritizing and designing publicly-funded programs in some training institutions, usually through informal contacts.	▪ **Industry has both an advisory and a decision-making role** in identifying, prioritizing and designing publicly-funded programs in some training institutions.	▪ **Industry has a widespread advisory and decision-making role** in identifying, prioritizing and designing publicly-funded programs in most training institutions.
	Improve competence of WfD administrators and instructors	▪ **Few or no measures** are in place to enhance the competence of WfD administrators and instructors.	▪ Recruitment of administrators and instructors is based on minimum academic qualification(s), with provisions for some in-service training and performance-based recruitment and retention measures based on **occasional evaluations**.	▪ Recruitment of administrators and instructors is based on minimum academic qualification(s), with provisions for in-service training and performance-based recruitment and retention measures that are based on **routine evaluations**.	▪ Recruitment of administrators and instructors occurs through a competitive process based on **both academic qualification(s) and industry experience**, with a wide range of in-service training programs and performance-based recruitment and retention measures based on routine evaluations.

Functional Dimension 3: Service Delivery					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
8. Incentivizing Excellence in Training Provision	*Promote diversity in training provision*	▪Training occurs through **state provision only**, with no incentives to promote non-state provision of training.	▪Training policies allow some private providers to operate; training is provided **mainly** by **non-profit providers** with few incentives in place to foster non-state provision of training.	▪Training policies facilitate participation of non-state training providers; training is offered **mainly by NGOs**, with a system of incentives that are evaluated routinely are in place to foster non-state provision.	▪A **highly-diverse mix of non-state training providers** offer training within a comprehensive system with a wide range of incentives is in place to foster non-state provision; incentives are subject to evaluations and the recommendations are implemented.
	Incentivize private providers to meet WfD standards	▪**No incentives** are in place to encourage non-state providers to meet WfD standards.	▪**At least one incentive** that is subject to occasional evaluation is in place to encourage non-state providers to meet WfD standards, but no review system exists to ensure continued adherence to WfD standards.	▪A **system of financial and non-financial incentives** that are subject to occasional and routine evaluations is in place to encourage non-state providers to meet WfD standards; periodic audits are conducted to ensure continued adherence to WfD standards.	▪A **comprehensive system of incentives** that are subject to both occasional and routine evaluations and adjustments is in place to encourage non-state providers to comply with WfD standards; periodic audits with penalties for noncompliance are conducted and enforced to ensure continued adherence to WfD standards.
	Motivate public training institutions to respond to demand for skills	▪**No mechanism or process** is in place to ensure training institutions are demand-driven.	▪Training institutions are expected to meet target repetition and graduation rates but **few incentives** are in place ensure they are demand-driven.	▪Training institutions are expected to meet a wider range of WfD outcomes; **some incentives and penalties** that are subject to both occasional and routine evaluations are in place to ensure these institutions respond to the demand for skills.	▪Training institutions are expected to meet a wide range of WfD outcomes; a **robust system of incentives and penalties** that is subject to both occasional and routine evaluations and adjustments is in place to ensure that the training institutions are driven by employers' demands for skills.

Functional Dimension 3: Service Delivery					
Policy Goal	**Policy Action**	**Level of Development**			
		Latent	**Emerging**	**Established**	**Advanced**
9. Enhancing Accountability for Results	*Strengthen WfD monitoring and evaluation*	▪ **Limited attention** is placed on the monitoring and evaluation of skills demand and supply; an overview of WfD data is available through informal channels only..	▪ **Occasional monitoring and evaluation** of skills demand and supply is in place; an overview of WfD data is available only in government agencies.	▪ **Routine monitoring and evaluation** of skills demand and supply is in place; an overview of WfD data is available in published reports and websites.	▪ Skills demand and supply are monitored and evaluated through routine surveys and specially commissioned studies; WfD data are available from a consolidated website.
	Specify reporting requirements by training institutions	▪ **No specific data collection and reporting** are required; training providers maintain their own data bases.	▪ Public institutions and non-state training providers are required to collect and maintain administrative and graduation statistics; **data reporting is voluntary** for non-state providers but they may be notified of non-compliance.	▪ Public institutions and non-state training providers are required to collect, maintain and submit a comprehensive list of data through an integrated management information system to the WfD authority; **timely submission is fostered through incentives for compliance** and penalties for non-compliance.	▪ Both public institutions and non-state training providers are required to collect, maintain and submit a comprehensive list of data, including client-feedback, to the WfD authority using an integrated management information system; **incentives, penalties and data quality audits are performed to ensure timely reporting of reliable data**.
	Increase focus on outcomes, efficiency and innovation	▪ **No system of evaluation and monitoring** is in place to ensure efficiency in delivery of training services.	▪ **Occasional evaluation and monitoring of limited aspects** of training services is in place with results used to provide feedback to the training institutions; information on labor market outcomes of graduates is publicly available for some institutions only.	▪ **Routine evaluation and monitoring of several key aspects of training services** is in place with results used to provide feedback to training institutions, to prioritize funding allocations, and identify good practices in service delivery; information on labor market outcomes of graduates is publicly available for all institutions.	▪ **Institutionalized routine evaluation and monitoring of all key aspects of the delivery of training services** with results used to provide feedback to institutions, to prioritize funding allocations, identify good practices and options for system-level improvements; online dissemination of labor market outcomes of graduates is available to all users.

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Dr Arwen Raddon collected the data using the SABER-WfD data collection instrument, prepared drafts of the report, and finalized the report; the Bank team scored the data, designed the template for the report, provided support in formatting and graphics, and made substantive feedback on the write up.

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This report focuses specifically on policies in the area of Workforce Development

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