

職專教育 職看未來

Vocational and Professional Education and Training – Shaping the Future of Work

回顧與展望

Review and Outlook

2021年6月
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羅兵咸永道



職業專才掌
無限機遇在創新
技能

Skills for
Innovation and
Opportunity



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Foreword

Vocational and Professional Education and Training (VPET) provides the platform for Hong Kong's economic growth and development. It equips businesses with the skilled workforce that are essential to succeed and prosper. Businesses which form the cornerstone of Hong Kong's economy are dependent on VPET to provide the skills that they require. From business and marketing, transportation and logistics, to tourism and hospitality, healthcare and information technology, VPET graduates perform essential functions to support growth and serve the essential daily needs of society.

By providing vocationally oriented education and training which integrates classroom and workplace-based education, VPET provides education and training on highly tailored skills that are designed to meet the needs of business and industry. Hong Kong's evolution into a highly competitive business services and logistics hub for the World has been enabled by VPET. From gas and energy specialists, to lift

and escalator maintenance and aircraft maintenance engineers, hospitality and essential healthcare workforce, VPET equips them with the necessary skills through over 6,500 programmes.

But VPET does not only provide for the needs of Hong Kong's businesses today. It also anticipates the needs of the future, and ensures that VPET graduates are equipped with the skills that businesses need to sustain future growth. Hong Kong's continued growth and prosperity and its key role within the Greater Bay Area and the wider region are all supported by VPET and its focus on anticipating the needs of businesses in terms of re-industrialisation, automation and technology, amongst other training needs.

前言

職業專才教育（職業教育）支援香港的經濟增長和社會發展，為工商各界提供專才，締造成功與繁榮。作為香港經濟發展的基石，職專教育為企業的發展培育所需人才，涵蓋商業服務、運輸和物流、旅遊和款待、醫療保健和資訊科技等香港多個重要行業。職專教育畢業生擔當著重要職能，支持經濟增長並滿足社會的運作所需。

職專教育提供職業導向課程，結合課堂學習和職場培訓，並針對不同行業所需，培育專業人才。在職專教育的支援下，香港發展為極具競爭力的國際商業服務中心和物流樞紐。職專教育提供超過6,500個課程，培育多元人才，當中包括氣體和能源專業技術人員、升降機和自動扶手電梯維修員、飛機維修工程師、款待業和醫療保健人員等，滿足企業的人才和技能需求。

職專教育不僅滿足了現今香港工商發展的需求，亦為社會未來對人才的需求作好準備，確保其畢業生具備支持工商持續發展所需的技能。職專教育支持著香港社會的持續增長和經濟繁榮，有助香港在大灣區甚至其他地區擔當重要角色。職專教育更會在再工業化、自動化發展的趨勢下滿足工商界各種技能需求，並專注於培訓技術人才。

Overseas, countries such as Germany, Switzerland, Singapore and the United Kingdom, have long treasured the role that VPET plays in delivering economic growth and societal development. VPET is seen as an integral component of the education system, equivalent to the conventional academic pathways in delivering the skills that the economy requires. The most striking and effective components of international practice are clear where VPET providers play a central role in promoting innovation through applied research and development. In Germany for example, this model has been integral to the lasting success of the automotive industry on the world stage.

In Hong Kong, VPET has much more to offer. Local, regional and international experience tells us that VPET should continue to focus strongly on applied research and vocational qualifications that are co-developed with the business community and recognised by all as a critical educational pillar. The development of a publicly funded University of Applied Sciences would facilitate this objective, by

providing a formal pathway for programmes in applied education to culminate in the issue of applied degrees.

This report sets out the way forward for VPET in Hong Kong. It celebrates the achievements of VPET, and draws on regional and international practice and local experience to chart a future strategy. In doing so, it seeks to ensure that the necessary ingredients for future economic and societal growth are met through an appropriately skilled workforce, and calls for universal support to achieve this.

We extend our sincere thanks to all stakeholders who provided us with inputs to this strategy, and to the team at the Vocational Training Council - whose tireless and treasured inputs have provided rich content on the achievements of VPET in Hong Kong.

Simon Booker

Partner, Advisory Services
PwC Hong Kong

海外不少國家包括：德國、瑞士、新加坡和英國等早已非常重視職專教育在促進經濟增長和社會發展所擔當的重要角色。職專教育被視為教育體系中重要的一環，認可程度與傳統學術途徑相當。職專教育在應用研究和創新發展中擔當核心角色，所得成果備受國際關注。以德國為例，該教育模式成功應用在汽車工業上，獲國際認可，成為行業中不可或缺的一部分。

事實上，香港職專教育能夠扮演更加重要的角色。本地、其他地區乃至海外的經驗說明職專教育應繼續著重與工商界共同發展應用研究及職業資格課程，並被視為社會教育棟樑。此外，提供政府資助應用學位課程，正規化應用教育並提供正式升學途徑，有助實現此目標。

本報告列出了香港職專教育的發展方向，展示了職專教育的成就，並借鑒其他地區及國際的經驗以制訂未來策略。本報告希望獲得各界支持職專教育的發展，以培訓合適技術人才，滿足社會未來的經濟增長為目標。

我們衷心感謝所有為本報告提供意見的持份者，以及職業訓練局的團隊，他們不遺餘力提供寶貴的意見和豐富的內容，展現出香港職專教育的卓越成就。

布樂家

諮詢服務合夥人

羅兵咸永道





1 Executive Summary 報告摘要

Background

Vocational and Professional Education and Training (VPET) provides training and education to equip students with vocational-oriented skills and knowledge that are demanded by the world of work and for further education.

As the leading provider of VPET in Hong Kong, the Vocational Training Council (VTC) appointed PricewaterhouseCoopers Advisory Services Limited (PwC) to conduct an analysis (Analysis) to i) assess the value that VPET has generated for Hong Kong, and ii) provide recommendations on the future direction and strategy for furthering VPET development in Hong Kong.

All documents including papers, reports, tables, charts and graphs, etc. for the Analysis and all related digital storage media become the property of the VTC with full copyright.

PwC evaluated the socio-economic impacts arising from VPET to Hong Kong as a whole.

PwC assessed:

- Manpower contribution to Hong Kong's total workforce;
- The economic contribution of VPET to Hong Kong's economy; and
- The enhancement of youth employability.

PwC also considered the social impacts of VPET using a qualitative approach based on a number of impact stories and examples to demonstrate how VPET has contributed to Hong Kong's society, such as through the provision of education pathways, upskilling and reskilling of the workforce, enhancing social mobility and social cohesion.

Figure 1-1 shows the integral role played by VPET in Hong Kong's education system as well as its role in supporting the development of key industries – particularly at a time when the rapidly evolving economic environment requires an increasingly adaptive workforce.

背景

職業專才教育（職專教育）為學生提供具價值的培訓，讓他們具備就業及進修所需的專業知識和職業技能。

作為香港職專教育機構，職業訓練局（VTC）委託羅兵咸永道諮詢服務有限公司（PwC）進行分析，一）評估職專教育為香港所帶來的價值，以及，二）就進一步推動香港職專教育的未來發展方向和策略提出建議。

職業訓練局擁有用於本分析的所有文件，包括論文、報告、表格、圖表等，以及所有相關的數字存儲媒體的全部版權。

羅兵咸永道評估了職專教育對整個香港的社會經濟影響。

羅兵咸永道評估了：

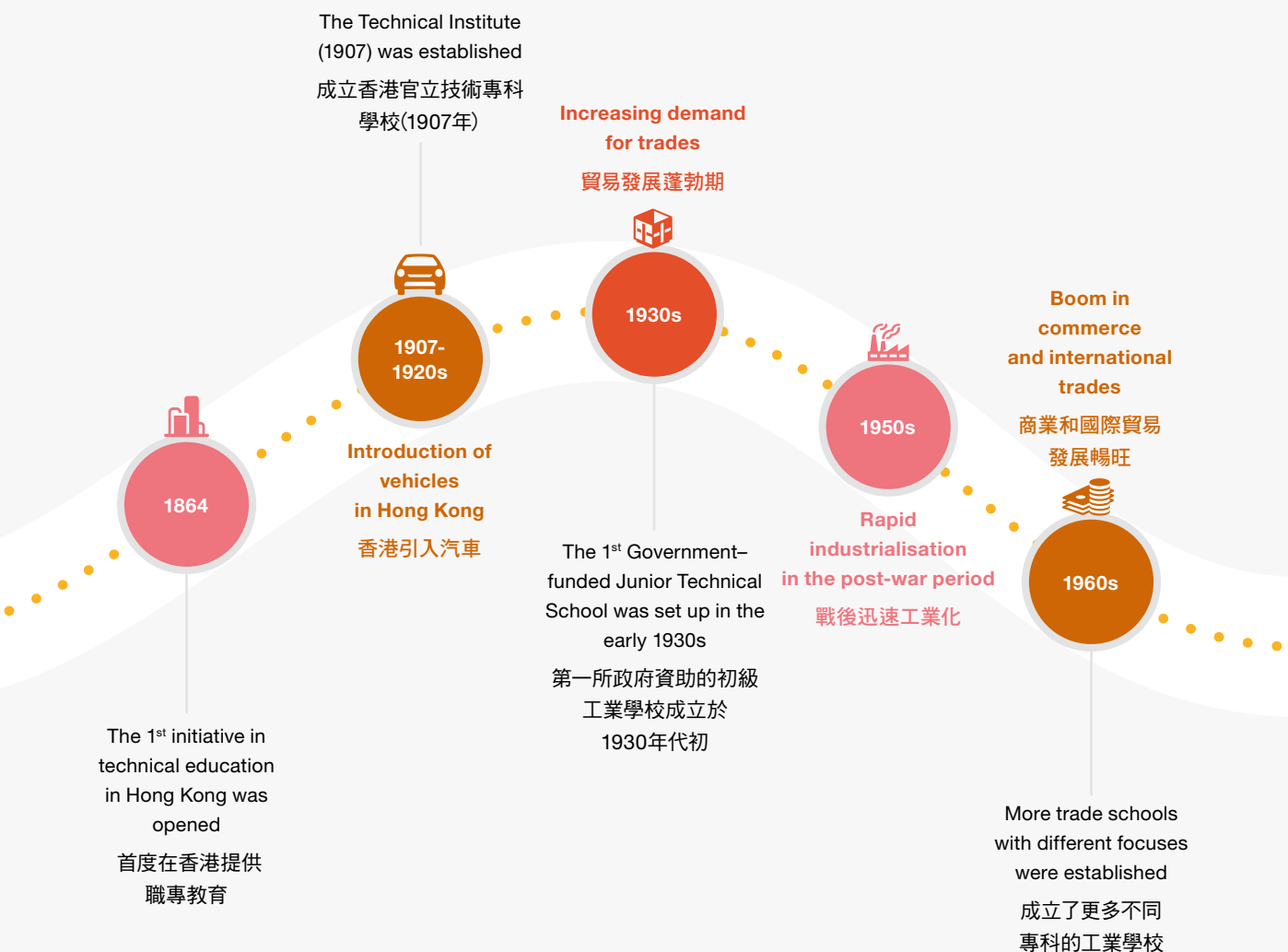
- 人力資源對香港整體勞動人口的貢獻；
- 對香港經濟的貢獻；和
- 為青年就業所帶來的裨益。

至於社會影響分析，羅兵咸永道採用定性方法，運用一系列的個案和例子，展示職專教育如何在各方面貢獻香港社會，包括：提供升學途徑、提升勞動人口的技能水平和提供技術再培訓、促進社會流動性及凝聚力。

圖1-1顯示了職專教育在香港教育體系中的重要性——當經濟快速發展帶動人才需求時，職專教育在推動行業發展中擔當重要角色。

Figure 1-1: Summary of VPET history in Hong Kong

圖1-1：香港職專教育演變摘要



Note (1): All abbreviations are denoted in Appendix 11

Source: (1) VTC (n.d.a), (2) Legislative Council (2015), (3) PwC Analysis

附註：(1) 所有縮寫均在附錄 11 中標明。

資料來源：(1) VTC (無日期a)、(2) 立法會 (2015)、(3) 羅兵咸永道分析



Key findings on the economic impacts

關於經濟方面的主要影響

In 2020/21, VPET providers offered **over 6,500** programmes ranging from certificate, diploma, higher diploma to bachelor's degree programmes in Hong Kong.

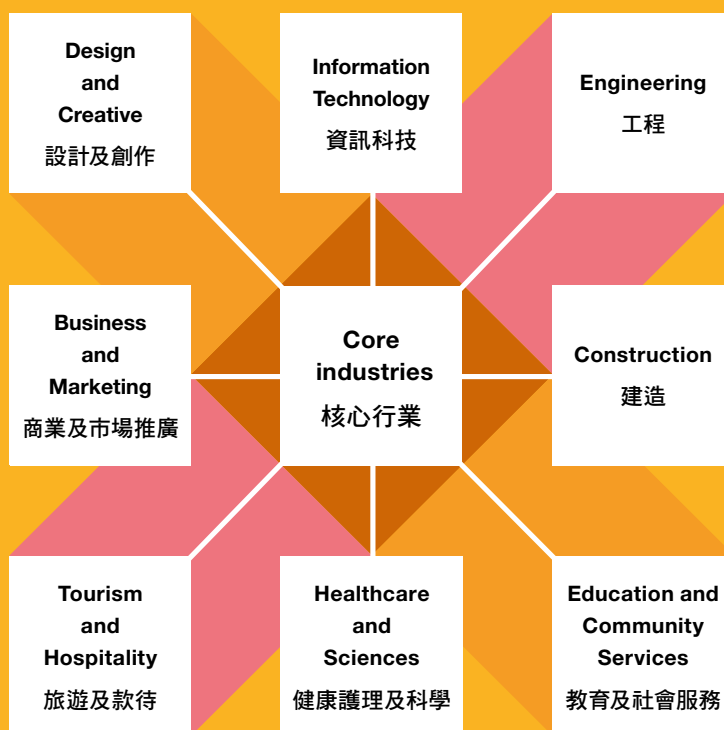
PwC's analysis reveals that VPET plays an important role in supporting the growth of 23 trades and industries in Hong Kong through supplying a skilled workforce. In particular, VPET has made a significant contribution to **8 core industries** as shown in Figure 1-2.

在2020/21年度，職專教育機構在香港提供了**6,500多個**課程，包括證書課程、文憑課程、高級文憑課程、學士學位課程等。

羅兵咸永道的分析顯示，職專教育培育的技術勞動人口，支援了香港23個行業的發展，對圖1-2所示的**8個核心行業**的貢獻尤為顯著。

Figure 1-2: 8 core industries VPET has significantly contributed to

圖1-2：職專教育對下列8個核心行業作出顯著貢獻



Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis

資料來源：(1) 香港特別行政區政府職專教育網站（無日期）、(2) 羅兵咸永道分析

VPET 職業專才教育



Manpower contribution

From the early 1980s through to 2019, VPET providers trained **over 907,000 graduates**^[1] for a wide range of industries, contributing **nearly 24% of total workforce** in Hong Kong.

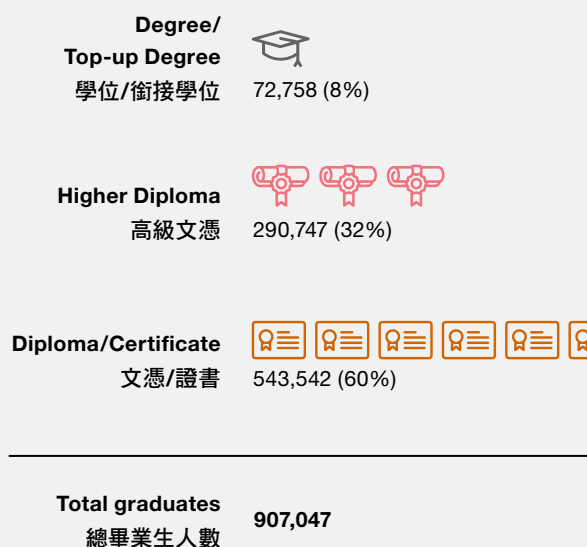


人力資源貢獻

由1980年代初直至2019年，職專教育機構已為各行各業培訓了超過**907,000名畢業生**^[1]，佔香港**總勞動人口近24%**。

Figure 1-3: Number of VPET graduates from 1983/84 to 2018/19

圖1-3：從1983/84年度至2018/19年度的職專教育畢業生人數



Note: (1) Please refer to Notes under Figure 4-6 for more details on the calculation of the numbers in this figure.

Source: (1) VTC, (2) CSPE (2020), (3) Education Bureau (2019a), (4) Legislative Council (2018), (5) PwC Analysis

附註：(1) 請參閱圖4-6的註釋，以了解有關上圖數字的資料

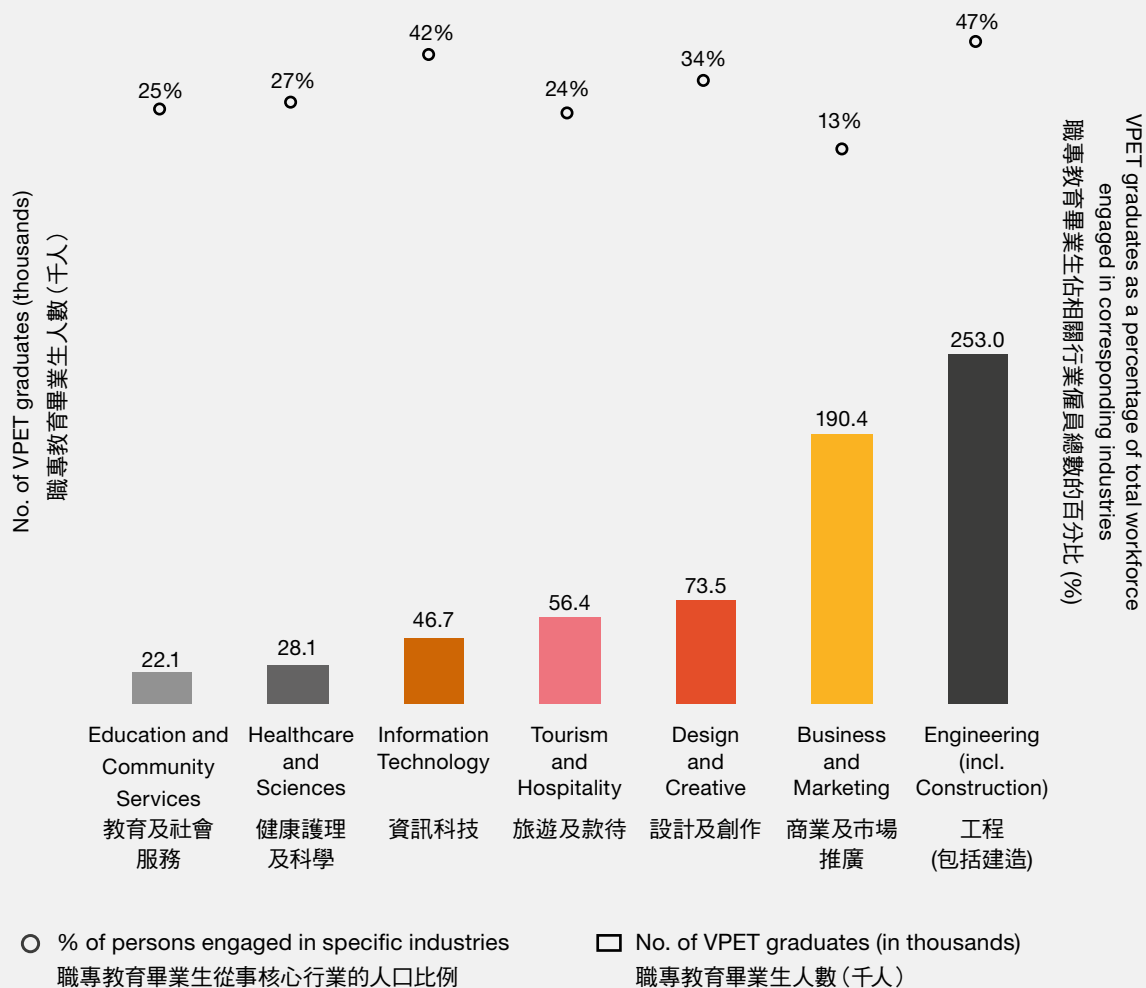
資料來源：(1) VTC、(2) 自資專上教育委員會 (2020)、(3) 教育局 (2019a)、(4) 立法會 (2018)、(5) 羅兵咸永道分析

[1]: This number includes the graduates of award-bearing programmes only.

[1]: 此數字僅包括獲學歷頒發課程的畢業生人數。

Figure 1-4: Number of VPET graduates from 1983/84 to 2018/19 and contribution to the workforce for core sectors in 2019

圖1-4：1983/84年度至2018/19年度職專教育畢業生人數以及對2019年主要行業的勞動人口市場的貢獻



Source: (1) CSPE (2020), (2) VTC, (3) PwC Analysis

資料來源：(1) 自資專上教育委員會 (2020)、(2) VTC、(3) 羅兵咸永道分析





Economic contribution

In 2018/19, VPET providers and their graduates generated a total of **HK\$ 97 billion+ value added**^[2] to Hong Kong's economy.

Equivalent to 3.4% of Hong Kong's GDP

- VPET operations generated **HK\$ 12 billion** and created **17,600** full-time equivalent (FTE) jobs, of which 12,000 FTE staff are directly employed for the operations of VPET providers.
- VPET raised overall workforce's productivity by **HK\$ 85 billion** through their graduates.



Reduction of youth unemployment

Evidence shows that VPET **contributes significantly to enhancing the employability of its students** especially those young school leavers at secondary schools and **reducing youth unemployment** in Hong Kong.

[2]: The Hong Kong's overall labour participation rate 80% and the unemployment rate at 2.5% from C&SD in 2018/19 were assumed to calculate the economic contribution of VPET graduates.



經濟貢獻

在2018/19年度，職專教育機構及其畢業生為香港經濟創造了**超過970億港元的附加價值**^[2]。

相當於香港本地生產總值的 **3.4%**

- 職專教育機構的業務創造了**120億港元**的附加價值，並創造了**17,600**個相當於全職的職位（FTE）。其中12,000名FTE員工直接受僱於職專教育機構的業務。
- 職專教育畢業生提升了整體工作人口的生產力，經濟價值相當於**850億港元**。



減少青年失業問題

證據顯示，香港職專教育多年來**提升了不少學生**（特別是中學時離校的青年）的就業能力並有效**減低青年失業**的情況。

[2]: 職專教育畢業生創造的附加價值是根據 2018/19 年度，政府統計處的香港整體勞動人口參與率80%及失業率2.5%計算。



VPET provides seamless and diverse **vocational-oriented** education pathways with various **career prospects** and supplies a skilled workforce for Hong Kong's economy and daily operations



VPET provides an important platform for developing not only practical skills but also **transferable skills and positive attitude**



VPET establishes **strong linkages with the industry** and encourages students to develop **innovative and entrepreneurial skills**



VPET providers play a crucial role in offering **lifelong learning opportunities** for **upskilling and reskilling the workforce**



VPET provides the necessary workforce to **support healthcare services** and **promote sustainability**



VPET significantly improves **social mobility** through education and career enhancement



VPET improves **social cohesion and equality** through providing support to minority groups and students with special needs



職專教育提供專業為本的課程，透過多元貫通的升學階梯，讓學生探索不同行業的發展前景，並為香港的經濟和社會運作提供了技術人才



職專教育不僅是培訓學生實務技能的一個重要平台，亦協助學生掌握通用技能以及建立正向態度



職專教育與行業建立緊密聯繫，並鼓勵學生發展創新和創業技能



職專教育機構在提供終身學習、提升專業技能和再培訓方面擔當重要角色



職專教育提供所需的勞動人口以支援健康護理服務和推動可持續發展



職專教育通過教育和職業發展，大大改善了社會流動性



職專教育通過為少數社群和有特殊需要的學生提供支援，提高社會凝聚力和和平等



Observations and recommendations



Articulation
pathway

Observation

1. VPET has yet to be positioned on a par with the conventional academic route in Hong Kong, and there is also a lack of Universities of Applied Sciences (UAS) at the higher education level despite VPET's importance to Hong Kong

Recommendation

E 1a. Formalise applied degrees and officially establish publicly funded UAS at the higher education level:

- Formalise the existing degree programmes with a strong focus on applied and vocational aspects as applied degrees
- Offer articulation opportunities for VPET students to pursue degree-level qualifications at publicly funded UAS and to attain qualifications that are equivalent to conventional academic degrees offered by UGC-funded universities
- Incentivise the uptake of the VPET route from secondary schools as applied degrees become as affordable as those offered by UGC-funded universities
- Provide a platform for applied research activities and encourage collaboration between the industry and education providers

E 1b. Formalise VPET at the secondary education level:

- Formalise the VPET route (such as certificate, apprenticeship, DVE, DVB) as an education pathway that has parity with the conventional academic route
- Formally embed apprenticeships as a qualification type recognised under HKQF in the education system at the secondary education level
- Reinforce the role of the Youth College as a secondary school specifically designed for Applied Education at the secondary education level
- Popularise the use of vocationally oriented syllabus in secondary schools so that workplace training elements (e.g. short-term industry placements) can be enhanced in secondary education
- Recognise the Applied Learning (ApL) (Category B) subjects in the HKDSE by reviewing its learning outcomes and assessment so that they could be awarded using the same grading categorisation as in Category A subjects, with the highest grade of Level 5**.

D 1c. Re-define VPET as “Applied Education”:

- Formalise a clear definition of “Applied Education” based on the international best practice and reinforce “Applied Education” at all levels of the entire education system

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation

觀察和建議



升學階梯

觀察

1. 儘管職專教育對香港十分重要，但由於香港缺乏應用科學大學，其定位仍未能與香港傳統學術途徑看齊

建議

E 1a. 將應用學位正規化，並正式建立政府資助的應用科學大學：

- 以應用及職業層面為重點的學位課程定為應用學位，並將其定位為與傳統學術學位有同等的資歷
- 為職專教育學生提供升學機會，使其能修讀資助的應用科學大學學位課程，並取得與傳統學術學位同等的資歷
- 隨著應用學位的學費與資助的傳統學術學位同屬可負擔水平，鼓勵中學生選擇職專教育途徑升讀應用學位
- 為應用研究活動提供平台，並鼓勵企業及職專教育機構合作，以發展應用研究能力

E 1b. 在中學開始推行職專教育：

- 將中學教育階段的職專教育課程（例如證書、學徒、職專文憑、職專國際文憑）正規化，使其與傳統學術升學途徑的認受性持平
- 將學徒計劃正式列為香港資歷架構認可的資歷類別，納入中學教育體系，並提供升讀高等教育的途徑
- 鞏固青年學院作為一所專門提供應用教育的院校，使其有別於傳統中學教育
- 透過鼓勵中學採用職業導向的課程綱要，加強中學教育中的職場培訓元素（如短期工作實習）
- 檢討香港中學文憑試中的應用學習科目（乙類）的學習目標及評核方法，使其成績能達5**等級及與甲類科目看齊

D 1c. 重新定義職專教育為「應用教育」：

- 參考國際做法，正式明確界定「應用教育」，並在整個教育系統的各層面上加強「應用教育」的角色

附註：**E** 表示擬議的重要建議 **D** 表示擬議的可取建議



Upskilling and reskilling of the workforce

Observation

2. Lifelong learning culture needs to be further developed and promoted in Hong Kong

3. There is demand for developing a strong talent pool for reindustrialisation, automation and digitalisation

Recommendation

E 2. Enhance the roles of VPET providers in upskilling and reskilling the workforce to meet future needs, bridge skill gaps and promote lifelong learning:

- Put more emphasis on lifelong learning in the education system and its policies
- Improve the flexibility of the education system and allow students to choose different education pathways from upper secondary schools
- Provide direct funding support to VPET providers for programme development and the provision of learning and education; and change the existing arrangement of disbursing the CEF from a reimbursement basis to a voucher redemption basis

E 3a. VPET providers should enhance its programme offerings to cater for the human capital needs of Industry 4.0, automation and digitalisation:

- Offer programmes and trainings that help to develop a skilled workforce and equip them with new skills to support Industry 4.0
- Build up strong connections and closely work with the businesses in relevant industries in Hong Kong and in other regions/countries with comparative advantages in manufacturing
- Timely update the programme curriculum and contents based on industry feedback and suggestion, and provide more project-based business collaboration opportunities
- Build up applied research capability
- Organise more Industry-4.0 themed competitions

E 3b. Enhance collaboration with other cities in the Mainland China and GBA to build a diversified talent pool:

- Forge collaboration between VPET providers in Hong Kong and those in the GBA as well as Shanghai, Beijing, Chongqing, Yangtze Delta cities where ties are already established, for example, establishing GBA vocational training parks in collaboration with relevant stakeholders)
- Enhance mutual recognition and standards of VPET programmes and qualifications
- Provide more support and incentives for students to carry out internships and on-the-job training
- Offer more exchange activities for teaching staff and supporting staff
- Enable cross-boundary funding programmes

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation



人力資源的專業
技能提升和
再培訓

觀察

2. 香港需要進一步發展和推廣終身學習文化

3. 香港需要為再工業化、自動化和數碼化發展多元化的人才資源庫

建議

E 2. 加強職專教育在提高工作人口的专业技能和再培訓方面的作用，以滿足未來需要，彌補技能差距，促進終身學習：

- 香港教育制度和政策應著重終身學習
- 政府可以提高教育制度的靈活性，允許學生從高中開始選擇不同的升學途徑
- 直接資助職專教育機構開展相關課程，同時將現時發放持續進修基金的安排，由發還款項方式轉為換取代用券方式

E 3a. 職專教育機構應加強課程內容，以滿足工業4.0、自動化和數碼化的人力資源需求：

- 提供課程和培訓，培育技術人才，令他們具備新技能，以支援工業4.0發展
- 與香港相關行業，或於製造業發展具有優勢的地區/國家之企業建立緊密聯繫和合作，收集業界和相關持份者對最新技能要求的意見和建議，以便適時改進課程內容
- 根據業界的意見和建議，繼續適時更新課程內容，為學生提供更多與業界以專題為本研習模式的合作機會
- 建立應用研究能力，鼓勵學生和員工參與這些項目
- 舉辦更多以工業4.0為主題的比賽

E 3b. 加強與中國內地和粵港澳大灣區內的其他城市的合作，建立多元化的人才庫：

- 促進香港與粵港澳大灣區，以及上海、北京、重慶和長三角城市的職專教育機構的合作，例如與相關持份者合作建立粵港澳大灣區職業培訓中心
- 加強區域內職專教育課程和資歷標準的相互認可
- 為學生提供更多支援，鼓勵他們在中國內地和粵港澳大灣區其他城市進行實習和在職培訓
- 為教職員和輔助人員提供更多交流活動
- 實施跨境資助計劃，以便中國內地與香港的職專教育機構合作

附註：**E** 表示擬議的重要建議

D 表示擬議的可取建議



Upskilling and reskilling of the workforce

Observation

4. Currently, VPET programmes have placed a stronger emphasis on skills development for specific occupations than on developing transferable skills that are applicable across different disciplines

Recommendation

E 4. Amalgamate technical skills development and transferable skills development in VPET programme curricula to nurture talents:

- Enhance the development of transferable skills, values and multidisciplinary skills as part of programme curricula and learning activities of VPET
- Develop multidisciplinary skills and knowledge through organising more cross-disciplinary activities, e.g. conferences and events
- Organise local innovation competitions for VPET students to develop necessary soft skills



Government support

5. There are differences in Government's funding support provided to the universities and VPET providers and the strategic development direction of VPET needs more clarity

E 5. Strengthen Government's policy and financial support for VPET, including reviewing existing funding policies and financial assistance schemes and establishing an independent overarching body to provide strategic directions and coordinate development of VPET:

- Introduce new funding policies and financial incentives to encourage corporates to participate in VPET and nurture skilled workforce for the industry
- Promote VPET among various stakeholders, especially parents, teachers, principals in secondary schools, and career counsellors, and enhance their knowledge on the variety of VPET programmes and diversified vocational education pathways available
- Formalise applied education by offering publicly funded applied degrees and establishing UAS in Hong Kong
- Recognise the value of VPET by being an active recruiter of VPET graduates and offering work-based training to VPET students
- Review and revise its funding policies and existing financial assistance schemes, and formulate a holistic development plan to assist VPET providers in enhancing teaching and learning experience
- Establish an independent overarching body to provide strategic directions and centrally coordinate VPET development

6. There is a need for a consolidated web portal which provides integrated, consistent and up-to-date information to the public with regard to workforce and skills development

D 6. Introduce a new one-stop online platform for the public to guide decision-making on lifelong learning and career choices with easily accessible, integrated, consistent and up-to-date information on existing and emerging skills shortage and future jobs in high demand

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation



人力資源的專業 技能提升和 再培訓

觀察

4. 目前，職專教育課程更著重於特定職業技能的發展，而不是發展適用於不同學科的通用技能

建議

- E** 4. 在職專教育課程中融合專業技能與通用技能，以培育人才：
- 在職專教育課程和學習活動中，加強培養通用技能、價值觀和跨學科技能
 - 通過舉辦更多的跨學科活動（如會議等），發展學生跨學科的技能和知識
 - 舉行本地創新比賽，讓職專教育學生建立必需的軟技能



政府支持

5. 政府向大學與職專教育機構提供的資助存在差異，職專教育的發展策略及方向需要更清晰明確

- E** 5. 加強政府對職專教育的政策和財政支持，包括檢視現有的資助政策和財政援助計劃，並建立一個獨立的統籌機構，為職專教育在計劃和發展上提供指導和協助：
- 推出新政策和財政資助，以鼓勵企業參與職專教育，並為業界培育人才
 - 繼續向各持份者，特別是家長、教師、中學校長和職業輔導員推廣職專教育，並加強他們對各種職專教育課程和多元化就業前景的認識
 - 通過向應用學位提供資助和設立應用科學大學，將高等教育的應用教育正規化
 - 積極招聘職專教育的畢業生，並為學生提供在職培訓，提高對職專教育的認可
 - 檢討及修訂其撥款政策及現行的資助政策，並制訂全面的發展計劃，以協助職專教育機構提升教學的水平
 - 成立一個獨立統籌機構，制定職專教育策略方向及統籌其發展

6. 缺乏一站式的資訊平台，向公眾提供有關人力和技能發展的最新綜合資訊

- D** 6. 建立一站式線上平台，讓公眾能輕易獲取綜合和最新資訊，了解現有及新興的技能短缺和未來高需求的職位，並為公眾就終身學習及職業選擇提供指導

附註：**E** 表示擬議的重要建議 **D** 表示擬議的可取建議



Linkage with
the industry

Observation

7. The involvement of employers in VPET development could be enhanced

8. Dual-track programmes are currently limited in terms of industry coverage and qualification types

9. The time required for introducing new programmes, updating of curriculum and accreditation could be shortened to cater for the industry's fast-evolving needs

Recommendation

E 7. Encourage employers, professional bodies, industry chambers and trade associations to take on more active roles in VPET development and enhance the industry's recognition of VPET:

- Promote industries' roles in establishing training standards, programme and curriculum design, teaching, assessment and certification for work-based training
- Enhance the recognition of VPET programmes by professional bodies
- Recognise the value and contributions made by VPET graduates, experienced and skilled employees through providing competitive compensation packages and career progression opportunities

D 8. Dual-track programmes should be modernised and extended to a wider range of industries and education levels as well as qualification types:

- Extend the industry coverage to services and emerging industries
- Seek the Government's support on providing policy supports and financial incentives so as to encourage companies to offer apprentice training places
- Offer more apprenticeships at degree level to cater for the increasing needs of integrated learning and enhance the practicality of degree qualifications
- Introduce "Skill Master" qualifications recognised under HKQF to allow those highly skilled workers in their field of specialisation to attain qualifications recognised by professional bodies / industry councils and the Government

D 9. Expedite the internal approval and external accreditation processes for timely programme development and curriculum update, and to improve the "skills match" of VPET graduates with industry needs

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation



與業界和
僱主聯繫

觀察

7. 僱主在職專教育中的參與程度有待加強

8. 目前，雙軌制課程僅涵蓋有限的行業及資歷

9. 課程的引入、更新和評審所需的時間有待縮短，以配合行業急速發展

建議

E 7. 鼓勵僱主、專業團體、行業商會及協會在職專教育發展中發揮更積極作用，提高業界對職專教育的認可：

- 為在工作場所進行的培訓制定標準、課程設計、教學、評估和認證
- 通過與職專教育機構合作，提高專業團體對職專教育課程的認可
- 通過提供有競爭力的薪酬待遇和職業發展機會，肯定職專教育畢業生、以及經驗豐富和技術熟練的員工的價值和貢獻

D 8. 雙軌課程應現代化，並擴展到更多不同行業、教育程度和資歷：

- 將學徒計劃覆蓋的行業擴至服務業和新興產業，以提供更多學習模式讓學生選擇
- 尋求政府在政策和經濟方面的支持，以鼓勵企業提供學徒培訓名額
- 提供更多學位學徒制機會，以滿足不斷增長的綜合學習需求，並增加學位課程中的實習部分
- 引入香港資歷架構認可的「技能大師」資歷，讓專業領域中的高技術人才（例如學徒制課程畢業生）獲得專業團體/行業協會和政府認可的資歷

D 9. 加快課程發展及更新的內部批核和外部評審程序，提高職專教育畢業生的技能匹配度，以配合業界需求



Recognition of VPET

Observation

10. VPET in Hong Kong needs greater regional and international recognition

Recommendation

D 10. Enhance international and regional recognition of VPET in Hong Kong:

The Government / VPET providers in Hong Kong can enhance the regional and international profile of VPET by considering the following measures and initiatives:

- Work with relevant VPET stakeholders in the GBA to develop holistic internationalisation strategies
- Organise more exchange programmes with overseas VPET institutions and corporations
- Strengthen connections and collaboration, and establish long-term partnerships to benchmark regional and international vocational best practices with leading stakeholders
- Establish mutual recognition of VPET qualifications with local and overseas institutes and professional bodies
- Enhance the quality and international recognition of specific programmes, which Hong Kong has an edge on



對職專教育
認可

觀察

10. 香港職專教育需要獲得更廣泛的地區和國際認同

建議

D 10. 提升香港職專教育在地區和國際的地位：

政府/職專教育機構可考慮以下措施/計劃，提升職專教育的區域及國際形象：

- 與粵港澳大灣區內相關的職專教育機構合作，制訂全面的發展策略
- 與海外職專教育機構和企業舉辦更多交流活動，以展示職專教育學生的能力和專業技能
- 與主要持份者加強聯繫和合作，以建立長期合作伙伴關係，並建立地區和國際職專教育最佳的基準
- 與本地及海外機構和專業團體建立互相認可的職專教育資歷，以吸引國際學生來港
- 提高香港具優勢的特定課程之質素和國際認可度



附註：**E** 表示擬議的重要建議

D 表示擬議的可取建議





2 Introduction

簡介

2.1 Overview

Vocational and Professional Education and Training (VPET) plays a pivotal role in supporting societal and economic development in Hong Kong through skilling, upskilling and reskilling the workforce. In particular, VPET provides diverse education pathways for students to enhance their employability for specific professions, trades and industries. It also facilitates individual development and career progression whilst supporting the advancement of a wide range of industries in Hong Kong.

VPET has a longstanding history in Hong Kong and has been evolving over time together with the economic landscape. Hong Kong's economy has transformed from being a manufacturing-based economy to a service-oriented and knowledge-intensive one over the last four decades. The share of Gross Domestic Product (GDP) contributed by the service sector increased from 63% in 1980 to 93% in 2018.

In the light of the evolving economic environment, the education system in Hong Kong has also evolved correspondingly to the increased demand of workforce in the services and knowledge-based sectors. VPET

has become an important part of the Hong Kong's overall education system in providing training for students to acquire vocational and professional qualifications. In spite of the recent improvements in public perceptions towards VPET, VPET is still perceived by some as a relatively less favoured pathway for post-secondary students when compared to conventional academic education.

In recognition of the importance of VPET for the development of Hong Kong, the Hong Kong Special Administrative Region Government (the Government or the HKSAR Government) set up a Task Force on Promotion of Vocational Education in 2014 to support the development of VPET. A three-pronged strategy consisting of 27 recommendations to rebrand Vocational Education and Training (VET) to VPET, to strengthen promotion and to sustain efforts was proposed and accepted by the Government. A number of initiatives, including the Pilot Training and Support Scheme, Study Subsidy Scheme for Designated Professions/ Sectors (SSSDP) and Pilot Subsidy Scheme for Students of Professional Part-time Programmes have since been introduced to develop and promote VPET.

2.1 概要

職業專才教育（職專教育）透過提供技能培訓、提升專業技能和再培訓，對香港社會和經濟發展發揮著舉足輕重的作用。職專教育在支持香港各行各業發展的同時，亦為學生提供了多元化的升學途徑，以提高他們在個別專業和行業的就業能力，促進他們的個人及事業發展。

職專教育在香港歷史悠久，並隨著經濟發展而不斷演變。在過去四十年，香港經濟已由製造業轉型為以服務為本的知識密集型經濟體。服務業佔本地生產總值（GDP）的百分比，從1980年的63%增加至2018年的93%。

面對著變化多端的經濟環境，香港的教育制度也隨著服務業和知識型行業的人才需求增長而相應改變。職專教育已成為香港整個教育體系中的重要部分，為學生提供專業教育培訓。儘管近年公眾對職專教育的認同有所提升，但與傳統的學術教育相比，部分人士仍傾向選擇傳統學術教育作為升學途徑。

為讓大眾認識到職專教育對香港發展的重要性，香港特別行政區政府（政府或特區政府）於2014年成立了推廣職業專才教育專責小組，以推動職專教育的發展。專責小組提出了27項建議並制訂成策略以將職業教育及培訓重塑，包括：把香港「職業教育及培訓」（職業教育）重塑為「職業專才教育」（職專教育），推出多項職業專才教育措施，包括：「職學創前路先導計劃」、「指定專業/界別課程資助計劃」（SSSDP）以及「兼讀制專業課程學生資助試行計劃」以發展和推廣職專教育。

To further promote the development of VPET in Hong Kong, the Government established a Task Force on the Promotion of VPET (“the 2018 Task Force”) in April 2018 to review and consider enhancements to the promotion of VPET in Hong Kong with a more targeted approach. The 2018 Task Force conducted a consultation review with key stakeholders including VPET institutions, secondary schools, industry organisations, employers, think-tanks and youth organisations, and put forward a series of recommendations to promote VPET and enhance the role of VPET in the entire education system in Hong Kong. To further raise public awareness on VPET, the Government has also initiated a series of promotion activities with a theme of “2020 Hong Kong Skills Year”.

On 1 September 2020, the Steering Committee on Promotion of VPET and QF was established to strengthen the coordination on overall strategy in promoting VPET and fostering closer industry partnership to generate synergy, as well as to take over the functions of the Steering Committee on the Qualifications Framework Fund. The Steering Committee is expected to provide advice to the Government on further promoting the development of VPET in Hong Kong.

As the leading provider of VPET in Hong Kong, the Vocational Training Council (VTC) appointed PricewaterhouseCoopers Advisory Services Limited (PwC or the Consultant) to conduct a rigorous and objective analysis for assessing the contribution of VPET to Hong Kong’s prosperity from both social and economic perspectives (the Analysis). Based on this analysis’s primary research (including stakeholder interviews) and empirical evidence gathered through secondary sources in Hong Kong and overseas, this Report also presents opportunities and challenges as well as recommendations on the future direction and strategy for the development of VPET in Hong Kong.

為進一步促進香港職專教育的發展，政府於2018年4月宣布成立推廣職業專才教育專責小組——「2018年專責小組」，提出針對性的檢討並考慮如何在香港加強推廣職專教育。「2018年專責小組」與職專教育院校、中學、業界組織、僱主、智庫和青年組織等主要持份者進行了諮詢檢討，並提出了一系列建議推廣職專教育，深化職專教育在整個教育制度下所擔當的角色。為了進一步提高公眾對職專教育的認識，政府還發起了一系列以「2020香港技能年」作主題的宣傳活動。

在2020年9月1日，政府成立了推廣職業專才教育和資歷架構督導委員會，以統籌整體職專教育的推廣策略，並促進職專教育與業界的緊密合作關係。為了加強職專教育和資歷架構所產生的協同效應，新成立的委員會將履行資歷架構基金督導委員會的所有現有職能。督導委員會就進一步推動香港職專教育發展的策略向政府提交意見。

作為香港職專教育的領先機構，職業訓練局（職訓局，VTC）委任羅兵咸永道諮詢服務有限公司（PwC或顧問）進行嚴格而客觀的分析，從社會和經濟觀點評估職專教育對香港經濟發展及繁榮的貢獻。根據本報告的研究（包括：持份者訪問和所收集到的香港和海外經驗數據），羅列出香港職專教育在未來可能遇到的機遇和挑戰，本報告亦就職專教育未來發展方向和策略提出建議。

2.2 Objectives | 目標

Taking into account a range of empirical evidence gathered through primary and secondary sources, this Report identifies and assesses the value of VPET in Hong Kong. Key objectives of the Report are:

本報告根據收集到的資料及分析，評估香港職專教育的經濟價值。分析目標主要為：



To provide an overview of VPET in Hong Kong, its role in the education system and the type of programmes offered by VPET providers

概述香港的職專教育體系，在教育系統中所發揮的作用以及職專教育機構所提供的課程種類



To identify the economic and social impacts of VPET, with specific reference to major VPET providers (including the VTC and other providers) in Hong Kong

參考香港主要職專教育機構（包括：VTC和其他院校）的資料並分析職專教育對經濟和社會的影響



To develop a model to assess the economic impacts of VPET in Hong Kong

建立經濟價值評估模型以衡量職專教育對香港經濟的貢獻



To analyse the tangible and intangible social impacts of VPET in Hong Kong

分析香港職專教育對社會有形和無形的影響



To compare VPET in Hong Kong with other countries in Asia Pacific and overseas

比較香港與其他亞太地區和海外國家的職專教育體系



To identify the opportunities created for young people and working adults to succeed through VPET

分析職專教育為青少年及在職成年人所創造的就業或發展機會



To identify future opportunities and challenges for VPET in Hong Kong

評估香港職專教育未來將遇到的機遇和挑戰



To recommend and formulate policies and strategies for the enhancement of VPET in Hong Kong

建議及制定策略以提升香港的職專教育水平及認受性

2.3 Structure of this Report | 報告結構

The remaining sections of this Report are structured as follows:

本報告其他部分的結構如下：

Chapter

第三章

3

Overview of VPET
in Hong Kong

香港職專教育概覽

Chapter

第四章

4

Socio-Economic
Impact Analysis

社會經濟影響分析

Chapter

第五章

5

Recommendations

建議





3

Overview of VPET in Hong Kong

香港職專教育概覽

3.1 Evolution of VPET in Hong Kong

3.1.1

Overview

VPET plays an integral role in Hong Kong's education system, particularly in meeting the changing workforce requirements of key industries in the context of structural economic changes and rapid development in innovation and technology.

This section provides an overview of the development of VPET in Hong Kong, including how it has evolved over time and how VPET is positioned in the secondary and higher education systems today. An overview of the history of VPET in Hong Kong is illustrated in Figure 3-1.

3.1.2

Conventional development before the 2000s

Before the 1980s

The development of VPET (known as VET before 2014) dated back to 1864 when the West Point 'Industrial Reformatory', the first institution for technical education in crafts such as shoe-making, carpentry, tailoring and bookbinding, was established. The first Government-funded technical education institute, the Junior Technical School, was set up in the early 1930s and offered four-year courses for pre-apprentice training in marine navigation, wireless operations, mechanical engineering and construction (Leung Yung & Tse, 2018).

3.1 香港職業專才教育的演變

3.1.1

概述

職業專才教育（職專教育）在香港教育體系中擔當著重要角色，因應經濟結構轉變和創新科技的迅速發展，職專教育滿足了主要行業日新月異的人才需求。

本節概述了職專教育在香港的發展，包括職專教育的發展狀況及其在中學和高等教育制度中的定位。圖3-1概述了香港職專教育的歷史。

3.1.2

2000年代之前的發展

在1980年代之前

職專教育的發展（2014年之前稱為職業教育）可以追溯到1864年，第一所工藝教育學校西環「養正院」成立，教授製鞋、木工、裁縫和裝訂書本等工藝。初級工業學校成立於1930年代，為第一所獲政府資助的工藝教育學校，提供船舶通導、無線操作、機械工程和建築的四年制學徒前培訓課程。（Leung Yung & Tse, 2018）



A group of technical school students on a site visit (1950s)
一群工業學校學生進行實地考察（1950年代）

Source | 資料來源：<https://industrialhistoryhk.org/technical-education-training/>



Hong Kong Technical College
香港官立高級工業學院

Source | 資料來源：https://vpvet.vtc.edu.hk/wiki/index.php?title=Morrison_Hill_Technical_Institute

Later in 1937, the Government Trade School, which was later renamed as Hong Kong Technical College, was founded to provide post-secondary technical education (VTC, n.d.a).

Since the late 1950s, Hong Kong's commerce and manufacturing sectors boomed as a result of industrialisation, resulting in the City's growing status as an important international trade port. To provide more skilled workers for the booming economy, more trade schools with different focuses such as the Kowloon Technical School, Caritas Adult and Higher Education Service and Kwun Tong Vocational Training Centre were established in the 1960s.

VPET had operated on a moderate scale until the 1970s when the rapid pace of development stimulated a growing demand for workforce in manufacturing and other conventional industries, particularly textile and garment manufacturing.

The Morrison Hill Technical Institute was officially opened on 12 October 1970 by the then Governor, the late Sir David Trench, offering technician education and technical teacher training.

後來，香港官立高級工業學院（其後更名為「香港工業專門學院」）於1937年成立，提供專上程度的工藝教育（VTC，無日期a）。

自1950年代末以來，香港的商業和製造業發展蓬勃，隨著社會邁向工業化，香港成為了重要的國際貿易港口。到1960年代，為了滿足經濟發展對人才的需求，政府成立了不同技術範疇的工業學校，例如：九龍工業學校，明愛成人及高等教育服務和觀塘職業訓練中心。

職專教育的規模在這期間一直沒有重大變化，直到1970年代，迅速的經濟發展刺激了製造業和其他傳統行業（尤其是紡織和服裝製造業）對人力資源的需求。

摩理臣山工業學院於1970年10月12日正式開幕，由時任香港總督戴麟趾爵士主禮，學院提供工業教育和相關師資訓練。



Morrison Hill Technical Institute in 1970s
1970年代摩理臣山工業學院



The Governor, Sir David Trench (second right), opened the Morrison Hill Technical Institute
戴麟趾爵士（右二）為摩理臣山工業學院主持啟用儀式

Source | 資料來源：https://vpvet.vtc.edu.hk/wiki/index.php?title=Morrison_Hill_Technical_Institute





The Hong Kong Polytechnic and the Hong Kong Training Council were established in 1972 and 1973 respectively, followed by four new technical institutes in the late 1970s, to offer vocational-oriented and technical training in order to satisfy the needs of the business and industrial sectors (Legislative Council, 2015).

Subsequently, the Construction Industry Training Authority and the Clothing Industry Training Authority were established in 1975 to further develop human resources in these two industries. The Apprenticeship Ordinance was subsequently enacted in 1976 to provide contractual protection to apprentices in designated trades.

香港理工學院和香港訓練局分別於1972年和1973年成立，其後在1970年代後期成立了四個新的工業學院，以提供職業和技術為本的培訓，滿足工商界的需求（立法會，2015年）。

隨後，政府於1975年成立了建造業訓練局和製衣業訓練局，進一步培訓這兩個行業的所需人才。

《學徒制度條例》於1976年編訂，旨在為指定行業的學徒提供合同保護。

Figure 3-1: VPET History in Hong Kong ⁽¹⁾

圖3-1：香港職專教育的歷史 ⁽¹⁾



- Morrison Hill Technical Institute (1970) was officially opened.
- Hong Kong Polytechnic (1972) and the Hong Kong Training Council (1973) were established.
- Construction Industry Training Authority (1975) and the Clothing Industry Training Authority (1975) were established.
- The Apprenticeship Ordinance (1976) was enacted.
- 摩理臣山工業學院 (1970) 成立
- 香港理工學院 (1972) 和香港訓練局 (1973) 成立
- 建造業訓練局 (1975) 和製衣業訓練局 (1975) 成立
- 制定了《學徒制度條例》(1976)

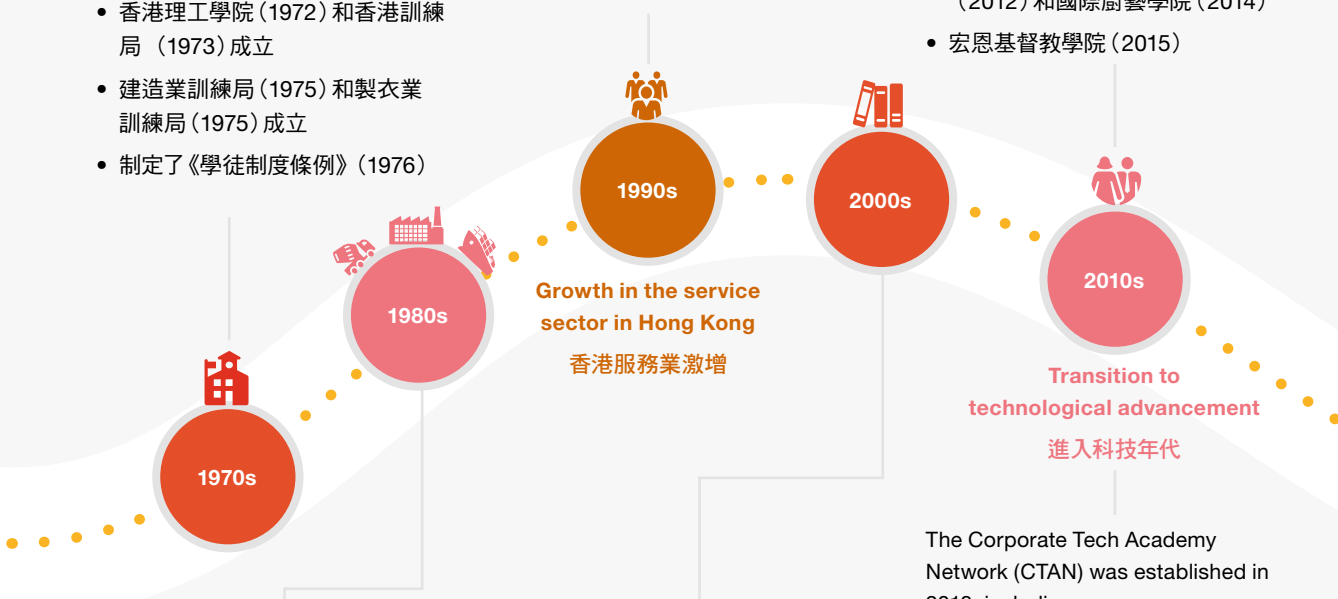
- The ERB was established in 1992.
- The Hong Kong Institute of Vocational Education (1999) was established merging two former Technical Colleges and seven Technical Institutes under the VTC, becoming a major provider of Diploma and Higher Diploma programmes.
- 僱員再培訓局成立於1992年
- 香港專業教育學院 (1999) 由兩間科技學院和七間工業學院合併，成為提供文憑及高級文憑課程的主要機構

More post-secondary institutions were established:

- Tung Wah College (2010)
- Hang Seng Management College (2010) (Currently a university)
- THEi (2012) and ICI (2014) by the VTC
- Gratia Christian College (2015)

成立了更多自資專上院校：

- 東華學院 (2010)
- 恆生管理學院 (2010) (現為大學)
- VTC成立了香港高等教育科技學院 (2012) 和國際廚藝學院 (2014)
- 宏恩基督教學院 (2015)



- Hang Seng School of Commerce was founded in 1980.
- The Vocational Training Council (VTC) was established under the VTC Ordinance in 1982.
- The Training and Development Centres (1984), Hospitality Industry Training and Development Centre (1985) and MSTI (1988) were established by the VTC.
- In 1984, City Polytechnic of Hong Kong was set up.
- 恆生商學書院成立於1980年
- VTC於1982年根據《職業訓練局條例》成立
- VTC成立了個別行業訓練中心 (1984)，酒店業訓練中心 (1985) 和海事訓練學院 (1988)
- 1984年，香港城市理工學院成立

The VTC established an array of institutions catering for students with different backgrounds and abilities:

- CCI (2000)
- SHAPE and PEAK (2003)
- Youth College (2004)
- HKDI (2007)
- IVDC (2008)

VTC成立了一系列機構成員，以迎合不同背景和能力的學生的需要：

- 中華廚藝學院 (2000)
- 才晉高等教育學院和高峰進修學院 (2003)
- 青年學院 (2004)
- 香港知專設計學院 (2007)
- 匯縱專業發展中心 (2008)

The Corporate Tech Academy Network (CTAN) was established in 2018, including:

- Towngas Engineering Academy
- Mass Transit Railway (MTR) Academy
- Hong Kong International Aviation Academy (HKIAA)
- China Light & Power (CLP) Power Academy
- HKPC Academy
- Hong Kong Institute of Construction (HKIC)

企業技術學院網絡 (CTAN)

成立於 2018 年，包括：

- 中華煤氣工程學院
- 港鐵學院
- 香港國際航空學院
- 中電學院
- 生產力學院
- 香港建造學院

1980s and 1990s

Replacing the Hong Kong Training Council, the establishment of the Vocational Training Council (VTC) in 1982 represented an important milestone for the development of VPET in Hong Kong. The VTC, as a statutory body established by the Government under the VTC Ordinance (Cap.1130), is responsible for providing comprehensive industrial training and technical education suited to the developing needs of Hong Kong and promoting the training of apprentices.

In 1984, the Training and Development Centres (later renamed to Pro-Act by the VTC) were established to provide a diverse range of industry-specific development programmes and training, covering 10 industries including automotive, electrical, electronics, fashion textiles, gas, jewellery, mechanical, precision engineering, printing and welding. The City Polytechnic was set up in the same year, which was later granted university status as the City University of Hong Kong (CityU) in 1994. During that year, the Hong Kong Polytechnic also obtained university status and was renamed as the Hong Kong Polytechnic University (PolyU).

The 1980s and 1990s saw the transformation of Hong Kong's economy from a manufacturing-based economy to a service-oriented and knowledge-intensive economy. Consequently, the Hospitality Industry Training and Development Centre (later known as Hotel and Tourism Institute (HTI)) was set up in 1985 to meet the growing workforce demand in the hotel and tourism industry. In 1988, the Maritime Services Training Institute (MSTI) (previously known as Seamen's Training Centre) was established to provide a wide range of courses for training new entrants and upskilling in-service seafarers and employees for the maritime and port industry. In 1992, the Employees Retraining Board (ERB) was established as a statutory body mainly to provide market-driven and employment-oriented reskilling courses and services. In the same year, the Open University of Hong Kong (OUHK) established the Centre for Continuing and Community Education, which was renamed as Li Ka Shing Institute of Professional and Continuing Education in 2 000 and later retitled Li Ka Shing School of Professional and Continuing Education (LiPACE) in 2020.

More Technical Colleges and Technical Institutes under the VTC were then established, which were later merged into the Hong Kong Institute of Vocational Education (IVE) in 1999. The IVE became a major provider of Diploma and Higher Diploma programmes and started offering a wide spectrum of programmes in engineering, business, information technology and hospitality amongst others.



1980年代和1990年代

VTC於1982年成立，取代了香港訓練局，為香港職專教育發展的重要里程碑。VTC是政府根據《職業訓練局條例》（第1130章）成立的法定機構，負責提供切合香港發展需要的全面工業教育及技術訓練，並促進學徒培訓。

1984年，VTC成立了多個行業訓練中心（後改名為卓越培訓發展中心），以提供不同行業的培訓課程和發展計劃，涵蓋了10個

行業，包括：汽車、電機、電子、時裝紡織、氣體燃料、珠寶、機械、精密工程、印刷及焊接。同年，香港城市理工學院成立，其後於1994年升格為大學，正名為香港城市大學。香港理工學院亦於同年獲得了大學地位，正名為香港理工大學。

在1980和1990年代，香港的經濟體系由製造業變為服務型和知識密集型。

有見及此，VTC於1985年成立了酒店業訓練中心（後來更名為為酒店及旅遊學院），以滿足酒店和旅遊業對人才不斷增長的需求。1988年，成立了海事訓練學院（前身為海員訓練中心），以提供廣泛的課程，培訓新血並提高海事和港口行業在職海員和其他僱員的技能。1992年，法定機構僱員再培訓局成立，主要提供市場及就業導向的再培訓課程和服務。同年，香港公開大學成立了持續及社區教育中心，該中心後來於2000年改名為李嘉誠專業進修學院。

其後，VTC成立了更多工業學院和科技學院，並於1999年將工業學院與科技學院合併，成立香港專業教育學院。香港專業教育學院成為提供文憑及高級文憑課程的主要機構，所提供的課程領域更廣泛，當中包括工程、商業、資訊科技和酒店及旅遊等。



3.1.3

Transformation in the 2000s – 2010s

The challenges of economic restructuring were particularly significant for VPET providers as Hong Kong transitioned from a manufacturing-based economy to a knowledge-based economy. In order to facilitate this transition, the Government promulgated policies (e.g. the development of university education and offering of professional diploma and sub-degree courses) to develop higher education, and set a target of achieving 60% of upper secondary school graduates receiving tertiary education in 2000 (HKSAR Government, 2000). Self-financing degrees, including VPET programmes, have since grown. After the education reform in the 1990s, former pre-vocational schools and secondary technical schools were gradually reformed into conventional academic secondary schools. This had implications for the role of VPET, as more people sought to pursue conventional education pathways.

Moreover, many publicly funded universities started to extend their offering to private subsidiaries by providing self-financing programmes at sub-degree and degree levels with vocational focuses. The earliest self-financing university extension dated back to 1957, when the University of Hong Kong (HKU) set up the Department of Extra-Mural Studies, which was later renamed as the School of Professional and Continuing Education in January 1992 (also known as HKU SPACE)^[3]. In 2001, the PolyU established Hong Kong Community College (HKCC) and the School of Professional Education and Executive Development (SPEED) under the College of Professional and Continuing Education (CPCE) to cater for the needs for higher education for secondary school leavers.

[3]: HKU SPACE oversees a number of subsidiary educational organisations, such as the HKU SPACE Community College (established in 2000), the HKU SPACE International College (established in 2003), and the HKU SPACE Po Leung Kuk Stanley Ho Community College (established in 2006).

[3]: 香港大學專業進修學院轄下多個附屬教育機構，例如：香港大學附屬學院（2000年成立），香港大學專業進修學院國際學院（2003年成立）和香港大學專業進修學院、保良局何鴻榮社區書院（2006年成立）。

3.1.3

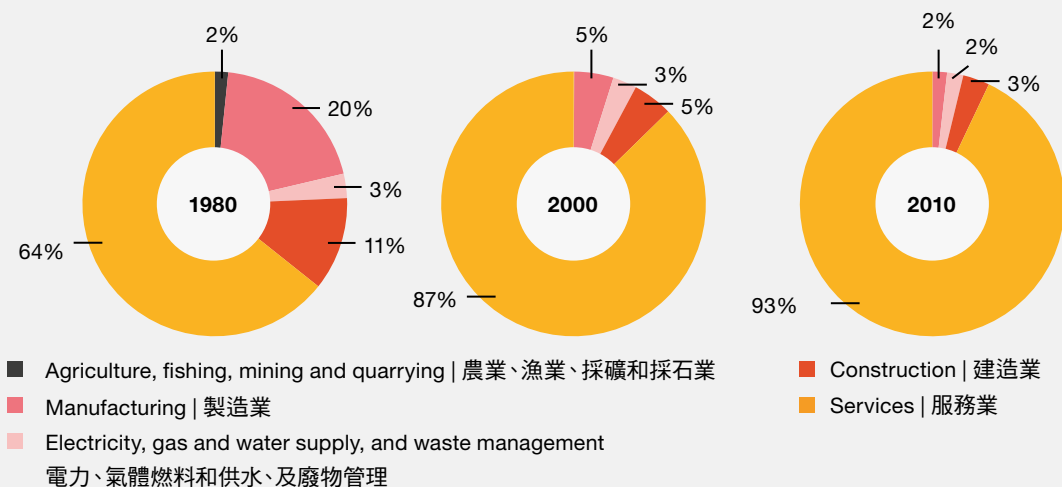
2000至2010年代的
社會轉型

隨著香港從製造業轉向知識型經濟體，職專教育機構亦面對著課程調節的重大挑戰。為了配合時宜，政府頒佈了發展高等教育的政策（例如：發展大學教育以及提供專業文憑和副學位課程），並於2000年訂下目標提升高等教育普及率達致整體高中畢業生的60%（香港特區政府，2020）。這政策增加了自資職專教育的學位課程。1990年代教育改革後，以前的職業先修及工業學校逐漸演變成傳統文法中學。這影響了職專教育的角色，吸引了更多人選擇傳統學校的升學途徑。

此外，許多大學開始成立大學的附屬學院，並以自負盈虧的方式提供副學士學位及職專學位課程。最早以該模式出現的大學外展部門可以追溯到1957年，當時香港大學設立了校外課程部，後來於1992年1月改名為香港大學專業進修學院^[3]。香港理工大學轄下的專業及持續教育學院於2001年亦成立了香港專上學院和專業進修學院，以迎合中學離校生的高等教育需求。

Figure 3-2: Hong Kong's GDP in 1980, 2000 and 2010 by sector

圖3-2：1980、2000和2010年按行業劃分香港的本地生產總值



Source: (1) C&SD (2020i), (2) PwC Analysis | 資料來源：(1) 政府統計處 (2020i)、(2) 羅兵咸永道分析

Increased economic integration and collaboration between Mainland China and Hong Kong created new business opportunities for a wide range of services, which in turn contributed to the growth of Hong Kong's service sector. As shown in Figure 3-2, Hong Kong's service sector GDP grew from 64% in 1980 to 93% in 2010, while the manufacturing sector shrank significantly from 20% of Hong Kong's GDP to 2% during the same period.

To open up more lifelong learning opportunities for working adults in response to the growing demand for continuing education, the VTC established the School for

Higher and Professional Education (SHAPE) to provide top-up degree programmes for Higher Diploma graduates in 2003. At the same time, the VTC also merged its four centres for management, financial, information technology and other professional training to establish the Institute of Professional Education And Knowledge (PEAK) in response to the growing demand for continuing education among working adults.

To enhance the employability of non-engaged youths, the VTC established the Youth College in 2004 to provide an interactive environment for students to attain education from Secondary 3 or

above and acquire skills and knowledge for further education and employment. In addition to HTI, the Chinese Cuisine Training Institute (later known as the Chinese Culinary Institute (CCI)) and the International Culinary Institute (ICI), were subsequently established to cater for the increasing demand in hospitality, tourism and culinary arts.

With regard to the growing demand for talents in design and creative industries, the Hong Kong Design Institute (HKDI), one of the 13 VTC's member institutions, was established in 2007 as a leading design institution to provide high-quality education to nurture talents needed by the creative industry in Hong Kong.

Later in 2008, the VTC opened its first Integrated Vocational Development Centre (IVDC) to offer a wide range of vocational training programmes for learners with diverse educational attainment and backgrounds.



Students at the Youth College (International)
青年學院（國際課程）學生



Students at the Chinese Culinary Institute
中華廚藝學院學生

中國內地與香港的經濟融合日益增強，造就了各種新商機，有利服務業發展。如圖3-2所示，服務業佔香港本地生產總值從1980年的64%上升至2010年的93%，而製造業則由佔香港本地生產總值的20%跌至2%。

鑑於持續進修的需求日增，為讓更多在職人士享有終身學習的機會，VTC於2003年成立了才晉高等教育學院，為高級文憑畢業生提供銜接學士學位課程。VTC另合併了四間教授管理、財經、資訊科技及其他專業的培訓中心，成立了高峰進修學院，以應對在職人士對持續教育的需求增長。

為提升待業青年的就業能力，VTC亦於2004年成立青年學院，

為學生提供互動學習環境，讓他們從中三或以上開始接受職專教育，獲取專業技能和學科知識，從而繼續升學或選擇就業。除了酒店及旅遊學院，VTC後來亦成立了中華廚藝學院和國際廚藝學院，以滿足旅遊款待及廚藝界對人才需求的增長。

因應設計及創意業對人才的需求不斷增加，VTC轄下13個機構成員之一的香港知專設計學院於2007年成立。作為主要的設計院校，該校致力提供優質設計課程，為創意工業培育專才。

VTC在2008年下旬開設了首間匯縱專業發展中心為社會上不同教育程度及背景人士提供多元化培訓課程。

3.1.4

The emerging phase since 2010

Since the early 2000s, with emerging needs for both pre- and post-employment students in taking the VPET route to attain higher level qualifications, a number of self-financing post-secondary institutions started to offer VPET programmes at the bachelor's degree level. For example, Caritas Bianchi College of Careers started offering one-year top-up bachelor's degrees in 2004, in addition to its mainstream certificate and diploma programmes.

In order to develop a skilled workforce for the healthcare industry, the Tung Wah Group of Hospitals set up a self-financing post-secondary institution, Tung Wah College, in 2010. Within merely 10 years, leveraging on its strengths in medical and healthcare, education and social services, Tung Wah College has developed into an institution offering 16 award-bearing programmes with a student population of over 3,000 in 2020.

Further to these developments, the Technological and Higher Education Institute of Hong Kong (THEi) was established by the VTC in 2012 to provide vocationally and professionally oriented bachelor's degree programmes with significant industry inputs. THEi's programmes provide students with first-hand experience of working in the real world while fulfilling their aspirations in attaining higher qualifications and professional recognition. As described by Dr. Carrie WILLIS, former Executive Director of the VTC, "The establishment of THEi is an important milestone of the VPET development in Hong Kong, as the offering of bachelor's degree programmes at THEi provides a holistic range of qualifications for students who want to obtain vocational higher education at the degree level while becoming work-ready."

自2010年後的發展

自2000年代起，隨著學生對職前和在職的職專教育需求不斷增加，許多專上院校開始以自負盈虧方式提供學士學位程度的職專教育課程。以明愛白英奇專業學校為例，該校除了提供主流證書和文憑課程外，還於2004年開始提供一年制銜接學位課程。

為了培養醫療服務業人才，東華三院以自負盈虧方式於2010年成立了一間專上學院——東華學院。在短短十年內，東華學院憑著其在醫療、教育及社會福利服務等範疇的專長和優勢，發展成一所提供16項學歷頒授課程的專業院校。院校在2020年的學生人數已超過3,000人。

此外，VTC廣納業界意見，於2012年成立了香港高等教育科

技學院，提供專業為本的學士學位課程。香港高等教育科技學院的課程，為學生提供職場實習經驗，同時滿足同學獲得更高學歷和專業認可的期望。正如VTC前執行幹事邱霜梅博士所言：「建立香港高等教育科技學院是香港職專教育發展的重要里程碑，因為透過提供學士學位課程可為學生提供全面的升學階梯，讓學生在接受高等教育的同時亦為未來工作做好準備。」





In 2018, the Corporate Tech Academy Network (CTAN) comprising six corporate academies, namely MTR Academy, CLP Power Academy, Hong Kong International Aviation Academy (HKIAA), Hong Kong Institute of Construction (HKIC), HKPC Academy and Towngas Engineering Academy, was jointly founded to provide VPET for meeting specific industry needs with a suitably skilled and qualified workforce.

Today, VPET in Hong Kong has developed into a vibrant education sector, comprising of 50 statutory bodies and institutions in Hong Kong providing a wide range of VPET programmes^[4] (as shown in Figure 3-3).

企業技術學院網絡於2018年由六間企業學院組成，包括：港鐵學院、中電學院、香港國際航空學院、香港建造學院、生產力學院和中華煤氣工程學院，共同成立以提供職專教育，培育技術人才，以滿足指定行業所需。

如今，香港職專教育已發展成蓬勃的教育體系，包含50個香港法定機構和院校，提供廣泛的職專教育課程^[4]（如圖3-3所示）。



The Opening Ceremony of CTAN and “Road to a Bright Professional Future” Event in May 2019
「企業技術學院網絡開幕典禮」暨
「職業專才——光明前程之路」展覽
2019年5月舉行



“Road to a Bright Professional Future” Event in May 2019
2019年5月的「職業專才——光明前程之路」展覽

Source | 資料來源： <https://engineering.vtc.edu.hk/tc/PastHighlightsOthersDetails.php?EDLDID=78>

[4]: According to the HKSAR Government's VPET portal and CTAN official website, there are 50 statutory bodies and institutions in Hong Kong providing VPET programmes as of 31 January 2021.

[4]: 根據香港特別行政區政府的職專教育網站和企業技術學院網絡官方網站，直至2021年1月31日，香港有50個法定機構和院校提供職專教育課程。

Figure 3-3: List of statutory bodies and institutions in Hong Kong providing VPET programmes

Statutory Bodies

Clothing Industry Training Authority (CITA)
Construction Industry Council (CIC)
Employees Retraining Board (ERB)
Vocational Training Council (VTC)

VTC Member Institutions

- Technological and Higher Education Institute of Hong Kong (THEi)
- Institute of Professional Education And Knowledge (PEAK)
- School for Higher and Professional Education (SHAPE)
- Hong Kong Institute of Vocational Education (IVE)
- Hong Kong Design Institute (HKDI)
- Hotel and Tourism Institute (HTI)
- Chinese Culinary Institute (CCI)
- International Culinary Institute (ICI)
- Maritime Services Training Institute (MSTI)
- Youth College (YC)
- Pro-Act by VTC
- Integrated Vocational Development Centre (IVDC)
- Shine Skills Centre (SSC)

Colleges and University Extensions

- Caritas Bianchi College of Careers
- Caritas Institute of Community Education
- Caritas Institute of Higher Education
- Centennial College
- Chu Hai College of Higher Education
- CityU School of Continuing and Professional Education
- CUHK School of Continuing and Professional Studies
- Gratia Christian College
- HKBU Academy of Film
- HKBU College of International Education
- HKBU School of Continuing Education
- HKCT Institute of Higher Education
- HKU School of Professional and Continuing Education
- HKU SPACE Po Leung Kuk Stanley Ho Community College
- HKU SPACE Community College
- Hong Kong College of Technology
- Hong Kong Institute of Technology
- Hong Kong Nang Yan College of Higher Education
- Hong Kong Shue Yan University
- Lingnan Institute of Further Education
- OUHK Li Ka Shing School of Professional and Continuing Education
- PolyU Hong Kong Community College
- PolyU School of Professional Education and Executive Development
- The Hang Seng University of Hong Kong
- Tung Wah College
- UOW College Hong Kong
- YMCA College of Careers

Corporate Academies



MTR
Academy



Towngas
Engineering
Academy



Hong Kong
International
Aviation
Academy



CLP Power
Academy



HKPC
Academy



Hong Kong
Institute of
Construction

Note:

(1) This list of existing statutory bodies and institutions in Hong Kong providing VPET programmes is based on those listed on the HKSAR Government's VPET portal as of 31 January 2021.

(2) All abbreviations are denoted in Appendix 11.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) CTAN-VPET (n.d.), (3) PwC analysis

圖3-3: 提供香港職專教育課程的法定機構和院校名單

法定機構

製衣業訓練局
建造業議會
僱員再培訓局
職業訓練局

VTC機構成員

- 香港高等教育科技學院
- 高峰進修學院
- 才晉高等教育學院
- 香港專業教育學院
- 香港知專設計學院
- 酒店及旅遊學院
- 中華廚藝學院
- 國際廚藝學院
- 海事訓練學院
- 青年學院
- 卓越培訓發展中心
- 匯縱專業發展中心
- 展亮技能發展中心

學院和大學外展教學部門

- 明愛白英奇專業學校
- 明愛社區書院
- 明愛專上學院
- 明德學院
- 香港珠海學院
- 香港城市大學專業進修學院
- 香港中文大學專業進修學院
- 宏恩基督教學院
- 香港浸會大學電影學院
- 香港浸會大學國際學院
- 香港浸會大學持續教育學院
- 港專學院
- 香港大學專業進修學院
- 香港大學專業進修學院保良局何鴻燊社區書院
- 香港大學附屬學院
- 香港專業進修學校
- 香港科技專上書院
- 香港能仁專上學院
- 香港樹仁大學
- 嶺南大學持續進修學院
- 香港公開大學李嘉誠專業進修學院
- 香港理工大學香港社區學院
- 香港理工大學專業進修學院
- 香港恆生大學
- 東華學院
- 香港伍倫貢學院
- 青年會專業書院

企業學院



港鐵學院

中華煤氣
工程學院香港國際
航空學院中電電力
學院

生產力學院

香港建造
學院

附註：

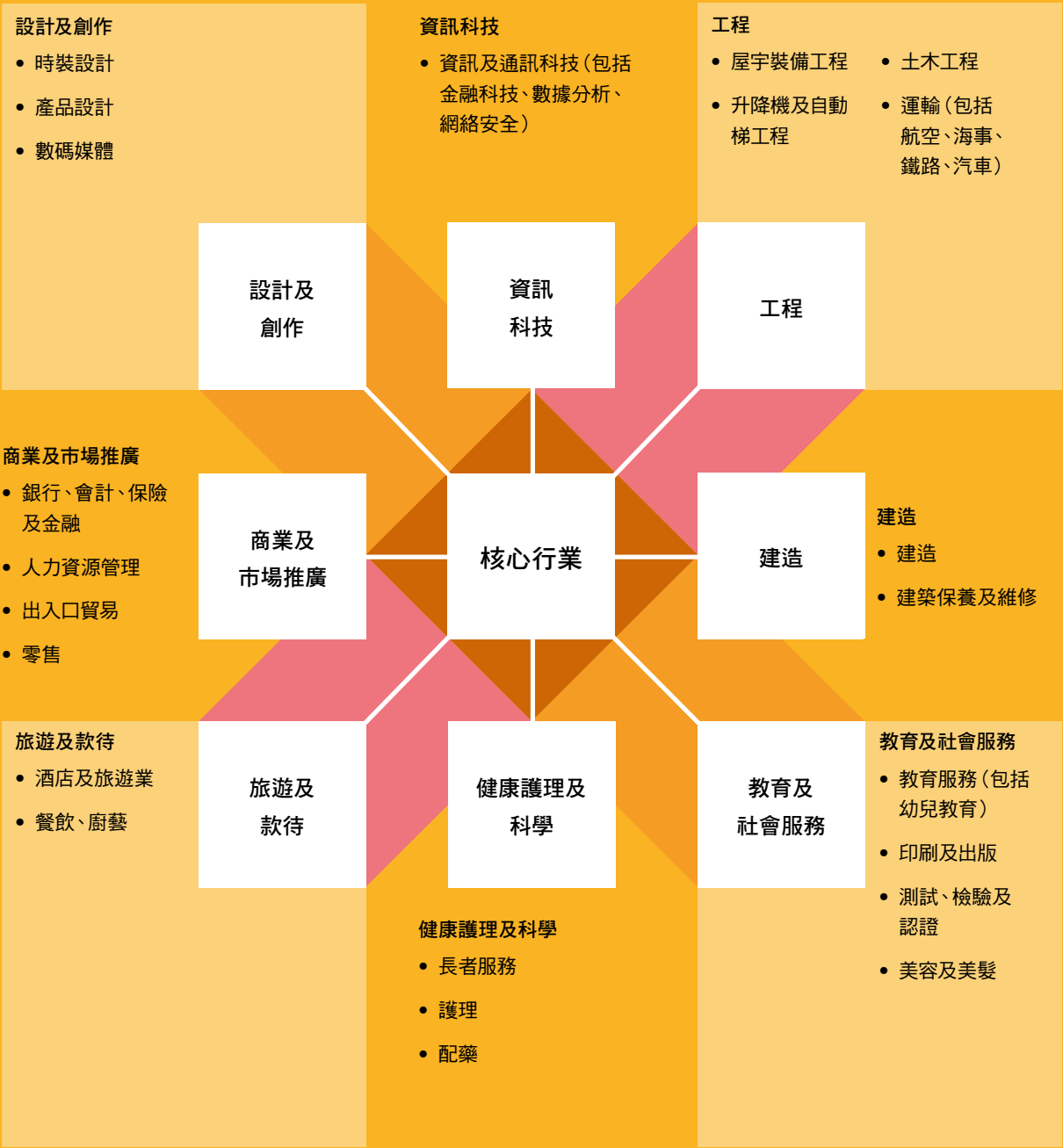
(1) 此列表是根據2021年1月31日在香港特別行政區政府的職專教育網站上所列出現有提供香港職專教育課程的法定機構和院校。

(2) 所有縮寫均在附錄11中表示。

資料來源：(1) 香港特別行政區政府的職專教育網站（無日期）、(2) CTAN-VPET（無日期）、(3) 羅兵咸永道分析

如圖3-4所示，職專教育課程涵蓋廣泛行業，從旅遊、酒店到工程和建造業，為青少年和在職人士提供提升技能和再培訓的機會，以獲取專業技能和學科知識。

圖3-4：職專教育課程所支援的8個核心行業



資料來源：(1) 香港特別行政區政府的職專教育網站 (無日期)、(2) 羅兵咸永道分析

3.2 VPET in Hong Kong's education system

3.2.1

Overview

VPET's unique role in the education system has gained significant traction over the years. The provision of VPET covers both secondary and post-secondary education and contains multiple and flexible vocational-oriented education pathways for both young people and working adults to achieve career and education aspirations.

To facilitate lifelong learning and enhance the capability and competitiveness of the workforce in Hong Kong, the Hong Kong Qualifications Framework (HKQF) was introduced in 2008^[5]. Since then, the HKQF has become a credible system which facilitates the recognition of qualifications and supports mobility of learners and the workforce. The HKQF is a framework with a seven-level hierarchy that embodies qualifications in the academic, vocational, professional and continuing education sectors. The HKQF not only provides quality-assured recognition for VPET qualifications, but also functions as a common platform for articulating academic and vocational qualifications across different subject areas, sectors and levels.

[5]: Please see additional information about HKQF in Appendix A.3.

3.2 香港教育制度下的職專教育



3.2.1

概要

多年來，職專教育在教育制度中所擔當的特定角色獲得社會支持。職專教育涵蓋了中學和專上教育，並為青少年和在職人士提供了多種靈活及以專業為本的教育途徑，協助他們實現就業和升學志向。

為了鼓勵市民終身學習並提升香港人才質素及競爭力，政府於2008年引入了香港資歷架構^[5]。資歷架構提供七級的資歷級別，涵蓋學術、職業專才及持續教育及培訓界別的資歷。它不僅成為可靠的制度，促進職專教育資歷認可，並有利提升學員和社會人才流動，成為了一個可闡明不同學科領域、行業和資歷級別的重要平台。

[5]: 請參閱附錄A.3中有關資歷架構的其他資訊。

3.2.2

VPET at the secondary level

VPET in secondary education

VPET has long been offered to secondary school students (as discussed in Section 3.1). Over the recent decade, VPET has been embedded in conventional secondary education. At the lower secondary level, VPET has been progressively offered to students through various career-related activities and learning programmes, such as Life Planning Education (LPE). At the upper secondary level, career-related and vocational education is provided through Applied Learning (ApL) subjects and career-related experiences delivered in the Other Learning Experience (OLE) activities. For Secondary 3 students who prefer to receive VPET over conventional academic education, vocationally oriented programmes delivered by VPET providers (namely the Youth College, VTC) are also available as shown in Figure 3-5.

At VTC's Youth College, a Secondary 3 graduate can choose to participate in a 3 to 4-year apprenticeship training in the Diploma of Vocational Education (DVE) programme, under which students can enjoy on-the-job training and classroom learning at the same time. Students can also opt for the Diploma of Vocational Baccalaureate (DVB) programmes, which was launched by the VTC in 2018 and designed to facilitate attainment of worldwide recognised qualifications, such as the International General Certificate of Secondary Education (IGCSE) examinations and Business & Technology Education Council (BTEC) Diploma/Extended Diploma. The DVB programmes provide students with an immersive English learning environment and adopt a project-based learning approach where students are engaged in class activities and trained with life skills, such as self-management, confidence and responsibility.

3.2.2

中學程度職專教育

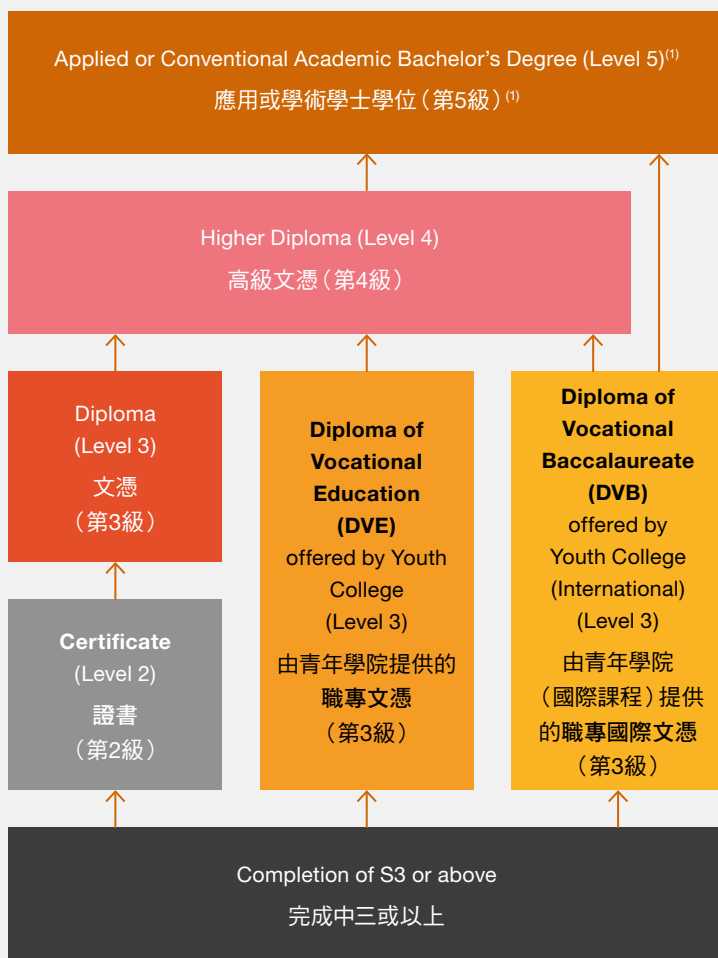
中學教育中的職專教育

職專教育以往一直集中以中學離校生為對象（如第3.1節所述）。最近十年，職專教育被納入到常規中學教育的課程。在初中階段，通過舉辦各種與職業有關的活動和學習計劃，例如：生涯規劃教育，逐步向學生灌輸職專教育的概念。在高中階段，通過應用學習和其他學習經歷與職業導向相關的活動，提供就業資訊及職業培訓訊息。中三學生如傾向選讀職專教育，也可以報讀由職專教育機構（如VTC的青年學院）提供的職業導向課程（圖3-5所示）。

在VTC青年學院，中三畢業生可以選擇修讀3至4年制的職專文憑課程並參加職學計劃，一面接受在職培訓，一面讀書。此外，學生亦可選擇職專國際文憑，課程由VTC於2018年開設，課程設計旨在協助學生獲得國際認可資歷，如國際中等教育普通證書和商業與技術教育委員會文憑/延伸文憑。職專國際文憑課程為學生提供全英語學習環境，採用專題為本研習方法，讓學生參與課堂活動，訓練生活技能，如自我管理技巧、建立自信和責任感。

Figure 3-5: Examples of VPET programmes available for secondary 3 students

圖3-5：可供中三學生修讀的職專教育課程示例



Note: (1) It is possible for DVB graduates to pursue Applied Degree (QF Level 5) locally or overseas.

Source: (1) VTC (n.d.j), (2) PwC Analysis

附註：(1) 職專國際文憑畢業生可升讀本地或海外應用學士學位（資歷架構第5級）。

資料來源：(1) VTC（無日期j）、(2) 羅兵咸永道分析

Figure 3-6 provides examples of VPET programmes available at local secondary schools in Hong Kong.

圖3-6 香港本地中學所提供的職專教育課程示例。

Figure 3-6: Types of vocationally oriented programmes offered at local secondary schools

圖3-6：本地中學提供的職業導向課程



Life Planning Education (LPE) in secondary schools

Provide a wide range of learning opportunities to secondary school students and expose them to career and VPET-related experiences, covering self-understanding and development, career exploration, career planning and management.

中學生涯規劃教育

為中學生提供廣泛機會，接觸不同職業和了解職專教育，包括：自我理解和個人發展、職業探索、生涯規劃和人生管理等。



Applied learning (ApL) subjects as part of HKDSE curriculum

Provide upper secondary students with exposure to industry practices relating to Hong Kong's core industries as elective subjects as part of the HKDSE curriculum. Students are able to obtain a QF Level 3 certification upon successfully completing HKDSE. Examples of these courses include Aviation Studies, Railway Studies, Electrical and Energy Engineering, Hotel Operations, Western Cuisines.

應用學習科作為中學文憑考試課程的一部分

這選修科目可讓高中生體驗香港核心行業的運作。成功完成中學文憑考試後，學生便可獲得資歷架構第3級的認證。這些課程包括：航空學、鐵路學、電機及能源工程、酒店營運、西式食品製作等。



Other Learning Experiences (OLE) activities

An integral part of the Upper Secondary Curriculum implemented since 2009, complementary to students' learning of core and elective subjects, with the aim to refine overall student development and cultivate positive values.

其他學習經歷活動

自2009年起成為高中課程的一部分，與核心和選修科目相輔相成，旨在改善學生整體的發展並培養積極正面的價值觀。

Source: (1) Education Bureau (2019a),
(2) PwC Analysis

資料來源：(1) 教育局 (2019a)、
(2) 羅兵咸永道分析

In 2005, the Government launched the Business-School Partnership Programmes (BSPP) as part of its VPET initiatives, where organisations such as corporates, public organisations and organisations are able to partner with secondary schools to create a non-traditional learning platform. Through the out-of-classroom activities under BSPP, which are held in the form of workplace visits, workshops, work experience programmes and competitions, students are able to explore the real world of work and identify career aspirations. Since 2015, over 350 BSPP partners have been engaged in over 5,000 activities with more than 1 million participants benefitting from these experiences (Education Bureau, 2019b).

Since 2014/15, the Government has also been supporting schools to implement LPE through providing Career and Life Planning Grant (CLPG). CLPG has been introduced to enhance the capacity of teaching team and to facilitate the implementation of life planning education and related guidance services.

2005年，政府啟動了商校合作計劃，作為推廣職專教育措施之一，企業、公營機構和組織等伙伴機構與中學合作，創建非傳統學習平台。在商校合作計劃下所舉辦的課堂外活動包括參觀工作場地、工作坊、工作體驗計劃及比賽，學生能夠深入了解現實的工作情境並確定其職業志向。自2015年以來，已有超過350個合作伙伴參與了5,000多次的活動，並讓超過100萬名參與者受益（教育局，2019b）。

自2014/15學年起，政府每年向學校提供生涯規劃津貼，以推行生涯規劃教育，並支援教學團隊以推動生涯規劃教育和相關的輔導服務。



Participation of VPET programmes at the secondary level

There are various types of schools providing secondary education in Hong Kong, but majority of them do not provide VPET-oriented programmes. Figure 3-7 presents the types of secondary schools in Hong Kong and their involvement in VPET. VPET providers remain to be the main providers of VPET programmes at the secondary level, while local schools and international schools have limited involvement in VPET.

The enrolment in VPET programmes is observed to be much lower (less than 20%) when compared with over 80% of secondary school students opting for subjects under the HKDSE curriculum at local schools or international programmes, such as the International Baccalaureate (IB), International Advanced Levels (IAL), Scholastic Assessment Test (SAT), BTEC, General Certificate of Secondary Education (GCSE) and IGCSE.

Figure 3-7: Types of institutions involving in secondary education and the nature of VPET involvement

	Description	VPET involvement
 Local Schools	Primarily provide education based on the HKDSE curriculum, though a minority of local schools also provide education under international curricula such as IB.	 Considered to have limited involved in VPET as ApL subjects are provided by VPET providers
 International Schools	Primarily provide education for international curricula such as IB, GCSE and SAT amongst others.	 Not considered to be involved in VPET
 VPET Providers	Provide VPET at the secondary education level, which include DVE and DVB amongst others.	 Main providers of vocationally oriented programmes at secondary level, including ApL subjects

Source: PwC Analysis

中學參與職專教育課程的情況

香港有不同類型的中學，然而大多數學校均沒有提供職專教育導向課程。圖3-7顯示了香港中學的類型及其參與職專教育的情況。職專教育機構仍然是中學程度職專教育課程的主要籌辦機構，本地學校和國際學校對職專教育的參與有限。

相比之下，職專教育課程的選修率偏低，超過80%的中學生選擇本地學校或國際課程文憑試課程中的科目，例如：國際文憑課程、英國國際高中水平證書考試、SAT考試、英國商業與技術教育委員會課程，中等教育普通證書和國際中等教育普通證書。

圖 3-7：參與中學教育的院校類型以及職專教育參與的性質

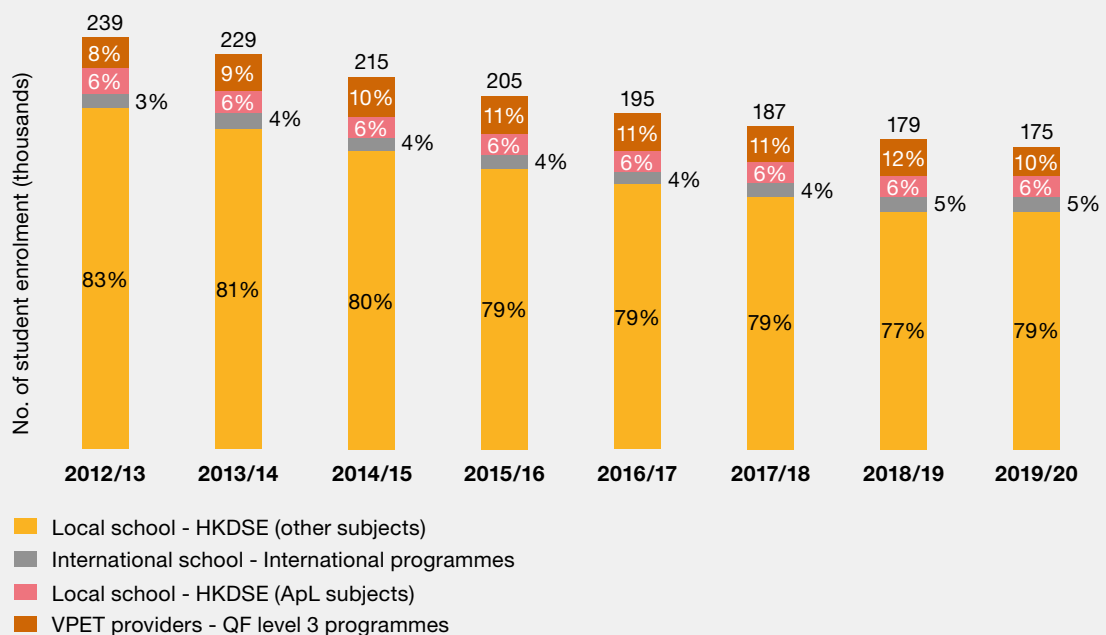
	描述	職專教育的參與度
 本地學校	主要提供香港中學文憑考試課程教育，但也有少數本地學校提供國際文憑等國際課程。	 由於應用學習科目由職專教育機構提供，本地學校有限度參與職專教育
 國際學校	主要提供國際課程教育，例如：國際文憑、中等教育普通證書和SAT。	 與職專教育不相關
 職專教育機構	提供中學程度的職專教育培訓，其中包括職專文憑和職專國際文憑。	 提供中學程度的職專教育課程，包括應用學習科目

資料來源：羅兵咸永道分析

As shown in Figure 3-8, from 2012/13 to 2019/20, the proportion of students enrolled in elective ApL subjects as part of the HKDSE curriculum remains consistently low at 6%. It is of note that while ApL subjects are included as part of HKDSE curriculum, these subjects are delivered by institutions providing VPET programmes. Upon taking into account enrolment for QF level

3 programmes, the proportion of secondary students enrolled in VPET programmes increased by 2% from 14% in 2012/13 to 16% in 2019/20.

Figure 3-8: Proportion of upper secondary school students enrolled in VPET programmes from 2012/13 to 2018/19



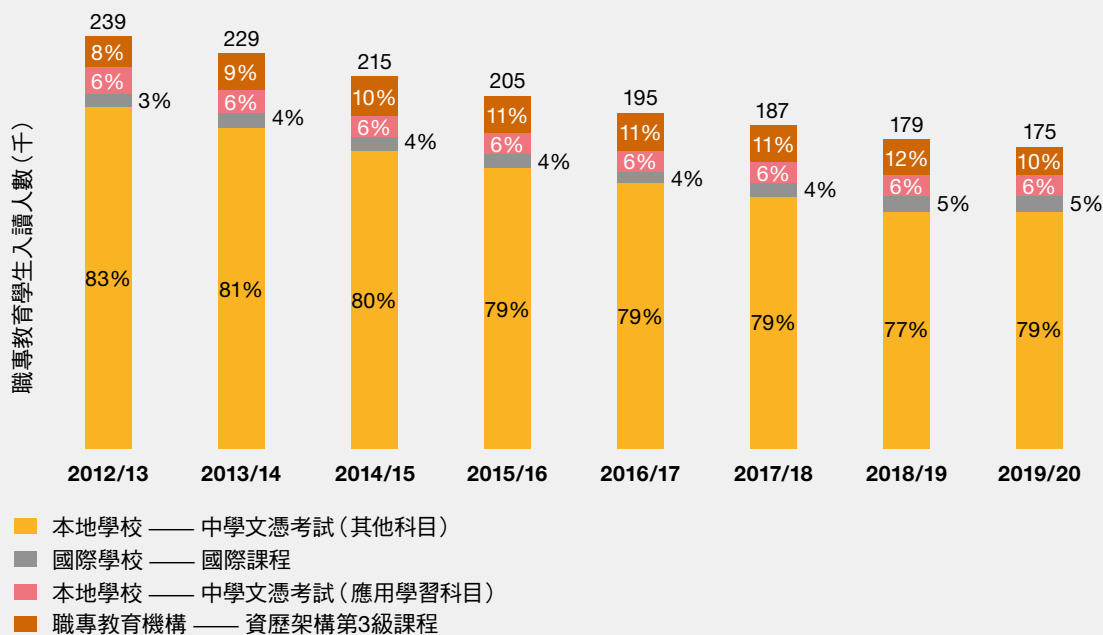
Note: (1) VPET providers, including the VTC, CIC and CITA, provide craft level courses at Secondary 3 level, and technician courses at the diploma/certificate level at QF Level 3. (2) The number of student enrolment in local schools electing ApL subjects is estimated based on the percentage of students taking ApL subjects in HKDSE in the corresponding years, which is around 7-8% of total number of HKDSE candidates in 2012/13 – 2019/20.

Source: (1) C&SD (2020m), (2) Big Exam (2020), (3) PwC Analysis

如圖3-8所示，從2012/13到2019/20，作為香港中學文憑考試課程一部分的選修科目，選修應用學習課程科目的學生比例一直維持在6%的低水平。值得注意的是，雖然應用學習課程是香港中學文憑考試課程的一部分，但這些課程是由職專教育機構所提供。

將資歷架構第3級的入讀人數納入計算，可見中學生入讀職專教育課程的比例從2012/13的14%輕微增加2%到2019/20的16%。

圖3-8：2012/13至2018/19學年入讀職專教育課程的高中生所佔比例



附註：(1) 職專教育機構，包括 VTC、建造業議會和製衣業訓練局，提供中三程度的工藝課程，在資歷架構級別3提供文憑 / 證書級別的技術人員課程。(2) 應用學習科目的本地學校學生人數根據相應年份在文憑試中選修應用學習科目的學生百分比估算，於2012/13 – 2019/20年度，約佔文憑試考生總數的7-8%。

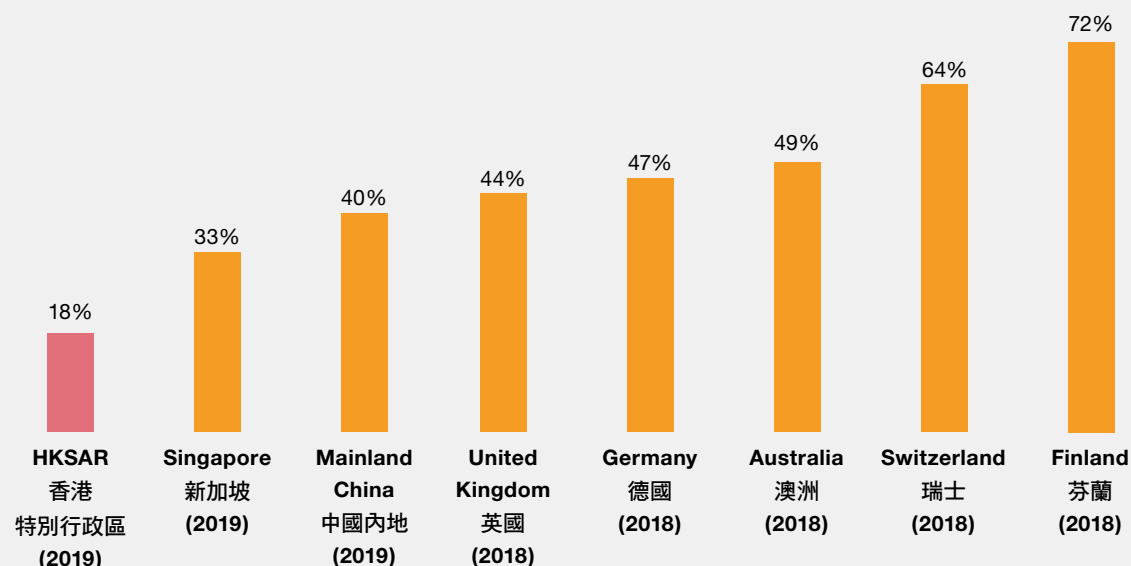
資料來源：(1) 政府統計處 (2020m)、(2) 大考 (2020)、(3) 羅兵咸永道分析

When comparing the participation rate of VPET in secondary education, Hong Kong has the lowest rate amongst selected jurisdictions with only 18% of students participating in VPET in upper secondary education as

shown in Figure 3-9. In contrast, nearly half of secondary school students participated in VPET in Australia and Germany, and over 60% of secondary school students participated in VPET in Switzerland and Finland (OECD, 2020).

Figure 3-9: Participation rate in VPET in upper secondary education (%)

圖3-9：高中階段的職專教育參與率 (%)



Note: Data are shown for the latest year available for respective countries from the OECD Education database.

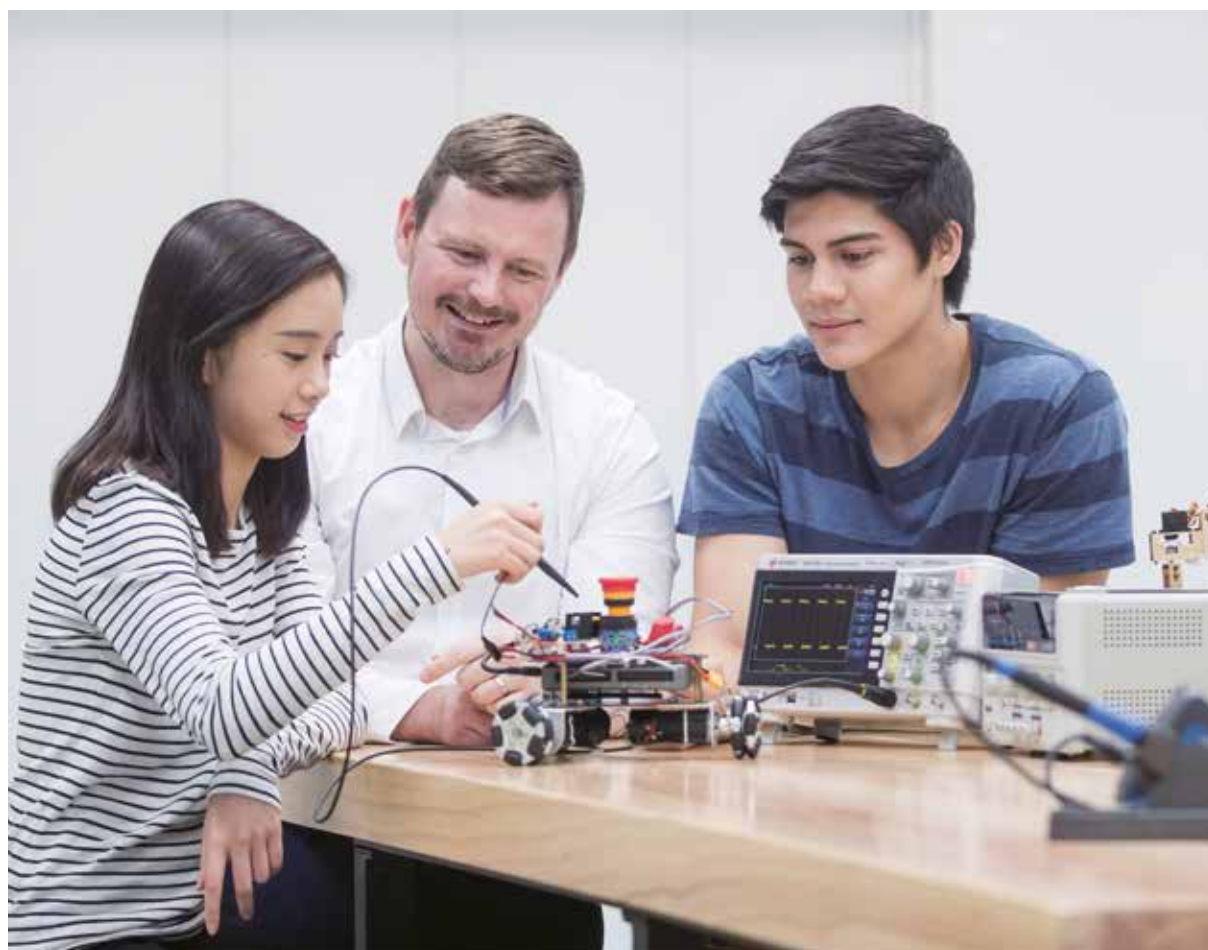
Source: (1) C&SD (2020m), (2) HKEAA (2020), (3) Ministry of Education of Singapore (2020a), (4) Ministry of Education of the People's Republic of China (2020a), (5) OECD (2020), (6) PwC Analysis

附註：上述數據來自經濟合作暨發展組織 (OECD) 教育數據庫中各個國家的最新年份數據。

資料來源：(1) 政府統計處 (2020m)、(2) 香港考試及評核局 (2020)、(3) 新加坡教育部 (2020a)、(4) 中華人民共和國教育部 (2020a)、(5) 經濟合作暨發展組織 (2020)、(6) 羅兵咸永道分析

本研究發現職專教育在中學教育的參與率時與世界其他地區相比，如圖3-9所示，香港的比率最低，只有18%的學生在中學教育階段修讀職專教育課程。相比之下，在澳洲和德國，近半中學生

修讀職專教育課程，在瑞士和芬蘭，更超過60%的中學生修讀職專教育課程（經濟合作暨發展組織，2020年）。



3.2.3

VPET and its role in post-secondary education

VPET in post-secondary education

In Hong Kong, there are two main articulation pathways for post-secondary education for students who have attained DVE or DVB qualifications from VPET providers, or for those who have completed secondary 6 education at local secondary schools, namely:

- **VPET route:** at the sub-degree level (QF Level 4), students could choose to complete Higher Diploma (HD) programmes in 2 years. Subsequently, HD graduates can choose to either enter the workforce or enrol in bachelor's degree programmes at QF Level 5 at local or overseas higher education institutions with strong professional/vocational focuses.

- **Conventional academic route:** at the undergraduate level, secondary school graduates can directly pursue bachelor's degree qualifications (QF Level 5) at local publicly funded universities, self-financing institutions or overseas universities. Some students may enrol in Associate Degree (AD) programmes at the sub-degree level (QF Level 4) and then apply for entry to Year 3 of bachelor's degree programmes at UGC-funded universities or self-financing post-secondary institutions upon completion.

Figure 3-10 presents the potential articulation pathways available for graduates of upper secondary education and highlights the pathways that are considered as VPET.

3.2.3

職專教育及其在專上教育中的角色

專上教育程度的職專教育

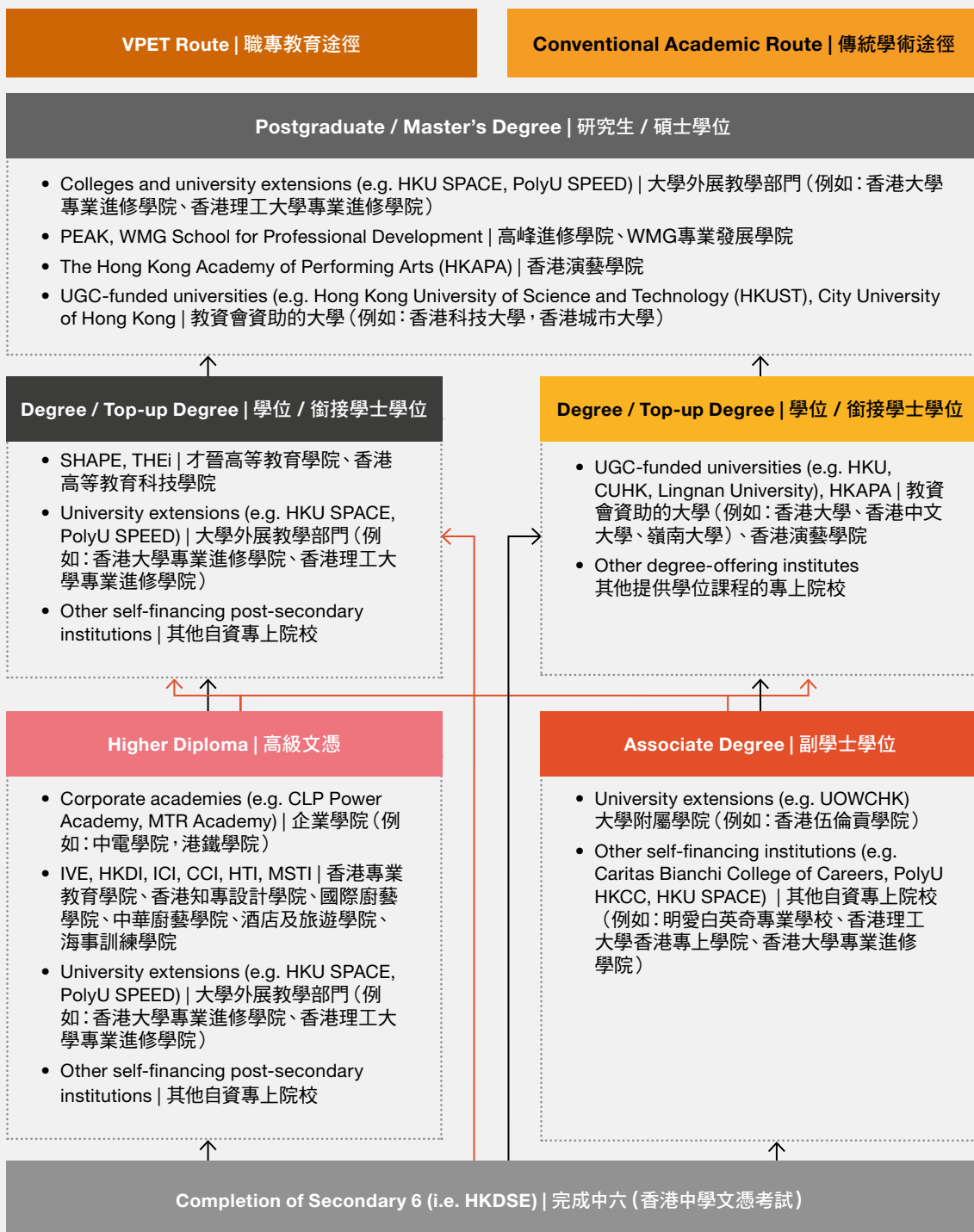
從職專教育機構獲得職專文憑或職專國際文憑資歷的學生，或在本地中學完成中六的學生，在香港主要有兩種銜接途徑：

- **職專教育途徑：**在副學位級別（資歷架構第4級）下，學生可以選擇在兩年內完成高級文憑課程。高級文憑畢業生可以選擇就業，也可以選擇在提供專業/職業導向課程的本地或海外高等教育機構修讀資歷架構第5級的學士學位課程。
- **傳統學術途徑：**部分學生可能會選擇修讀副學位程度課程（資歷架構第4級），完成課程後，再報讀教育資助委員會（教資會）資助的大學或自資院校學士學位課程的三年級。大學學士學位方面，中學畢業生可以直接修讀本地政府資助的大學課程、自資院校或海外大學課程，藉此獲得學士學位（資歷架構第5級）。

圖3-10顯示了香港專上教育的各種升學途徑，並重點介紹職專教育的升學途徑。

Figure 3-10: Potential articulation pathways for post-secondary education in Hong Kong

圖3-10：香港專上教育的各種升學途徑



Legend: → represents progression on the same pathway
圖例：→ 代表同一路線在不同階梯上的進展

→ transition across different pathways
→ 代表跨路線在不同階梯上的進展

Note: All abbreviations are denoted in Appendix 11. Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis
附註：所有縮寫均在附錄 11 中註明。資料來源：(1) 香港特別行政區政府的職專教育網站 (無日期)、(2) 羅兵咸永道分析

Although both AD and HD programmes provide graduates with the flexibility to pursue a bachelor's degree, a crucial distinction exists between these two types of qualifications: at least 60% of the HD curriculum consists of specialised content (e.g. learning related to concentrations, disciplines, professions, vocational skills), whilst at least 60% of the AD's curriculum consists of generic contents (e.g. language, IT, general education) (CSPE, 2017).

As pointed out by the Hon Andrew LEUNG, President of the Legislative Council and Former Chairman of the VTC, "VPET providers tend to have more agile responses to economic changes and shifting manpower trends across industries as they have greater flexibility in their operations, types of programmes offered as well as modes of teaching and learning. Equipped with strong practical skills and a willing-to-learn attitude, VPET graduates are highly valued by their employers."

In order to articulate employers' feedback on VPET students, two employers who have experience working with VPET providers were interviewed – Dr. Daniel YIP, Managing Director of GEW International Corporation Limited and Chairman of the Federation of Hong Kong Industries, and Dr. Clement CHEN, Executive Director of Tai Hing Cotton Mill Limited, Chairman of the Court of the Hong Kong Baptist University and former Chairman of the VTC.

Both Dr. YIP and Dr. CHEN pointed out that the benefits of VPET are attributable to its practical and vocational-oriented nature. In particular, the apprenticeship schemes and Earn and Learn Scheme incorporated in various VPET programmes have been much appreciated as they provide opportunities for employers to offer on-the-job training for nurturing potential employees, whilst young talents have the opportunities to strengthen industry-specific skills. Both interviewees held the view that such schemes can help support the continuous growth of local industries.

雖然副學士和高級文憑課程都為畢業生提供升讀學士學位的靈活途徑，但在這兩類型的課程之間有著重要的區別：高級文憑課程至少有60%內容屬專業性質（包括與專修科目、專業訓練、職業技能等有關訓練），而副學士課程則至少有60%內容屬通識性質（例如：語文、資訊科技、通用知識等）（自資專上教育委員會，2017年）。

正如立法會主席、VTC前主席梁君彥議員分享：「職專教育機構往往對經濟和人力需求變化能做出迅速回應，在營運、課程類型以及教學模式均有更大的靈活性。職專教育畢業生具備實用技能並抱持願意學習的正面態度，獲僱主認同。」

為了解僱主對職專教育學生的意見，本研究訪問了兩名一直與職專教育機構合作的僱主：通用國際企業有限公司董事總經理兼香港工業總會主席葉中賢博士和大興紡織有限公司執行董事、香港浸會大學校董會暨諮議會主席、VTC前主席陳鎮仁博士。

葉博士和陳博士均指出，職專教育的好處在於其課程實用和以專業為本，當中結合學徒訓練計劃和VTC職學計劃的職專教育課程亦獲得社會讚許及認同，這類計劃有助企業發掘有潛質的僱員加入團隊，學生亦有機會深化專業技能。兩位受訪者均認為，此類計劃有助支持本地行業的持續發展。



Participation of VPET programmes at the post-secondary education level

As shown in Figure 3-11, around 180,000 students enrolled in post-secondary education annually between 2012/13 and 2019/20. In particular, each year, just over 30% of these students enrolled in VPET programmes (e.g. HD, top-up degree and bachelor's degree programmes provided by VPET providers). This demonstrates that

conventional academic-oriented education remains the mainstream pathway for post-secondary education in Hong Kong.

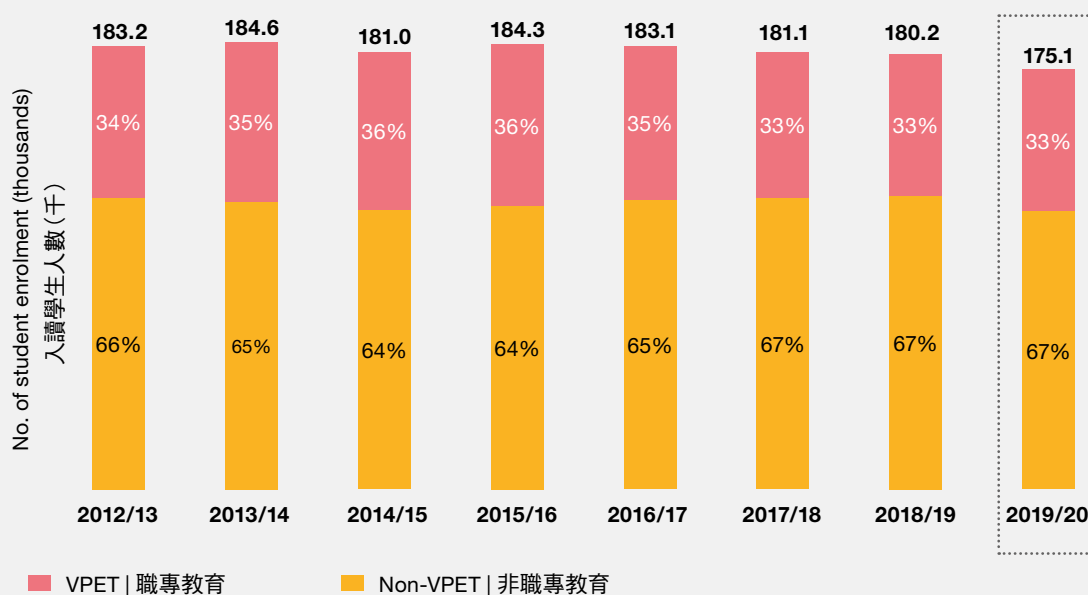
The percentage of students enrolling in VPET programmes remained largely similar over the years and reached its highest in 2014/15 and 2015/16, where 36% of students opted for VPET education. However, the participation rate in VPET in Hong

Kong (33% over last 3 years) is still lower than overseas countries, such as Singapore (53% in 2019), Switzerland (52% in 2018) and Finland (48% in 2019) (Ministry of Education of Singapore, 2020a; Federal Statistical Office of Switzerland, 2020a; Statistics Finland, 2020a).

At the sub-degree level (QF Level 4), Figure 3-12 shows that 33,135 students were enrolled in

Figure 3-11: Student enrolment in post-secondary education from 2012/13 – 2019/20 (%)

圖3-11：2012/13至2019/20學年專上教育學生入讀率（%）



Note:

- (1) VPET providers include the institutions providing VPET programmes as defined in the HKSAR Government's VPET portal.
- (2) The number of student enrolment for VPET providers include those enrolled in higher diploma, top-up degree and bachelor's degree programmes provided by all VPET providers as defined in Note (1), except for those in CIC, ERB, CITA, Hong Kong Baptist University Academy of Film due to data unavailability.
- (3) Student enrolment number of non-VPET providers include the number of students enrolled in associate degree, bachelor's degree, top-up degree and bachelor's degree programmes offered by UGC-funded universities, other publicly funded and self-financing institutions not defined as VPET providers.

Source: (1) Committee on Self-financing Post-secondary Education (CSPE) database (2020), (2) PwC Analysis

HD programmes under VPET in 2019/20, while 22,971 students were enrolled in AD programmes. This implies that HD programmes may be relatively more popular than AD programmes since HD programmes are viewed to be more relevant and practical than AD, as also found in the stakeholder consultations.

專上教育程度的職專教育課程

如圖3-11所示，在2012/13至2019/20學年，每年約有18萬名學生接受專上教育，其中只有約30%的學生入讀職專教育課程（包括：職專教育機構提供的高級文憑、銜接學位和學士學位課程）。這說明傳統學術教育仍然是香港專上教育的主流。

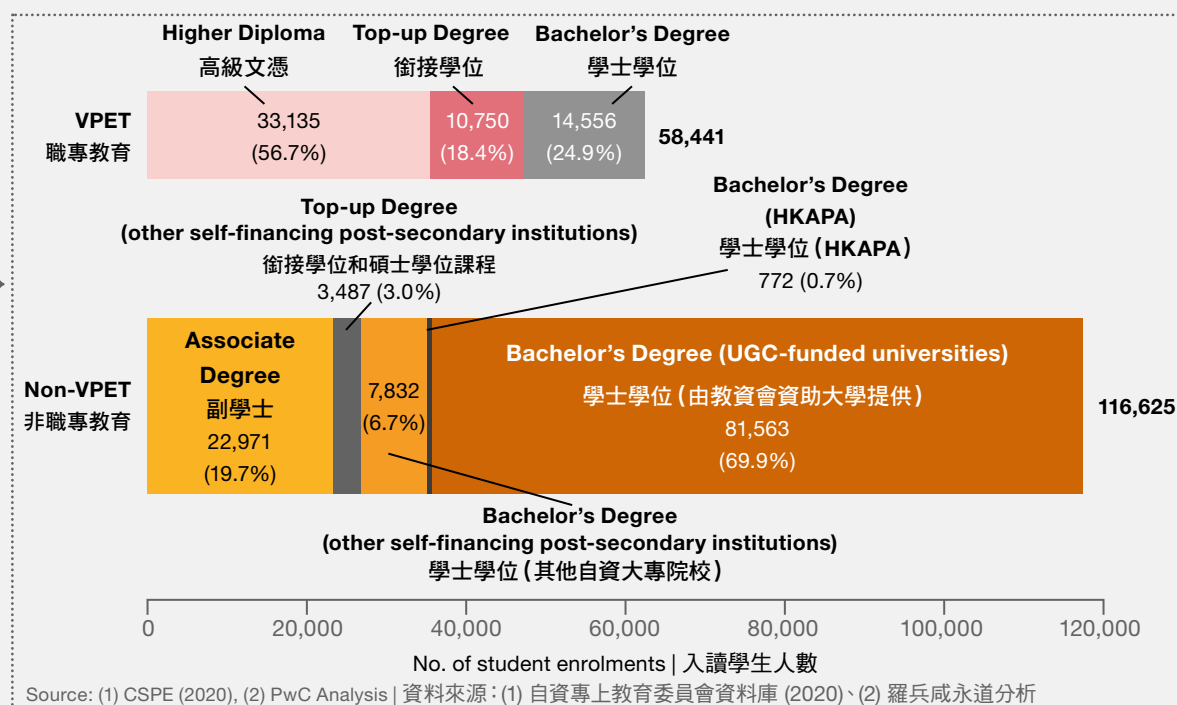
多年來，修讀職專教育課程的百分比大致相若，2014/15和2015/16年度最高，有36%的學生

選擇職專教育。但是香港職專教育的參與率（過去三年為33%）仍低於海外國家，例如：新加坡（2019年為53%）、瑞士（2018年為52%）和芬蘭（2019年為48%）（新加坡教育部，2020a；瑞士聯邦統計局，2020a；芬蘭統計局，2020a）。

在副學位中（資歷架構第4級），圖3-12顯示2019/20年度有33,135名學生入讀了職專教育的高級文憑課程，而22,971名學生則入讀了副學士課程。

Figure 3-12: Proportion of students enrolment in different types of higher education in 2019/20 (%)

圖3-12：2019/20年不同類型高等教育的學生入讀比例



附註：

- (1) 根據香港特別行政區政府的職專教育網站定義，職專教育機構包括提供職專教育課程的院校。
- (2) 職專教育機構的學生人數包括上述附註 (1) 所定義的所有職專教育機構提供的高級文憑、銜接學位和學士學位課程的學生人數。由於缺乏數據，建造業議會、僱員再培訓局、製衣業訓練局、浸會大學電影學院的學生除外。
- (3) 非職專教育機構的學生人數包括教資會資助大學、其他公營資助及自資院校提供的非職專教育副學士學位、學士學位、銜接學位和學士學位課程的學生人數。

資料來源：(1) 自資專上教育委員會資料庫 (2020)、(2) 羅兵咸永道分析

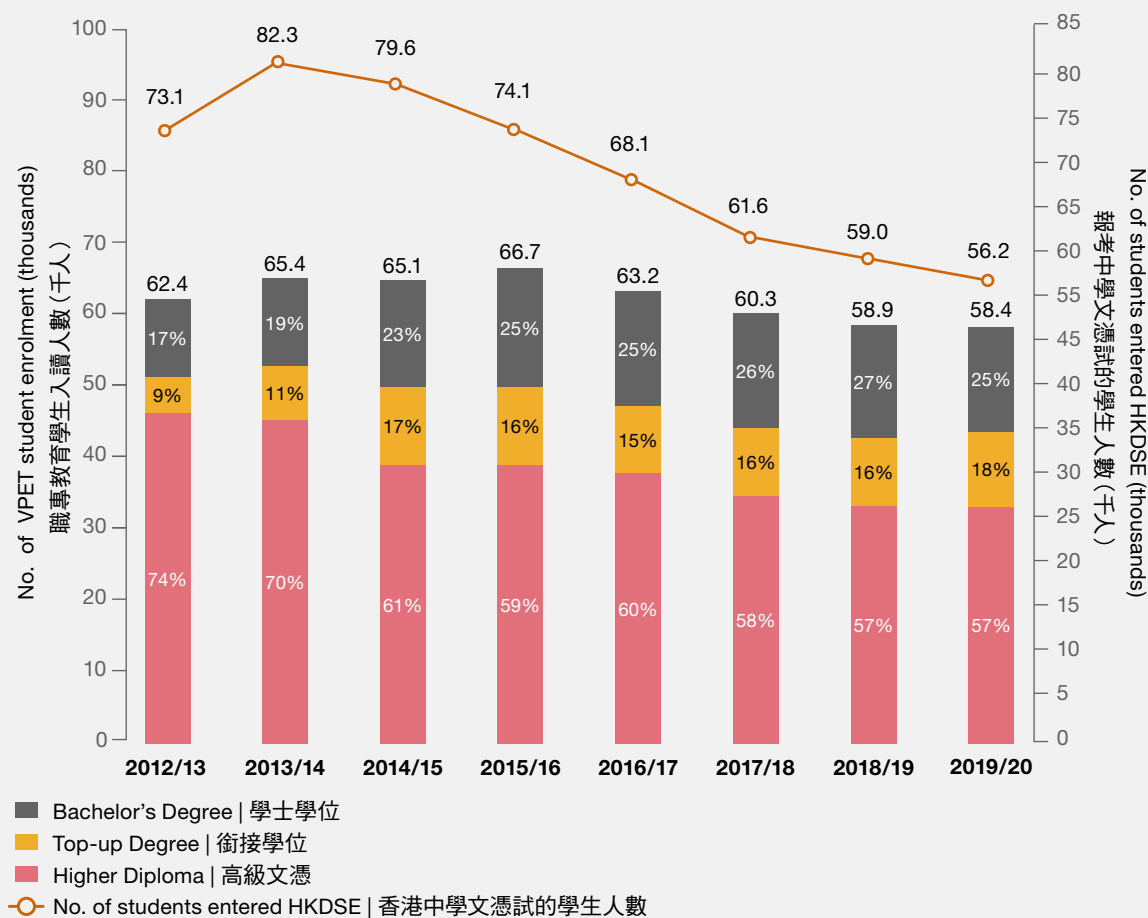
As set out in Figure 3-13, the number of students enrolled in VPET programmes increased from 62,400 in 2012/13 to 66,700 in 2015/16, before reducing to some 58,400 in 2019/20. This decrease could be due to the overall decline in the number of candidates undertaking HKDSE exams, which also results in the decline of students enrolled in non-VPET programmes in recent two years.

Figure 3-14 shows that although programmes related to business remain the most popular among VPET students, other programmes in the areas of healthcare and sciences, as well as education and community services have become increasingly attractive to VPET students, with the number of enrolled students in 2019/20 increasing by 57% and 21% over

the last 5 years respectively as shown in Figure 3-15. This could be because these programmes are mostly recognised by professional bodies and that graduates are eligible to obtain professional qualifications upon completion of these programmes or with a few years of work experience after graduation, giving the students confidence on their career prospects.

Figure 3-13: Number of students enrolled in VPET from 2012/13 to 2019/20 (in thousands)

圖3-13：從2012/13到2019/20的職專教育入讀人數（千人）



Source: (1) CSPE (2020), (2) HKEAA (2020), (3) PwC Analysis

資料來源：(1) 自資專上教育委員會 (2020)、(2) 香港考試及評核局 (2020)、(3) 羅兵咸永道分析

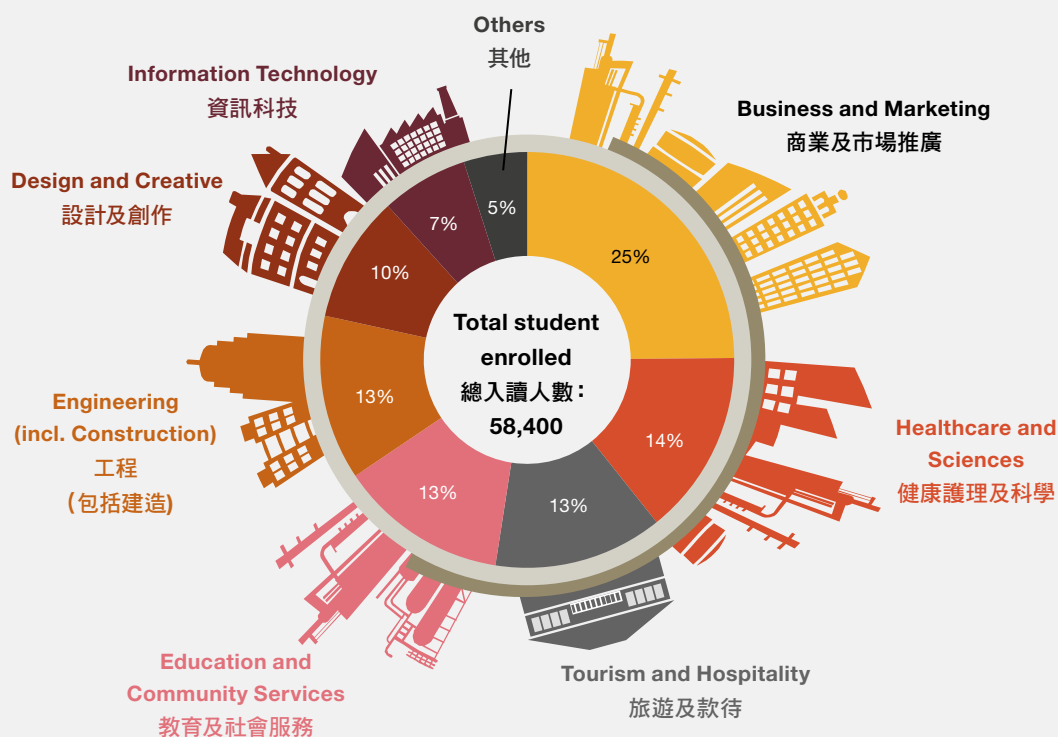
如圖3-13所示，入讀職專教育課程的學生人數從2012/13的62,400人輕微增至2015/16的66,700人，然後在2019/20減至約58,400人。下降的原因可能是參加中學文憑考試的總考生人數下降，這也導致最近兩年入讀非職專教育課程的學生人數減低。

圖3-14顯示，儘管與商業相關的課程仍然是職專教育中最受歡迎的課程，健康護理和科學領域以及教育及社會服務領域的課程對職專教育學生的吸引力愈來愈大。如圖3-15所示，在2019/20年度，後兩者學生入讀人數比過去五年分別增加了57%和21%。這可能是因為這些課程大多受到

專業機構的認可，畢業生畢業後再累積工作經驗便能獲得專業資格，致使學生對職業前景充滿信心。

Figure 3-14: Enrolments in VPET programmes by disciplines in 2019/20

圖3-14：2019/20年職專教育各學科課程的入讀人數



Source: (1) CSPE (2020), (2) VTC, (3) PwC Analysis

資料來源：(1) 自資專上教育委員會 (2020)、(2) VTC、(3) 羅兵咸永道分析



Figure 3-15: Change in student enrolments in VPET programmes by disciplines in 2014/15 and 2019/20

圖3-15：按學科分列出職專教育的學生入讀人數以及2014/15年和2019/20年間的變化



Source: (1) CSPE (2020), (2) VTC, (3) PwC Analysis

資料來源：(1) 自資專上教育委員會 (2020)、(2) VTC、(3) 羅兵咸永道分析

3.2.4

Potential misconceptions about VPET

As illustrated in Section 3.2.2 and Section 3.2.3, VPET participation rates at both secondary and post-secondary education levels remain relatively low in Hong Kong when compared with that of other leading jurisdictions. This section explores the potential reasons for this trend and the potential misconceptions around VPET that could require realignment.

#1 – Misconception about VPET as a second class education pathway

According to the *Review Report of the Task Force on Promotion of Vocational and Professional Education and Training (Review Report of the 2018 Task Force)*, only 21% of students were interested in pursuing VPET in 2018, and the main reason quoted by students for not pursuing VPET was “their academic results allowed them to pursue better education opportunities” (Education Bureau, 2019b).

Currently, pursuing degree qualifications at universities remains a first choice for higher education after completing HKDSE. In many cases, students consider VPET only when they are not able to meet university entrance requirements.

In contrast, VPET is as equally well regarded as conventional academic routes in a number of advanced economies, such as Germany, Switzerland, Finland and the United Kingdom (UK), where VPET is perceived to be essential for the economic and societal development. Articulation pathways along the VPET route from the secondary education to the degree level are highly accessible by the general public. In particular, VPET students are able to attain degree-level qualifications offered by universities of applied sciences (UAS) that are as well regarded as conventional academic universities, because UAS provide valuable opportunities to learners by not only offering degree qualifications, but also by teaching highly relevant practical skills.

3.2.4

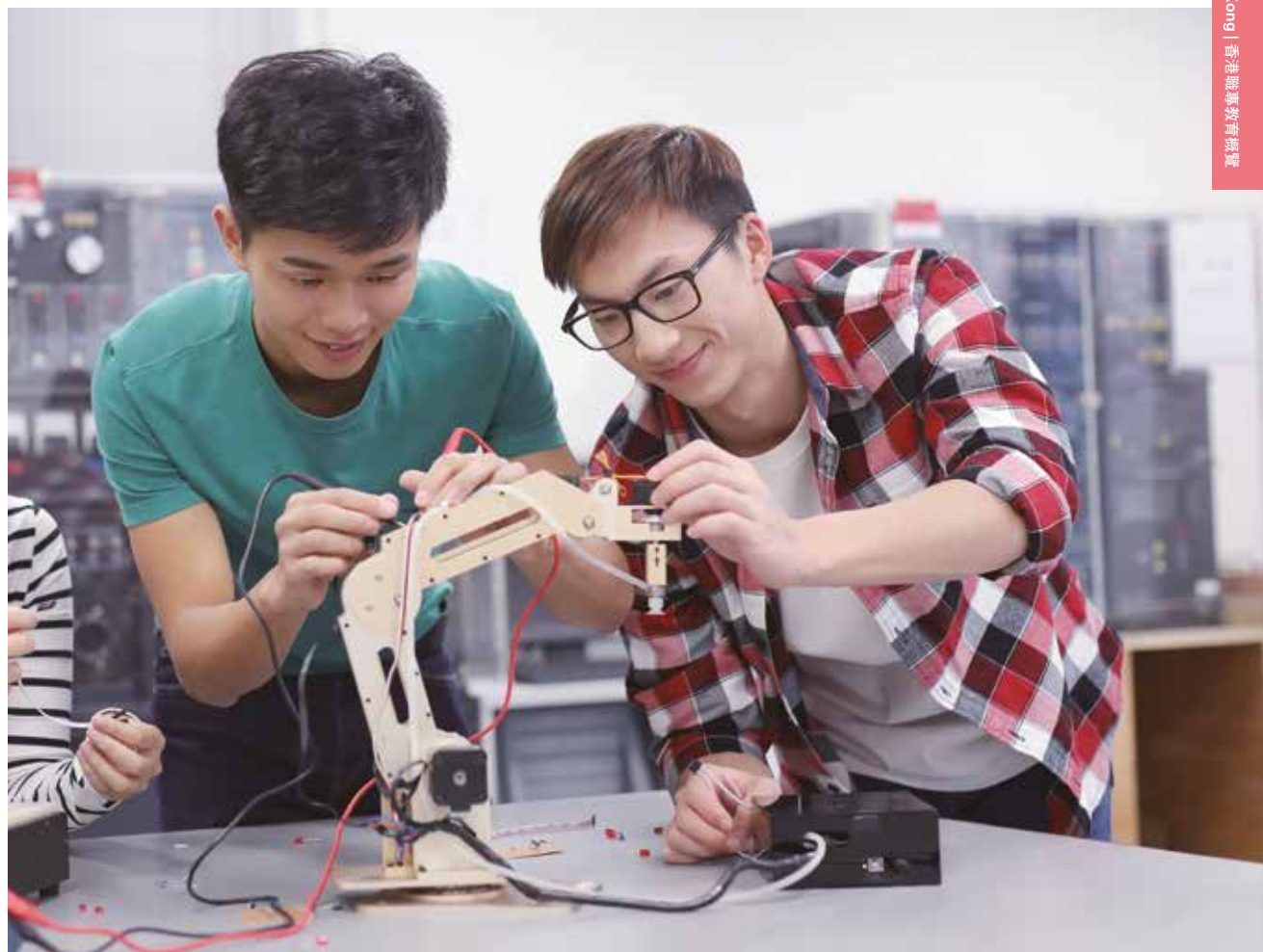
有關職專教育的潛在誤解

如第3.2.2節和第3.2.3節所示，香港中學和專上教育程度的職專教育參與率，與其他主要地區相比，仍然相對較低。本節探討導致這種趨勢的潛在原因，以及社會對職專教育的潛在誤解，以調整職專教育發展方向。

#1 —— 對職專教育視為次選的誤解

根據《推廣職業專才教育專責小組檢討報告》（2018年專責小組檢討報告），2018年只有21%的學生表示有興趣修讀職專教育課程，至於為何不選讀職專教育，最多學生引述的原因是「他們的學業成績足以讓他們升讀其他更好的課程」（教育局，2019b）。目前中學生完成文憑試後，在大學攻讀學位仍然是首選，學生往往在未達到大學入學要求的情況下考慮職專教育。

相比之下，在一些先進發達的經濟體系，例如：德國、瑞士、芬蘭和英國，專業教育與傳統的學術途徑同樣受到重視。這些國家普遍認為，專業教育對經濟和社會發展至為重要。公眾非常了解從中學教育到學位程度的職專教育升學途徑，而且職專教育學生能夠獲得應用科學大學所提供的學士學位資歷，被視為與傳統學術學士學位的資歷看齊，因為應用科學大學不僅提供學位資歷，還教授與職場相關的實用技能，為學員提供寶貴學習機會。



#2 – Insufficient knowledge of the learning opportunities and education pathways provided by VPET

From the *Review Report of the 2018 Task Force*, about half of the respondents did not have sufficient knowledge about the academic attainment that one could achieve by pursuing VPET (Education Bureau, 2019b). This is testament to the fact that many students, parents and teachers may not be adequately informed, leading to a lack of understanding towards the diverse educational pathways and articulation opportunities available through the pursuit of VPET. As a result, many students, especially those in secondary schools, may not view VPET as a mainstream education option at the post-secondary level.

In fact, VPET has been well integrated into Hong Kong's education system. VPET offers a variety of programmes from certificate, diploma and higher diploma to degree, while HKDSE provides a one-size-fits-all curriculum for secondary school students. VPET is designed to cater for students' diverse abilities, interests and learning needs. Lying beyond what the conventional scope of the HKDSE curriculum offers, each VPET programme is designed for a specific level of knowledge for a profession / industry so that students are able to acquire core competences that are in high demand in the workplace. In addition, as VPET offers multiple progression pathways, a student could also attain a bachelor's degree through taking the VPET route.

#3 – Misinterpreting employers' recognition towards VPET graduates

There could be a perception by the general public that VPET graduates will always encounter a glass ceiling in their career progression and can only obtain jobs no higher than technician levels. In fact, those VPET graduates who perform well in their roles are given equal career promotion opportunities to take up supervisory and managerial roles – the career progression pathways of these VPET graduates are comparable with traditional university graduates. This means the practical value of VPET is much sought after by employers, while there is a need to create greater resonance over its value amongst students, teachers, parents and the general public.

In the light of the rapid development in innovation and technology, many employers are now looking for technology-focused candidates who can adapt to the constantly changing technology landscape. As VPET providers have much stronger linkages with the industries by nature, they may be able to understand the latest technological development, identify areas of skill shortage and emerging occupations.

#2 —— 對職專教育提供的學習機會和升學途徑缺乏認知

根據《2018年專責小組檢討報告》，近半受訪者對修讀職專教育課程可獲得的學歷仍不甚了解（教育局，2019b）。這證明了許多學生、父母和老師可能沒有足夠的資訊作升學決定，對職專教育提供的多元化升學途徑和銜接機會缺乏了解。結果許多學生，特別是中學生，可能不會將職專教育視為主流的專上教育選擇。

實際上，職專教育已融入香港教育制度。職專教育提供各式各樣的課程，從證書、文憑及高級文憑到學士學位課程，均可供選擇，而香港中學文憑考試則為中學生提供常規的課程。職專教育配合學生的不同能力、興趣和學習需要，有別於中學文憑考試課程的常規範圍，每個職專教育課程設計均為特定的專業/行業知識水平而設，以便學生能夠獲得職場所需的核心理能力。此外，由於職專教育提供多種升學途徑，學生也可以通過選擇職專教育途徑獲得學士學位。

#3 —— 誤解僱主對職專教育畢業生的認可

大眾可能認為，職專教育畢業生在職業發展會受到限制，一般擔任不高於技術人員水平的工作。實際上，表現出色的職專教育畢業生與傳統院校的畢業生可獲同等的晉升機會，如擔任監督和管理職務——這些職專教育畢業生的職業發展途徑可與傳統大學畢業生相提並論。職專教育課程的實用價值深受僱主歡迎，而學生、教師、家長和大眾亦有需要加強對課程價值的認識。

鑑於創新科技的迅速發展，許多僱主正物色能適應多變環境兼具備通用技術和專科技術的人才。由於職專教育機構本質上與業界有著緊密聯繫，他們容易掌握最新的科技發展，並得悉行業缺乏的技能人才和新興職業。





4

Socio-Economic Impact Analysis

社會經濟影響分析

4.1 Overview

VPET has been playing a key role in driving and supporting the economic and societal development of Hong Kong since 1864, when the first vocational-oriented institution was established. This chapter assesses the value generated by VPET and its graduates to Hong Kong's economy and society.

A conventional approach was employed to conduct an economic impact analysis in quantifying the economic benefits arising from the operations of VPET providers and the productivity gains of the workforce that is attributable to VPET. The detailed approach for this analysis and the methodology for the economic impact assessment are presented in Appendix A.1 and A.2.

A qualitative assessment was also conducted to identify the significance of VPET programmes and its graduates, and how they have contributed to Hong Kong's development, especially to the eight industries as shown in Figure 3-4 in Chapter 3. A series of impact stories and examples are presented to highlight and demonstrate the way VPET contributes to Hong Kong's economy and society, for example, addressing shortage in the workforce for current and future market needs.

Importance of the 8 core industries

VPET supports Hong Kong's economy by bridging the demand and supply gap with a highly skilled workforce. Amongst all industries contributing to the economy of Hong Kong, eight core industries are covered in this Report given their strong demand for a quality workforce with vocational and professional-specific knowledge and practical skillsets. As a whole, these industries contributed a total of nearly HK\$ 2.0 trillion to Hong Kong's total economy, which is equivalent to 72% of Hong Kong's total GDP in 2019. Figure 4-1 shows the contribution of these core industries to Hong Kong's GDP in 2019.

4.1 概述

自1864年第一所職業教育院校成立以來，職專教育在推動和支援香港的經濟和社會發展中一直扮演著重要角色。本章呈現職專教育機構及其畢業生為香港經濟和社會帶來的價值。

本研究採用了傳統慣常的方法進行經濟影響分析，用以量化職專教育機構帶來的經濟效益，以及由職專教育所提升的生產力。附錄A.1和A.2提供了此分析的詳細方法以及評估經濟影響的方法。

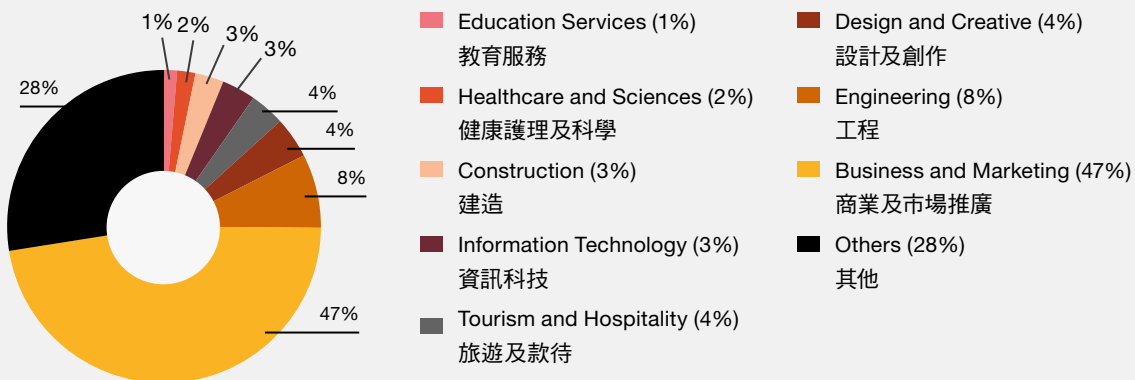
此外，本研究亦進行了定性分析以評估職專教育課程及其畢業生的重要性，以了解他們對香港發展如何作出貢獻，特別是對如第3章的圖3-4所示那8個核心行業的發展。本報告通過列舉一系列故事及案例分析，展示職專教育對香港的經濟和社會所作出的貢獻，例如解決當前及未來人手短缺的問題。

8個核心行業的重要性

職專教育培育高技能的人力資源填補人才供需缺口，以支持香港經濟。在所有對香港經濟有貢獻的行業中，本分析涵蓋了8個核心行業，這主要由於這些行業對具備專業知識及實務技能的人才需求殷切。整體而言，這些行業為香港的整體經濟貢獻了近2.0萬億港元，相當於2019年香港本地生產總值的72%。圖4-1顯示了2019年香港核心行業對本地生產總值的貢獻。

Figure 4-1: Contribution of core industries to Hong Kong's GDP in 2019 (%)

圖4-1：2019年核心行業對香港本地生產總值的貢獻(%)



Note:

- (1) The GDP categorisation for the selected core industries are deduced based on information best available from C&SD.
- (2) The business and marketing industry is comprised of real estate, professional and business services, financing and insurance, import and export trades.
- (3) The GDP generated from building maintenance activities is deducted from the sectoral GDP in construction and added into the engineering industry, thus the GDP for the construction industry in this figure is different from the number published by C&SD.
- (4) The GDP for the engineering industry is comprised of the GDP from the electricity, gas and water supply, building maintenance and waste management, air, water and land transport industries.
- (5) The GDP generated from publishing, film and video production activities is deducted from the sectoral GDP in information technology as it has been included in the GDP for the design and creative industry, thus the GDP for the information technology industry in this figure is different from the number published by C&SD.
- (6) Others include manufacturing, agriculture, fishing, mining and quarrying, wholesale trade, postal and courier services, warehousing and other transportation services, public administration, social and personal services.

Source: (1) C&SD (2020c, 2020g, 2020h), (2) PwC analysis

附註：

- (1) 核心行業的本地生產總值分類是根據政府統計處所提供的資料進行的。
- (2) 商業和市場推廣業包括房地產、專業和商業服務、金融和保險及進出口貿易。
- (3) 建造維修活動所產生的本地生產總值從建築業的本地生產總值中扣除，並加到工程業中，因此圖表中的建造業本地生產總值與政府統計處公佈的數字不同。
- (4) 工程業的本地生產總值包括電力、氣體燃料和供水、建築維修和廢物管理、航空、海運和陸地運輸業的生產總值。
- (5) 出版、電影及影片製作活動所產生的本地生產總值從資訊科技業的本地生產總值中扣除，並加到設計及創作業中，因此此圖表中資訊科技業的本地生產總值與政府統計處公佈的數字不同。
- (6) 其他行業包括製造業、農業、漁業、採礦和採石業、批發貿易、郵政和快遞服務、倉務及其他運輸服務、公共管理、社會及個人服務。

資料來源：(1) 政府統計處 (2020c, 2020g, 2020h) 、(2) 羅兵咸永道分析

The 8 core industries have grown rapidly at around 6% per annum, with their GDP contribution almost doubling from HK\$ 1.1 trillion in 2009 to HK\$ 2.0 trillion in 2019 over the past 10 years (Figure 4-2).

8個核心行業以每年約6%的速度快速增長，在過去十年中，它們對本地生產總值的貢獻從2009年的1.1萬億港元增長至2019年的2萬億港元，增加了接近一倍（圖4-2）。

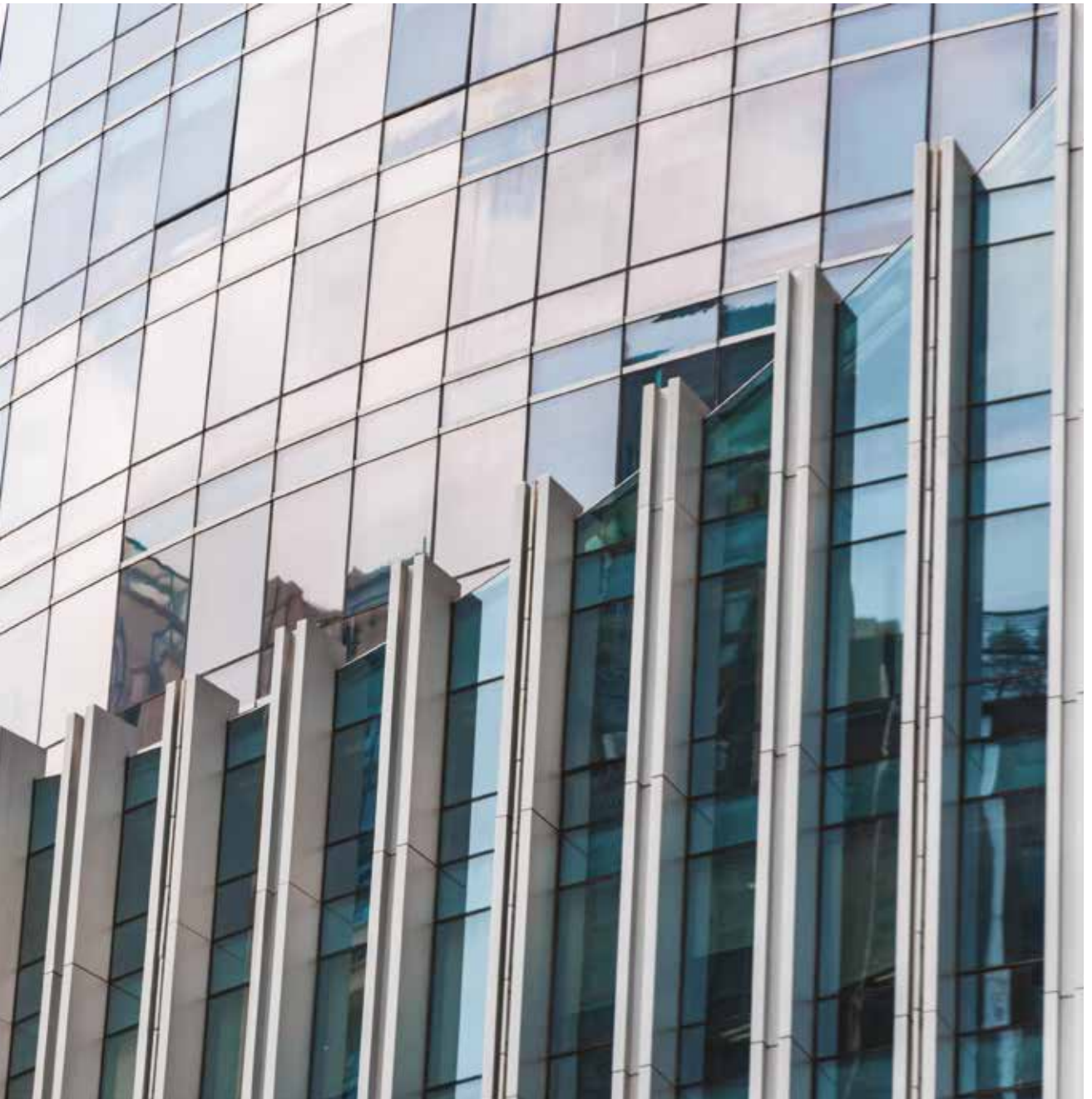
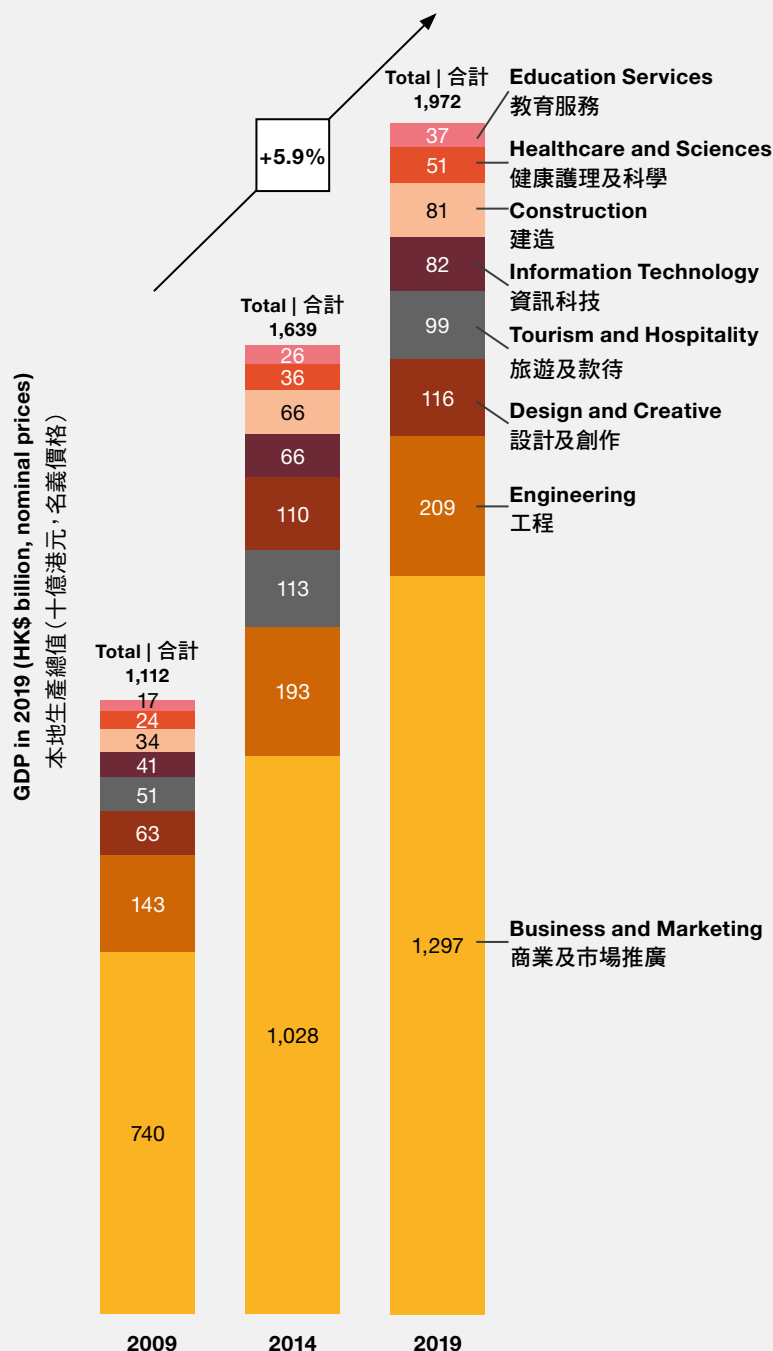


Figure 4-2: GDP contribution of the 8 core industries in 2009, 2014 and 2019

圖4-2：2009年、2014年和2019年8個核心行業的本地生產總值貢獻



Note:

(1) The GDP categorisation for the selected core industries are deduced based on information best available from C&SD.

(2) The business and marketing industry is comprised of real estate, professional and business services, financing and insurance, import and export trades.

(3) The GDP generated from building maintenance activities is deducted from the sectoral GDP in construction and added into the engineering industry, thus the GDP for the construction industry in this figure is different from the number published by C&SD.

(4) The GDP for the engineering industry is comprised of the GDP from the electricity, gas and water supply, building maintenance and waste management, air, water and land transport industries.

(5) The GDP generated from publishing, film and video production activities is deducted from the sectoral GDP in information technology as it has been included in the GDP for the design and creative industry, thus the GDP for the information technology industry in this figure is different from the number published by C&SD.

Source: (1) C&SD (2020c, 2020g, 2020h), (2) PwC analysis

附註：

(1) 核心行業的本地生產總值分類是根據政府統計處所提供的資料進行的。

(2) 商業和市場推廣業包括房地產、專業和商業服務、金融和保險及進出口貿易。

(3) 建造維修活動所產生的本地生產總值從建築業的本地生產總值中扣除，並加到工程業中，因此圖表中的建造業本地生產總值與政府統計處公佈的數字不同。

(4) 工程業的本地生產總值包括電力、氣體燃料和供水、建築維修和廢物管理、航空、海運和陸地運輸業的本地生產總值。

(5) 出版、電影及影片製作活動所產生的本地生產總值從資訊科技業的本地生產總值中扣除，並加到設計及創作業中，因此此圖表中資訊科技業的本地生產總值與政府統計處公佈的數字不同。

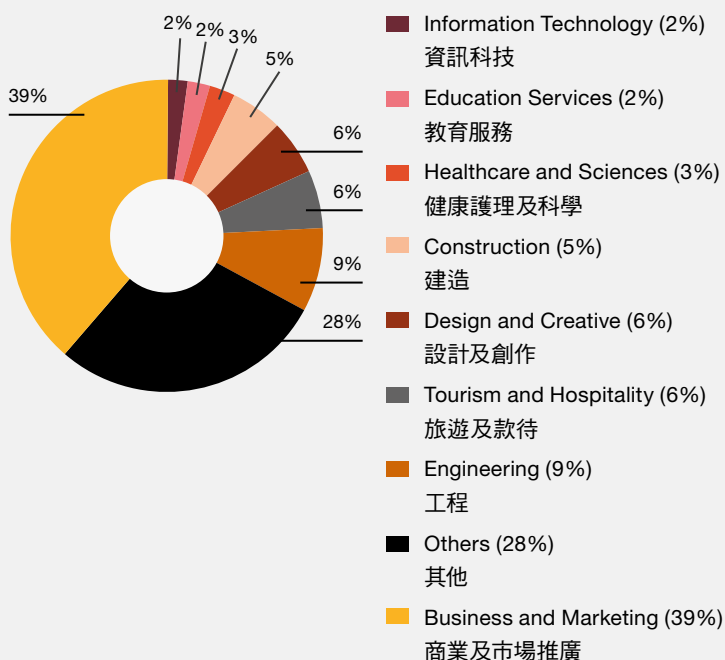
資料來源：(1) 政府統計處 (2020c, 2020g, 2020h)、(2) 羅兵咸永道分析

The growth of these core industries could not have been achieved without an adequate supply of quality workforce. As shown in Figure 4-3, the 8 core industries combined make up 72% of Hong Kong's total workforce in 2019. In particular, workforce in business and marketing (39%), engineering (9%), construction (5%), tourism and hospitality (6%) and design and creative (6%) industries accounted for the most significant portions of Hong Kong's labour market in 2019.

足夠的優秀人力資源是這些核心行業增長不能或缺的重要因素。如圖4-3所示，2019年8大核心行業合計佔香港總勞動人口的72%。在2019年，商業及市場推廣業（39%）、工程（9%）、建造業（5%）、旅遊及款待（6%）和設計及創作（6%）的人力資源便組成香港勞動人口的主要部分。

Figure 4-3: Contribution of the 8 core industries to Hong Kong's workforce in 2019 (%)

圖4-3：2019年8個核心行業對香港整體勞動人口的百分比



Note:

- (1) The business and marketing industry is comprised of real estate, professional and business services, financing and insurance, import and export trades.
- (2) The number of persons engaged in the engineering industry includes those engaged in electricity and gas supply, and waste management, repair and installation of machinery and equipment, repair of motor vehicles, motorcycles, computers, personal and household goods, architecture and engineering services, technical testing and analysis and services to buildings and landscape care as well as the transportation sector incl. land transport, water transport and air transport.
- (3) The number of persons engaged in architecture and engineering services, technical testing and analysis and services to buildings and landscape care activities is deducted from the number of persons engaged in construction, thus the number of persons engaged in the construction industry in this figure is different from the number published by C&SD.
- (4) The number of persons engaged in publishing, film and video production activities is deducted from the number of persons engaged in information technology as it has been included in the number of persons engaged in the design and creative industry, thus the number of persons engaged in the information technology industry in this figure is different from the number published by C&SD.
- (5) The industry categorisation of this figure is in line with that in Figure 4-1.

Source: (1) C&SD (2020d, 2020e, 2020f), (2) PwC analysis

附註：

- (1) 商業及行銷業包括房地產，專業及商業服務，融資及保險，進出口貿易。
- (2) 從事工程行業的人員包括從事電力和天然氣供應、廢物管理、機械和設備的維修和安裝、機動車輛、摩托車、計算機、個人和家庭用品、建築和工程服務、技術測試和分析以及為建築物 and 園景以及運輸部門提供的服務，包括陸路運輸、水路運輸和航空運輸。
- (3) 從建築業的從業員中減去從事建築和工程服務、技術測試和分析以及從事建築物和園景的人數，因此，在該圖中從事建築業的人數與政府統計處公佈的數字不同。
- (4) 從事出版，電影和錄像製作活動的人數從從事資訊科技的人數中扣除，因為它已包括在從事設計和創意產業的人數，因此該人數從事資訊科技行業的人數與政府統計處公佈的人數不同。
- (5) 本圖行業分類與圖4-1一致。

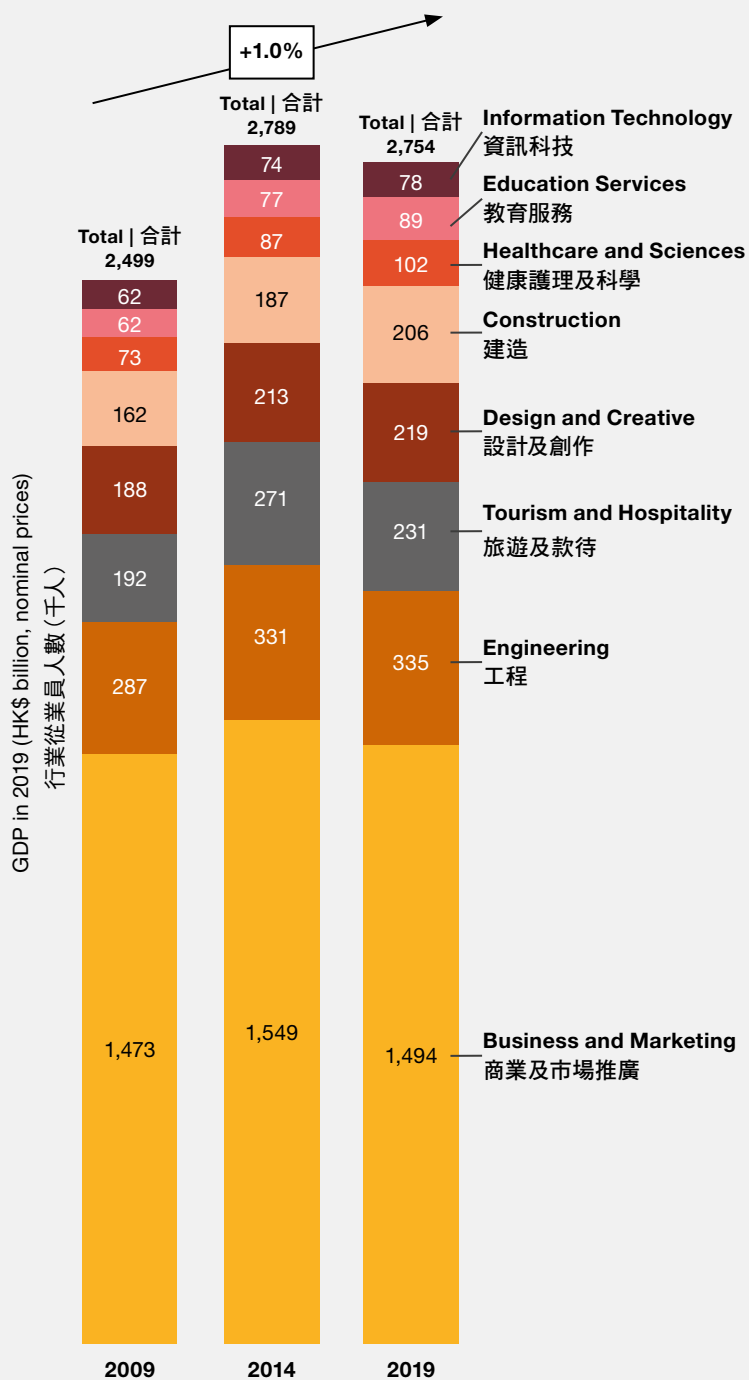
資料來源：(1) 政府統計處 (2020d, 2020e, 2020f)、(2) 羅兵咸永道分析

In supporting the growth of these core industries, the workforce engaged in these 8 core industries increased from around 2.5 million (68% of Hong Kong's total workforce) in 2009 to 2.8 million (72% of Hong Kong's total workforce) in 2019 (Figure 4-4).

為支持這些核心行業的增長，從事這8個核心行業的人力資源於2009年由約250萬（佔香港總人力資源的68%）增至2019年的280萬名（佔香港總人力資源的72%）（圖4-4）。

Figure 4-4: Contribution of the 8 core industries to Hong Kong's workforce in 2009, 2014 and 2019

圖4-4：2009年、2014年和2019年8個核心行業的從業員人數



Source: (1) C&SD (2020d, 2020e, 2020f), (2) PwC analysis

資料來源：(1) 政府統計處 (2020d、2020e、2020f)、(2) 羅兵咸永道分析

4.2 Economic impact of VPET

4.2.1

Key findings

Results of the economic impact analysis suggest that VPET is a key driver of Hong Kong's economy through supplying human capital for industry growth. VPET also provides education pathways for students to enter the workforce as well as to upskill and increase productivity of the workforce. As a result, Hong Kong's core industries and the overall economy have benefited from a more productive workforce.

VPET also opens up career options for students and in-service practitioners, allowing them to increase productivity and earnings, and ultimately progress upwards on their careers. With spending of VPET providers to meet their operational needs, various local businesses and industries as their suppliers are also being supported.

A summary of the key findings in relation to the economic value created by VPET is shown in Figure 4-5. Section 4.2.2-Section 4.2.4 present the findings on the economic impacts of VPET.

4.2 職專教育對經濟影響

4.2.1

主要結論

本研究的經濟影響分析結果顯示，職專教育為各行業提供充足的人力資源，是驅動香港經濟發展主要原動力。職專教育還為學生提供教育途徑以順利進入職場、並提高專業技能和工作人口的生產力。隨著整體工作人口的生產力增加，香港的核心行業和整體經濟亦因而受惠。

此外，職專教育亦擴闊了學生和在職人士的職業選擇，提高他們的生產力和收入，並最終能在職場向上流。此外，本地企業和行業作為職專教育機構的供應商支援後者的運作，亦有所得益。

圖4-5總結了本研究對職專教育所創造的經濟價值而進行評估所得的主要結論。第4.2.2節至第4.2.4節描述了有關職專教育對經濟影響的分析結果。



Figure 4-5: Key economic impacts of VPET in Hong Kong

圖4-5：職專教育對香港的主要經濟影響



Note:

(1) Hong Kong's GDP in 2019 is HK\$2,866 billion (at 2019 prices).

(2) The Hong Kong's overall labour participation rate 80% and the unemployment rate at 2.5% from C&SD in 2018/19 were assumed to calculate the economic contribution of VPET graduates.

Source: (1) CSPE (2020), (2) C&SD (2020h, 2020e), (3) VTC, (4) PwC analysis

附註：

(1) 2019年香港的本地生產總值為28,660億港元（按2019年價格計算）。

(2) 根據政府統計處的數據，假設勞動參與率為80%和失業率為2.5%以計算2019年人力資源中的職專教育畢業生人數。

資料來源：(1) 自資專上教育委員會 (2020)、(2) 政府統計處 (2020h, 2020e)、(3) VTC、(4) 羅兵咸永道分析

4.2.2

Manpower contribution

Over the last 35 years, VPET providers have trained more than 907,000 graduates for a wide range of industries and sectors, accounting for nearly 24% of the total workforce in Hong Kong in 2019 (Figure 4-6). The VTC, as the largest VPET provider in Hong Kong, has trained over 776,000 graduates (approximately 20% of Hong Kong's total workforce in 2019).

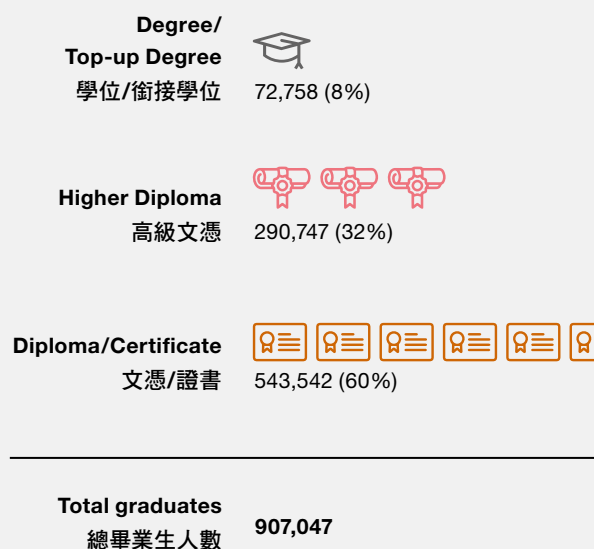
4.2.2

人力資源貢獻

在過去的35年中，職專教育機構為多個行業培訓了907,000多名畢業生，佔2019年香港總勞動人口近24%（圖4-6）。VTC是香港最大的職專教育機構，培訓了776,000多名畢業生（約佔2019年香港總勞動人口的20%）。

Figure 4-6: Cumulative number of VPET graduates from 1983/84 to 2018/19

圖4-6：從1983/84年度至2018/19年度期間職專教育畢業生累積人數



Notes:

(1) The graduate number of the VTC collected from the VTC's in-house database covers the period from 1983/84 to 2018/19.

(2) The graduate number of other VPET providers for the period from 2012/13 to 2018/19 is based on data available from the database maintained by CSPE.

(3) The graduate number of other VPET providers from 2003/04 is based on the graduate statistics of full-time Higher Diploma graduates from 2003/04 to 2012/13 prepared by the 2014 Task Force on the Review of Self-financing Post-secondary Education. The graduate number for other VPET providers prior to 2003/04 is not available.

Source: (1) VTC, (2) CSPE (2020), (3) Education Bureau (2019a),

(4) Legislative Council (2018), (5) PwC Analysis

附註：

(1) 自1983/84年度至2018/19年度VTC的畢業生人數是由VTC內部數據庫收集。

(2) 自2012/13年度至2018/19年度的其他職專教育機構畢業生人數是從自資專上教育委員會數據庫中收集。

(3) 自2003/04年度至2012/13年度其他職專教育的畢業生人數是根據2014年檢討自資專上教育專責小組的2003/04至2012/13年度全日制高級文憑畢業生統計數字所得；而其他職專教育機構在2003/04年前的畢業生人數資料則欠缺。

資料來源：(1) VTC、(2) 自資專上教育委員會 (2020)、(3) 教育局 (2019a)、

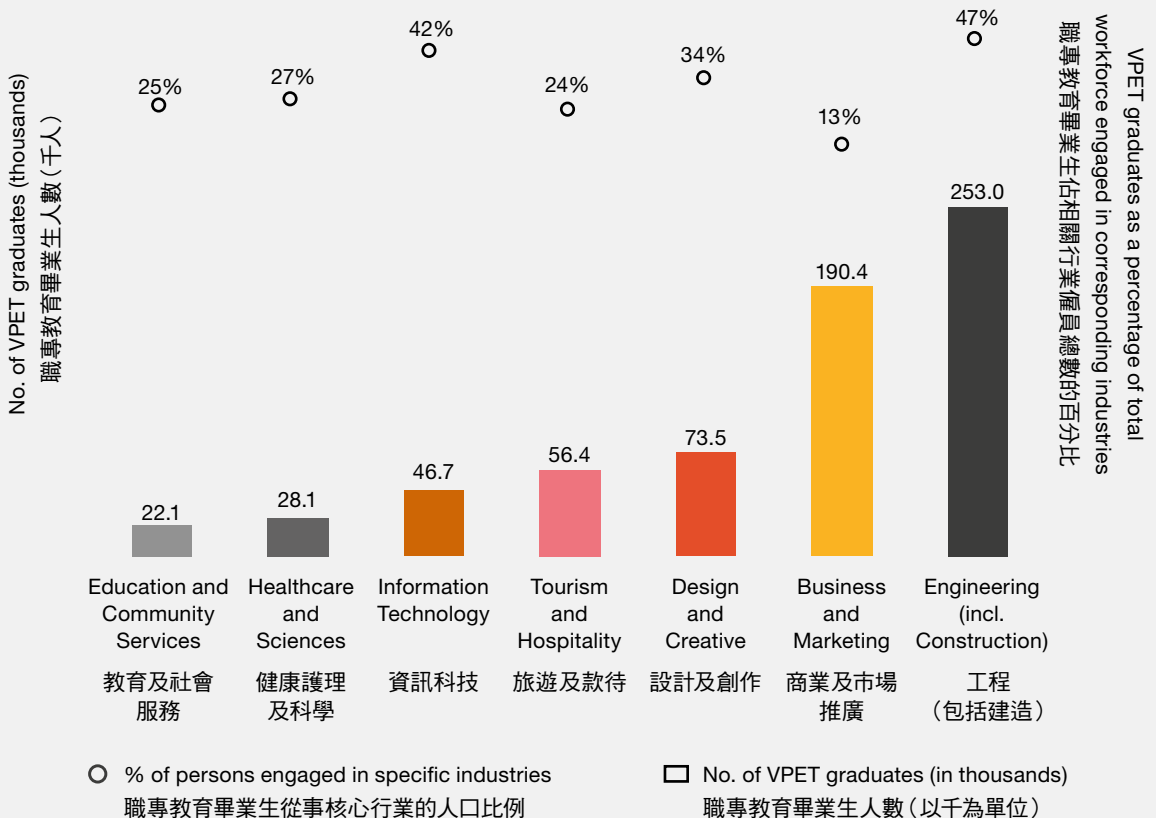
(4) 立法會 (2018)、(5) 羅兵咸永道分析

VPET plays a pivotal role in supplying human capital for various business and industries. Figure 4-7 shows the total number of VPET graduates for different core industries from 1983/84 to 2018/19 and their contribution to the labour market for the respective industries in 2019. It is observed that VPET providers have trained nearly 253,000 graduates in the engineering industry, which accounted for around 47% of total persons engaged in this industry in 2019. Additionally, there were over 46,700 VPET graduates in the information technology industry, representing around 42% of the total workforce engaged in this industry in Hong Kong in 2019.

職專教育在為各工商業培育人才方面發揮著舉足輕重的作用。圖4-7顯示了在1983/84年度至2018/19年度核心行業的職專教育畢業生總數，以及他們在2019年對各行業人力資源的貢獻。據觀察所得，職專教育機構培訓了近253,000名工程畢業生，約佔2019年該行業總人數的47%。此外，資訊科技行業相關的職專教育畢業生有超過46,700名，約佔2019年香港從事該行業的勞動人口總數的42%。

Figure 4-7: Number of VPET graduates from 1983/84 to 2018/19 and contribution to sectoral workforce in 2019

圖4-7：自1983/84年度至2018/19年度職專教育畢業生人數以及對2019年各行業的人力資源貢獻



Note:

(1) Labour participation rate and unemployment rate have not been considered in the calculation of the proportion of persons engaged by industries.

(2) Sum of the all graduate numbers above are not equal to total number of graduates of 907,000, because the graduates from general courses (such as diploma and certificate) do not fall into the seven sectors as shown above.

(3) Due to data unavailability about the employment outcomes of the VPET graduates, it is assumed the graduates enter employment in industries that are relevant to the disciplines they graduated from.

Source: (1) VTC, (2) CSPE (2020), (3) Education Bureau (2019a), (4) Legislative Council (2018), (5) C&SD (2020d, 2020e, 2020f), (6) PwC Analysis

附註：

(1) 在計算畢業生佔行業從業人員比例時，沒有考慮勞動參與率和失業率。

(2) 因為一般課程（例如文憑和證書）的畢業生不屬於上述行業，所以以上所有畢業生的總和不等於 907,000 名畢業生的總人數。

(3) 由於欠缺有關職專教育畢業生就業情況的資料，因此本分析假定畢業生在修讀學科相關的行業中工作。

資料來源：

(1) VTC、(2) 自資專上教育委員會 (2020)、(3) 教育局 (2019a)、(4) 立法會 (2018)、(5) 政府統計處 (2020d, 2020e, 2020f)、(6) 羅兵咸永道分析

4.2.3

Economic contribution

The analysis defines and assesses the economic contribution of VPET through the following:

- **Direct impacts:** These arise through 1) the operations of VPET providers and 2) the improvement in productivity and business performance of the companies benefiting from VPET graduates;
- **Indirect impacts:** These arise from the expenditure of the VPET providers and the companies in the relevant industries which have been supported by VPET graduates. Indirect impacts represent the economic value generated throughout the whole supply chain to support VPET operations – the additional value added generated by the suppliers and/or business partners for providing goods and services (e.g. business support and cleaning services) relating to VPET operations; and

- **Induced economic benefits:**

These arise from the additional economic value generated by the economic activities above – the income generated from the two economic activities above lead to increasing spending in the rest of the economy.

The resulting economic impacts are ultimately quantified in terms of productivity (Value Added or GDP) impacts, which represent the monetary contribution to Hong Kong through profits, salaries and taxes being supported that otherwise would not have existed in the absence of VPET.

VPET providers as a whole have trained over 907,000 graduates. Using the economic impact assessment model, it is projected that VPET providers and their graduates generated a total of around HK\$ 97 billion Gross Value Added in 2018/19, which is equivalent to 3.4% of Hong Kong's GDP.

In particular, given that the VTC has trained over 776,000 graduates in the past 35 years, it is projected that in 2018/19 the VTC and its graduates generated over 70% of total VPET's economic contribution (i.e. gross value added), amounting to a total value of approximately HK\$ 66 billion, which is equivalent to 2.3% of Hong Kong's GDP.



由職專教育對香港所帶來的經濟影響，最終會量化為因職專教育所產生的貨幣價值(附加值或本地生產總值)—— 即是在沒有職專教育的情況下這些並不會產生的利潤和薪金的經濟價值。

總體上，職專教育機構培訓了907,000多名畢業生。根據本研究的經濟影響評估模型，職專教育機構及其畢業生在2018/19年度創造的總附加值約為970億港元，相當於香港本地生產總值的3.4%。

特別是，鑑於VTC在過去35年培訓了776,000多名畢業生，在2018/19年度VTC及其畢業生所產生的經濟貢獻總額（即總附加值）佔職專教育機構及其畢業生的70%以上，總值約660億港元，相當於香港本地生產總值的2.3%。

4.2.3

經濟貢獻

本研究在以下層面定義和評估職專教育對經濟的貢獻：

- **直接影響：**這些影響來自1) 職專教育機構的營運，以及2) 受益於職專教育畢業生的企業生產力和業務績效之提升；
- **間接影響：**這些影響來自職專教育機構，以及職專教育畢業生就職企業所屬的相關行業的
- **連帶影響：**來自上述經濟活動所產生的額外經濟價值——即上述兩項經濟活動所產生的收入令消費增加對整體經濟造成的隨來影響。

支出。間接影響中的經濟價值來自支援職專教育運作的供應鏈——職專教育機構的供應商或業務合作伙伴，為職專教育營運提供有關的商品和服務（例如，業務支持和清潔服務）而產生的額外附加值；及

Contribution from VPET operations

VPET has now developed into a vibrant education sector with 50 statutory bodies and institutions in Hong Kong providing a wide range of VPET programmes. The operations of these providers impact Hong Kong's economy through employment and expenditure. As of 2019, the operations of these statutory bodies and institutions contributed HK\$ 12 billion to Hong Kong's economy (including direct, indirect and induced economic impacts) (Figure 4-8). A significant part of this contribution is generated through the expenditure of these providers on goods and services for their daily operations as well as spending on staff salaries.

These statutory bodies and institutions, as a whole, also supported over 17,600 full-time equivalent (FTE) jobs in 2018/19, of which around 12,000 FTE jobs are direct employment, including academic, administrative and supporting staff for VPET operations. The remaining 5,600 FTE jobs are created indirectly throughout the supply chain of VPET.

職專教育機構營運的貢獻

職專教育現在已發展成為香港教育中一個重要組成部分。在香港有50個法定機構和院校提供多元的職專教育課程，這些機構的營運會產生就業機會和開支，從而為香港經濟作出貢獻。截至2019年，這些法定機構和院校的運作為香港經濟貢獻了120億港元（包括直接、間接和連帶經濟影響）（圖4-8）。這些貢獻很大部分來自這些機構於日常營運中所需物品和服務支出，以及員工薪金支出。

總體上，這些法定機構和院校在2019年還提供了17,600多個全職工作人員(FTE)的就業職位，其中約12,000個是因營運所需直接產生的全職工作職位，當中包括職專教育營運所需的學術、行政和支援人員。其餘的5,600個是在支援職專教育運作供應鏈中間接產生的全職工作職位。

Figure 4-8: Summary of economic impacts from VPET's operations in 2018/19

圖4-8：2018/19年度職專教育機構營運所產生的經濟影響概要



HK\$ 12 billion+

Total value-added generated from VPET operations in 2018/19
(at 2019 prices)

超過120億港元

2018/19年度職專教育營運產生的附加值（按2019年價格計算）

50

Statutory
bodies and
institutions

法定機構和
院校



12,000+

Total direct
FTE staff

全職工作職位
總數



200,000+

Enrolled
students

入讀學生人數



6,500+

VPET
programmes

職專教育課程



Source: (1) VTC, (2) CSPE (2020), (3) PwC analysis

資料來源：(1) VTC、(2) 自資專上教育委員會 (2020)、(3) 羅兵咸永道分析

Productivity enhancement

Another key economic impact arising from VPET is the incremental salary gain and career enhancement of the students after completion of VPET programmes.

VPET graduates typically gain lifelong benefits from the VPET programmes. Based on data collected from the Census and Statistics Department (C&SD), employees with certificates / diplomas / higher diplomas and other sub-degree qualifications earned 28% higher (or HK\$ 4,238 per month, 2019 prices) than secondary school leavers in 2018/19 (Figure 4-9). Holders of a bachelor's degree or above qualification had an over 100% salary uplift (about HK\$ 15,225 per month) compared to those with upper secondary qualifications.

Considering that over 907,000 VPET graduates were trained over the last 35 years, it is projected that these graduates generated a total of around HK\$ 85 billion gross value added in 2018/19 (including direct, indirect and induced impacts), using the economic impact assessment model, with the approach shown in Figure A-4 in the Appendix.

提升生產力

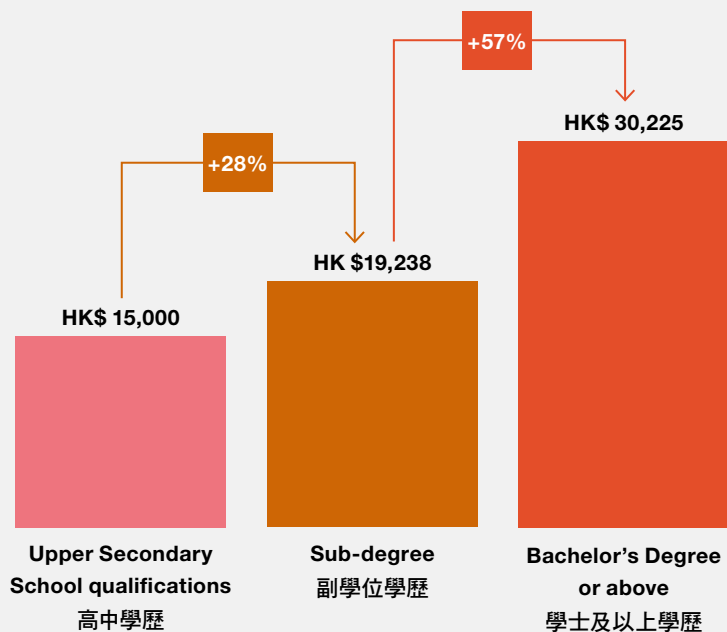
職專教育另一個關鍵經濟影響是學生完成職專教育課程後的薪酬增長、職業發展及晉升。

職專教育畢業生會從職專教育課程獲得終身受益的技能和知識。根據政府統計處的資料顯示，於2018/19年度，持有證書/文憑/高級文憑及其他副學位的畢業生比中學畢業生的就業收入高28%（或4,238港元/月，按2019年價格計算）（圖4-9），擁有學士學位學歷或以上的人士較擁有高中以上學歷的人士收入高100%以上（約15,225港元/月）。

根據本研究的經濟影響模型評估，過去35年來，職專教育培訓超過907,000名畢業生，在2018/19年度，共創造了約850億港元的總附加值（包括直接、間接和連帶影響）。評估方法如圖附錄A-4所示。

Figure 4-9: Median monthly employment earnings by qualification types in Hong Kong (HK\$/month) in 2018/19 (at 2019 prices)

圖4-9：2018/19年度按資歷類型劃分的香港每月就業收入中位數（港幣/月）（按2019年價格計算）



Note:

(1) According to C&SD (2020j), upper secondary qualifications refer to those with Secondary 4 - 7 of old academic structure, Secondary 4 - 6 of new academic structure or equivalent, Project Yi Jin/ Yi Jin Diploma and craft level.

(2) Sub-degree qualifications refer to non-degree post-secondary qualifications including certificate, diploma, higher certificate, higher diploma, professional diploma, associate degree, pre-associate degree, endorsement certificate, associateship and other sub-degree or equivalent qualifications.

(3) Bachelor's Degree or above qualifications include bachelor degree, taught postgraduate and research postgraduate degree qualifications.

Source: (1) C&SD (2020j), (2) PwC analysis

附註：

(1) 根據政府統計處（2020j），具高中學歷的人士是指具中學舊學制的舊學制的中四至中七生及新學制的中四至中六或同等程度，毅進計劃／毅進文憑以及工藝程度教育的人。

(2) 副學位學歷是指非學位的專上教育學歷，包括本地及非本地教育機構的證書、文憑、高級證書、高級文憑、專業文憑、副學士、副學士先修、增修證書、院士銜及其他非學位課程。

(3) 本科及以上學歷包括學士學位，修課式及研究式研究生學歷。

資料來源：(1) 政府統計處（2020j）、(2) 羅兵咸永道分析

4.2.4

Reduction of youth unemployment

Back in the late 1990s and early 2000s, youth unemployment was a significant concern. The unemployment rate for the youth population aged 15 – 19 reached over 30% in 2002 and 2003 amidst Hong Kong's transformation into a knowledge-based economy (Commission on Poverty, 2005). Those who might not have the aptitude for conventional academic pursuits were no longer able to take on low-skilled manufacturing roles because such job opportunities disappeared due to globalisation and the transition of Hong Kong's economy.

In order to support the Government in tackling youth unemployment and in enhancing youth employability, statutory bodies and institutions, such as the VTC, ERB, CIC and CITA, continue to make significant efforts in providing diverse education opportunities for these young people, especially for non-engaged youth, so as to equip them with the required skills, attitude and knowledge that are necessary for adapting to a fast-changing economy.

Over the last 35 years, various statutory bodies and institutions (listed in Figure 3-3) have provided diverse education training for over 907,000 young people. Based on the VTC's in-house graduate survey, the employment rate of VTC graduates on average reached over 90% as of 2019. The substantial decline in youth unemployment rates from 31% to 10% over the last decade could be, to a certain extent, attributable to the efforts made by these VPET providers (Figure 4-10). VPET has significantly helped to enhance youth employability of their students and contributed to improving youth employment in Hong Kong over years.

In particular, VPET providers, especially the VTC and the corporate academies, offer a number of apprenticeship schemes covering a wide range of industries and trades to provide students with work-based training. The establishment of the Youth College in 2004 was another key initiative implemented by the VTC with the Government's support to provide vocational education and training programmes for secondary school leavers above Secondary 3. The programmes offered by the Youth College provide young people with valuable study options apart from conventional academic study, thus helping to facilitate them in exploring career interests and acquiring relevant knowledge and skills.

4.2.4

減少青年失業問題

1990年代後期至2000年代初，青年失業是令人擔憂的社會問題。在2002至2003年香港轉型至知識型經濟期間，15至19歲青年失業率達到30%以上（扶貧委員會，2005年）。隨著全球化和資訊科技的發展，製造業中較低技能的職位隨之消失，缺乏傳統學術背景的人不能再擔任這些職位。

為了支持政府解決青年失業問題和提升青年就業能力，VTC、

僱員再培訓局、建造業議會和製衣業訓練局等法定機構和院校，為青少年，尤其是待業待學青少年提供了各種技能培訓機會，讓青少年裝備必需的技能、態度和知識，以適應快速變化的經濟環境。

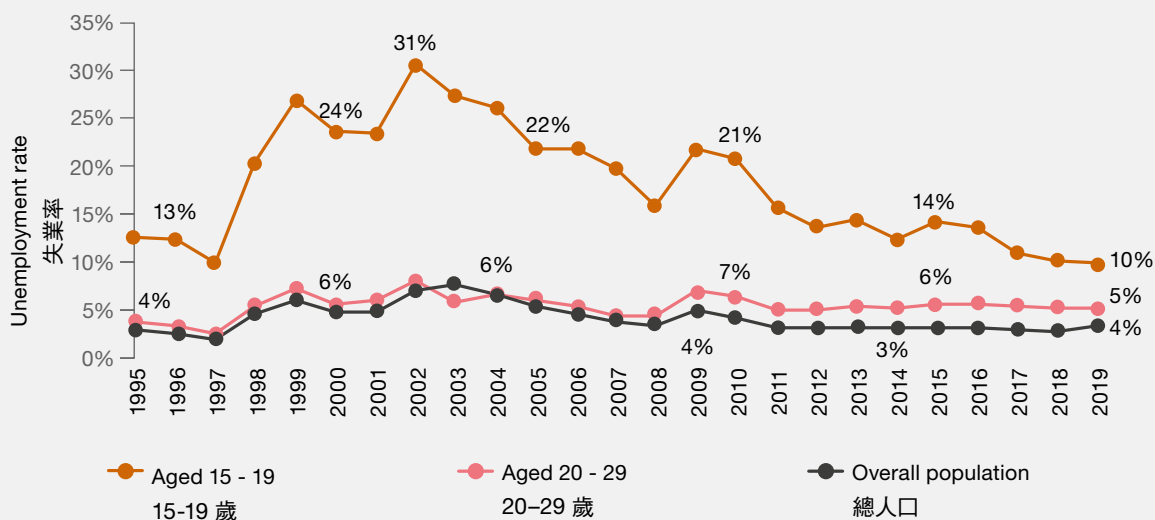
在過去的35年，各法定機構和院校（圖3-3中列出）為共逾907,000名青少年提供了多元化的教育培訓。根據VTC內部畢業生調查，截至2019年，VTC畢業生就業率平均達90%以上。過去二十年來，青年失業率從31%大幅下降到10%，這在一定程度上可

歸因於這些職專教育機構的努力（圖4-10）。多年來，職專教育大大提高了學生的就業能力，為減少香港青年失業作出貢獻。

職專教育機構，尤其是VTC和企業成立的學院，提供了涵蓋工商業多個領域的學徒計劃，為學生提供在職培訓。政府的另一項主要措施是通過VTC於2004年成立青年學院。青年學院旨在為中三或以上程度的青年提供職專教育課程，以及常規學科以外的寶貴學習機會，從而幫助他們探索職業興趣，學習相關的知識和技能。

Figure 4-10: Youth and overall unemployment rates in Hong Kong (%)

圖4-10：香港青年及整體失業率 (%)



Source: (1) C&SD (2020k), (2) PwC analysis

資料來源：(1) 政府統計處 (2020k)、(2) 羅兵咸永道分析

The Youth College | 青年學院

The Youth College is one of the member institutions of the VTC, which offers vocational education pathways for school leavers above Secondary 3 to attain skills and knowledge for further education and employment. Since 2007, the Youth College has nurtured over 26,500 graduates, with an average of 2,500 graduates each year. Students joining the Youth College after graduating from Secondary 3 can choose to complete Diploma of Vocational Education (DVE) from three major study areas, namely (i) Business and Services, (ii) Engineering and (iii) Design and Information Technology. Upon completion, students can either articulate to Higher Diploma programmes or join the workforce.

With a view to provide a more comprehensive progression pathway for Secondary 3 students, the newly introduced three-year Diploma of Vocational Baccalaureate (DVB) programmes in Design, Engineering and Sport with English as the medium of instruction and assessment provide students with another pathway to higher education locally or overseas.

Since its establishment, the Youth College has been playing a crucial role in providing flexible, diverse and vocationally oriented programmes and in enhancing employability for youths above Secondary 3.

青年學院是VTC的機構成員之一，為中三或以上程度的年青人提供職業進修途徑，以讓他們獲取所需的技能和知識，為將來升學及就業作好準備。自2007年以來，青年學院培育了26,500多名畢業生，平均每年有2,500名畢業生。完成中三的學生，可以選擇修讀青年學院下的(i) 商業及服務、(ii) 工程及(iii) 設計與資訊科技職專文憑。完成後，學生可以升讀高級文憑課程或就業。

為了給中三學生提供更全面升學途徑，青年學院（國際課程）開辦了以英語授課和評核的職專國際文憑課程，涵蓋設計、工程及運動三個範疇，為學生提供另一升讀本地或海外高等教育的途徑。

自成立以來，青年學院所提供的靈活、多樣化和職業為本的課程，在提升中三以上年青人的就業能力一直發揮著重要作用。

One of the key features of VPET is that VPET providers work closely with industry in offering programmes with different learning modes to nurture a skilled workforce and meet the needs of students who seek to learn more hands-on skills in a practical environment.

For instance, apprenticeship schemes are offered to students who prefer to gain hands-on experience. VPET providers, such as the VTC and CIC, offer a number of apprenticeship schemes with specific focuses on aircraft maintenance, automotive maintenance, building services and electrical engineering amongst others as shown in Figure 4-11. Apprentices can build up their work experience through on-the-job trainings while attaining qualifications (Figure 4-12). Upon completion of the apprenticeship schemes, the apprentices possess the skills required for the industry and can acquire a Certificate of Completion of Apprenticeships. Thereafter, they can either enter employment directly or pursue further studies.

職專教育的主要特色之一是職專教育機構與業界緊密合作，提供具有不同學習模式的課程，以培育技術人才，並滿足學生在職場環境中學習技能的需求。

舉例來說，學徒計劃為選擇發展技能及獲取實踐經驗的學生而設。職專教育機構和院校，例如VTC和建造業議會，提供不少

學徒訓練計劃，當中包括飛機維修、汽車、屋宇裝備和電機業，如圖4-11所示。透過在職培訓，學徒可以獲得認可資歷，同時累積工作經驗，如圖4-12所示。完成學徒訓練計劃後，學徒將具一技之長，並獲頒被廣泛認受的《學徒畢業證書》。此後，他們可以直接就業或繼續深造。

Figure 4-11: Examples of industries offering apprenticeship schemes

圖4-11：學徒訓練計劃所涵蓋的行業示例

	Airconditioning and refrigeration 冷凝及空調業		Aircraft maintenance 飛機維修業
	Automotive maintenance 汽車業		Railway maintenance 鐵路維修業
	Building services 屋宇裝備業		Construction 建造業
	Electrical engineering 電機業		Electronic engineering 電子業
	Gas engineering 氣體燃料業		Lift and escalator engineering 電梯業
	Medical services 醫療服務業		Testing and certification 測試及認證業
	Jewellery, watch and clock 首飾及鐘錶業		

Source: (1) VTC (n.d.e), (2) PwC analysis

資料來源：(1) VTC (無日期e)、(2) 羅兵咸永道分析

Students under apprenticeship schemes and completed a DVE programme can attain a higher diploma by studying part-time for 2-3 years, and for those who completed a higher diploma programme can choose to pursue a part-time top-up degree or bachelor's degree offered by self-financing institutions or UGC-funded universities.

In 2014, the Government supported the VTC in introducing the Earn and Learn Scheme (E&L Scheme), providing funding support to employers of apprentices in order to increase work-ready workforce supply in industries with severe workforce and skills shortages. This E&L Scheme, which partly resembles Germany's renowned dual-track education system, is a tripartite collaboration between the Government, industry and the VTC (Figure 4-13). Under this

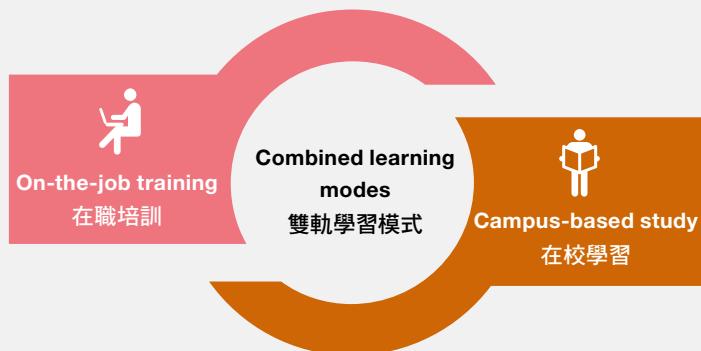
scheme, the Government and the participating employer provide an allowance and a guaranteed salary so that participants can earn a steady income. According to the VTC, over 5,700 trainees have benefited from the E&L Scheme with over 300 participating employers since its launch. The apprenticeship schemes (especially the E&L Scheme) have helped those industries with serious shortages in human capital, such as construction and lift and escalator maintenance, in developing a skilled workforce. These are essential trades which support the everyday requirements of Hong Kong's citizens, in their work and every-day business. Recently, degree apprenticeship programmes have been offered by the VTC at THEi to cater for the needs of work-integrated learning and attaining degree-level qualifications.

修畢中三的學生，在完成學徒訓練計劃後，若要繼續深造，可以修讀2至3年的兼讀制高級文憑；而修畢高級文憑的學徒，則可選擇升讀由自資院校或教資會資助的大學提供的非全日制銜接學位或學士學位。

在2014年，政府支持VTC推行職學計劃，為學徒提供津貼，以便為勞動人口和技能嚴重短缺的行業，增加人才供應。VTC職學計劃在某程度上類似德國著名的雙軌學習模式，是政府、業界和VTC之間的三方協作（圖4-13）。政府和參與行業將為計劃學員提供津貼、職學金和特定薪酬，讓年輕人獲取穩定收入。根據VTC的資料，自計劃推出以來，已有超過5,700名學員受惠於職學計劃，超過300名僱主參與計劃。學徒訓練計劃（特別是職學計劃）能幫助人力資源嚴重短缺的行業（例如建造、電梯維修業）培育技術人才，這些都是支援香港市民日常工作所需的重要行業。最近，VTC在香港高等教育科技學院提供了學位學徒計劃，以滿足學生對職學結合學習模式同時獲得學位資歷的需求。

Figure 4-12: A key feature of the apprenticeship schemes

圖4-12：學徒訓練的主要特色

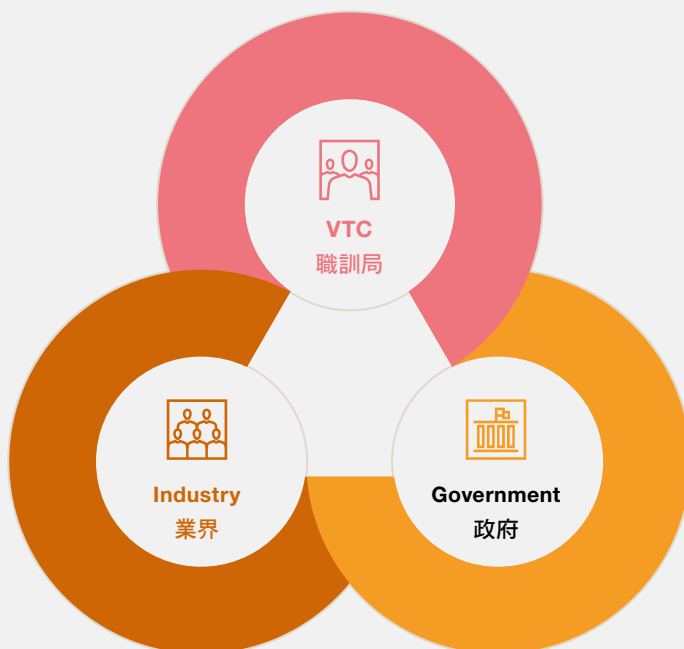


Source: PwC analysis

資料來源：羅兵咸永道分析

Figure 4-13: Tri-party collaboration in the E&L Scheme

圖4-13：VTC 職學計劃中的三方合作



Source: (1) VTC, (2) PwC analysis

資料來源：(1) VTC、(2) 羅兵咸永道分析



In the following section, three impact stories are presented to illustrate the economic impacts of VPET in supporting the development of the maritime and port, aviation, business and marketing industries.

下一節將展示三個具啟發性的案例分析，以闡述職專教育對支援海運及港口、航空、商業及市場推廣行業發展的經濟影響。

Figure 4-14: Key economic indicators for three key industries ⁽¹⁾

圖4-14：三大主要行業的經濟指標 ⁽¹⁾

Maritime and Port | 海運及港口

HK \$30 billion
to Hong Kong's GDP in 2018

82,850
persons employed in 2018

2018年本地生產總值達
\$300億港元

2018年的就業人數為
82,850人

Aviation | 航空 ⁽²⁾

HK \$81 billion
to Hong Kong's GDP in 2017

88,000
persons employed in 2017

2017年本地生產總值達
\$810億港元

2017年的就業人數為
88,000人

Business and Marketing | 商業及市場推廣

HK \$1.3 trillion
to Hong Kong's GDP in 2019

1.1 million
persons employed in 2019

2019年本地生產總值達
1.3萬億港元

2019年的就業人數為
110萬人

Note: (1) Latest available figures for these sectors are adopted.

(2) These are the direct economic value-added and manpower contribution to the aviation industry, according to IATA Economics' estimates.

Source: (1) C&SD (2020d, 2020e, 2020h), (2) Transport and Housing Bureau (2020), (3) IATA Economics (2018), (4) PwC analysis

附註：(1) 採用這些行業的最新數據。

(2) 根據IATA Economics的估計，這是指航空業的直接經濟附加值和人力資源貢獻。

資料來源：(1) 政府統計處 (2020d、2020e、2020h)、(2) 運輸及房屋局(2020)、(3) IATA Economics (2018)、(4) 羅兵咸永道分析



Impact Story – Supporting the Maritime and Port Industry

啟發故事 —— 支援海運及 港口業

The maritime and port industry

Hong Kong is one of the busiest and most efficient international container ports in the world, ranking as the 8th busiest container port in 2019. With over 90% of freight transported by sea, the maritime and port industry is a key engine of Hong Kong's economy (Figure 4-15).

According to the *Study on the Economic Contribution of Maritime and Port Industry*, the maritime and port industry contributed 1.1% (HK\$ 30 billion) to Hong Kong's GDP and employed 82,850 persons (2.1% of Hong Kong's total employment) in 2018 (Transport and Housing Bureau, 2020).

Figure 4-15: Key statistics on the maritime and port industry

圖4-15：海運及港口業的主要統計數據

Maritime and port industry: Contribution to Hong Kong's economy

海運及港口業：對香港經濟的貢獻



Source: (1) Transport and Housing Bureau (2020), (2) Marine Department (2019), (3) PwC analysis

資料來源：(1) 運輸及房屋局 (2020)、(2) 海事處 (2019)、(3) 羅兵咸永道分析

海運及港口業

香港為全球最繁忙、效率最高的國際貨櫃港口之一，2019年全球排名第8位。鑑於90%以上的貨運經海路運輸，海運及港口業是香港經濟的主要動力（圖4-15）。

根據《Study on the Economic Contribution of Maritime and Port Industry》顯示，海運及港口業在2018年佔香港本地生產總值達1.1%（300億港元），就業人數為82,850人（佔香港總就業人數的2.1%）（運輸及房屋局，2020）。

VPET's role in addressing shortage of human resources

The maritime and port industry has been facing an acute shortage of workforce due to the long training time at sea required for new entrants to progress to senior positions and the ageing problem of seafaring professionals (Legislative Council, 2010).

VPET has been playing an important role in offering seagoing and shore-based programmes and courses to train up home-grown young talents. Being Hong Kong's only approved VPET provider for mandatory training courses that is compliant with maritime-related regulations and international standards, the Maritime Services Training Institute (MSTI) offers 78 short courses and 3 award-bearing programmes that are essential for new entrants and in-service practitioners who want to develop long-term seafaring careers in marine-related industries (Figure 4-16).

MSTI has trained over 3,500 graduates with their certificate, diploma and higher diploma programmes over the last 35 years, which accounted for around 4% of the total number of persons engaged in this industry in 2018.

According to VTC's in-house surveys, the employment rate of MSTI graduates in general is over 90% since 2009/10. Of the 6,800 total registered seafarers in Hong Kong as at the end of 2019, 1,040 posts were filled by Hong Kong local seafarers (Marine Department, 2019). From 2001 to 2015, according to Marine Department Statistics, over 270 VTC graduates opted for seagoing training, with 78% enrolled in deck cadet training and 22% in seagoing engineering cadet training (Marine Department, 2016).

職專教育在解決人力資源短缺方面的角色

由於新入職者需要長時間在海上接受培訓才能晉升至高級職位，加上航海專業人員年齡老化的問題，海運及港口業界一直面對人手嚴重短缺問題（立法會，2010）。

職專教育一直扮演著重要角色，提供遠洋和岸上的課程培養本地青年人才。作為香港唯一獲批准

提供具認受性培訓課程，且符合海事相關法規和國際標準的職專教育機構，海事訓練學院開設78個短期課程及3個學歷頒授課程，對於有意發展長遠航海事業的新人和在職從業員來說，是非常重要的（圖4-16）。

在過去35年裏，海事訓練學院培訓了3,500多名證書、文憑及高級文憑課程的畢業生，佔2018年從事該行業的總人數約4%。

根據VTC的內部調查，自2009/10年度以來，海事訓練學院畢業生的就業率一般超過90%。截至2019年底，香港共有6,800名註冊海員，其中1,040個職位由香港本地海員擔任（海事處，2019）。根據海事處的統計數據，2001年至2015年間，超過270名VTC畢業生選擇海上培訓，其中78%參加了甲板實習生培訓，22%參加了輪機實習生培訓（海事處，2016）。

Figure 4-16: Example of programmes and courses offered by MSTI

圖4-16：海事訓練學院提供的課程示例



Note: (1) STCW - Seafarers' Training, Certification and Watch-keeping Code.

Source: (1) MSTI (n.d.), (2) PwC Analysis

附註：(1) STCW —— 《航海人員訓練、發證及航行當值標準國際公約》

資料來源：(1) 海事訓練學院（無日期）、(2) 羅兵咸永道分析

Career prospects

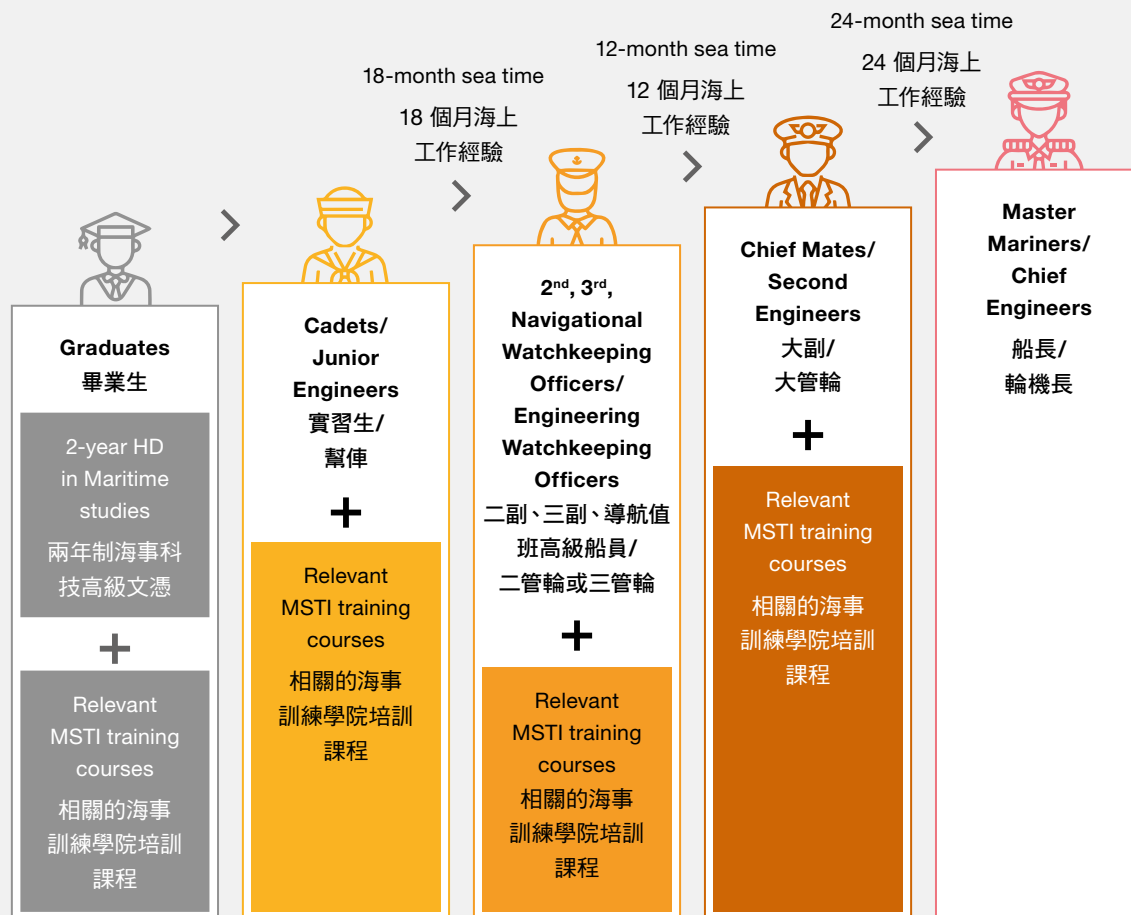
Graduates in maritime related studies who opt for seagoing careers can typically pursue careers as: (1) deck officers or engineer officers on seagoing vessels, (2) coxswains or engine operators on local vessels. These graduates are required to complete deck cadet training or seagoing engineering cadet training with mandatory shore-based and sea-time training and courses at MSTI for obtaining professional certification and career progressions. Figure 4-17 demonstrates the typical career progression pathway for seafarers.

就業前景

選擇航海事業相關專業的畢業生通常可以從事以下職業：（1）遠洋船的甲板船員或輪機員、（2）本地船的船長或輪機員。這些畢業生必須完成甲板實習生培訓或海上輪機實習生培訓，並在海事訓練學院進行獲認受的岸上及海上培訓及課程，以獲取專業資歷，發展事業。圖4-17展示海員的事業發展途徑。

Figure 4-17: Typical progression path for MSTI graduates

圖4-17：海事訓練學院畢業生的事業發展途徑



Source: (1) Hong Kong Maritime and Port Board (2018), (2) PwC Analysis

資料來源：(1) 香港海運港口局 (2018)、(2) 羅兵咸永道分析

Alumni Stories | 校友故事

Mr. Kenneth KWOK, a graduate with a Diploma in Maritime Studies from the VTC, started his career as a Deck Cadet. Having worked on sea-going vessels for ten years and attained the qualification of Master Certificate of Competency (Master Mariner) for sea-going ships in 2015, he is now working for the Marine Department as a Marine Officer.

Within the span of eight years after graduation, Kenneth made his way up from a Deck Cadet to a Chief Officer. The professional training and knowledge obtained from the VTC gave him the opportunities to develop a rewarding career and achieve career progression.

He also believed the programmes have opened many career opportunities. These include ship surveying and staff management in ferry companies, which require prior work experience on sea-going ships. There are also opportunities in maritime arbitration, maritime law, maritime engineering and marine insurance after acquiring related professional qualifications.

從VTC海事科技文憑課程畢業的郭嘉謙先生（Kenneth）由甲板實習生做起，開展其事業。他在遠洋船上工作了十年，並於2015年考獲遠洋船船長資格，現時於海事處擔任航海主任。

畢業八年後，Kenneth由甲板實習生晉升至大副。從VTC所得的專業培訓及知識使他有機會發揮所能、開展事業。

他認為這類課程帶來很多就業機會，包括渡輪公司的驗船及人員管理工作，均需要具備遠洋船的工作經驗。考獲相關專業資格後，還可以從事海事仲裁、海事法律、海事工程及海事保險等工作。



Mr. Kenneth KWOK
郭嘉謙先生

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自VTC校友資料庫。

Miss Joanna KWOK joined the Anglo-Eastern Ship Management Limited after completing her Higher Diploma in Mechanical Engineering in the VTC. She is the first woman in Hong Kong to be qualified as a chief engineer of seagoing vessels.

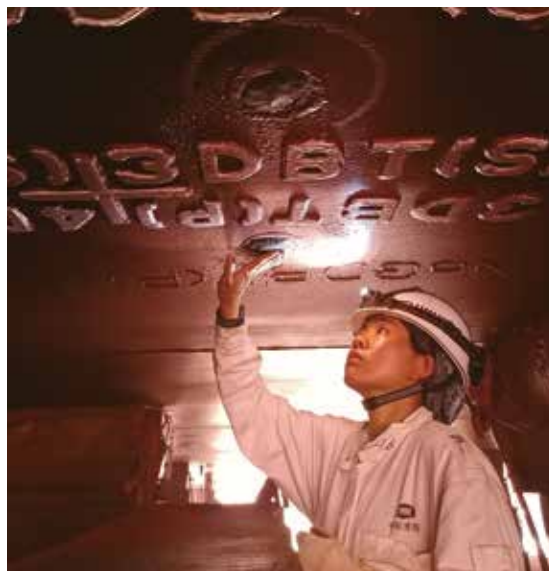
Her experience has delivered an encouraging message on the importance of VPET in unlocking opportunities for young people.

郭詠恩小姐在VTC修讀機械工程學高級文憑後，加入中英船舶管理有限公司。她是香港首位考獲遠洋船輪機長資格的女性。

她的經歷展現了職專教育為青少年開拓機遇的重要性。

Source: HKSAR Government (2019)

資料來源：香港特別行政區政府 (2019)



Miss Joanna KWOK

郭詠恩小姐

After graduating from the MSTI, Captain Carmen CHAN started her career on ocean-going vessels. She steadily scaled her career ladder and made it to an ocean-going vessel captain in 2012, becoming the first Hong Kong female to be qualified as a captain of ocean-going vessels.

從海事訓練學院畢業後，陳嘉敏船長開展了她的遠洋事業。她在事業上穩步攀升，於2012年晉升為遠洋船船長，成為首位獲得遠洋船船長資格的香港女性。



Captain Carmen CHAN

陳嘉敏船長



Impact Story – Supporting the Aviation Industry

啟發故事 —— 支援航空業

The aviation industry

Hong Kong is widely recognised as a transportation hub in the Asia-Pacific region, with Hong Kong International Airport (HKIA) serving as one of the most important airline hubs in the world. In 2019 alone, it handled 72 million passengers and 4.8 million tonnes of cargo (Figure 4-18) (HKIA, n.d.). The total economic value generated by the aviation industry (including direct and indirect impacts) accounted for 10% of Hong Kong's GDP in 2017^[6] (IATA Economics, 2018). The aviation industry supports flows of goods, investment and people, which in turns, benefits a broader range of industries, such as import and export trades, hospitality and tourism and business and commercial services.

航空業

香港是亞太區公認的交通樞紐，香港國際機場是全球最重要的航空樞紐之一。在2019年，它便處理了7,200萬名乘客和480萬公噸貨物（圖4-18）（香港國際機場，無日期）。2017年，航空業產生的總經濟價值（包括直接和間接影響）佔香港本地生產總值的10%^[6]（IATA Economics, 2018）。航空業支援貨物、投資及人員流動，使更廣泛的行業受惠，例如進出口貿易、款待及旅遊，以及商務和商業服務。

Figure 4-18: Key Statistics on the aviation industry⁽¹⁾

圖4-18：航空業的主要統計數據⁽¹⁾

Aviation industry: Contribution to Hong Kong's economy

航空業：對香港經濟的貢獻



Directly employed around
88,000 persons in 2017
在2017年直接僱用約 **88,000人**



Contributed around **HK\$ 256 billion** to Hong Kong's GDP in 2017⁽²⁾
在2017年為香港本地生產總值貢獻約 **2,560億港元**⁽²⁾



1st | 第1位
HKIA has been ranked the busiest cargo airport for 10 consecutive years
香港國際機場連續十年被評為最繁忙的貨運機場



420,000 | 420,000架次
Air traffic movements in 2019
2019年航班升降量



4.8%
Annual growth of the volume of air cargo handled, average of 2000 to 2018
2000年至2018年航空貨運量年均增長情況



72 million | 7,200萬
passengers handled by HKIA in 2019
2019年香港國際機場處理乘客量



4.8 million | 480萬
tonnes of cargo and airmails in 2019
2019年貨物及空郵噸數

Note: (1) The economic contribution and manpower contribution is based on the latest available data.
(2) This is the gross value-added including the direct and indirect economic contribution corresponding to Note [6].
Source: (1) HKIA (n.d.), (2) IATA Economics (2018), (3) PwC analysis
附註：(1) 基於最新數據的經濟貢獻及人力資源貢獻。
(2) 這是包括於註 [6] 的直接和間接經濟貢獻的總附加值。
資料來源：(1) 香港國際機場（無日期）、(2) IATA Economics (2018)、(3) 羅兵咸永道分析

[6]: According to IATA Economics, the air transport industry including airlines and its supply chain, are estimated to directly contribute US\$ 20 billion (HK\$ 155 billion) of GDP in Hong Kong, and spending by foreign tourists supports a further US\$ 13 billion (HK\$ 101 billion) of the GDP, totalling to US\$ 33 billion (HK\$ 256 billion). In total, 10.2% of the GDP is supported by inputs to the air transport sector and foreign tourists arriving by air.

[6]: 根據 IATA Economics 的資料，包括航空公司及其供應鏈在內的航空運輸業，估計直接為香港的本地生產總值貢獻了 200 億美元（1,550 億港元），而外國遊客的消費則佔本地生產總值 130 億美元（1,010 億港元），合共達 330 億美元（2,560 億港元）。整體而言，航空運輸業及乘客機抵港的外國遊客所帶來的經濟貢獻，佔地生產總值的 10.2%。



VPET's role in supporting the aviation industry

Hong Kong's aviation industry could not have grown and attained its renowned international reputation without the support of sufficient skilled workforce required. Through the provision of programmes and courses, VPET develops young talents for a variety of roles in the industry, including airline services management, airport operations management, aircraft maintenance and aircraft services engineering.

A number of certificate, diploma, higher diploma and bachelor's degree programmes as well as apprenticeship schemes are currently available for students who wish to pursue a career in the aviation industry. Figure 4-19 summarises examples of VPET programmes related to the aviation and the associated career opportunities.

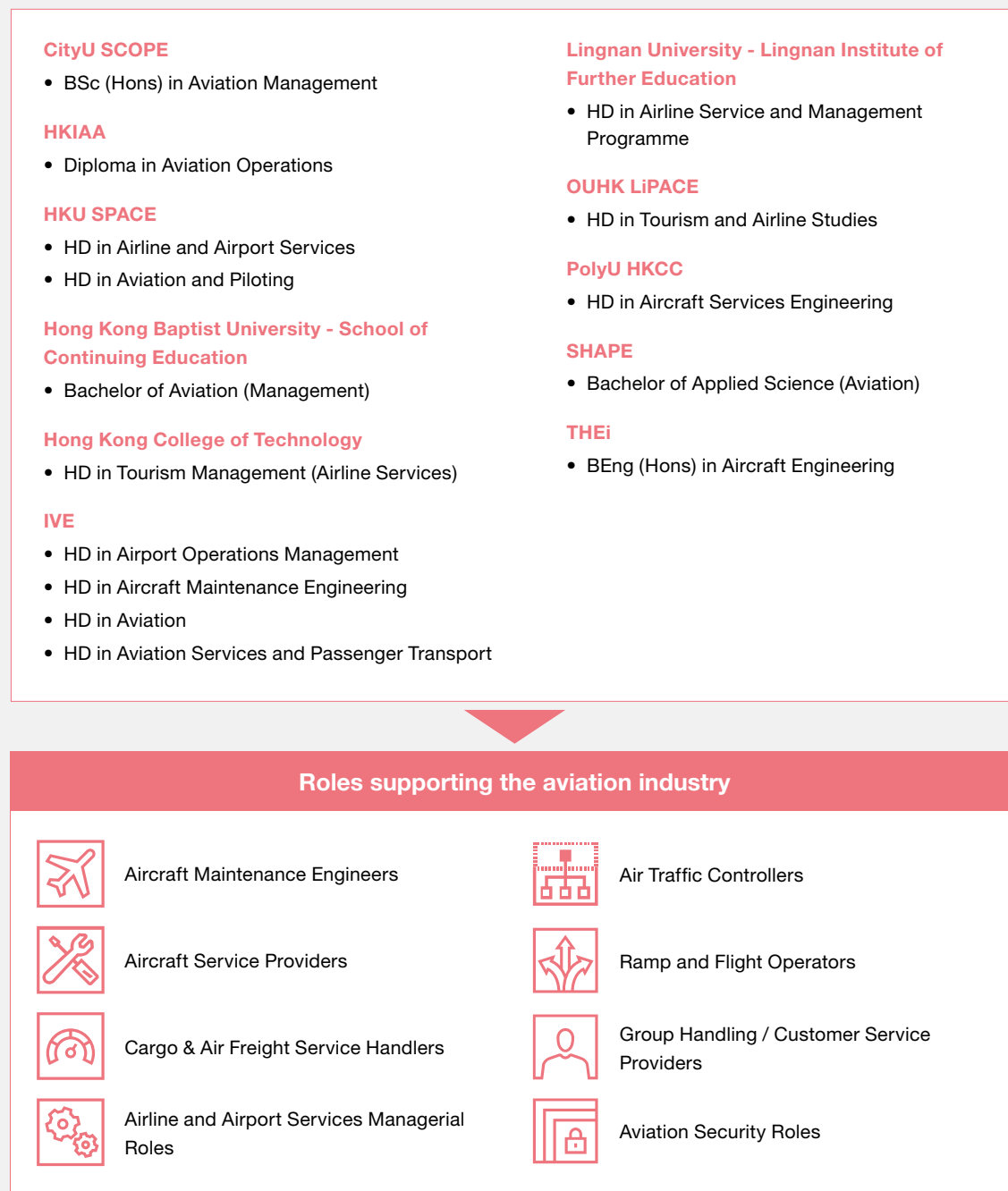
職專教育在支援航空業方面的角色

香港的航空業能夠蓬勃發展，並在國際上享有盛譽，有賴於職專教育為航空業提供足夠的技術人才支援。職專教育通過提供課程，培養青少年人才，使他們能夠勝任航空業各種角色，包括：航空服務管理、機場運營管理、飛機維修和飛機服務工程。

目前有多個證書、文憑、高級文憑及學士學位課程和學徒計劃，供有志投身航空業的學生報讀。圖4-19概括了提供航空業相關課程的職專教育機構，以滿足業界的人才需求。



Figure 4 -19: Examples of VPET programmes related to the aviation industry and the associated career opportunities⁽¹⁾



Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) CSPE (2020), (3) HKIAA (2019), (4) PwC Analysis

圖4 -19：與航空業相關的職專教育課程和職位示例⁽¹⁾

香港城市大學專業進修學院

- 航空管理（榮譽）理學士

香港國際航空學院

- 航空營運文憑

香港大學專業進修學院

- 航空公司及機場服務高級文憑
- 航空及飛行高級文憑

香港浸會大學持續教育學院

- 航空管理學士

香港專業進修學校

- 旅遊業管理高級文憑（航空服務）

香港專業教育學院

- 機場營運管理高級文憑
- 飛機維修工程高級文憑
- 航空學高級文憑
- 航空服務及客運管理高級文憑

嶺南大學持續進修學院

- 航空服務及管理高級文憑課程

香港公開大學李嘉誠專業進修學院

- 旅遊及航空業高級文憑

香港理工大學香港專上學院

- 飛機服務工程高級文憑

才晉高等教育學院

- 應用科學（航空）學士

香港高等教育科技學院

- 飛機工程（榮譽）工學士

支持航空業的職位



飛機維修工程師



航空交通管制員



飛機服務供應商



停機坪及航班操作人



貨運及空運服務處理人員



團體處理 / 客戶服務供應商



航空公司及機場服務管理職位



航空保安職位

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府的職專教育網站（無日期）、(2) 自資專上教育委員會（2020）、
(3) 香港國際航空學院（2019）、(4) 羅兵咸永道分析

Modern training facilities

VPET providers are committed to nurturing young talents, especially in supplying the additional demand for 34,000 skilled employees in the aviation industry by 2030, according to the *Hong Kong International Airport Master Plan 2030* (HKIA, 2011).

In order to provide suitable facilities for students to develop sufficient practical skills, the VTC is establishing the Aviation and Maritime Education Centre (AMEC), an 8-storey building of 9,800 square metres at the IVE (Tsing Yi) campus. The AMEC will provide students with state-of-the-art facilities in the aerial and nautical industries for their training.

Hong Kong International Aviation Academy (HKIAA) is another VPET provider that offers a range of courses, from youth programmes and on-the-job training for airport employees to master's degree programmes for upskilling aviation professionals. HKIAA is also establishing an international Air Traffic Control (ATC) Training Centre to meet the increasing needs of ATC workforce in Asia Pacific over the coming years.

HKIAA develops its curriculum in co-operation with business partners as well as local and overseas universities and vocational training institutes. HKIAA also collaborates with

the renowned École Nationale de l'Aviation Civile in France, the largest aeronautics and civil aviation college in Europe, to create a set of joint programmes for HKIAA.

A 5,500-square-metre world-class training facility for HKIAA is now under construction to offer both theoretical and practical training with adherence to international standards as well as the use of the latest simulator suites and world-class training facilities.



Proposed Aviation and Maritime Education Centre (AMEC)
擬建的航空及航海教育中心

現代化培訓設施

根據《香港國際機場2030規劃大綱》（香港國際機場，2011），在2030年前航空業需要額外34,000名技術人員，以滿足航空業發展。職專教育機構致力培育青少年人才以支援航空業的發展。

為了讓學生掌握充足的實用技能，VTC將於香港專業教育學院（青衣）校園內設立航空及航海教育中心，該中心樓高8層，佔地9,800平方米。航空及航海教育中心將為學生提供航空及航海業的最先進設施，以作培訓之用。

香港國際航空學院是另一個為航空業服務的職專教育機構，該學院提供一系列課程，包括為機場員工提供的青年課程和在職培訓，以及為航空專業人員提供的碩士學位課程。學院還設立了一個國際航空交通管制培訓中心，以滿足未來數年亞太區對航空交通管制員工日益增加的需求。

學院與企業夥伴、本地及海外大學，以及職專教育機構合辦課程。此外，香港國際航空學院還與歐洲最大的民航學院——法國國立民航學院合作，為香港國際航空學院開設了一系列合辦課程。

香港國際航空學院正在建設一個面積達5,500平方米的國際級培訓設施，場地將提供符合國際標準的理論和實踐培訓，並使用最新的模擬器套件和國際級的培訓設施。

VPET's role in nurturing talents specialising in aircraft maintenance engineering

Aircraft maintenance is of significant importance in ensuring aircraft safety. Even during the outbreak of COVID-19, aircrafts still require maintenance by engineers and technicians for providing air transport services, especially for importing and exporting international goods.

The VTC is one of the providers in Hong Kong offering higher diploma and degree programmes in aircraft maintenance under HKAR-147^[7] standards approved by the Hong Kong Civil Aviation Department. Students enrolled in these programmes are given a number of opportunities to broaden their horizons, such as participating in the Industrial Training programmes jointly offered by IVE (Tsing Yi) and the Hong Kong Aircraft Engineering Company Limited (HAECO). Students are also offered opportunities for practical training and aircraft maintenance courses at Guangzhou Civil Aviation College and/or other aircraft maintenance organisations located at the Guangzhou International Airport to develop practical skills and gain experience in the industry.

According to VTC's in-house graduate survey, graduates of aircraft maintenance engineering programmes are highly employable, with an employment rate of over 93% in 2019. Over the last 35 years, the VTC has supplied a total of 2,721 graduates to the aircraft maintenance industry. In 2017, the aircraft maintenance industry hired some 5,000 - 6,000 technical staff in Hong Kong, of which it is estimated that VPET graduates account for 45 - 54% of total employees in the aircraft maintenance industry.

[7]: HKAR-147 is the maintenance training standard for maintenance certifying staff.

[7]: HKAR-147 是維修認證人員的維修培訓標準。

職專教育在培育飛機維修工程專才方面的角色

飛機維修對確保飛機安全至關重要。即使在2019冠狀病毒病期間，飛機仍需要工程師及技術人員進行維修，以提供航空運輸服務，尤其是進出口國際貨物的運輸。

VTC是香港其中一所提供獲香港民航處認可達HKAR-147^[7]標準的飛機維修工程高級文憑及飛機工程學士學位課程的職專教育機構。報讀VTC飛機維修工程課程的學生，可透過參加由香港專業教育學院（青衣）與香港飛機工程有限公司合辦的飛機維修實習計劃擴闊視野。學生還有機會到廣州民航職業技術學院及/或位於廣州國際機場的飛機維修機構進行實訓並參加飛機維修課程，以培養實用技能並積累行業經驗。

根據VTC內部的畢業生調查結果顯示，VTC飛機維修工程課程畢業生的就業率甚高，在2019年甚至超過93%。在過去35年，VTC為飛機維修業提供了2,721名畢業生。2017年，飛機維修行業在香港共僱用了大約5,000至6,000名技術人員，估計職專教育畢業生佔飛機維修行業員工總數約45-54%。



Career prospects of graduates in aircraft maintenance engineering

As an example of career progression opportunities, VTC graduates may join aircraft maintenance companies, airlines, airfreight cargo operators or related companies.

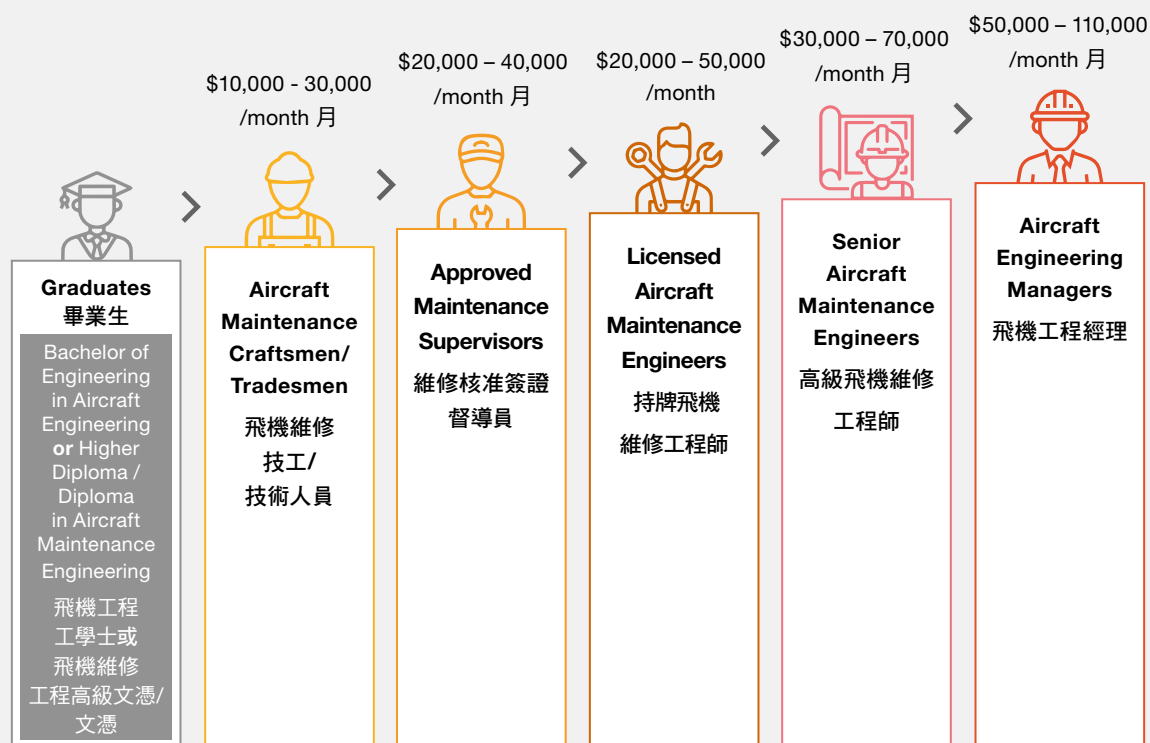
After accumulating sufficient professional experience and passing the relevant examinations, graduates can apply for relevant licences in aircraft maintenance. With the recognised trade qualifications, graduates could be promoted to senior positions (such as licensed engineer) and take up managerial roles. The typical progression path for graduates in aircraft maintenance engineering is set out in Figure 4-20 below.

飛機維修工程畢業生的就業前景

列舉一例，VTC的畢業生可以加入飛機維修公司、航空公司、空運運營商或相關公司。在積累足夠的專業經驗並通過相關考試後，畢業生可以申請飛機維修的相關執照。擁有認可資格的畢業生可晉升至高級職位（例如持牌工程師），並擔任管理職務。飛機維修工程畢業生的事業發展途徑如下圖4-20所示。

Figure 4-20: Illustrative progression path for VPET graduates in Aircraft Maintenance Engineering

圖4-20：飛機維修工程職專教育畢業生的事業發展途徑圖示



Source: (1) VTC Occupation Dictionary (n.d.a), (2) PwC Analysis

資料來源：(1) VTC職業資料庫（無日期a）、(2) 羅兵咸永道分析

VTC graduates are recognised by the industry as demonstrated by the endorsement provided by a professional in the industry as published in the programme brochure of THEi's Faculty of Science and Technology.

從香港高等教育科技學院課程小冊子節錄的業內人士分享，可見VTC的畢業生獲得業界認可。

The aircraft engineering degree programme offered by the Faculty of Science and Technology of THEi is vocationally oriented and features both theoretical and practical training which meet the genuine needs of the industry. The programme is recognised by HKCAD as a HKAR-66 Cat. B1.1 Basic Licence Training Course. Graduates from this programme will be professionally competent in the industry.

香港高等教育科技學院開辦的飛機工程學位課程以專業為本，提供理論及實務訓練，以滿足業界的真正需求。該課程獲香港民航處認可為 HKAR-66 Cat.B1.1 基本執照培訓課程。此課程的畢業生將在業界具備專業競爭能力。

Captain Michael CHAN | 陳志培機長

MBS, MBB, GMSM, AE
Former Controller, Government Flying Service
HKSAR Government
前政府飛行服務隊總監
香港特區政府



Source: THEi (n.d.a)

資料來源：香港高等教育科技學院（無日期a）



Impact Story – Supporting the Business and Marketing Industry

啟發故事 —— 支援商業及市場 推廣業

The business and marketing industry

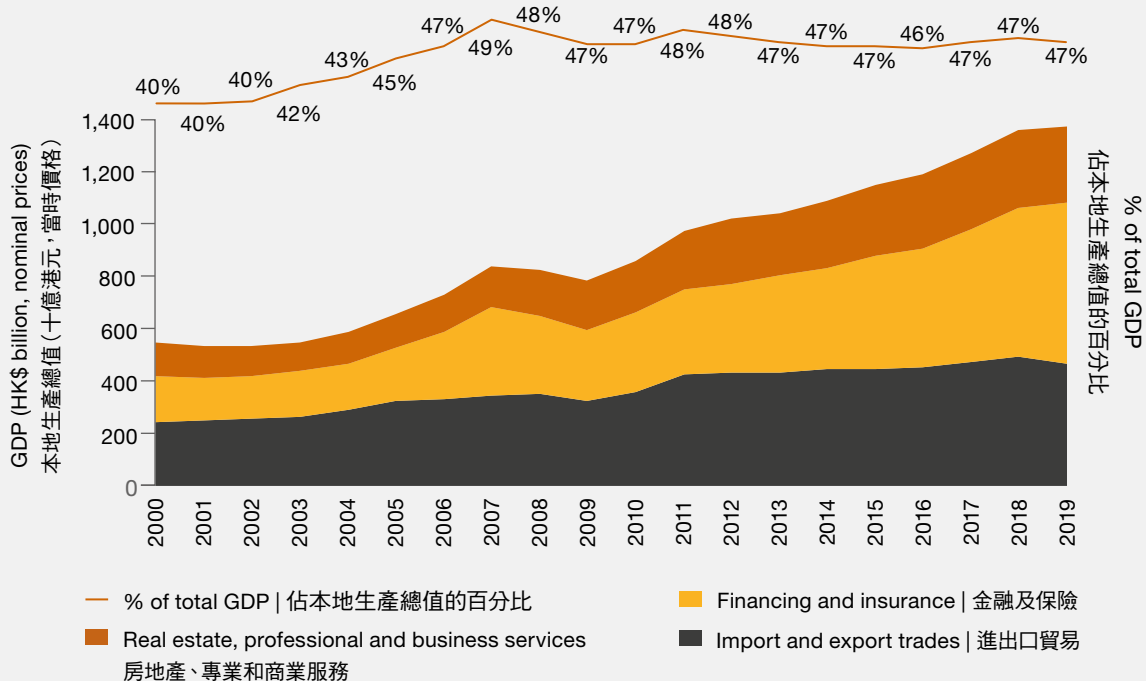
As a knowledge-based economy, the business and marketing industry is one of the core economic pillars of Hong Kong, contributing HK\$ 1.3 trillion of economic value in 2019 (nearly 50% of Hong Kong's total GDP) (Figure 4-21). This industry is supported by the largest pool of human capital in Hong Kong with nearly 1.5 million persons employed.

商業及市場推廣業

作為知識型經濟體，商業及市場推廣業是香港的核心經濟支柱之一，在2019年貢獻了1.3萬億港元經濟價值（約佔香港本地生產總值的50%）（圖4-21）。這個行業支援了香港的經濟主體，為接近150萬人提供生計。

Figure 4 -21: GDP contribution of the business and marketing industry (2000-2019)⁽¹⁾

圖4 -21：商業及市場推廣業對本地生產總值的貢獻（2000年至2019年）⁽¹⁾



Note: (1) For the purpose of this analysis, the GDP of business and marketing related industries include GDP generated from financing and insurance (incl. banking services), real estate, professional and business services (incl. accounting) and import and export trade activities.

Source: (1) C&SD (2020h), (2) PwC analysis

附註：（1）在本分析中，與商業及市場推廣相關的行業的本地生產總值包括金融及保險業（包括銀行服務）、房地產、專業和商業服務（包括會計），以及進出口貿易活動產生的本地生產總值。

資料來源：（1）政府統計處（2020h）、（2）羅兵咸永道分析



VPET's role in supporting the business and marketing industry

To nurture human capital for supporting the growth of the industry, VPET programme providers, including the VTC, Hang Seng University, HKU SPACE and OUHK LiPACE, offer a wide range of business and marketing programmes, as illustrated in Figure 4-22. These programmes nurture a skilled workforce to provide support in accounting, business administration, marketing and human resources management.

VPET has supplied over 190,000 graduates over the last 35 years, contributed to about 13% of the total workforce in the business and marketing industry in 2019. According to VTC's in-house graduate survey, the employment rates of these VPET graduates are high (over 90%). Among those HD graduates who pursue further studies, around 50% obtained a degree qualification within 5 years of graduation.

職專教育在支援商業及市場推廣業方面的角色

為了培育人才支援商業及市場推廣業的發展，提供職專教育課程機構（包括：VTC、香港恒生大學、香港大學專業進修學院及香港公開大學李嘉誠專業進修學院）開辦了一系列商業及市場推廣課程（如圖4-22所示）。這些課程培育了不少技術人才，支援會計、工商管理、市場推廣以及人力資源管理等界別。

職專教育在過去35年裏培育了超過19萬名畢業生，佔2019年商業及市場推廣業整體就業人數約13%。根據VTC內部的畢業生調查結果顯示，這些職專教育畢業生的就業率很高（逾90%）。在繼續深造的高級文憑畢業生中，約有50%的畢業生在畢業後5年內獲得學位資歷。

Figure 4-22: Examples of VPET programmes related to the business and marketing industry and the associated career opportunities⁽¹⁾

CHC • BA (Hons) in Communication and Crossmedia • BBA (Hons) in Finance and Information Management • BBA (Hons) in Finance • Bachelor of Commerce (Hons) in Accounting and Banking CityU SCOPE • BA (Hons) Business and Management • BA (Hons) Marketing HKU SPACE PLK SHCC • HD in Accounting	IVE • HD in Digital Marketing • HD in Human Resources and Talent Analytics • HD in Retail Innovation and Management • HD in Accountancy with Business Analytics • HD in Banking and Financial Analysis • HD in Global Business Management with Languages THEi • BA (Hons) in Public Relations and International Events Management • BA (Hons) in Professional Accounting
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Roles supporting the business and marketing industry



Accountants / Auditors



Business Analysts / Data Analysts



Media and Communication Roles



Commercial Support Roles



Bankers and Financial Analysts



Operators



Marketing Promoters



Business Administrators

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC analysis

圖4-22：與商業及市場推廣業相關的職專教育課程和職位示例⁽¹⁾

香港珠海學院

- 傳播及跨媒體（榮譽）文學士
- 金融及資訊管理學（榮譽）工商管理學士
- 財務金融學（榮譽）工商管理學士
- 會計及銀行（榮譽）商學士

香港城市大學專業進修學院

- 商業及管理榮譽文學士
- 市場學榮譽文學士

香港大學專業進修學院保良局何鴻燊社區書院

- 會計高級文憑

香港專業教育學院

- 數碼營銷高級文憑
- 人力資源管理及人才分析高級文憑
- 零售創新及管理高級文憑
- 會計及商業分析高級文憑
- 銀行及財務分析高級文憑
- 環球商業管理及語言高級文憑

香港高等教育科技學院

- 公共關係及國際項目管理（榮譽）文學士
- 專業會計（榮譽）文學士

支持商業及市場推廣業的職位



會計師/核數師



媒體及通訊職位



銀行業人士及金融分析師



市場推廣員



業務分析師 / 數據分析師



商業支援職位



營運商



業務管理人員

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特區政府的職專教育網站（無日期）、(2) 羅兵咸永道分析

Case Study

個案分析

The Human Resource Assessment Centre in IVE (Kwun Tong) provides simulated job environments for talent assessment and management exercises. It is equipped with various assessment tools to support student training in the selection and arrangement of valid and reliable tests for identifying skills and abilities that are required in performing specific jobs effectively.

香港專業教育學院（觀塘）的人才評估中心提供了良好的模擬工作環境培訓相關的人力資源。中心配備了各種評估工具，有效培訓學生於甄選人才及安排能力測試的專業技能，以滿足特定工作需求。



Human Resource Assessment Centre
人才評估中心



K Concept Studio
「奇·概念館」

The K Concept Studio, also located in IVE (Kwun Tong), is well equipped with a wide range of mobile devices, computers and audio-visual equipment for photography, cam-cording, photo or film editing, online sharing of works, as well as a mini beauty salon with makeup tools, accessories and cosmetics. The K Concept Studio provides students with trainings for acquiring knowledge and skills of digital sales and marketing. Key opinion leaders (KOLs) are invited to the Studio regularly to share experience and to train students.

同樣位於香港專業教育學院（觀塘）的「奇·概念館」配備了周全的流動設備、電腦及視聽設備，讓學生用於攝影、攝錄、照片或影片編輯和線上作品共享，工作室並附設迷你美容室，提供化妝工具、飾品和化妝品等。「奇·概念館」除了為學生提供數碼銷售及營銷知識和技能的培訓外，還定期邀請網紅到館內分享經驗及訓練學生。



Advanced equipment at the K Concept Studio
「奇·概念館」的先進設備

Articulation pathways for VPET students

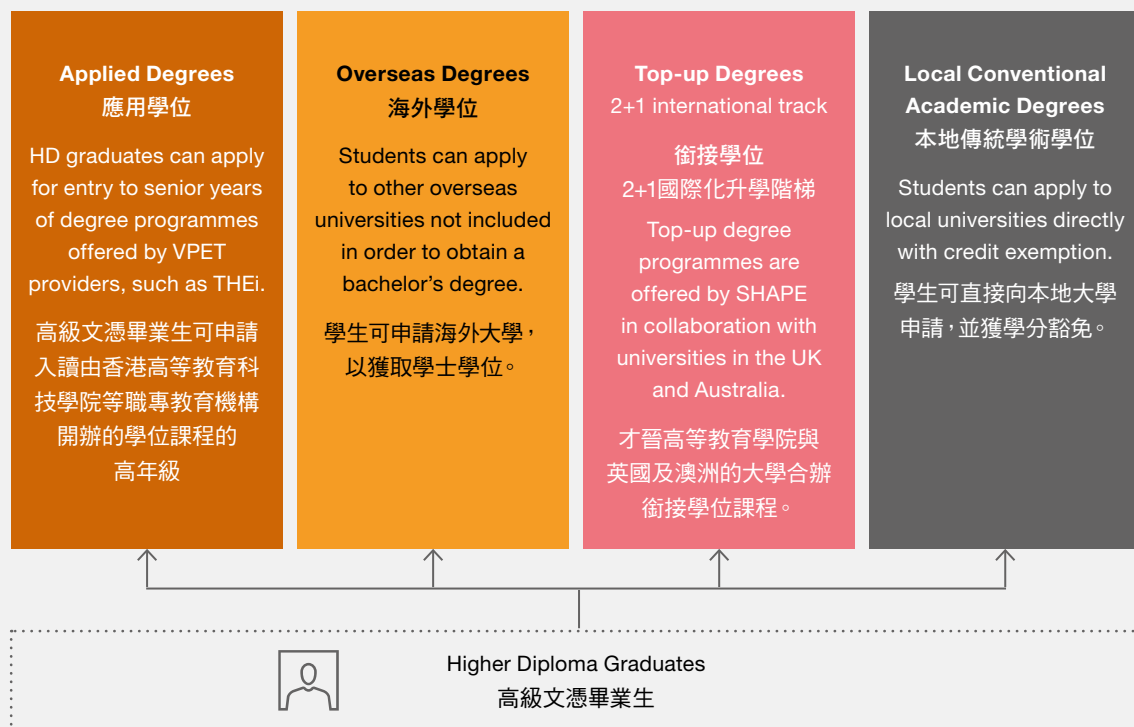
As shown in Figure 4-23, various options are available for those who want to pursue further study after completion of a HD programme. For example, HD graduates in IVE's Business Discipline may choose to take the "2+1 international track" by pursuing a top-up bachelor's degree conferred by British universities (e.g. Coventry University, Sheffield Hallam University and University of Northumbria at Newcastle).

職專教育學生的升學途徑

如圖4-23所示，完成高級文憑課程後有志繼續深造的學生有多種選擇。例如：香港專業教育學院商業學科的高級文憑畢業生可選擇循「2+1國際化升學階梯」報讀英國大學（包括：考文垂大學、謝菲爾德哈蘭大學及洛桑比亞大學）授予銜接學士學位的課程。

Figure 4-23: Pathways for higher diploma graduates

圖4-23：高級文憑畢業生的升學途徑



Source: (1) VTC, (2) PwC analysis

資料來源：(1) VTC、(2) 羅兵咸永道分析

Alumni Story | 校友故事

Mr. Terry KWOK graduated in 2008 with a Higher Diploma in Sales and Marketing after completing the Foundation Diploma in Business Stream at IVE. He encountered the first turning point in his career when he was hired as an account executive in Alibaba. In particular, VPET provided him with the qualification and work experience required, which enabled Terry to strive to deliver value-adding customer services to his clients. This earned him the best sales performance across Hong Kong and Taiwan regions for three consecutive years, as well as 4 promotions within his seven years with Alibaba.

Terry attributed his success to the logical thinking, communication skills and stress resilience he learnt during his VPET studies, as he considers them to be “personal qualities that matter most as a salesperson”.

郭嘉顯先生（Terry）在香港專業教育學院完成基礎文憑商業分流課程，於2008年修畢銷售和市場高級文憑。他職業生涯的第一個轉捩點，就是獲聘為阿里巴巴的客戶經理。職專教育為Terry裝備好所需的資格及工作經驗，為客戶提供適切的增值服務。工作期間，Terry連續三年獲得香港及台灣的最佳銷售業績，並在阿里巴巴的七年內晉升四次。

Terry將自己的成功歸功於職專教育學習期間掌握到的邏輯思維、溝通技巧及抗壓能力，他認為這都是「作為銷售員最重要的個人質素」。

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事源自 VTC 校友資料庫。



Mr. Terry KWOK
郭嘉顯先生

4.3 Social impacts of VPET

職專教育的社會影響

4.3.1

Key findings

Apart from bringing economic benefits and supplying a skilled workforce to the local economy, VPET also creates strong social value. In order to evaluate the social impact generated by VPET, qualitative research was undertaken through stakeholder consultations with VPET providers, employers of VPET graduates, VPET students and alumni, Government representatives as well as overseas VPET stakeholders.

As shown in Figure 4-24, results of the analysis revealed that VPET has created value not only to the students and graduates, but also to the society as a whole. Section 4.3.2 - Section 4.3.8 present the findings on the social impacts of VPET.

4.3.1

主要結論

除了為社會帶來經濟效益和培訓技術人才外，職專教育還創造了顯著的社會價值。為了評估職專教育所產生的社會影響，本研究對職專教育機構，職專教育畢業生的僱主、學生和校友、政府代表以及從事職專教育的海外持份者，透過訪談進行了定性研究。

如圖4-24所示，分析結果顯示職專教育不僅為學生和畢業生增值，還為整個社會締造了經濟價值。第4.3.2節至第4.3.8節描述了有關職專教育對社會影響的分析結論。

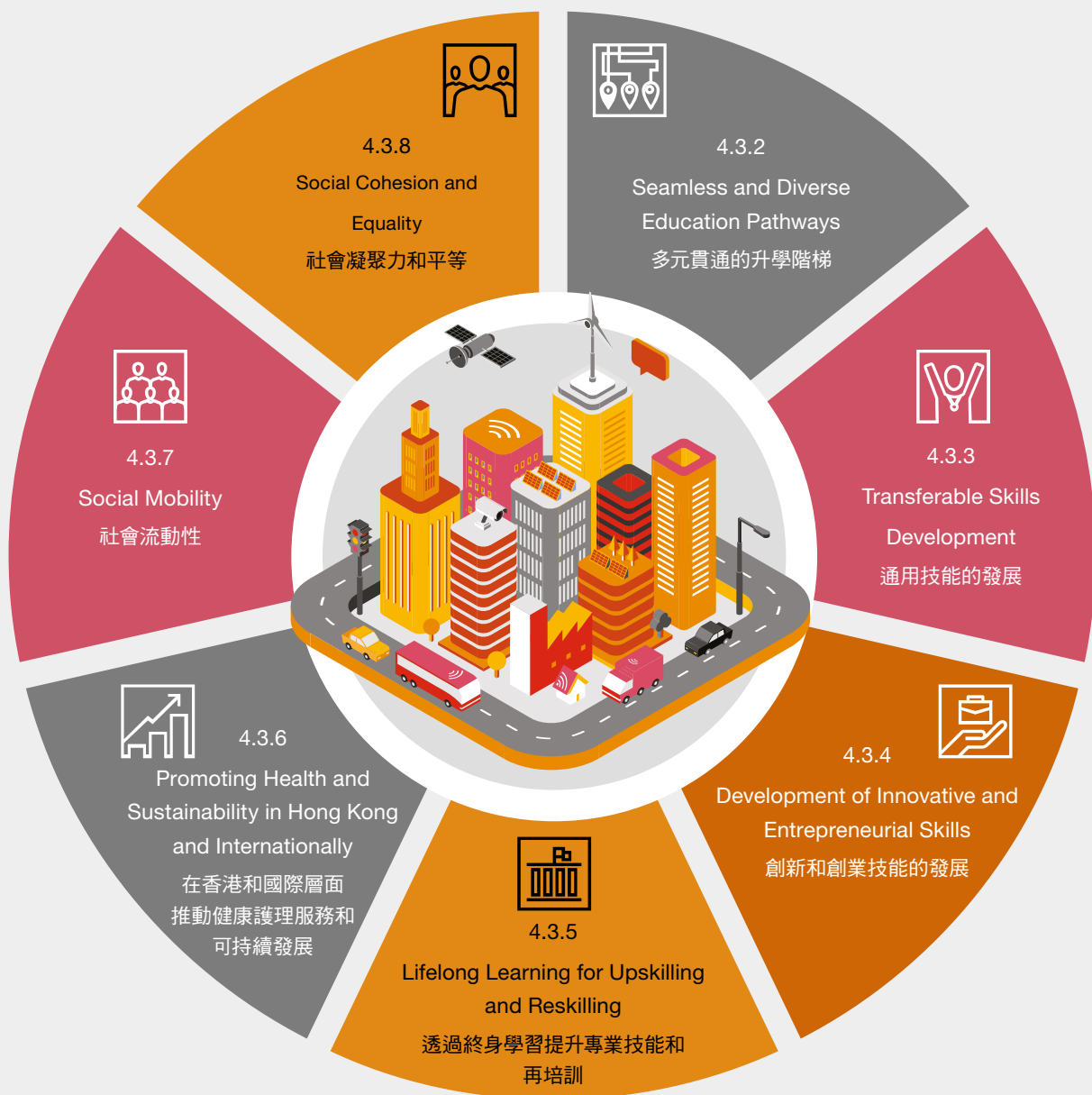


Figure 4-24: Summary of key findings of social impact of VPET in Hong Kong

圖4-24：職專教育對香港社會影響的主要結論



VPET provides seamless and diverse vocational-oriented education pathways with various career prospects in order to supply a skilled workforce for Hong Kong's economy and daily operations

職專教育提專業為本的課程，透過多元貫通的升學階梯，讓學生探索不同行業的發展前景，並為香港的經濟和社會運作提供了技術人才



VPET provides necessary workforce to support healthcare services and promote sustainability

職專教育提供所需的勞動人口以支援健康護理服務和推動可持續發展



VPET renders an important platform for developing not only practical skills but also transferable skills and a positive attitude

職專教育不僅是培訓學生實務技能的一個重要平台，亦協助學生掌握通用技能以及建立正向態度



VPET significantly improves social mobility through education and career enhancement

職專教育通過教育和職業發展，大大改善了社會流動性



VPET establishes strong linkage with the industry and encourages students to develop innovative and entrepreneurial skills

職專教育與行業建立緊密聯繫，並鼓勵學生發展創新和創業技能



VPET improves social cohesion and equality through providing support to minority groups and students with special needs

職專教育通過為少數社群和有特殊需要的學生提供支援，提高社會凝聚力和平等



VPET providers play a crucial role in offering lifelong learning opportunities for upskilling and reskilling the workforce

職專教育機構在提供終身學習、提升專業技能和再培訓方面擔當重要角色

Source: PwC Analysis

資料來源：羅兵咸永道分析



4.3.2

Seamless and diverse education pathways

VPET offers seamless and diverse education pathways, which are highly accessible for both young people and in-service practitioners with different interests, abilities, needs, goals and career aspirations.

A total of more than 6,500 VPET programmes, pegged at different QF levels across a wide spectrum of industries, are being offered in

Hong Kong. These programmes range from certificate, diploma, higher diploma, professional certificate/diploma, bachelor's degree and postgraduate diploma.

VPET programmes are structured in a way that provide diversified articulation pathways for students and in-service practitioners. While some of these programmes are open to people from different walks of life, others are tailored specifically for pre-employment youth or industry practitioners. For example, the education pathways provided by the VTC are presented in Figure 4-26.

Based on findings from VTC's in-house graduate survey, the employment rates of VTC's graduates are either close to or higher than 90% in 2018/19. Figure 4-25 shows the employment rate of VTC graduates by types of qualifications.



4.3.2

多元貫通的升學 階梯

職專教育提供多元貫通的升學階梯，適合有不同興趣、能力、需求、目標和職業志向的青少年和從業員報讀。

香港共提供超過6,500個職專教育課程，橫跨各行各業，並與不同的資歷架構級別掛鉤。這些課程包括：證書、文憑、高級文憑、專業證書/文憑、學士學位和深造文憑。

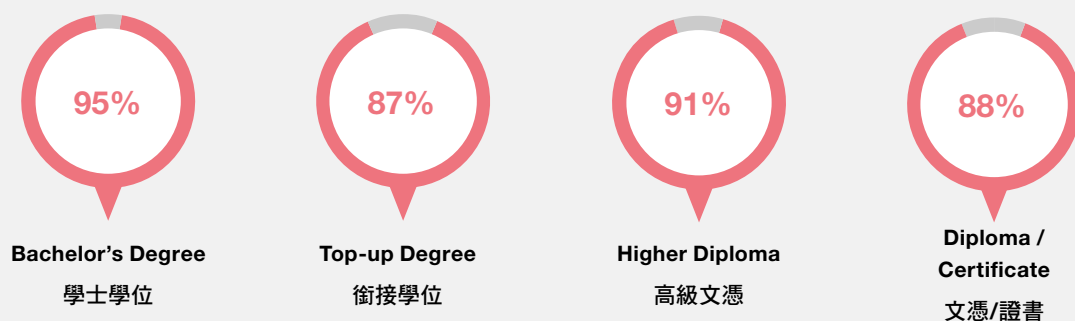
職專教育課程為學生和在職從業員提供了多種升學途徑，提供不

同行業的人士報讀，有些更是專為職前青年或業界從業員量身訂做。VTC提供的升學階梯展示於圖4-26。

根據VTC內部畢業生的調查結果，2018/19年度畢業生就業率接近或高於90%。按資歷類別劃分的VTC畢業生就業率，見圖4-25。

Figure 4-25: Employment rate of VTC graduates in 2018/19

圖4-25：2018/19年度VTC畢業生的就業率

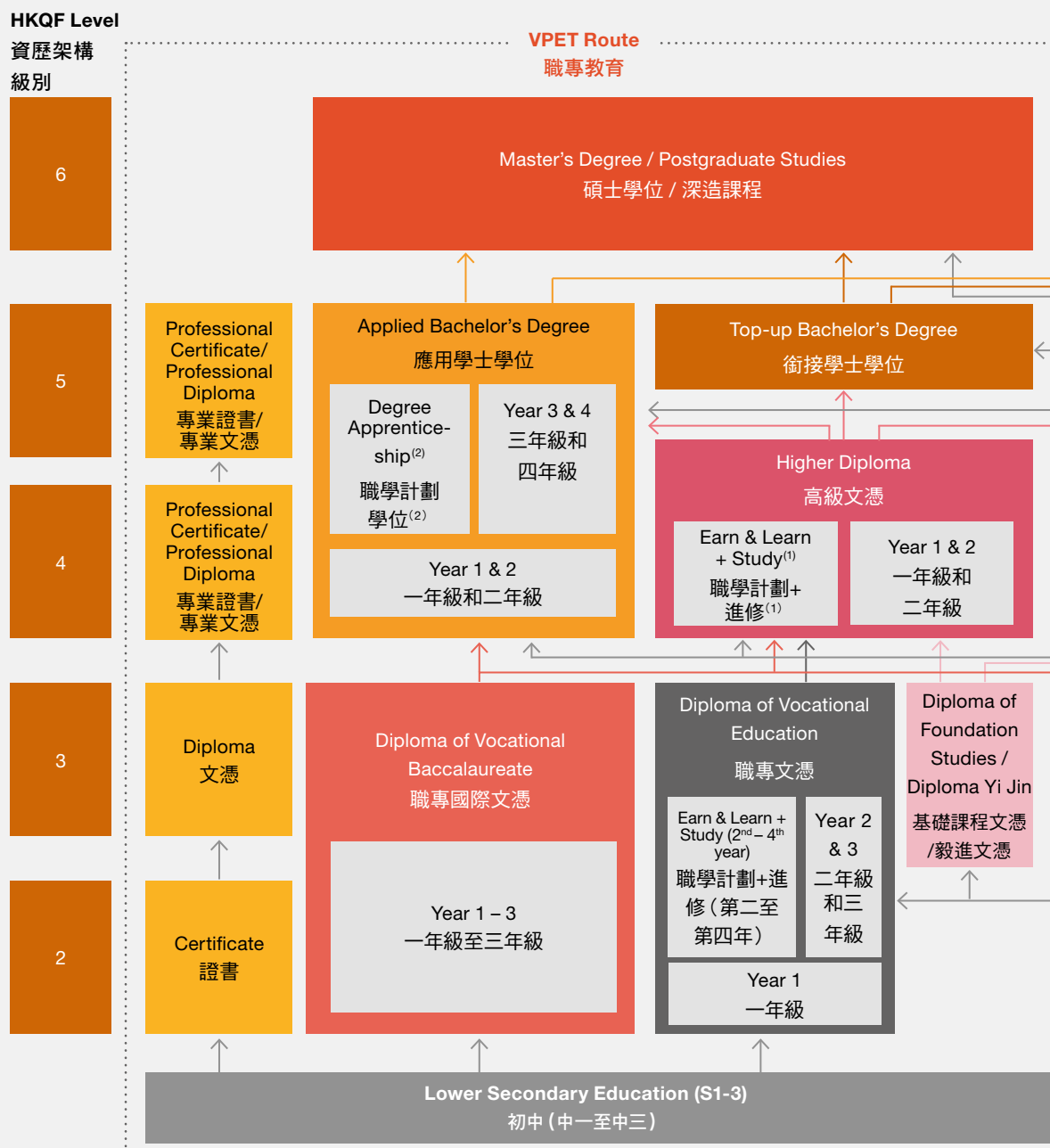


Source: (1) VTC, (2) PwC analysis

資料來源：(1) 職業訓練局、(2) 羅兵咸永道分析

Figure 4-26: Articulation pathways under the VTC

圖4-26：VTC下的升學階梯

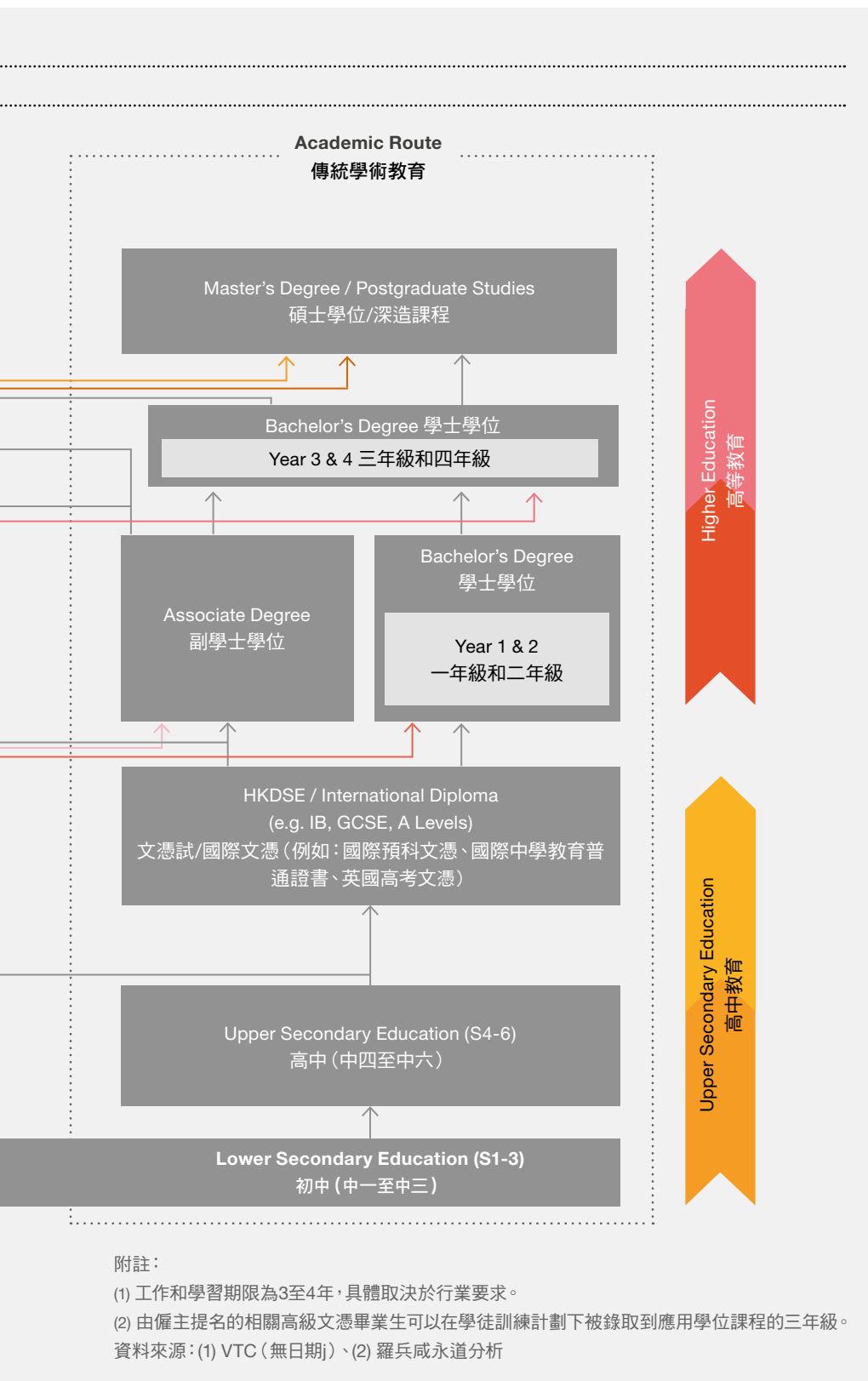


Note:

(1) The work and study period ranges from 3 to 4 years, depending on industry requirements.

(2) Relevant Higher Diploma graduates nominated by employers can be admitted to year 3 of the applied degree programme under apprenticeship training.

Source: (1) VTC (n.d.), (2) PwC analysis





Case Study

個案分析

THEi was founded in 2012 by the VTC to offer applied degree programmes that are in niche areas but much needed in Hong Kong. Having the industry involved in the curriculum process, the programmes are vocationally and professionally oriented. With the ‘learn and do’ approach, THEi encourages students to apply specialised knowledge and skills to solve real-world issues in their workplace.

All of the programmes in THEi (Figure 4-27) offer industry attachments with international and local firms based in Hong Kong or overseas so as to provide students with first-hand experience in the world of work. In doing so, THEi has established agreements with over 80 local, Mainland Chinese and overseas organisations from different industries to provide integrated work-based learning opportunities to enrich the students learning experience. Recently, THEi launched “Earn and Learn Degree Programmes” for students to acquire professional knowledge through classroom learning while gaining work experience and earning an income at the workplace.

THEi has a team of seasoned researchers with both academic and industry experience from diverse backgrounds, including design, engineering, hospitality, health science, physical sciences, social sciences, languages and business management to conduct applied research.

香港高等教育科技學院於2012年由VTC創立，旨在為香港提供專業為本的應用學位課程。這些課程以職業需求和專業技能為主導，制訂課程從開始便有業界參與。學院鼓勵學生採用「學習與實踐並重」的方法，運用專業知識和技能來解決現實工作環境中的問題。

香港高等教育科技學院的所有課程（圖4-27）均提供到本地或跨國企業實習的機會，讓學生累積相關工作經驗。學院與80多個本地、內地和海外不同行業的組織和機構簽訂了協議，為學生提供綜合職場學習機會，豐富學生的職場經驗。香港高等教育科技學院亦推出了「職學計劃學士課程」，令學生能夠在學院通過課堂學習專業知識，同時獲得工作經驗並賺取收入。

香港高等教育科技學院擁有經驗豐富的教學及研究人員隊伍，他們有著不同的學術背景和行業經驗，包括：設計、工程、酒店、醫療科學、物理科學、社會科學、語言和企業管理等，以進行相關應用研究。

Figure 4-27: Programmes offered by THEi in 2020/2021⁽¹⁾

Faculty of Design and Environment	Faculty of Management and Hospitality	Faculty of Science and Technology
• BA (Hons) in Advertising • BA (Hons) in Fashion Design • BA (Hons) in Product Design • BSc (Hons) in Horticulture, Arboriculture and Landscape Management • BA (Hons) in Landscape Architecture • BSc (Hons) in Surveying • PD in Horticulture, Arboriculture and Landscape Management • PC in Turfgrass Science and Management • BSc (Hons) in Information and Communications Technology • BSc (Hons) in Multimedia Technology and Innovation	• BA (Hons) in Professional Accounting • BA (Hons) in Public Relations and International Events Management • BA (Hons) in Culinary Arts and Management • BSc (Hons) in Sports and Recreation Management • BA (Hons) in Hotel Operations Management	• BEng (Hons) in Civil Engineering • BEng (Hons) in Environmental Engineering and Management • BEng (Hons) in Building Services Engineering • BEng (Hons) in Aircraft Engineering • PD in Building Services Engineering • PD in Building Information Modelling • BSc (Hons) in Health Care • BSc (Hons) in Food Science and Safety • BSc (Hons) in Testing and Certification • BSc (Hons) in Chinese Medicinal Pharmacy • BSc (Hons) in Nutrition and Healthcare Management • Master of Engineering Management ⁽²⁾

Note:

(1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the programmes offered by THEi.

(2) The Master of Engineering Management programme is offered by the University of Technology Sydney and delivered in Hong Kong at THEi.

Source: THEi (n.d.c)

圖4-27：2020/2021年⁽¹⁾香港高等教育科技學院提供的課程

環境及設計學院	工商及酒店旅遊管理學院	科技學院
- 廣告（榮譽）文學士 - 時裝設計（榮譽）文學士 - 產品設計（榮譽）文學士 - 園藝樹藝及園境管理（榮譽）理學士 - 園境建築（榮譽）文學士 - 測量學（榮譽）理學士 - 園藝樹藝及園境管理專業文憑 - 草坪科學與管理專業證書 - 資訊及通訊科技（榮譽）理學士 - 創新及多媒體科技（榮譽）理學士	- 專業會計（榮譽）文學士 - 公共關係及國際項目管理（榮譽）文學士 - 廚藝及管理（榮譽）文學士 - 運動及康樂管理（榮譽）社會科學學士 - 酒店營運管理（榮譽）文學士	- 土木工程（榮譽）工學士 - 環境工程及管理（榮譽）工學士 - 屋宇設備工程（榮譽）工學士 - 飛機工程（榮譽）工學士 - 屋宇設備工程專業文憑 - 建築信息模擬專業文憑 - 醫療護理（榮譽）理學士 - 食品科學及安全（榮譽）理學士 - 檢測和認證（榮譽）理學士 - 中藥藥劑學（榮譽）理學士 - 營養及健康管理（榮譽）理學士 - 工程管理碩士⁽²⁾

附註：

(1) 此圖列出的課程僅供說明用途，並非詳列香港高等教育科技學院提供的所有課程。

(2) 工程管理碩士課程由悉尼科技大學提供，並在香港高等教育科技學院授課。

資料來源：香港高等教育科技學院（無日期c）



VPET provides diverse education pathways for students

職專教育為學生提供多樣 化的升學階梯

VPET in Hong Kong has undergone significant development. The Hon. Andrew LEUNG, Former Chairman of the VTC, recalled the time when upskilling and reskilling opportunities were fairly limited for VPET students. He shared, “Back then if you started as a craftsman after graduating from Secondary 3, you would be doomed to be a craftsman for life. You could hardly progress to higher education, nor to the university. This means the highest position you could ever reach would possibly be a senior technician.” One of the key milestones in VPET development was the establishment of THEi in 2012, which opens doors for VPET students to obtain degree-level qualifications pegged at the same QF level as those offered by UGC-funded universities.

VPET providers have increasingly recognised the needs for building seamless progression pathways that allow students and industry practitioners to acquire new skills and knowledge while attaining higher qualifications for career progression. The existing VPET route allows students and industry practitioners to keep picking up new skills and sharpening their skills as long as they are willing to learn and work hard. Most importantly, VPET has made paramount contribution to Hong Kong’s society through providing education opportunities for school leavers, enhancing youth employability as well as improving social stability and equality.

職專教育在香港取得長足的發展。VTC前主席梁君彥議員憶述起當年職專教育的學生在提升專業技能和再培訓方面受到限制。他分享道：「例如中三畢業的年輕人投身手工藝業，可能會一直局限於手工藝工作，難以升上高等教育或升讀大學，可以獲得的最高職位也許只是高級技術人員而已。」2012年香港高等教育科技學院的成立是職專教育發展的重要里程碑之一，其開設的學位課程，讓職專教育學生有機會取得與教資會資助大學相同資歷，即是資歷架構中的學位資歷。

職專教育機構意識到必需要建立無縫的升學階梯，才可使學生和從業員學習新技能和知識，同時獲取更高資歷，在事業道路上奮進向前。在現行的職專教育課程下，學生和從業員只要願意努力，就可以繼續學習新技能，提高技術水平。最重要的是，職專教育為離校生提供教育機會，增強年青人的就業能力，並提升社會穩定與平等，為香港社會作出重大貢獻。

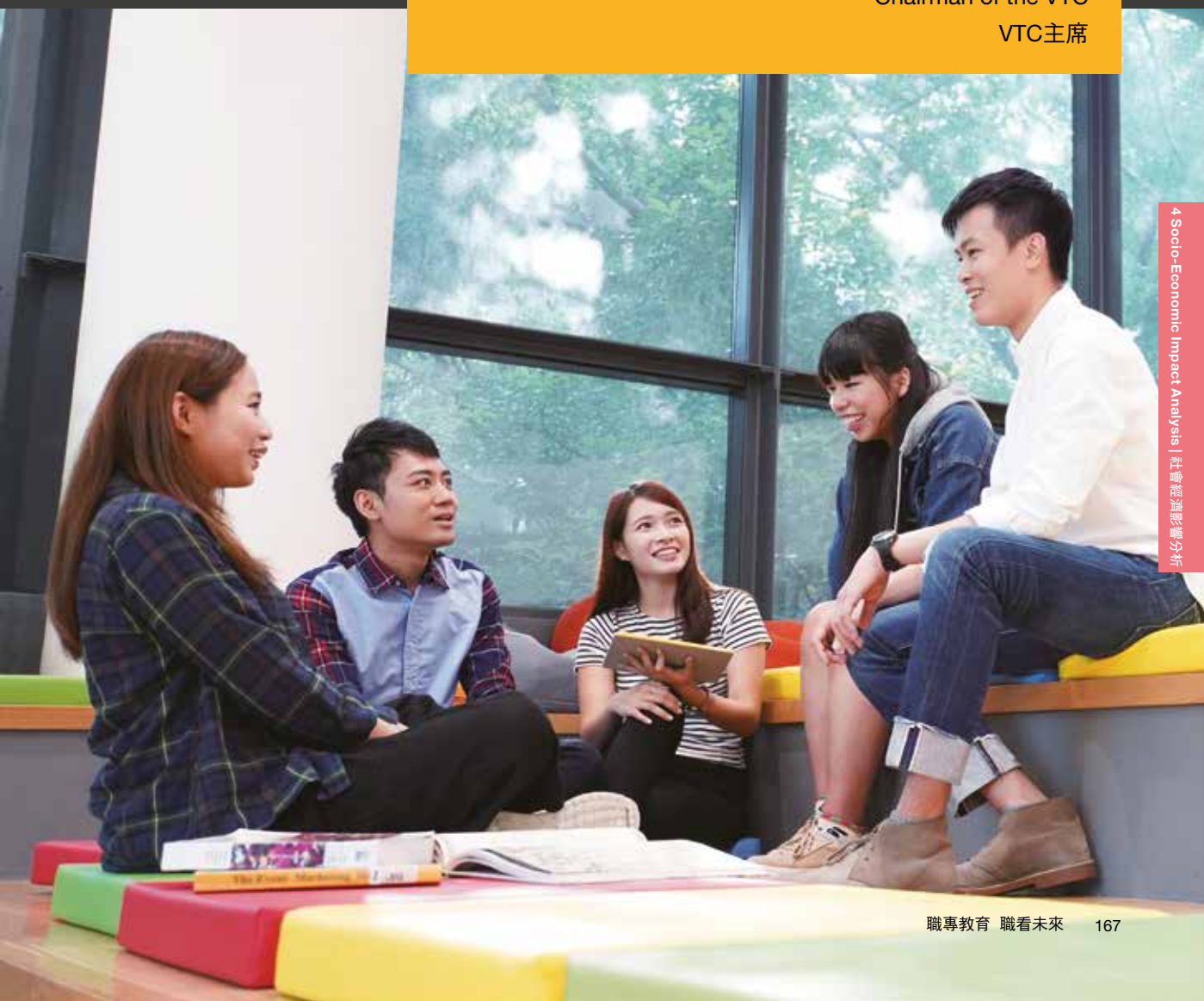
“

A society needs talents of all kinds. VPET offers applied education and training opportunities for young talent to acquire practical skills and hands-on experience to stay competent in the ever-changing world. These skills could stand the test of time and are highly valued by employers across industries. I am proud of our students and alumni as they keep making a difference to our society.

社會需要各式各樣的人才，面對瞬息萬變的世界，職專教育提供應用為本的教育和培訓機會，給予年輕人實踐的機會，掌握實用技能，保持職場競爭力。職專教育傳授的技能與時代接軌，獲僱主認同。我為VTC學生和畢業生對社會作出的貢獻感到自豪。

”

Mr. Tony TAI | 戴澤棠先生
Chairman of the VTC
VTC主席



Extensive opportunities with regional and international exposure

Apart from offering a number of articulation pathways within the local education system, VPET providers, such as the VTC, provide various opportunities for students to gain overseas exposure so as to broaden their horizons. These opportunities include:

- Overseas industry placement;
- International exchange;
- International competition; and
- Articulation options to overseas universities.

In particular, statutory bodies and institutions providing VPET programmes also work with a number of overseas universities to offer additional pathways for students who wish to obtain degree qualifications conferred by overseas universities. For example, HKU SPACE International College offers full-time degree programmes in collaboration with universities in Australia and the United Kingdom. Partner universities include the University of the Arts London, University of Western Australia, University of Plymouth, Edinburgh Napier University and Swinburne University of Technology.

In addition, the Engineering Discipline in IVE has jointly organised a two-year full-time Higher Diploma in Electrical Engineering programme with the Shenzhen Polytechnic. Graduates are awarded the Higher Diploma qualifications by IVE and a Diploma in Vocational Training by the Shenzhen Polytechnic concurrently. Starting from AY2021/22, more joint programmes, for example in the areas of building services engineering, games and animation, hotel and catering management and fashion design, will be launched.

擴闊國際視野的機會

除了在本地教育系統內提供多種升學途徑外，職專教育機構（如VTC）還為學生提供了各種海外交流機會，從而拓闊視野。這些包括：

- 海外實習
- 海外交流
- 參加國際比賽
- 升學海外大學

提供職專教育課程的法定機構和組織還與許多海外大學合作，為有意獲得海外大學授予學位資格的學生提供更多升學途徑。例如，香港大學專業進修學院國際學院與澳洲和英國的大學合作，提供全日制學位課程。參與的大學包括：倫敦藝術大學、西澳大學、普利茅斯大學、愛丁堡納皮爾大學和斯威本理工大學。

此外，香港專業教育學院的工程學科還與深圳職業技術學院協辦的全日制高級文憑課程，畢業生可同時獲得香港專業教育學院頒發的高級文憑和深圳職業技術學院頒發的職業訓練文憑。2021/22學年開始，兩所學院將陸續增辦聯合課程，涵蓋屋宇裝備工程、遊戲和動畫、酒店和餐飲管理，以及服裝設計等範疇。

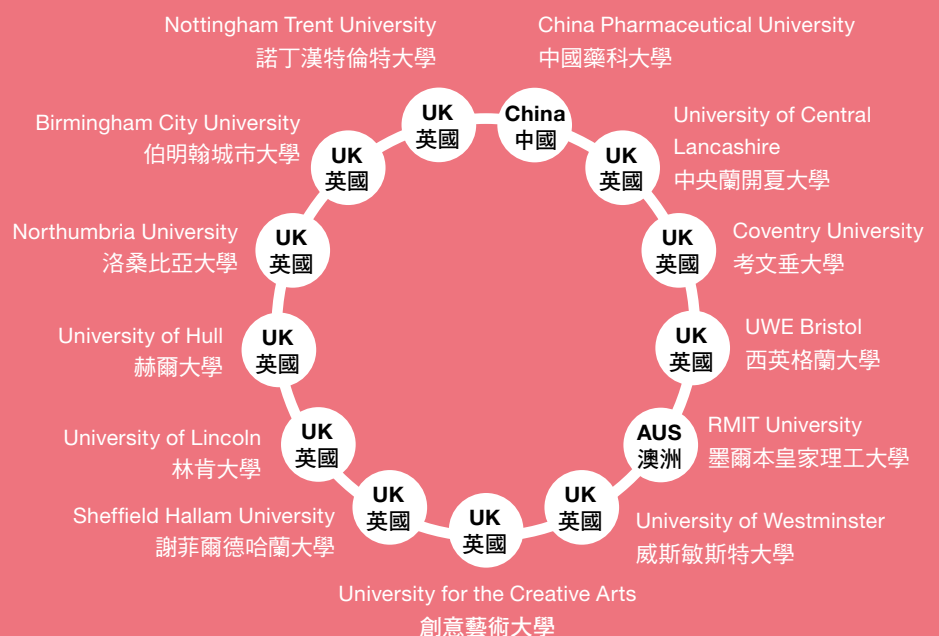
School for Higher and Professional Education 才晉高等教育學院

The School for Higher and Professional Education (SHAPE), which is one of the VTC's member institutions, provides opportunities for higher diploma graduates and other sub-degree holders to progress to a top-up degree programme. As of March 2021, SHAPE has established partnerships with 12 overseas universities in the United Kingdom and Australia and one from Mainland China to jointly offer non-local bachelor's degree programmes (Figure 4-28). These programmes cover seven areas of study including business, childcare, elderly and community services, design, engineering, health and life sciences, hospitality and information technology.

VTC的機構成員之一，才晉高等教育學院為高級文憑畢業生及持副學位之人士提供銜接學士學位課程。截至2021年3月，才晉高等教育學院已與英國和澳洲共12所海外大學以及一所內地大學建立了合作夥伴關係，共同提供非本地學士學位課程（圖4-28）。這些課程涵蓋七個學習領域，包括：商業、幼兒、長者和社會服務、設計、工程、健康與生命科學、酒店及旅遊和資訊科技。

Figure 4-28: Non-local partnership established by SHAPE (as of March 2021)

圖4-28：才晉高等教育學院建立的非本地合作伙伴（截至2021年3月）



Source: (1) SHAPE (n.d.), (2) PwC analysis

資料來源：(1) 才晉高等教授學院（無日期）、(2) 羅兵咸永道分析

Dr. Timothy SHUEN is a graduate with a Higher Diploma in Analytical Science and Biotechnology at IVE. Subsequent to his IVE studies, he received the Alistair Harvey Foundation Scholarship to pursue a bachelor's degree in biotechnology at the University of Ulster in Northern Ireland, from which he graduated with First Class Honours.

After completing his undergraduate studies, Timothy continued his academic journey and obtained his research master's degree in molecular biology from the University of Nottingham, UK, and later a PhD in cancer biology from the University of Hong Kong (HKU). He is now a Research Manager at the National Cancer Centre in Singapore.

Timothy said that “The superiority enjoyed by IVE is its offering of a wide range of disciplines. There I found out what I enjoy doing, and my interests grew stronger as I studied further. My time at IVE kindled and drummed up my interests in the subject. I learnt that you can overcome almost all the accompanying difficulties as long as you enjoy what you are doing.”

He also believed the emphasis on practical applications during his study at IVE helped him to acquire new skills. He said, “when I studied at IVE, there was a strong emphasis on practical applications. I continued to learn more new skills in the UK, and the chance to learn from different professors enabled me to put all the pieces together.”

孫偉豪博士畢業於香港專業教育學院，獲得化驗科學及生物科技高級文憑。他在香港專業教育學院畢業後，榮獲賀維雅基金會獎學金，負笈北愛爾蘭的阿爾斯特大學，攻讀生物科技學士學位，並以一級榮譽成績畢業。

完成學士學位後，偉豪繼續進修，在英國諾丁漢大學攻讀分子生物哲學碩士學位，及後於香港大學取得癌症研究哲學博士學位。他現在是新加坡國立癌症中心的研究經理。

偉豪說：「香港專業教育學院的優勢在於提供廣泛的科目選擇，讓我找到自己喜歡的科目。隨著繼續進修學習，我對此科目的興趣更濃。香港專業教育學院的課程提升了我對這學科的興趣，也鼓勵了我繼續深造。我明白到，只要你喜歡自己做的事，即使遇到困難，也能勇於面對。」

他還認為，香港專業教育學院課程著重培養應用技能，助他在求學期間掌握實務知識。他說：「我在香港專業教育學院進修時，院校非常強調實際應用。在英國，我繼續學到更多新技能，並且有機會向不同的教授學習，令我學會整合知識。」

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自 VTC 校友資料庫。



Dr. Timothy SHUEN
孫偉豪博士



**Research Manager at the
National Cancer Centre in
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新加坡國立癌症中心研究經理

**University of
Hong Kong
香港大學**

**PhD in Cancer Biology
癌症研究哲學博士**

**University of
Nottingham
諾丁漢大學**

**MPhil in Molecular Biology
分子生物哲學碩士**

**University of
Ulster
阿爾斯特大學**

**BSc in Biotechnology
生物科技學士**

**IVE
香港專業教育學院**

**Higher Diploma in Analytical Science and Biotechnology
化驗科學及生物科技高級文憑**

Alumni Story | 校友故事

Mr. LAM Chung Leung is an IVE graduate of Higher Diploma in Software Engineering. Subsequent to his studies at IVE, he received the Alistair Harvey Foundation Scholarship to complete his bachelor's degree in computer information systems with First Class Honours at the University of Liverpool, UK. He was later being admitted by the University of Cambridge to study for a master's degree in advanced computer science.

Now Chung Leung is a software engineer in a game development company. His experience demonstrates that VPET could provide a seamless and permeable articulation pathway, enabling him to attain qualifications that are on par with what could be achieved via the traditional academic route.

林仲良先生畢業於香港專業教育學院，獲得軟件工程高級文憑。他其後取得賀維雅基金會獎學金，於英國利物浦大學繼續進修，並以一級榮譽的成績取得電腦資訊系統學士學位。他及後於英國劍橋大學繼續進修，攻讀高級電腦科學哲學碩士學位。

現時，仲良是遊戲開發公司的軟件工程師。他的經歷證明，職專教育為學生提供一個貫通的升學銜接途徑，使他們能與選擇傳統學術教育途徑的學生一樣，取得學位資歷。

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自VTC校友資料庫。



Mr. LAM Chung Leung
林仲良先生



Software engineer at a game
development company
遊戲開發公司的軟件工程師

University of
Cambridge
劍橋大學

MPhil in Advanced Computer Science
高級電腦科學哲學碩士

University of
Liverpool
利物浦大學

BSc in Computer Information Systems
電腦資訊系統學士

IVE
香港專業教育學院

Higher Diploma in Software Engineering
軟件工程高級文憑

Alumni Story | 校友故事

Ms. SHUM Qing Yi, who recently graduated from THEi in 2020 with a BA (Hons) in Professional Accounting, showcases VPET's role in improving students' upward mobility.

Qing Yi had proceeded to pursue a bachelor's degree at THEi with the Rotary Hong Kong Vocational Scholarship after completing both of her Foundation Diploma in Business Stream in 2016 and Higher Diploma in Accountancy in 2018 at IVE with the VTC.

Since her graduation from THEi, Qing Yi has been offered a full-time position with the Big Cat Group Limited, in which she had also served as an intern while she was still studying at THEi.

沈清儀女士於2020年從香港高等教育科技學院畢業，獲得專業會計（榮譽）文學士，她的例子展示了職專教育能為學生提供向上流動的機會。

清儀於2016年完成VTC的商業基礎課程文憑，更於2018年完成會計學高級文憑，及後獲取扶輪香港職訓獎學金繼續修讀香港高等教育科技學院的學士學位課程。

清儀在香港高等教育科技學院學習期間，曾到Big Cat Group Limited實習，畢業後更獲得該公司的全職職位。

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自VTC校友資料庫。



Ms. SHUM Qing Yi
沈清儀女士



Employment with Big Cat Group Ltd.

在Big Cat Group Ltd.工作

THEi
香港高等教育
科技學院

BA (Hons) in Professional Accounting
專業會計 (榮譽) 文學士

IVE
香港專業教育學院

Higher Diploma in Accountancy
會計學高級文憑

IVE
香港專業教育學院

Foundation Diploma in Business
商業基礎課程文憑

Source: VTC (2020)
資料來源: VTC (2020)

IVE students on internship in Singapore researching new drug for cancer

香港專業教育學院學生在新加坡實習，研究癌症新藥

Ms. YEUNG Tsz Kwan and Mr. LI Cheuk Hin, graduates of IVE's Higher Diploma in Biotechnology, undertook an 8-week internship in 2017 at the National Cancer Centre Singapore (NCCS) through the connection of IVE alumnus, Dr. Timothy SHUEN.

The NCCS has in place research divisions dedicated to molecular and cellular research, with projects involving collaborators from Cambridge and Stanford. When alumnus Dr. Timothy SHUEN, a postdoctoral fellow at NCCS specialising in molecular cancer research, learnt from his former teacher at IVE that his students were looking for internship opportunities, Dr. SHUEN immediately helped to offer such internship opportunities at NCCS.

Reflecting on the internship experience, Tsz Kwan shared that "Timothy often analysed the reasons behind our failed experiments and the ways to improve them. We see him as a role model with dedication to his work. Timothy loves research and oftentimes he stayed in the Centre after work to study academic journals. In our conversation, he discussed his ideas with us. We were impressed by his enthusiasm and we became hooked on research ourselves."

於香港專業教育學院修讀生物科技高級文憑課程的楊芷鈞女士與李卓軒先生，於2017年在校友孫偉豪博士的協助下，在新加坡國立癌症中心進行了為期8週的實習。

新加坡國立癌症中心設有專門從事分子和細胞研究的部門，部分項目的合作者來自英國劍橋大學和美國史丹福大學。當在癌症中心從事分子癌症研究的孫偉豪博士從香港專業教育學院的老師口中得知有學生正在尋找實習的機會，於是立即幫忙答應讓學生該癌症中心研究部門實習。

回想實習經歷時，芷鈞分享道：「偉豪經常給我們分析實驗失敗的原因，以及改進的方法，偉豪學兄喜歡研究，經常下班後仍留在中心研習學術期刊，他對工作熱誠和盡責的態度，我們都視他為榜樣。他曾與我們分享他的想法，他的熱情也感染了我們，令我們愛上了研究的工作。」



Higher diploma graduates of IVE on an internship
at the National Cancer Centre Singapore
香港專業教育學院的高級文憑畢業生在新加坡
國立癌症中心實習



4.3.3

Transferable skills development

VPET holds a unique position in developing students' vocational-specific skills and industry knowledge in supplying work-ready human resources. In addition to developing students' industry-specific skills, graduates need to possess other transferable skills so that they can be readily employable and be versatile in the workplace. VPET supports both students and in-service practitioners in developing transferable skills and diverse competencies required to harness the opportunities in a fast-changing world today.

The development of transferable skills has been one of the focuses of VPET as it allows students to be productive at work. It also encourages students to pursue lifelong learning and be positive contributors to society. Taking VTC's programmes as examples, students are equipped with a set of transferable 21st century essential competencies as set out in Figure 4-29.

4.3.3

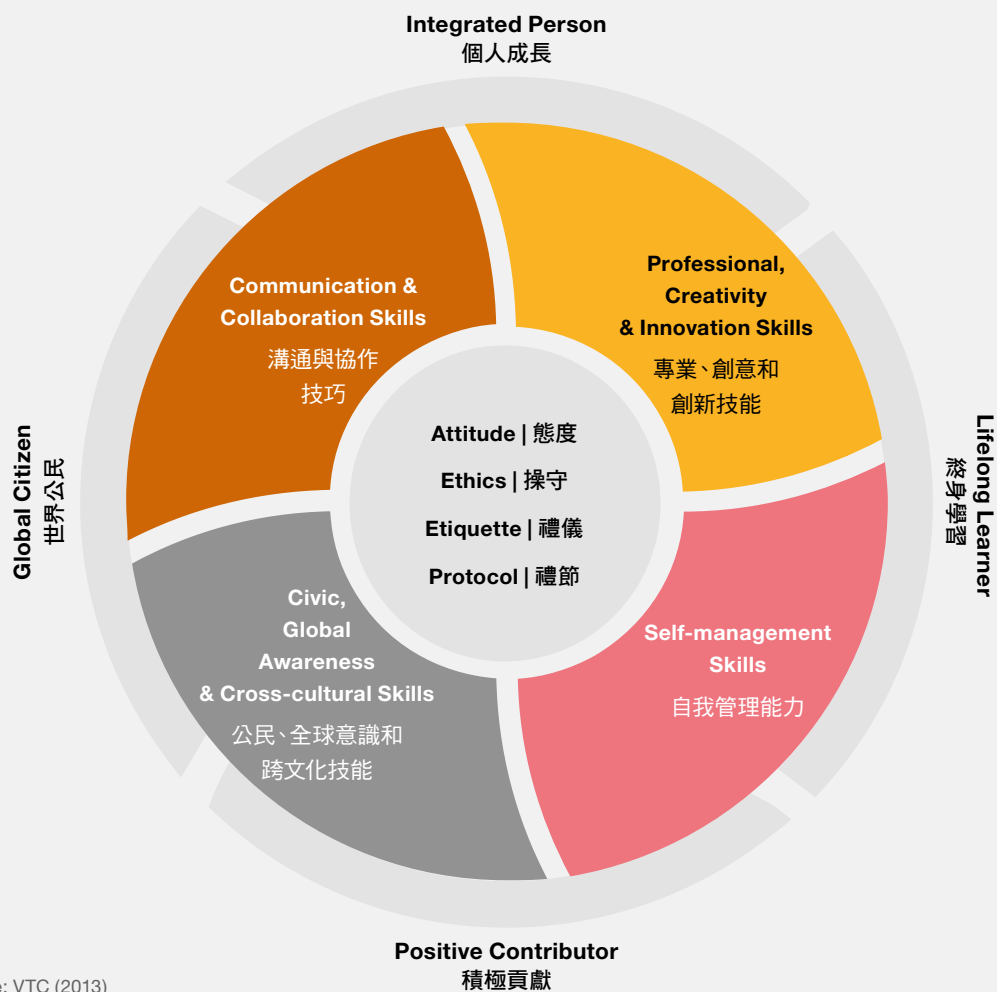
通用技能的發展

職專教育在培養學生的職業技能和業界知識方面貢獻良多，為社會培養掌握實務工作技能的專才。除了訓練學生具備行業相關的專業技能外，還培養他們具備適用於其他行業的通用技能，讓他們在職場中發揮才能。職專教育支援學生和業內人士培養高度的環境適應力和正面思維，以助他們在瞬息萬變的職場保持競爭力，把握機遇。

發展學生的通用技能一直是職專教育的重點之一，因為它能让學生在工作中取得成就，並鼓勵學生終身學習、積極貢獻社會。如圖4-29所示，VTC的課程使學生具備「廿一世紀通用技能」。

Figure 4-29: The VTC's 21st century essential competencies

圖4-29：VTC培育學生的廿一世紀通用技能



Source: VTC (2013)

資料來源：VTC (2013)

Apart from classroom education and on-the-job training opportunities, VPET providers are committed to provide numerous opportunities, including competitions, conferences, seminars and other events in the local, national and global context. This provides platforms for students to refine their skills and broaden their international horizons. Through these opportunities, students can showcase their skills and exchange professional and technical knowledge with other young professionals. More importantly, these events not only help to promote VPET internationally, but also increase connections between industry and the students so as to raise international recognition of VPET students in Hong Kong.

For example, the VTC has become a member of WorldSkills International^[8] in 1996, and first took part in the 34th International Youth Skill Olympics in 1997.

The WorldSkills Competition has developed into a global competition on vocational skills (also commonly known as the “Olympics of Skills”) held every two years for young people to showcase their skills. Since 1996, a total of 191 young talents from Hong Kong have participated in WorldSkills competitions to showcase their talents in the international arena. Over the past 23 years, Hong Kong young talents won 2 Gold, 1 Silver and 5 Bronze Awards and 57 Medallions for Excellence in 12 WorldSkills Competitions.

In 2019, VPET-trained students, as representatives of Hong Kong, won a record-breaking 11 Medallions for Excellence in a number of skill areas such as robot design, western culinary arts and jewellery production. In particular, in the areas of hairdressing, mechatronics and shop window design, the Hong Kong team has won Medallions for Excellence for 3 consecutive years.

[8]: WorldSkills International (WSI), previously known as International Vocational Training Organisation (IVTO), was established in 1954 to promote the importance of vocational training in supporting the economic development. Nowadays, WSI has 85 member countries/regions, connecting two thirds of the world's population. It has built a movement that is changing the lives of young people through upskilling.

除了提供課堂學習和在職培訓外，職專教育機構還致力提供不同學習機會，包括在本地、國內和海外舉辦比賽、會議、研討會和其他活動，這為學生提供完善技能和拓闊國際視野的平台。透過這些機會，學生可以展示自己的才能，並與其他年輕專才交流專業知識和技能。更重要的是，這些活動不僅有助在國際社會上推廣香港的職專教育，還增進了業界與學生之間的連繫，從而提高香港職專教育學生的國際認受性。

其實，VTC早於1996年就已經成為世界技能組織^[8]的成員，並於1997年首次參加第34屆世界技能大賽。現在，世界技能大賽已發展成每兩年舉行一次的全球職業技能大賽（被稱為「技能界奧林匹克」），供青少年展示技能。自1997年以來，已有191名香港青少年參加了世界技能大賽，在國際舞台上展示他們的才華。在過去23年裏，香港青少年在12屆的大賽中共獲得了2金、1銀、5銅及57個優異獎章。

2019年，接受職專教育訓練的學生代表香港，在機械人、西式烹調和珠寶製作等多個技能項目中贏得11個優異獎章，獎牌數目為歷年之冠。在美髮、機電一體化和櫥窗設計項目，香港隊更是連續三年獲得優異獎章。



The 24 competitors of the Hong Kong team joined WorldSkills Kazan 2019 in Russia in August 2019 together with competition experts and interpreters

2019年8月，24名香港代表選手與比賽專家和傳譯員一起參加了在俄羅斯舉辦的喀山世界技能大賽

[8]: 世界技能組織，前身為國際技能競賽組織，成立於1954年，旨在提高職業培訓在支援經濟發展中的重要性。如今，世界技能組織擁有85個成員國／地區，連繫了世界三分之二的人口。它透過提高技能水平改變了青少年生活。

With the aim in promoting VPET and skills excellence to the younger generations, the Standing Committee on Youth Skills Competition (including the VTC, CIC, CITA and industry partners) organises WorldSkills Hong Kong Competitions to identify suitable talents to participate in WorldSkills Competitions. Since 1996, more than 3,000 young talents have participated in local competitions. In particular, apprenticeship training has played a key role in providing skilled professionals.

In recognition of the significant contribution of apprenticeship training in Hong Kong, the Certificate of Completion of Apprenticeship Training was selected as one of the exhibits in WorldSkills Museum under the theme of “WorldSkills continues to reach new milestones as the Competitions spread to Asia, North America and the Middle East, and African countries begin to join”.

Skills excellence cannot be achieved without the participation of experts throughout the training process. A pool of experienced VPET practitioners were invited to take up the role of Experts, Chief Experts and Deputy Chief Experts in the WorldSkills Competition. Experts have adopted WorldSkills Occupational Standards (WSOS) in relevant VPET programmes to benchmark against world standards for the benefit of students and industry in Hong Kong for some years. In view of the significant results achieved with such practice, like Beauty Therapy and Visual Merchandising trades, the VTC will continue adopting relevant WSOS in designing / updating VPET programmes to facilitate learners to meet world standards and thrive in the highly competitive job market.



為了向年輕一代推廣職專教育和專業技能，青年技能比賽常務委員會（成員包括：VTC、建造業議會、製衣業訓練局和業界合作夥伴）舉辦世界技能大賽香港代表選拔賽，選拔合適的年輕人參加世界技能大賽。從1996年以來，已有3,000多名青少年參加了本地比賽。

世界技能大賽擴展至涵蓋亞洲、北美和中東，非洲國家亦開始加入，創造技能發展的新里程。世界技能博物館以此為展覽主題，並選定「學徒畢業證書」為展品之一，以肯定香港學徒訓練計劃多年來為業界培育人才，成績有目共睹。

要培育學生的卓越技能，比賽專家在培訓過程中的參與非常重要。多位職專教育的資深老師獲邀出任世界技能大賽的專家、首席專家和副首席專家。多年來，專家們在相關的職專教育課程中引入了世界技能職業標準，確保香港學生的技術達世界水平並讓業界受惠。鑑於計劃在美容和視覺營銷等行業取得顯著成果，VTC將在制訂或更新職專教育課程時採用相關的世界技能職業標準，以確保學生的技術水平達到國際標準，並在競爭激烈的就業市場中茁壯成長。

I am very pleased to witness so many young talents showcasing their skills and excelling their talent in the WorldSkills Competitions. VPET has provided such an important platform for students to explore their interests and gain confidence in their fields, which might not be achieved along the academic pathway. This also means that the opportunities provided by VPET are life changing.

我很高興看到許多青少年在世界技能大賽中展示他們的技能和才華。職專教育為學生提供了一個十分重要的平台，使他們能夠探索自己的興趣並增強對其專業領域的認識，並建立自信，意味著職專教育能為年輕人帶來能改變人生的學習機會。



Prof. Eric YIM, JP | 嚴志明教授，JP

Chairman of Hong Kong Design Centre

Deputy Chairman of the VTC

Advisor to Our Hong Kong Foundation

Honorary Chairman of the Design Council of Hong Kong

Founder and Chief Designer of POSH Office Systems (HK) Limited

香港設計中心董事會主席

VTC副主席

團結香港基金顧問

香港設計委員會前主席

科譽（香港）有限公司的創辦人兼首席設計師

Alumni Story | 校友故事

Recognising the importance of developing transferable skills that are relevant to the industry, VPET providers such as the VTC provide opportunities for students to develop their soft and technical skills in a real-life context. For example, Ms. Pearl SO, a graduate of Higher Diploma in Exhibition Design from the HKDI, won the Medallion of Excellence in the Visual Merchandising category at the 43rd WorldSkills Competition in 2015. She was the first Hong Kong competitor selected as a WorldSkills Champions Trust Representative, who is responsible for promoting WorldSkills to a global audience.

包括VTC在內的職專教育機構認同掌握通用技能的重要性，為學生提供了在現實生活中學習軟性技巧和行業技能的機會。例如，香港知專設計學院展覽設計高級文憑畢業生蘇嘉譽女士在2015年第43屆世界技能大賽中獲得了櫥窗設計及佈置項目的優異獎章。她是首位入選WorldSkills Champions Trust的香港隊選手，協助向世界推廣世界技能大賽。



Ms. Pearl SO
蘇嘉譽女士

Source: WorldSkills Hong Kong (n.d.)
資料來源：香港青年技能大賽（無日期）

“

Skills acquired from the VTC directed me to pursue my dreams and develop my career as an exhibition designer. Such skills have totally changed my life, now I want to use my knowledge to help others and improve our world with the global power of skills.

從VTC課程中學到的技能引領我追求夢想，建立自己的展覽設計事業。這些技能徹底改變了我的人生，現在我希望善用自己的知識和技能來幫助他人，改變世界。

”

Ms. Pearl SO
蘇嘉譽女士



Mr. Math CHAN, a graduate from the VTC with a Higher Diploma in Civil Engineering, highlighted how the VPET programme sparked his interests in construction.

In particular, Math pointed out that the higher diploma programme equipped him with a number of transferable skills which shaped his academic development and his career. For instance, Math built a urban planning model with his team as part of his final year project during which he experienced first-hand the importance of teamwork in achieving a common goal. During the project, Math took the opportunity to engage with different parties which helped him to build up interpersonal skills, and allowed him to excel in his career.

After graduating from the VTC, Math pursued further study in occupational safety at the City University of Hong Kong. Later on, he obtained a bachelor's degree in civil engineering from the Hong Kong Polytechnic University after starting his career as a technician in the Civil Engineering and Development Department of the HKSAR Government.

Currently, Math is an Engineering Manager and the Head of Technical Department at CR Construction Company Limited. He is responsible for coordinating work performed by his engineer team and in charge of a number of business development activities. He credited his success and achievement today to the extensive training and exposure that VPET provided.

VTC土木工程高級文憑畢業生陳偉林先生表示職專教育課程激發他對建造業的興趣。

偉林特別指出，高級文憑課程培訓了他的通用技能，塑造了他的學術發展和事業。偉林的畢業習作中有一環節需要他和團隊建立城市規劃模型，期間，他親身體驗了團隊合作對團隊能達成共同目標非常重要。習作還要求偉林與不同人士接觸，助他提升社交能力，幫助他在職場上取得更好表現。

於VTC畢業後，偉林在香港城市大學進修職業安全課程。後來，他在香港特區政府土木工程拓展署擔任技術員，同時在香港理工大學修畢土木工程學士學位。

偉林現於華營建築有限公司擔任工程經理及出任技術部主管。他負責統籌工程師團隊，以及業務發展活動。他將今天的成就歸功於職專教育所提供的培訓和栽培。

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自 VTC 校友資料庫。



Mr. Math CHAN
陳偉林先生



In the following section, an impact story on the design and creative industry is presented to illustrate the social impacts of VPET.

以下環節將介紹一個有關設計和創作行業的故事，以說明職專教育對社會的貢獻。

Figure 4-30: Key economic indicators for the design and creative industry

圖4-30：設計和創作行業的主要經濟指標

Design and Creative | 設計及創作

HK \$116 billion
to Hong Kong's GDP in 2019

219,000
persons employed in 2019

2019年本地生產總值達
1,160億港元

2019年就業人數為
219,000人

Source: (1) C&SD (2020e, 2020g), (2) PwC analysis

資料來源：(1) 政府統計處 (2020e, 2020g)、(2) 羅兵咸永道分析



Impact Story – Supporting the Design and Creative Industry

啟發故事 —— 支援設計及創作 行業

The design and creative industry

The design and creative industry is one of the fastest growing industries in Hong Kong, generating HK\$ 116 billion in GDP in 2019 (representing 4.2% of Hong Kong's total GDP). This industry is supported by 219,000 employees, accounting for 6% of Hong Kong's total employment. The workforce required is projected to rise to 238,000 in 2027, according to *the Report on Manpower Projection to 2027* (Labour and Welfare Bureau, 2019).

設計及創作行業

設計及創作是香港發展最快的行業之一，2019年的生產總值達1,160億港元（佔香港本地生產總值的4.2%）。該行業有219,000名員工，佔香港總就業人數的6%。根據《2027年人力資源推算報告》（勞工及福利局，2019年），預計本港在2027年所需的人才數量將增至238,000人。

VPET's role in nurturing young talents

The design and creative industry is practice-oriented by nature and often requires a workforce with industry-specific knowledge, innovation and entrepreneurial skills. As shown in Figure 4-31, a wide spectrum of VPET programmes is available covering various fields in design, including graphic design, fashion and image design, product design, digital media production, communication design and more. Over the last 35 years, more than 73,500 VPET graduates have been nurtured, accounting for over one third of the employees in the design and creative industry.

VPET has nurtured a number of young talents, who hold aspirations and passion in the design and creative industry, and some of whom are award winners in their fields of specialisation. Through maintaining strong connections with the industry, VPET providers are committed to support the industry by nurturing graduates with the required skills and techniques.

職專教育在培養青少年人才方面的角色

設計及創作產業本質上是以實踐為導向的，往往需要具備行業知識、創新和創業技能。如圖4-31所示，多元化的職專教育課程涵蓋設計學科各個領域，包括：平面設計、時裝形象設計、產品設計、數碼媒體製作、傳意設計等。過去35年來，職專教育培養了73,500多名設計學科畢業生，佔設計和創作行業就業人數三分之一以上。

職專教育培養了無數青少年人才，他們對設計及創作產業充滿抱負和熱誠，其中一些人更在其專業領域獲獎。職專教育機構透過與業界保持緊密聯繫，致力為業界培訓出具備所需技能和技術的畢業生。

Figure 4-31: Examples of VPET programmes related to the design and creative industry and the associated career opportunities

HKCT

- HD in Creative Design and Media (Visual Communication)
- HD in Interior Design

HKDI

- HD in Advertising Design
- HD in Architecture, Interior and Landscape Design
- HD in Fashion Design
- HD in Film, Television and Photography
- HD in Product, Furniture and Jewellery Design
- HD in Transmedia

OUHK LiPACE

- HD in Digital Fashion Creation

SHAPE

- BA (Hons) Fashion Buying Management
- BA (Hons) Graphic Design
- BA (Hons) Jewellery, Materials and Design
- BA (Hons) Media
- BA (Hons) Product and Furniture Design

THEi

- BA (Hons) in Advertising
- BA (Hons) in Fashion Design
- BA (Hons) in Product Design

Roles supporting the design and creative industry



Media Creators and Graphic Designers



Film, Television and Media Producers



Jewellery, Arts and Designers



Architects, Interior and Landscape Designers



Animation and Visual Effects Creators



Cinematic Designers and Photographic Digital Artists



Fashion Designers and Performance Costume Designers



Product Designers

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis

圖4-31：與設計及創作行業相關的職專教育課程及職位示例

香港專業進修學校

- 創意設計及媒體高級文憑（視覺傳達）
- 室內設計高級文憑

香港知專設計學院

- 廣告設計高級文憑
- 建築、室內及園境設計高級文憑
- 時裝設計高級文憑
- 電影電視及攝影高級文憑
- 產品、傢俱及珠寶設計高級文憑
- 超媒體高級文憑

香港公開大學李嘉誠專業進修學院

- 數碼時裝設計高級文憑

才晉高等教育學院

- 時裝採購管理（榮譽）文學士
- 平面設計（榮譽）文學士
- 珠寶、物料與設計（榮譽）文學士
- 媒體（榮譽）文學士
- 產品及傢俱設計（榮譽）文學士

香港高等教育科技學院

- 廣告（榮譽）文學士
- 時裝設計（榮譽）文學士
- 產品設計（榮譽）文學士

支持設計及創作行業的相關職位



媒體創作和平面設計師



電影、電視和媒體製作人



珠寶、藝術和設計師



建築師、室內和景觀設計師



動畫和視覺特效師



電影設計師和攝影數碼藝術家



時裝設計師和表演服裝設計師



產品設計師

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府職專教育網站（無日期）、(2) 羅兵咸永道分析

International academic collaborations, exchanges and articulation pathways are provided for students to gain first-hand knowledge from overseas experience, allowing them to directly learn from renowned experts in the industry globally. The excellence in programme delivery quality and building design innovation capability is exemplified by the Hong Kong Design Institute (HKDI). HKDI earned a ranking of 11 in the 2020 Red Dot Design Ranking in Design Concept under the Universities (Asia Pacific) group, in recognition of HKDI's success in producing exciting new design concepts over the past 5 years. This reflects the capability of HKDI in producing real sustainable design innovation. Selected award-winning designs are shown at the right side.

透過國際學術合作、交流和進修，學生可以從世界各地業內專家身上學習，認識海外的經驗。香港知專設計學院主要提供構建設計創新的優質課程，並充分體現職專教育的優勢。香港知專設計學院於2020年「紅點設計概念排名」的亞太地區院校組別中排第11位，這是對學院過去五年在創新設計概念的認同，反映了該學院在創新設計持續發展方面的能力。得獎設計精選如右圖所示。

Award-winning designs that create social impact

造福社群的得獎設計

The 3D Heat conductive knee sleeve is a functional piece of clothing that was developed by a research team at the Centre of Innovative Material and Technology (CIMT). The knee sleeves design, which was awarded the Red Dot in the fashion category and the mobile life category, provides heat therapy with conductive yarn while remaining fashionable. This invention had also won a silver medal in the 46th International Exhibition of Inventions Geneva in 2018.

HKDI student Mr. Jordan LAU from Higher Diploma in Product Design won the “Red Dot: Best of the Best” at the Red Dot Award: Design Concept 2019 with the functional and considerate design of a three-legged chair that can be easily transformed into a stick. It is not only convenient to bring around, the considerate design was inspired by the idea to help people with physical limitations to avoid embarrassment and inconvenience in public.



3D Heat Conductive Knee Sleeves
3D智能發熱護膝

3D智能發熱護膝是「知專設創源」研究團隊開發的功能性衣物。護膝設計在「時尚」及「移動生活」兩個組別中獲得紅點獎，讓用家在保持時尚的同時，以針織電導物料進行熱敷治療。該發明還在2018年第46屆日內瓦國際發明展上獲得銀獎。

香港知專設計學院產品設計高級文憑學生劉子晉先生於2019年紅點設計概念大獎中贏得「紅點最佳設計獎」。功能性十足又設計體貼的三足椅可以輕鬆變為拐杖。不僅方便攜帶，體貼的設計亦可幫助身體有障礙人士免除在公共場合的尷尬和不便。



Tri Cane
「Tri Cane」輔助器

Source: (1) VTC (2018a), (2) HKDI (2020)

資料來源：(1) VTC (2018a)、(2) 香港知專設計學院 (2020)



The HKDI Knowledge Centres

香港知專設計學院知識 資源中心

HKDI sets up a number of knowledge centres as platforms for students to engage in projects with industry partners, thereby broadening students' exposure in relevant industries. These knowledge centres cover areas such as communication design, design services and solutions, innovative material and technology, design for social innovation and sustainability, as well as fashion and media.

For example, the Centre of Innovative Material and Technology (CIMT) acts as an interdisciplinary design and knowledge sharing hub as it covers multiple areas of innovative material design including advanced fabrics and materials.

香港知專設計學院設立了多個知識資源中心，為學生提供了與業界合作夥伴一起參與項目的平台，從而擴闊學生對相關行業的認識。這些知識資源中心涵蓋的領域包括傳意設計、設計服務和解決方案、創新材料和技術、社會創新和可持續性設計，以及時裝和媒體。

例如，「知專設創源」是跨學科設計和知識共享中心，涵蓋了創新材料設計的多個領域，包括高級纖維和物料。



Centre of Design Services and Solutions (CDSS)
設計企劃研究中心



Design for Social Innovation and Sustainability (DESIS) Lab
社會設計工作室



Media Lab
媒體研究所



Centre of Innovative Material and Technology (CIMT)
知專設創源



Centre for Communication Design (CCD)
傳意設計研究中心



Fashion Archive (FA)
時裝資料館

Alumni Story | 校友故事

Mr. Kenji WONG graduated from the HKDI with a Higher Diploma in Digital Media. During his study, he was taught about the concept of flexible design and user experiences with hands-on projects. His projects range from programming for a learning application to designing an interface for software. Kenji's experience in HKDI taught him the ways to understand and translate users' needs into effective advertising strategies.

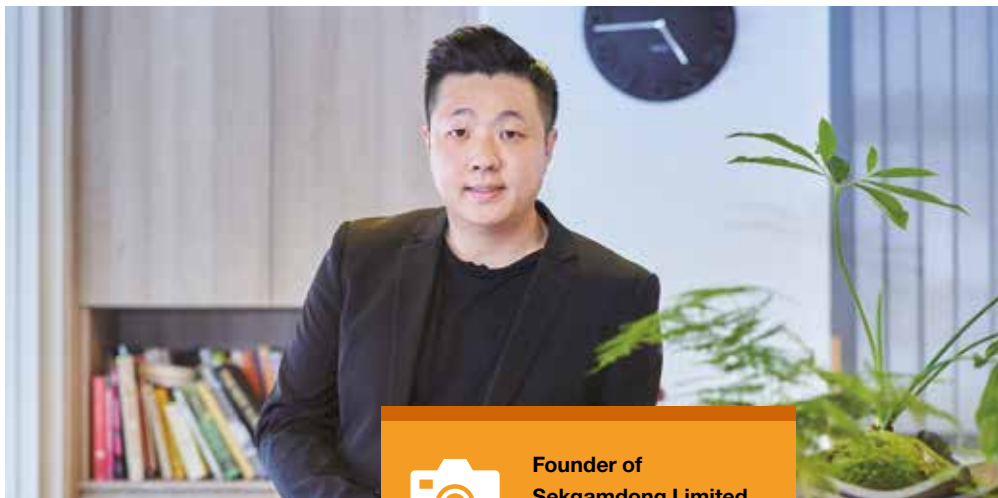
After graduating from HKDI, Kenji went on to pursue a BA (Hons) in Visual Communication (Moving Image) at Birmingham City University. He later co-founded his own digital advertising agency, Sekgamdong Limited, which has served numerous luxury brand clients.

黃建臻先生畢業於香港知專設計學院，獲得數碼媒體高級文憑。他在學期間，透過做項目，學會了有關靈活設計以及用戶體驗的概念。他的學習範圍從編寫學習應用程式到設計軟件介面。建臻在香港知專設計學院的學習經歷讓他理解和轉化用家的需求為有效的推廣策略。

於香港知專設計學院畢業後，建臻繼續在英國伯明翰城市大學進修並獲得視覺傳達（流動影像）榮譽文學士學位。後來，他與合伙人創立了自己的數碼廣告公司—石敢當有限公司，為多個高檔品牌提供廣告服務。

Source: HK01 (2019)

資料及相片來源：HK01 (2019)



Mr. Kenji WONG
黃建臻先生



**Founder of
Sekgamdong Limited**
石敢當有限公司創始人

**Birmingham City
University**
伯明翰城市大學

**BA (Hons) in Visual Communication
(Moving Image)**
視覺傳達 (流動影像) 榮譽文學士

**Hong Kong
Design Institute**
香港知專設計
學院

Higher Diploma in Digital Media
數碼媒體高級文憑

4.3.4.

Development of innovative and entrepreneurial skills

VPET providers strive to keep their students abreast of the latest development of the economy and society by ensuring that they possess the latest skills and knowledge. This is being achieved through adopting innovative approaches and adding creative elements into their programme offerings. VPET students can now acquire not only skills and knowledge of specific fields, but also attain future-ready attributes for the 21st century, such as design thinking, creativity, professionalism and having an entrepreneurial mindset.

For instance, since 2016, the VTC has incorporated design thinking elements into the curricula of higher diploma programmes, through which students are able to learn how to apply an innovative thinking process to create new options or better solutions for different kinds of problems. Integrating the latest skillsets required by the market into the programmes helps students to acquire competencies defined by the job market, and equips them with open mindset which is applicable in multidisciplinary practices.

VPET providers offer diverse opportunities and learning experiences, such as short courses, industry attachments, project-based collaboration with industries and innovative competitions, for students to harness skills and knowledge. Such diversity of learning experiences and linkages with industries are constructive to foster students' entrepreneurial skills, which enable them to turn ideas into actions, as shown in Figure 4-32.

Post-secondary institutions providing VPET programmes, such as OUHK and THEi, have also invested in providing facilities and stimulating learning environment to cultivate young local entrepreneurs and to assist those in-service practitioners who have the aspirations to start their businesses in honing relevant skills. For example, OUHK launched the Open InnoChallenge to offer out-of-classroom learning to empower students to turn innovative ideas into impactful solutions for the society. THEi established the Innov8 Enterprise Start-up Centre to provide comprehensive pre-incubation supports for young entrepreneurs.

There is an increasing number of programmes offered with an aim to nurture students with the essential knowledge and skills for starting and managing new ventures and entrepreneurial organisations. For example, the Certificate in Personal Branding and Business Start-up offered by IVE and the Master of Science in Entrepreneurial Management offered by the Hang Seng University of Hong Kong help to nurture entrepreneurial talents with the right mindsets and skillsets in creating and sustaining successful start-up businesses.

4.3.4

創新和創業技能的發展

職專教育機構致力讓學生掌握經濟和社會最新發展，並確保他們裝備最新的技能和知識。為實現此目標，機構提供的課程加入了創新教學方法和創意元素。職專教育的學生不僅可以學習專業領域的知識，還可以培養出廿一世紀需要的技能，例如設計思維、創造力、專業精神和創業思維。

例如，自2016年起，VTC已將設計思維和市場現時所需的技能整合到高級文憑課程中，學生能夠

學習為各種問題構思創新的選項和提出更好的解決方案，並可以幫助他們獲得就業市場所需要的能力，具備跨學科實踐的開放思維。

職專教育機構為學生提供各種機會和學習經驗，例如短期課程、工作實習、與業界合作項目和創新比賽，讓學生掌握技能和知識。這種多元化的學習經歷及與行業聯繫，有助培養學生的企業家精神，將意念付諸實踐（如圖4-32所示）。

職專教育機構，例如香港公開大學和香港高等教育科技學院也已投入資源，提供能啟發創新思維的設備和學習環境，以培養本地

的年輕企業家，並協助有志創業的在職人士提升相關技能。香港公開大學亦舉辦「開創社」提供課外學習機會，使學生能夠將創新意念轉化為解決社會問題的方案。香港高等教育科技學院設立了Innov8初創培育中心，全面支援年輕企業家。

此外，亦有不同學院提供課程，培養學生掌握創業和企業營運知識和技能。例如，香港專業教育學院提供的個人品牌建立及創業證書，以及香港恆生大學提供的創業管理理學碩士課程，可培養具備新思維和技能，以創辦營運初創企業的人才。

Figure 4-32 : Essential skills for entrepreneurs

圖4-32：企業家的必要技能

Entrepreneurial skills 創業技能		
Personal entrepreneurial skills 個人創業技能 • Self-control and discipline 自我控制和紀律 • Innovation 創新精神 • Persistence 毅力 • Leadership 領導能力 • Change management 應變管理 • Network building 建立人際網絡 • Strategic thinking 戰略思維	Business management skills 企業管理技能 • Planning and goal setting 規劃和設定目標 • Decision making 決策能力 • Human resources management 人力資源管理 • Marketing, finance and accounting 營銷、財務和會計 • Growth management and negotiation 成長管理與協商能力 • Customer relations and quality control 客戶關係和質量控制	Technical skills 專門技能 • Interpersonal, organisational and communication 人際關係、組織能力和溝通能力 • Environment monitoring 環境監控能力 • Problem solving 解難能力 • Risk management 風險管理能力 • Technology implementation 技術執行力

Source: (1) European Commission (2014), (2) PwC analysis

資料來源：(1) 歐洲聯盟委員會 (2014)、(2) 羅兵咸永道分析



OUHK set up Open InnoChallenge to foster students' innovative skills

香港公開大學設立「開創社」 以培養學生的創新能力

The Open InnoChallenge (OIC) launched by OUHK in 2017 provides a platform for students to translate their ideas into real life innovative solutions with positive impacts to the society. OIC delivers various out-of-classroom learning activities, such as interactive training workshop on design thinking, local tours and individual coaching sessions delivered by entrepreneurs as well as visit to overseas universities and start-ups, to stimulate the students' interests and inspire students' innovative ideas.

OIC also organises a number of experiential activities for students to generate innovative ideas and to translate these ideas into viable operation so as to compete for implementation fund. As of early January 2021, a total of 2,910 students participated in these activities and 60 proposals have been received.

香港公開大學於2017年舉辦的「開創社」將學生的想法化為能為社會帶來正面影響的解決方案。「開創社」提供各種課外學習活動，例如設計思維互動培訓班、本地學習團和個人指導環節，以及參觀海外大學和初創企業，以啟發學生的興趣及創新思維。

「開創社」還組織了許多體驗活動，讓學生想出创新的主意並將這些想法轉化為可行，以爭取執行資金。截至 2021年1月初，共有2,910名學生參加了這些活動，並收到了60份建議書。

Source: OUHK (n.d.)

資料來源：香港公開大學（無日期）





THEi nurtures young entrepreneurs via its Innov8 Enterprise Start-up Centre

香港高等教育科技學院 Innov8初創培育中心培養 年輕的企業家

THEi sets up the Innov8 Enterprise Start-up Centre (Innov8) in 2018 with an aim to support young entrepreneurs in starting their entrepreneur journey and to aspire students to fulfill their ambitions. Innov8 launched a pilot pre-incubation programme (Innov8 Programme) to support THEi students and graduates through providing seed capital and services, including facilities, training workshops, mentoring and business networking events. Innov8 also collaborates with different partners to promote entrepreneurship and organises events such as training workshops and pitching competitions to nurture young people's innovative skills and stimulate their interests in entrepreneurship. These opportunities serve as platforms for student creators to meet and share their products and development ideas to potential industry investors.

Innov8 assigns mentors to share their insights and offers advice on marketing, pricing decision and growth strategies. Up to now, 6 startups (as shown on the right-hand side) have been sponsored by Innov8 and they have each received HK\$200,000 seed capital in total.

Source: THEi (n.d.b)

資料來源：香港高等教育科技學院（無日期b）

香港高等教育科技學院於2018年成立了Innov8初創培育中心，旨在支援年輕企業家開始其創業之旅，並啟發學生實現其抱負。Innov8試行了一個創業前準備計劃，透過提供種子資金和服務（包括設施、培訓工作坊、導師計劃和商務交流活動），為學院學生和畢業生提供支援。Innov8還與不同的合作夥伴合力推廣企業家精神，舉辦培訓工作坊和創業比賽之類的活動，以培養青少年的創新技能，激發他們對創業的興趣，並使他們可以與潛在的企業投資者見面，分享產品和發展構思。

Innov8邀請導師分享見解，提供有關營銷、定價策略和增長策略的建議。截至目前，Innov8已贊助了6家初創公司（如右圖所示），每家公司獲得200,000港元的種子資金。



Glowsi 獨遊女子

A global female solo community connecting girls who enjoy traveling alone and creating a platform where they can share their stories and experiences.

一個全球性獨立自主女性社群，聯繫喜歡獨自旅行的女孩，創立了一個供她們分享故事和經驗的平台。



Jovial Patisserie

A pleasant happy bakery making very beautiful and exquisite alphabet cakes.

一間製作精緻字母蛋糕的烘焙店。



Keeper

A designer concept studio providing vintage garments and accessories for young women.

一間為年輕女性提供復古服裝和配飾的設計概念工作室。



Dosha

Woodcraft that believes in "Live with the Nature & Give the Woods New Life".

相信「與自然共生，賦予木材新生命」的木工坊。



Upcyco.co

A design studio that creates fashion accessories from material waste, and reduces pollution and promotes social and environmental justice.

一個以廢棄原材料創造出時尚配飾，以減少污染並促進社會和環境公義的設計工作室。



YMDH – You Make Daddy Happy

A 100% made in Hong Kong brand, performing creativity and individualism through combining creative street manners with traditional historical references.

「100% 香港製造」品牌，結合有創意的街頭風格與傳統歷史事物，表現出獨特的創意和風格。



Demo Day was held in Innov8 in 2019 for young entrepreneurs
為年輕企業家而設的示範日於2019年在Innov8舉行



THEi Innov8 Enterprise Start-Up Programme
香港高等教育科技學院Innov8初創培育計劃

Two outstanding teams are highlighted as follows.
下文介紹兩隊傑出的隊伍。



Ms. Jan YU and Ms. Angel FUNG
余巧琳女士和馮智慧女士



Jovial Patisserie

This bakery was founded in 2019 by Ms. Jan YU and Ms. Angel FUNG as a customised bakery with a wish to bring happiness to people through their pastries. Jan and Angel started by operating an online pastries shop. Their unique design of their signature numeric and alphabetic cakes quickly got the attention of a hotel in Taipei and invited them to do a pop-up store in Taipei. They then received more recognition and was especially popular during festival seasons. They now rented their own studio in Kwun Tong and is continuing in expanding their business.

這家烘焙店於2019年由余巧琳女士和馮智慧女士創立，她們希望通過糕點為人們帶來幸福。巧琳和智慧首先經營一家網上糕點店。其招牌數字蛋糕和字母蛋糕設計獨特，很快就獲台北一家酒店垂青，並邀請她們在台北開一家快閃店。由於巧琳和智慧蛋糕在節日期間特別受歡迎，她們在觀塘開設工作室，並擴展業務。

Source: THEi (n.d.b)

資料來源：香港高等教育科技學院（無日期b）



Ms. Barbie FONG and Mr. Jason LEE
方祉允女士和李居錡先生



YMDH – You Make Daddy Happy

This fashion label was founded in 2018 by Mr. Jason LEE and Ms. Barbie FONG. Prior to joining THEi's Innov8 Enterprise Start-Up Programme and establishing YMDH with Barbie, Jason was the winner of "Best Footwear Design Award" in Hong Kong Young Fashion Designers' Contest 2017. Currently, Jason and Barbie create high-end streetwear collections, combining tradition with a touch of urban sense. They are now admitted into the Design Incubation Programme offered by Hong Kong Design Centre to further their development.

這個時裝品牌由李居錡先生和方祉允女士於2018年創立。居錡在加入香港高等教育科技學院的Innov8初創培育計劃並與祉允建立YMDH之前，曾獲得2017年香港青年時裝設計家創作表演賽「最佳鞋履設計大獎」。現在，居錡和祉允創造了高端街頭服飾系列，糅合傳統與都市感。他們現已加入香港設計中心的「設計創業培育計劃」，以作進一步發展。

Alumni Stories | 校友故事

Mr. Felix CHOI completed the VTC Apprenticeship Scheme in Engineering and started his own moulding business immediately afterwards. Since then, Felix has won a number of awards including a Hong Kong Award for Industries in the category of Machinery and Machine Tools Design with his patented Three-material Co-injection Moulding System.

Felix expressed his gratitude towards the VTC Apprenticeship Scheme for the training it provided. He would never have been this successful without the life changing opportunity. To give back to his alma mater, he currently provides internships to VTC students, he said: “You must find interest in your work. Don’t worry about immediate reward. Take initiative to bear more responsibility and to learn more. That’s how you stay ready when an opportunity presents itself. That’s how you make your own mould that shapes your best future.”

蔡俊杰先生於工程界完成了VTC學徒訓練計劃後，隨即成立了自己的模具公司。其後，俊杰憑藉其專利產品「三物料模具系統」贏得了多個獎項，包括香港工商業的機器及機械工具設計獎。

俊杰感謝VTC學徒訓練計劃的培訓，使他能今天的成就。為了回饋母校，俊杰為VTC學生提供實習機會。他說：「你必須對自己的工作感興趣，不要在意即時回報，要願意付出和不斷學習，以準備迎接機會，這就是為製作自己模具的最好方式。」



Mr. Felix CHOI
蔡俊杰先生

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自 VTC 校友資料庫。

Mr. Dennis KWAN has always been interested in information technology (IT), but it only became his true passion after he was enrolled in the Higher Diploma in Information Technology for Logistics at the VTC. He received VTC's Alistair Harvey Foundation Scholarship to continue his studies in the UK. After graduation, he started a partnership with his former supervisor whom he met when he volunteered as an ambassador at Science Park and GS1 Hong Kong in his VTC days. Dennis's company develops radio-frequency identification (RFID) technology and he believes the technology will become prevalent in the future.

"I'm glad that I've kept in touch with the VTC and my company was also willing to support in a scholarship fund for my alma mater to train the much-needed IT workers."

關秉源先生一直對資訊科技感興趣，在他修讀VTC的物流資訊科技高級文憑課程後，就更加熱愛。高級文憑畢業後，他獲得了VTC的賀維雅基金會獎學金，在英國繼續進修。他在VTC修業期間，曾擔任科學園和香港貨品編碼協會的學生大使，並認識了當時的上司。大學畢業後，他與這位上司合伙創業。秉源的公司開發無線電射頻識別科技，他相信該技術將變得愈來愈流行。

「我很高興與VTC保持聯繫，公司也樂意為VTC設立獎學金，協助栽培急需的資訊科技人才。」



Mr. Dennis KWAN
關秉源先生

4.3.5

Lifelong learning for upskilling and reskilling

Overview

Fostering the culture of continuous advancement and enhancing the provision of lifelong learning opportunities has been one of the Government's strategies in education. Since 2002, the Government has officially launched the Continuing Education Fund (CEF) to provide subsidies to the general public. Each applicant, aged between 18 and 70, who has completed training courses under the Qualifications Register in Hong Kong, may seek reimbursement for a maximum of HK\$ 20,000 (HKSAR Government, 2020c). CEF incentivises the public to pursue continuing education for upskilling and reskilling so as to support Hong Kong's transformation into a knowledge-based economy with sufficient skilled workforce. VPET providers play pivotal roles in offering an extensive range of programmes and courses, including those eligible for reimbursement of CEF and others that are valuable for learners and economic development.

The Employees Retraining Board (ERB) promotes self-improvement and lifelong learning, upskills and reskills the existing workforce. It currently offers over 700 training courses, covering categories such as generic skills development and specific skills upgrading courses. ERB also coordinates, funds and monitors training courses and services that are market-driven.

To promote lifelong learning, the Integrated Vocational Development Centre (IVDC) of the VTC provides a wide range of ERB professional courses, value-added courses and staff development programmes to meet the needs of learners with diverse backgrounds. For those unemployed with educational attainment not higher than the sub-degree level, the IVDC provides full-time placement-tied courses aiming to help them to re-enter the job market. The VTC also offers a one-stop portal (<https://lifelonglearning.vtc.edu.hk/>) for graduates and students to identify suitable lifelong learning courses so that they can be equipped with lifelong learning mindsets.

A number of other providers, such as HKU SPACE, OUHK LiPACE and the Hong Kong Productivity Council, offer numerous lifelong learning opportunities for in-service practitioners to advance their skills and to acquire new skills so that they can continuously grow in their field of expertise while being able to take up new roles in the context of a fast-changing world.

Since the advent of Industry 4.0, dynamic trends of automation, digitalisation, data analytics and cloud computing have created many new opportunities for companies. As a result, new business models are developed and new skills are required for the workplace. VPET providers will continue to be crucial in offering upskilling and reskilling opportunities. Through working closely with industries to identify the new technologies and emerging skills required, up-to-date training will be continuously tailored for the workforce to stay relevant. This is essential for enhancing the resilience of Hong Kong in adapting to the latest economic trends and development.

4.3.5

透過終身學習提升專業技能和再培訓

概覽

培育持續進修的文化並提供終身學習機會一直是政府的教育策略。2002年，政府正式成立持續進修基金，向公眾提供津貼。每位年齡介乎18至70歲並已完成《資歷名冊》上培訓課程的申請者，均可申請最高20,000港元的資助（香港特區政府，2020c）。持續進修基金鼓勵市民持續進修，提升專業技能和接受再培訓，讓香港擁有足夠技術人才。職專教育機構擔當舉足輕重的角色，提供多樣化課程，當中包括可獲持續進修基金資助、對個人及社會經濟發展有價值的課程。

僱員再培訓局鼓勵自我增值和終身學習，提高人才技能並再培訓。它目前提供700多項培訓課程，涵蓋通用技能發展和特定技能提升等類別。僱員再培訓局亦協調、資助和監督市場導向的培訓課程和服務。

為促進終身學習，VTC的匯縱專業發展中心提供多項僱員再培訓和增值課程，及企業員工發展活動，以滿足不同背景學員的需求。對於副學士程度以下的待業者，匯縱專業發展中心還提供全日制與就業掛鉤的課程，旨在幫助他們再次投身就業市場。VTC亦特別為年青人提供一站式入門網站（<https://lifelonglearning.vtc.edu.hk/>），以便他們尋找合適的終身學習課程及獎勵計劃，抱持終身學習的心態。

除了僱員再培訓局和匯縱專業發展中心以外，香港大學專業進修學院、香港公開大學李嘉誠專業進修學院和香港生產力促進局等機構還為在職人士提供大量終身學習機會，以助他們提升和掌握新技能，使他們能夠繼續在自己的專業領域發展，同時能夠在瞬息萬變的時代擔當新角色。

自工業4.0出現以來，自動化、數碼化、數據分析和雲端計算的急速發展為企業創造了大量新機會，新商業模式和職場技能相繼湧現。職專教育機構在提供專業技能提升和再培訓方面將繼續擔當重要角色，透過與業界保持緊密聯繫，尋找所需的新技術和新興技能，設計最新的培訓課程讓工作人口保持競爭力，這對加強香港適應最新經濟趨勢和發展的能力非常重要。



In the following section, two impact studies relating to the construction and the information technology industries are presented to illustrate the social impacts of VPET.

下一節將展示與建造業和資訊科技業有關的兩項影響研究，以闡述職專教育對社會的影響。

Figure 4-33: Key economic indicators on the construction and information technology industries

圖4-33：建造業和資訊科技業的主要經濟指標

Construction | 建造

HK\$ 118 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
1,180億港元

332,700
persons employed in 2019

2019年就業人數為
332,700人

Information Technology | 資訊科技

HK\$ 96 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
960億港元

110,282
persons employed in 2019

2019年就業人數為
110,282人

Source: (1) C&SD (2020c, 2020d, 2020h), (2) PwC analysis

資料來源：(1) 政府統計處 (2020c, 2020d, 2020h)、(2) 羅兵咸永道分析



Impact Snapshot - Supporting the Construction Industry

啟發故事 —— 支援建造業

The construction industry

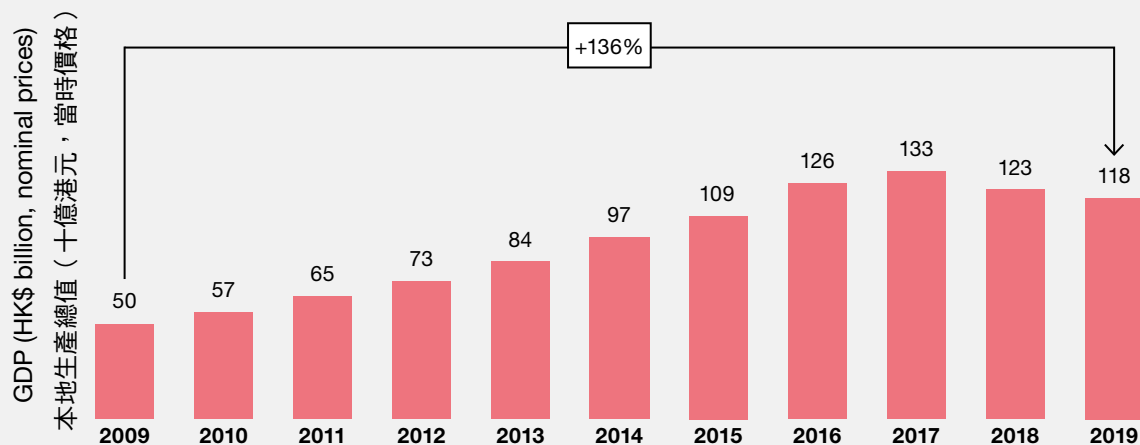
The construction industry has been facing a severe workforce shortage, because the work environment and the nature of work is comparatively less attractive to the younger generation, while the older generation of skilled professionals are retiring. The demand for human resources is likely to remain high as the city embarks on a number of high profile new developments and urban renewal projects, such as the Hong Kong Shenzhen Western Corridor, Lantau Tomorrow,

MTR new railway projects, and the development of the Third Airport Runway at HKIA. CIC estimates that the workforce shortage will be about 5,000 – 10,000 by 2022 (CIC, 2019).

Over the last decade, the construction industry has doubled in size, from HK\$ 50 billion in 2009 to nearly HK\$ 118 billion in 2019, directly contributing to 4.2% of total GDP in 2019 (Figure 4-34). Key statistics for the construction industry are shown in Figure 4-35.

Figure 4-34: Contribution of construction industry to Hong Kong's GDP from 2009 to 2019

圖4-34：2009年至2019年建造業對香港本地生產總值的貢獻



Note: (1) The construction sectoral GDP includes all construction activities (incl. building maintenance) as defined by C&SD, thus this is not the same as the figure presented in Figure 4-1.

Source: (1) C&SD (2020c), (2) PwC analysis

附註：(1) 建造業的本地生產總值包括政府統計處定義的所有建造活動（包括樓宇維修），因此與圖 4-1 中的數字不同。

資料來源：(1) 政府統計處 (2020c)、(2) 羅兵咸永道分析

建造業

由於建造業的工作環境和性質對年輕一代的吸引力相對較低，而上一代熟練的技術人員卻臨近退休，因此，建造業面臨嚴重的人力資源短缺問題。隨著一些大型基建和市區重建項目的開展，如深港西部通道、明日大嶼、港鐵支線和機場第三跑道等，建造業對人力資源的需求持續高企。建造業議會估計，到了2022年，人力資源缺口將約為5,000–10,000人（建造業議會，2019年）。

在過去十年，建造業的生產總值增長了一倍，從2009年的500億港元增加到2019年的近1,180億港元，佔2019年本地生產總值的4.2%（圖4-34）。建造業的主要統計數據，如圖4-35所示。

Figure 4-35: Key statistics for the construction industry

Construction industry's contribution to Hong Kong



HK\$ 118 billion

GDP contribution by the construction industry in Hong Kong during 2019



18,800

Shortfall in construction labour up to 2027



4.2%

Percentage of overall GDP from the construction industry in 2019



3.9%

Projected percentage increase per annum in construction expenditure between 2019 and 2028

Source: (1) C&SD (2020c, 2020h), (2) Labour and Welfare Bureau (2019), (3) PwC analysis

VPET's role in the development of the construction industry

As shown in Figure 4-36, a wide range of VPET programmes is available to supply a skilled workforce to the construction industry. The provision of comprehensive pre-employment education and training help to nurture new entrants with technical knowledge and hands-on experience, thereby arousing their interests in and fostering their appreciation towards the construction industry.

The VPET programmes offered range from QF levels 2 to 5, which means students are able to articulate further and attain qualifications at degree level or above. For example, Secondary 3 graduates may pursue a DVE (Construction Technology) in the Youth College, gain on-the-job training through the E&L Scheme, and thereafter obtain a Higher Diploma in Civil Engineering in IVE before pursuing relevant degree-level study in THEi or other universities.

VPET graduates typically take up roles and responsibilities at different levels ranging from tradesmen and technicians to supervisors, which are required to support the delivery of construction projects. Since 1983, the VTC has trained over 63,000 graduates in construction, which formed 63% of the total workforce engaged in construction in 2019. VPET graduates are highly sought by the industry. Taking the VTC as an example, the employment rates of HD graduates in Construction is high at 93%^[9].

[9]: The employment rate of graduates in HD in Construction is based on the VTC's in-house surveys conducted with graduates in 2017/18 and 2018/19.

圖4-35：建造業主要統計數據

建造業對香港的貢獻



1,180億港元

2019年香港建造業對本地生產總值的貢獻



18,800人

2027年建造業勞動人口短缺



4.2%

2019年建造業佔本地生產總值的百分比



3.9%

預計2019年至2028年建造業支出每年增加的百分比

資料來源：(1) 政府統計處 (2020c, 2020h)、(2) 勞工及福利局 (2019)、(3) 羅兵咸永道分析

職專教育在建造業發展方面的角色

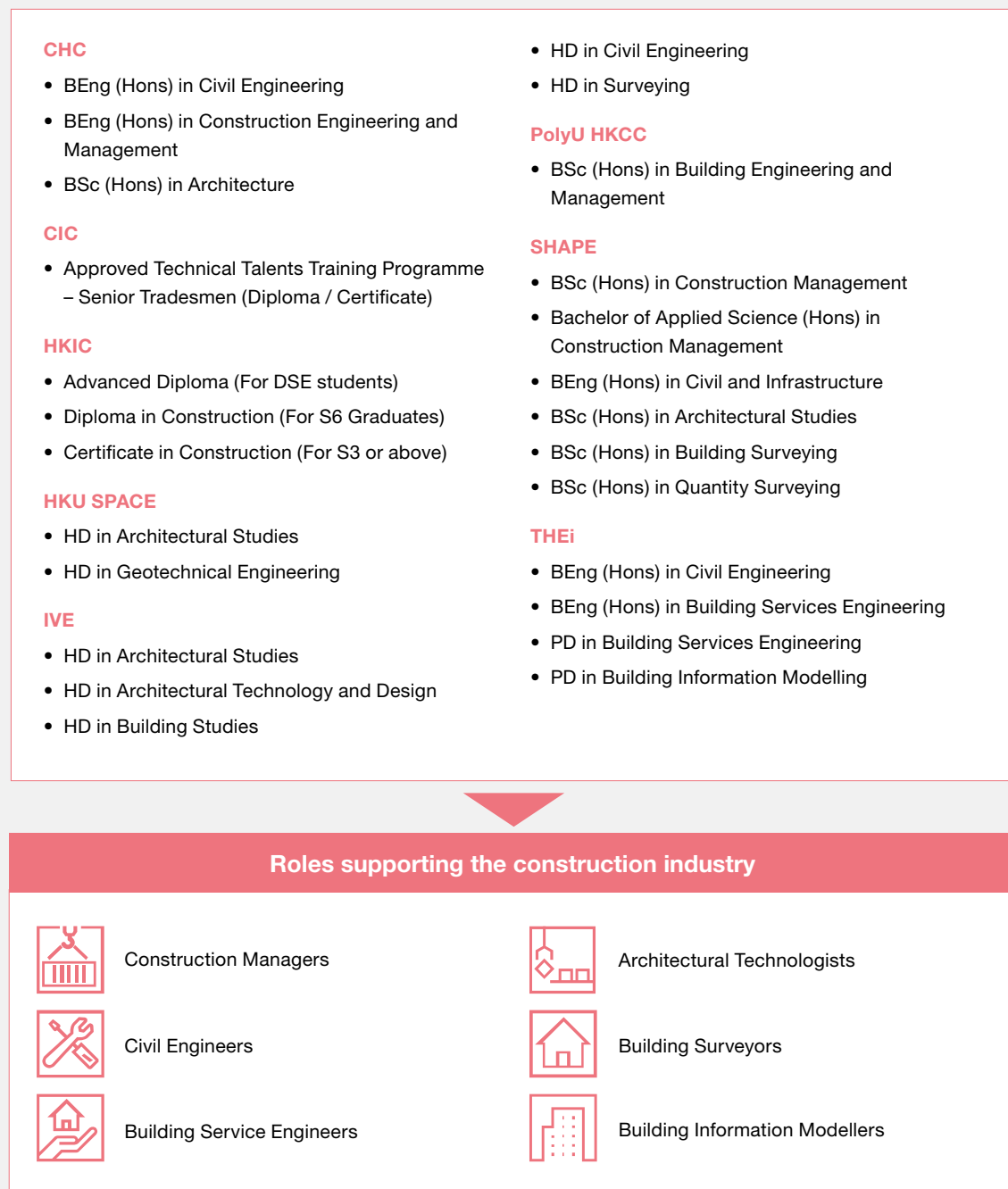
如圖4-36所示，職專教育現時提供一系列課程、工作實習以及學徒訓練計劃，為建造業提供具有行業相關技能的工作人口。其中，職專教育機構提供全面的職前教育和培訓，以培養新專才，讓他們學習專門知識和積累實踐經驗，從而培育他們對建造業的興趣，並鼓勵他們在建造業發展。

職專教育機構提供覆蓋資歷架構第二級到第五級的課程，學生能夠持續進修並獲得學位或以上的資歷。例如，中三畢業生可以在青年學院修讀職專文憑（建造科技），通過「職學計劃」接受在職培訓，然後在香港專業教育學院修讀土木工程高級文憑，再到香港高等教育科技學院或其他大學攻讀相關學位。

職專教育畢業生在各個階級擔任不同角色，從技工和技術人員以至主管，各司其職，支援各種建築項目。自1983年，VTC已培訓超過63,000名建造業畢業生，佔2019年從事建築業的工作人口的63%。職專教育畢業生受到業界的高度推崇。以VTC為例，與建造業相關的高級文憑畢業生的就業率高達93%^[9]。

[9]: 與建造業相關的高級文憑畢業生的就業率是根據VTC在2017/18及2018/19學年調查所得的結果。

Figure 4-36: Examples of VPET programmes related to the construction industry and the associated career opportunities



Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis

圖4-36：與建造業相關的職專教育課程和職位示例

香港珠海學院

- 土木工程（榮譽）工學士
- 建造工程及管理（榮譽）工學士
- 建築學（榮譽）理學士

建造業議會

- 認可技術專才培訓計劃 —— 高級技工（文憑／證書）

香港建造學院

- 高等文憑（適用於文憑試學生）
- 建造文憑（適合中六畢業生）
- 建造證書（適合中三或以上）

香港大學專業進修學院

- 建築學高級文憑
- 土力工程高級文憑

香港專業教育學院

- 建築學高級文憑
- 建築科技及設計高級文憑
- 建造管理學高級文憑

- 土木工程高級文憑
- 測量學高級文憑

香港理工大學香港專上學院

- 建築工程及管理學（榮譽）理學士

才晉高等教育學院

- 建築工程管理（榮譽）理學士
- 建設管理（榮譽）應用科學學士
- 土木及基礎建設（榮譽）工學士
- 建築學（榮譽）理學士
- 建築測量（榮譽）理學士
- 工料測量（榮譽）理學士

香港高等教育科技學院

- 土木工程（榮譽）工學士
- 屋宇設備工程（榮譽）工學士
- 屋宇設備工程專業文憑
- 建築信息模擬專業文憑

支持建造業的相關職位

建造經理



土木工程師



屋宇設備工程師



建築設計技師



建築測量師



建築信息模擬師

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府職專教育網站（無日期）、(2) 羅兵咸永道分析

Looking into the future, the launch of numerous major public works projects coupled with the need to build large numbers of residential, industrial and commercial buildings may fuel further labour demand. In tackling the workforce shortage, VPET providers' roles in attracting new blood into the construction industry and keeping the skills of the existing workforce updated with latest industry development remain essential.

In order to keep pace with the industry's evolving needs and support the Government's Smart City Blueprint for Hong Kong 2.0^[10], VPET providers, such as CIC and the VTC, have introduced a number of new programmes relating to safety procedures, environmental protection and Building Information Modelling (BIM) for students to master the latest technology as required in the industry.

For example, with inputs and supports of the industry, the VTC established the BIM Innovation Hub (BIMiHub), which enables students and in-service practitioners to acquire the latest know-how, such as BIM concepts, software applications, 3D laser scanning, structural analysis and design, as well as visualisation of 3D structures on computers. Looking ahead, the BIMiHub will actively undertake innovative collaboration projects with the industry on BIM applications in furthering BIM development.

In an interview with an employer of VPET graduates in construction, he showed appreciation to the VPET providers who are able to update the contents of the programmes and introduce new courses to equip the students with the skills in adopting latest technologies applied in the industry. This has helped to facilitate and adopt digital technologies and tools for the company to operate in a more efficient way.



Students studying BEng (Hons) in Civil Engineering
修讀土木工程（榮譽）工學士學位的學生

[10]: The Government published the Smart City Blueprint for Hong Kong in December 2017, setting out 76 initiatives under six smart areas (i.e. “Smart Mobility”, “Smart Living”, “Smart Environment”, “Smart People”, “Smart Government” and “Smart Economy”), with a view to addressing the challenges of city management and improving people’s livelihood through innovation and technology innovation and technology.” (HKSAR Government, 2020b)

隨著未來眾多大型公共工程項目的開展，加上大量住宅、工廈和商廈的建造需求，建造業對人力資源的需求會更殷切。為解決人力資源短缺問題，職專教育機構在吸引新血加入建造業，以及使建築業從業員具有緊貼行業最新發展的知識和技能方面，擔當著十分重要的角色。

為了跟上業界日新月異的需求，以及響應政府《香港智慧城市藍圖2.0》^[10]的倡議，建造業議會和VTC等職專教育機構推出了一系列與安全程序、環境保護和建築信息模擬（BIM）有關的新課程，讓學生掌握業界所需最新技術。

例如，在業界投入和支持下，VTC建立了BIM創新中心，使學生和從業員可以學到最新知識，例如BIM概念、軟件應用程式、3D激光掃描、結構分析和設計，以及電腦上的3D結構可視化。BIM創新中心將積極與業界就建築信息模擬應用進行創新的合作項目，以促進BIM的發展。

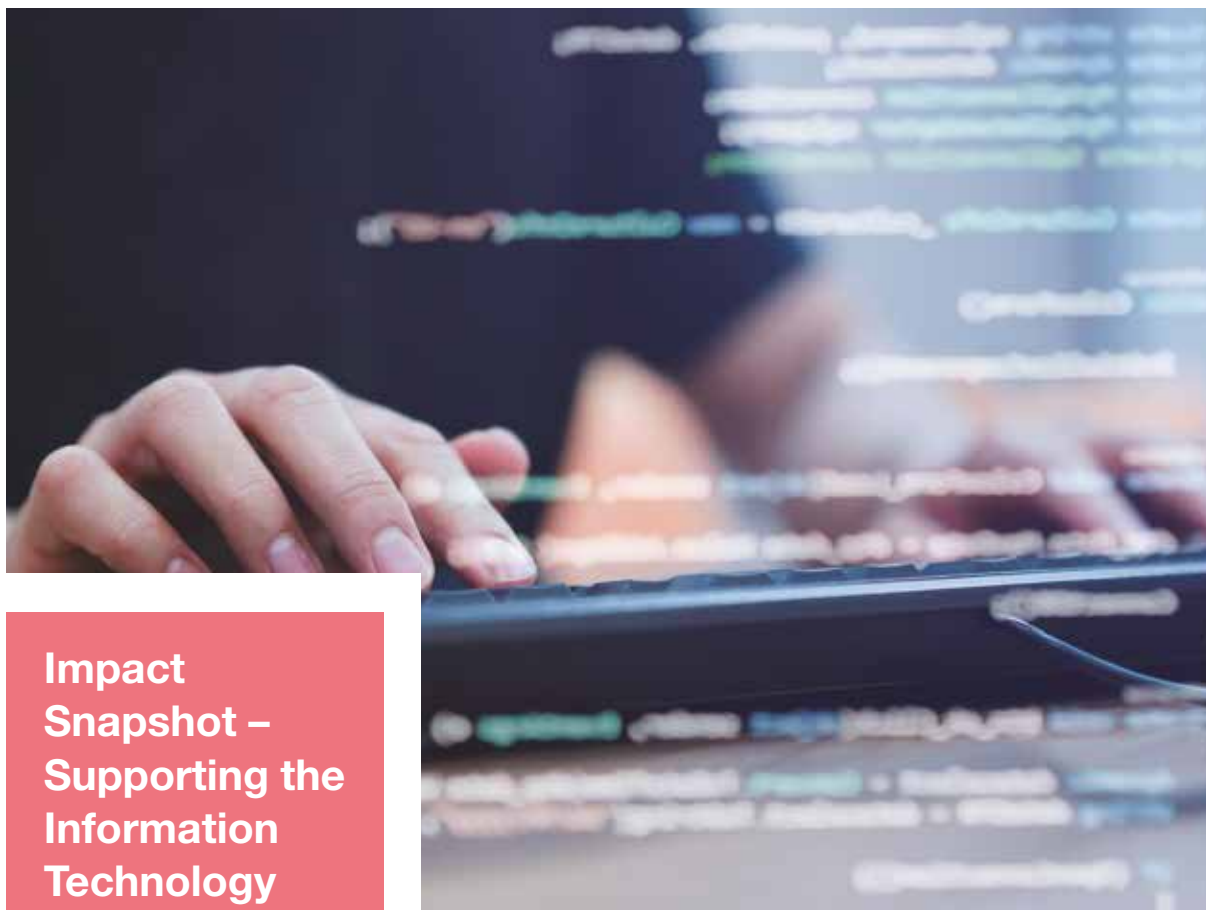
一位職專教育建造業畢業生的僱主，在接受本研究訪問時，表達了他充分認同職專教育機構的貢獻。他認為職專教育機構持續推出新課程並更新內容，讓學生能夠掌握業界最新的技能，有助促進數碼科技和工具的使用，令公司以更有效的方式營運。



The BIMi-hub established by the VTC is furnished with facilities and equipment including a 3D laser scanner, and the unmanned aircraft system that further the training on BIM technologies for VTC students and in-service practitioners.

VTC成立的BIM創新中心配備了各種設施及設備，包括3D激光掃描儀和無人駕駛飛機系統，可進一步為VTC學生和在職人士提供BIM技術培訓。

[10]: 根據政府的《智慧城市藍圖 2.0》，政府於2017年12月發布了《香港智慧城市藍圖》，在六個智慧範疇（即「智慧出行」、「智慧生活」、「智慧環境」、「智慧市民」、「智慧政府」和「智慧經濟」）下制定了76項措施，透過創新及科技對城市管理帶來的挑戰並改善民生（香港特別行政區政府，2020b）。



Impact Snapshot – Supporting the Information Technology Industry

啟發故事 ——
支援資訊科技業

Information technology industry

With Hong Kong's status as a global financial hub, coupled with emerging trends such as digitalisation and technological disruptions, the Government now places the development of information technology (IT) as one of Hong Kong's key strategic focuses. Hong Kong's global standing in terms of IT development has been rising for years, reaching 11th in the 2020 Global Innovation Index, the highest since 2016 (Dutta et al., 2020).

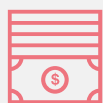
In 2019, there were 110,282 persons engaged in the IT industry, representing 3% of Hong Kong's total workforce. Hong Kong needs to continuously build up a critical mass of skilled workforce that is much required for developing the local IT industry.

Figure 4-37: Key statistics for the information technology industry in 2019

圖4-37：2019年資訊科技業的主要統計數據

Information technology industry's contribution to Hong Kong in 2019

2019年資訊科技業對香港的貢獻



HK\$ 96 billion
960億港元

GDP contribution by the information technology industry in Hong Kong
香港資訊科技業對本地生產總值的貢獻



110,282

Total number of persons in Hong Kong engaged in information technology industry
香港從事資訊科技業的就業人數總數



3%

Percentage of information and communications talent amongst Hong Kong's total labour force
資訊及通訊人才佔香港總工作人口的百分比



2.2%

Projected annual growth rate in the demand of workforce in the information technology industry between 2017 and 2027
2017至2027年資訊科技業工作人口需求預計年增長率

Note: The sectoral GDP and the number of persons engaged in the information technology (called as information and communications by C&SD) cover all information and communication activities (incl. publishing and production) as defined by C&SD, thus this is not the same as the figure presented in Figure 4-1.

Source: (1) C&SD (2020d, 2020h), (2) Labour and Welfare Bureau (2019), (3) PwC analysis

附註：本地生產總值及於資訊科技行業（即政府統計處所指的資訊及通訊技術）的工作人口包括所有從事資訊及通訊技術活動（包括出版及生產），故此，此數字與圖4-1有所不同。

資料來源：（1）政府統計處（2020d, 2020h）、（2）勞工及福利局（2019）、（3）羅兵咸永道分析

資訊科技業

香港作為全球金融中心的地位，加上數碼化和科技的發展，政府已把資訊科技視為香港的發展重點之一。香港資訊科技的發展在全球地位持續上升，在2020年全球創新指數中排名第11位，是2016年以來最高排名（Dutta et al., 2020）。

2019年，在香港從事資訊科技業的人數為110,282人，佔總工作人口的3%。香港需要持續培養大量有經驗和技術的人員以推動本地資訊科技業的發展。

VPET's role in Hong Kong's IT development

VPET providers have responded rapidly to the emergence of the IT industry by providing relevant programmes covering key areas such as financial technology (Fintech), data analytics and cybersecurity (Figure 4-38).

Over the last 35 years, VPET providers nurtured around 47,000 graduates in information technology to support the development of the IT industry. These graduates represented 42% of the total number of persons engaged in the information and communications industry in 2019. As projected in the *Report on Manpower Projection to 2027*, the IT related industry (including Innovation and Technology) requires 37,400 additional workforce in order to support sustainable growth of the industry by 2027 (Labour and Welfare Bureau, 2019). The highest workforce deficiency is projected to be at associate professional level, which amounts to 9,900 people, thus it is expected that VPET will continue playing a crucial role in bridging the gaps in workforce demand for this industry (Labour and Welfare Bureau, 2019).

VPET providers such as the VTC are equipped with a number of facilities for students to develop relevant skills through game-based learning and workplace hands-on approach. For instance, the Cybersecurity Centre established in IVE (Chai Wan) is able to simulate a cybersecurity attack for students to develop necessary skills. Students are given the opportunity to gain hands-on experience needed for developing skills and competencies in collaborative intrusion detection and malware analysis.

職專教育在香港資訊科技發展中的角色

職專教育機構通過開辦金融科技、數據分析和網絡安全等相關課程，迅速應對資訊科技行業的興起（圖 4-38）。

在過去的35年，職專教育機構培養了大約47,000名資訊科技專業的畢業生，以支持資訊科技行業的發展。在2019年這些畢業生佔從事資訊及通訊業人數的42%。

《2027年人力資源推算報告》推算，與資訊科技相關的行業（包括創新科技）需要額外37,400名員工，以支援該行業在2027年的可持續增長（勞工及福利局，2019年）。輔助專業人員級別將會出現最嚴重的人力資源短缺情況，預計達到9,900人。因此，職專教育在填補該行業人力資源缺口方面將繼續發揮關鍵作用（勞工及福利局，2019年）。

VTC等職專教育機構為學生提供了許多設施，讓他們能夠透過遊戲式學習、職場實踐等方法來發展相關技能。例如，設於香港專業教育學院（柴灣）的網絡安全中心可以進行模擬網絡安全攻擊，學生有機會動手實踐、累積經驗，以發展協作入侵檢測和惡意軟件分析的技能。

Figure 4-38: Examples of VPET programmes related to the IT industry and the associated career opportunities

CHC

- BSc (Hons) in Computer Science

HKCT

- HD in Computer Studies (Mobile Applications and Game Development)

HSU

- BA (Hons) in Applied and Human-centred Computing
- BSc (Hons) in Data Science and Business Intelligence
- Bachelor of Management Science and Information Management (Hons)

IVE

- HD in AI and Smart Technology
- HD in Cybersecurity

- HD in Data Science and Analytics
- HD in Financial Technology
- HD in Multimedia, VR and Interactive Technology

CityU SCOPE

- BSc (Hons) Information Technology for Business

SHAPE

- BSc (Hons) Ethical Hacking and Cybersecurity
- BSc (Hons) Computing
- BSc (Hons) Multimedia Computing
- BSc (Hons) Information Technology

THEi

- BSc (Hons) in Information and Communications Technology
- BSc (Hons) in Multimedia Technology and Innovation

Roles supporting the information technology industry



Financial Technologists



Cybersecurity Roles



Machine Learning and Predictive Analysts



Mobile Application Developers



Information and Communications Technologists



Robotics Programmers



Data Scientists and Analysts



Business Intelligence Roles



Multimedia, VR and Interactive Technologists



Telecommunication and Networking Roles

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis

圖4-38與資訊科技業相關的職專教育課程和職位示例

香港珠海學院

- 資訊科學（榮譽）理學士

香港專業進修學校

- 電腦學高級文憑（流動應用程式及遊戲開發）

香港恒生大學

- 應用及人本計算學（榮譽）文學士
- 數據科學及商業智能學（榮譽）理學士
- 管理科學與資訊管理（榮譽）學士

香港專業教育學院

- 人工智能及智能科技高級文憑
- 網絡安全高級文憑
- 數據科學及分析高級文憑

- 金融科技高級文憑
- 多媒體、虛擬實境及互動創作高級文憑

香港城市大學專業進修學院

- 商業資訊科技（榮譽）理學士

才晉高等教育學院

- 道德黑客與網絡安全（榮譽）理學士
- 電子計算（榮譽）理學士
- 多媒體計算（榮譽）理學士
- 資訊科技（榮譽）理學士

香港高等教育科技學院

- 資訊及通訊科技（榮譽）理學士
- 創新及多媒體科技（榮譽）理學士

支持資訊科技業的相關職位



金融科技人員



網絡安全相關職位



機器學習和預測分析師



流動應用程式開發員



資訊和通訊技術人員



機械人程式設計師



數據科學家和分析師



商業智能相關職位



多媒體、虛擬實境和互動技術人員



電訊和網絡相關職位

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府的職專教育網站（無日期）、(2) 羅兵咸永道分析

**VPET supports the
new-normal Information
Technology environment,
which has been
accelerated by COVID-19**

**職專教育支援在2019冠狀病
毒病疫情下加速發展的資訊
科技行業**



Dr. David CHUNG, Under Secretary for Innovation and Technology Bureau of the HKSAR Government, shared with us his insights in the crucial role to be played by VPET in response to this fast-changing industry.

Global innovation and technology trends that are already undergoing transformation have been accelerated by the impacts created from COVID-19. The demand for human capital in the IT industry in Hong Kong will continue to remain high in the coming 5 to 10 years, due to the rapid development of 5G, cloud computing, artificial intelligence, data science, blockchain, virtual banking and virtual insurance as well as Industry 4.0. What will be seen in 5 years' time would have been very different from what it is right now, especially for the digital economy with the rise of digital behaviour such as remote working and learning, telemedicine, and delivery services.

The job opportunities brought by the rapidly evolving IT industry could be substantial. Alongside the COVID-19 pandemic, Industry 4.0 and the rise of Mainland China's technology sector require significant skilled professionals to support the implementation of new technologies. Upskilling and reskilling opportunities offered by VPET are therefore crucial to bridge this "skills gap" in workforce demand, particularly in fulfilling technology firms' voracious demands for scarce talents. In this regard, VPET programmes can be better tailored to support the rapidly changing innovation and technology landscape and market requirements, as VPET providers are often able to update and fine-tune their curricula much more frequently and efficiently than conventional post-secondary institutes. Enhancing the existing "co-creation" model featured by the strong linkages between VPET providers and the industry would be essential for VPET to enhance its roles in supporting the development of innovation and technology and digitalisation.

香港特區政府創新及科技局副局長鍾偉強博士與我們分享了他對職專教育在應對瞬息萬變的行業中能如何可發揮關鍵作用的見解。

2019冠狀病毒病加速了轉型中的全球創新和資訊科技發展。由於5G、雲端運算、人工智能、數據分析、區塊鏈、虛擬銀行和虛擬保險，以及工業4.0的快速發展，未來5至10年，香港資訊科技行業對人力資源的需求仍然強勁。隨著遙距工作和學習、遙距醫療和速遞服務等興起，5年後的狀況——尤其是對於數碼經濟而言，將與現在大不相同。

資訊科技行業的迅速發展帶來大量就業機會。除了2019冠狀病毒病大流行，工業4.0和中國內地科技業的發展亦需要大量的高技術專業人員來推動新科技的應用。因此，職專教育提供的技能提升和再培訓機會，能有效填補從業員的「技能缺口」，滿足科技公司對專才的需要。在這方面的發展，職專教育機構往往能比傳統的專上學院更適時和更有效地更新和調整課程，因而能更切合迅速轉變的創科環境以及市場需求。加強職專教育機構與業界之間的緊密的「共創」模式，能提升職專教育對創新科技和數碼化發展的支援。

Apart from the Cybersecurity Centre, the VTC also established a Data Studio Laboratory, which is equipped with a video wall operated by advanced visualisation tools and servers with Cloudera Hadoop Distribution (CHD) that can process up to 100 Terabytes of data.

In order to foster collaboration with the industry, the Innovation and Technology Co-creation Centre was established in 2020 at IVE (Morrison Hill), bringing together students and industry players for designing and prototyping activities and fostering innovation and entrepreneurial culture.

As of 2020, Caritas Institute of Higher Education is one of about 20 institutes worldwide that offers a bachelor's degree programme in artificial intelligence (Keystone Academic Solutions, 2021). Students of the programme have access to the "Distributed AI Laboratory for Interdisciplinary Research" and "Digital Entertainment Laboratory" for acquiring the latest knowledge and skills in information technology and AI (Caritas Institute of Higher Education, n.d.).



Innovation & Technology Co-creation
Centre at the VTC
VTC企業共創中心

除了網絡安全中心，VTC還建立了一個數據工作室，該設施配備通過高級視覺化器材和Cloudera Hadoop Distribution (CHD) 的伺服器操作的電視牆。該伺服器可以處理多達100TB的數據。

為了促進與業界的合作，VTC於2020年在香港專業教育學院（摩理臣山）成立企業共創中心，連結學生和業界相關人士進行設計和原型設計活動，培養創新和企業家文化。

截至2020年，明愛專上學院是全球約20家提供人工智能學士學位課程的院校之一（Keystone Academic Solutions，2021年）。該課程的學生可以使用「跨學科研究的分佈式人工智慧實驗室」和「數碼娛樂實驗室」，以獲得資訊科技和人工智能的最新知識和技能（明愛專上學院，無日期）。

Recognising the considerable amount of human capital and resources that are required for mountain search and rescue work, Mr. LEE Wai Shun, a 2019 IVE graduate of Higher Diploma in Data Science and Analytics, co-developed a drone-based search and rescue support system for extreme terrains named “SkyEye” with three other classmates. SkyEye utilises big data and AI technologies to take real-time images, locate people, pinpoint and display the location of the rescue on a screen via a mobile application. This innovative project has led the team to win a First Class Award in the higher vocational school category of 2019 Pan-Pearl River Delta Region University Student IT Projects Competition.

Wai Shun is currently pursuing his Bachelor of Science in Computer Science at the City University of Hong Kong. He pointed out that the decision to continue his studies in a relevant field was largely influenced by the experience learned from the competition. He said: “...I realise the importance of data, and the fact that data must be analysed to become meaningful”, and “...I hope to further progress my studies and contribute to the society by developing different projects with my professional knowledge in big data and AI technology in the future.”

香港專業教育學院數據科學及分析高級文憑畢業生李瑋舜先生與其他三位同學意識到山區搜救工作需要大量人力資源。在2019年開發了能適應極端地形的無人機搜救支援系統，命名為「天眼」。天眼運用大數據和人工智能技術來拍攝實時影像，尋找等待救援的人士，並通過流動應用程式在螢幕上精確顯示救接地點。團隊憑藉這個創新項目，在2019年「泛珠三角 大學生計算機作品賽」中的高職組勇奪一等獎。

瑋舜目前在香港城市大學攻讀電腦科學理學士學位。他指出，之所以決定繼續在相關領域進修，很大程度上受到了比賽時學到的經驗影響。他說：「……這次研發經驗讓我體會到數據的重要性，但數據必須透過分析，才變得有意義。……我希望繼續進修，冀日後能透過大數據和人工智能的專業知識研發不同項目，回饋社會。」



Mr. LEE Wai Shun (third from right) and his SkyEye team
李瑋舜先生(右三)和他的「天眼」團隊



The SkyEye drone developed by IVE students
香港專業教育學院學生開發的「天眼」無人機

4.3.6

Promoting health and sustainability in Hong Kong and internationally

Overview

Hong Kong is a densely populated city with scarce land resources. The Government's strategic planning study - *Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030* (*Hong Kong 2030+*) – reveals that the key challenges towards developing into a smart, green and resilient city for Hong Kong can be summarised in Figure 4-39 (Development Bureau and Planning Department, 2016).

4.3.6

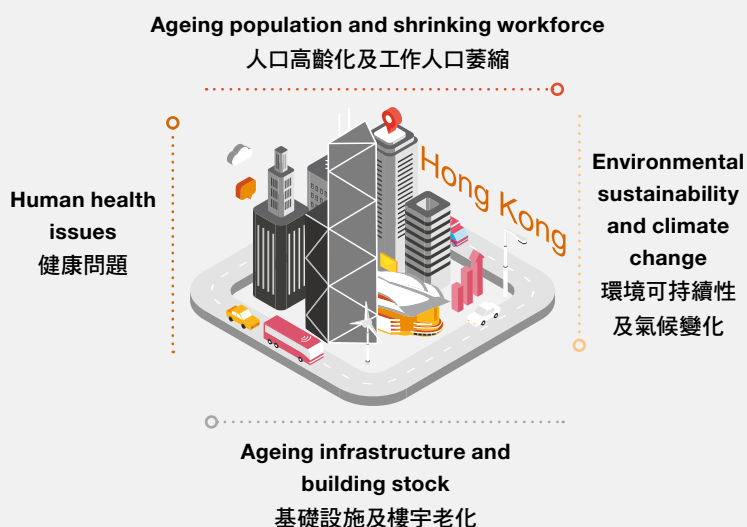
在香港和國際層面推動健康護理服務和可持續發展

概覽

香港是一個人煙稠密而且土地資源匱乏的城市。政府的策略性規劃研究《香港2030+：跨越2030年的規劃遠景與策略》（《香港2030+》）顯示香港要發展成為智慧、環保及具抗禦力城市所面臨的主要挑戰，如下圖4-39（發展局及規劃署，2016）所示。

Figure 4-39: Socio-economic challenges faced by Hong Kong

圖4-39：香港面臨的社會經濟挑戰



Source: (1) Development Bureau and Planning Department (2016), (2) PwC analysis
資料來源：(1) 發展局及規劃署 (2016)、(2) 羅兵咸永道分析

This section describes how VPET has helped to address these key challenges in the past and the roles it will play in supporting Hong Kong to achieve the strategies and visions in being a smart, green and resilient city going forward, as shown in Figure 4-40.

本部分介紹職專教育過去如何幫助應對這些挑戰，以及在未來支援香港實現成為智慧、環保及具抗禦力城市的策略和願景所能發揮的作用，如圖4-40所示。

Figure 4-40: Examples of VPET programmes addressing key socio-economic challenges

圖4-40：解決主要社會經濟挑戰的職專教育課程示例



Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC analysis

資料來源：(1) 香港特別行政區政府的職專教育網站（無日期）、(2) 羅兵咸永道分析

Ageing infrastructure and building stock

Buildings in Hong Kong are mainly constructed with a general design life span of 50 years, and as buildings reach the age of 30 or above, more frequent inspection, repair and maintenance work are required. There are over 24,000 private buildings aged over 30 years old in 2018 (around 73% of the total number of private buildings), which would require more regular maintenance works (Legislative Council, 2020a).

Since 1980s, the rise in the number of ageing buildings has also led to significant increase in non-construction site works, such as building repair and maintenance (Ng et al., 2007). This has posed challenges to the construction industry because it requires a large amount of manual work. As a result, this has led to a high demand of multi-skilled workforce with specialisation in repair and maintenance – the number of persons engaged in repair and maintenance work account for the highest proportion of workforce (nearly 40%) among all types of activities in the construction industry.

VPET has made a paramount contribution in addressing the workforce needs in construction, building services, repair and maintenance (including water, gas and electricity supply), which are crucial for Hong Kong's development.

Ageing population and shrinking workforce

The ageing population is a common challenge faced by a number of countries around the globe and Hong Kong is not an exception. According to latest population projections conducted by C&SD in 2020, while Hong Kong's population is projected to grow in the coming 30 years from 7.5 million in 2019 to 8.0 million in 2049, the proportion of people aged 65 or above is expected to increase from 18% to 34% during the same period. The population aged between 20 and 65 years old is expected to reduce from 5.0 million in 2019 (67% of total population) to 4.5 million in 2049 (56% of total population), which inevitably means that there could be a smaller pool of workforce in the years ahead (C&SD, 2020b). Planning for building Hong Kong into an age-friendly community with effective medical and residential care facilities for the elderly is important for the future of Hong Kong.

VPET has played an important role in supplying human capital for providing elderly care and community services. Moreover, in tackling the problems brought by the shrinking workforce, VPET has contributed to enhancing productivity and ensuring skill matching of the workforce.

基礎設施及樓宇老化

香港樓宇建造一般以50年壽命來設計，隨著樓齡達到30年或以上，樓宇需要進行更頻繁的檢查、維修及保養。2018年樓齡在30年以上的私人樓宇有2萬4千多幢（約私人樓宇總數的73%），此意味著需要很多定期維修工程（立法會，2020a）。

自1980年代以來，隨著樓齡高的樓宇數量上升，非建築工地的工程，例如樓宇維修及保養，也大幅增加（Ng et al., 2007）。對體力勞動工作需求的增加，給建造業帶來了挑戰。這導致業界殷切需求維修及保養的技術人員。因此，在建造業所有工種中，專門從事維修和保養工作的人數所佔比例最高（近40%）。

職專教育多年來滿足了建築、屋宇裝備、維修及保養（包括水、燃氣和電供應）業的人力需求，對香港的發展貢獻良多。

人口高齡化及工作人口萎縮

人口高齡化是全球不少國家都要面臨的挑戰，香港也不例外。根據政府統計處在2020年的最新人口預測，雖然香港人口在未來30年預計會由2019年的750萬人增至2049年的800萬人，但65歲或以上的人口比例則同期從18%增至34%。預計介乎20歲至65歲之間的人口將從2019年的500萬（佔總人口的67%）減至2049年的450萬（佔總人口的56%），這必然意味著工作人口在未來幾年會減少（政府統計處，2020b）。因此，規劃將香港建設成一個對長者友善的社區，為長者提供有效的醫療及住宿護理設施，對香港的未來十分重要。

職專教育在提供人力資源以提供長者護理及社區服務方面發揮著重要作用。此外，為了解決工作人口萎縮帶來的問題，職專教育為提高生產效率及確保工作人口的技能匹配作出了貢獻。

Human health issues

With the outbreak of COVID-19 pandemic as well as the prevailing health issues posed by an ageing population, increasing the capacity and robustness of the healthcare system has been one of the top agenda items of many jurisdictions globally. The supply of sufficiently skilled and professional workforce would be the cornerstone for building a strong healthcare system and ensuring the provision of quality healthcare services. As demonstrated in the next section, through providing practical training and vocationally-oriented education in healthcare and medical related areas, namely medical service management, hospital operations and nursing, VPET helps to nurture human capital that are in demand for safeguarding the health and well-being of each individual in Hong Kong.

Environmental sustainability

As a component that has been strongly supported by the United Nations, environmental sustainability is one of the three dimensions of achieving sustainable development apart from economic and social aspects (United Nations, 2015). In the local context, air pollution and waste management are top two critical issues to tackle in building a sustainable and environmental-friendly Hong Kong. Driven by the increasing awareness of environmental protection, the environmental industry emerges to provide services for reducing the negative impacts of hazardous chemicals, urban activities and waste as well as enhancing the efficient uses of water and energy. As the workforce required to support these services will continue to increase, VPET providers have placed greater resources in nurturing young people by providing programmes for the environmental industries.



健康問題

隨著2019冠狀病毒病疫情爆發，以及人口高齡化帶來的普遍健康問題，醫療體系的負荷能力及穩健性已成為全球多地的首要議題之一。提供足夠熟練而專業的技術人才，是建立強大醫療體系，確保優質醫療服務供應的基石。如下一節所述，職專教育透過在醫療及保健相關範疇（即醫療服務管理、醫院營運及護理）提供實踐培訓及職業為導向的教育，培養適切的人力資源，保障市民的健康和福祉。

環境可持續性

環境可持續性是除了經濟和社會層面以外，實現可持續發展的三大要素之一（聯合國，2015年），亦是聯合國一直大力支持的發展議題。就本地而言，建設一個可持續發展和環保的香港，空氣污染及廢物管理是兩個需要解決的主要問題。在環保意識日益加強的推動下，環保產業應運而生，紛紛提供服務，以減少有害化學物質、城市活動和廢物的負面影響，以及提高水和能源的有效利用。隨著支援這些服務所需的工作人口持續增加，職專教育機構透過為環保產業開辦課程，投入更多資源培養年青人。

One of the key missions of the VTC is to continuously supply human capital and develop young people's interests in entering industries, such as building maintenance, lift and escalator maintenance railway maintenance, electrical and gas engineering that are crucial for upholding Hong Kong's normal operations and daily life of the citizens. Graduates from the VTC and the wider VPET community are making tremendous contributions as unsung heroes and heroines.

VTC其中一個重要使命，是為社會培育人才、培養年輕人對投身行業的興趣，特別是一些與市民生活和社會運作息息相關的行業，如：樓宇維修、升降機及自動梯維修、鐵路維修、電機及燃氣工程行業等。VTC和不同職專教育院校的畢業生均是貢獻良多的無名英雄。

Dr. Carrie YAU | 尤曾家麗博士，GBS, JP

Executive Director of the VTC
VTC執行幹事



In the following section, three impact studies relating to the engineering, environmental, and healthcare industries are presented to illustrate the social impacts of VPET.

下一節將展示與工程、環境及醫療行業相關的三項研究，以闡述職專教育對社會發展發揮舉足輕重的作用。

Figure 4-41: Key economic indicators of three industries

圖4-41：三大行業主要經濟指標

Engineering | 工程

HK \$209 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
2,090億港元

335,000
persons employed in 2019

2019年就業人數為
335,000人

Environmental | 環境

HK \$10 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
100億港元

45,000
persons employed in 2019

2019年就業人數為
45,000人

Healthcare | 健康護理

HK \$51 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
510億港元

102,000
persons employed in 2019

2019年就業人數為
102,000人

Source: (1) C&SD (2020c, 2020d, 2020e, 2020g), (2) PwC analysis

資料來源：(1) 政府統計處 (2020c、2020d、2020e、2020g)、(2) 羅兵咸永道分析



Impact Story – Supporting the Engineering Industry

啟發故事 —— 支援工程業

Overview

Given the scarcity in land supply, high-rise buildings and skyscrapers dominate Hong Kong's urban landscape, with lifts and escalators being the primary means of vertical transportation within buildings. There are 69,457 lifts and 9,930 escalators in Hong Kong and over half (57%) of the lifts and 47% of the escalators were installed over 20 years ago (Figure 4-42) (EMSD, 2020; Legislative Council, 2017a). Lift density is also high in the city – with an average of around 110 persons sharing one lift, which means each lift has to travel up and down for at least 20 times a day (Legislative Council,

2017a). Thus, a significant amount of a skilled workforce is needed for repairing and maintaining the ageing lifts and escalators.

A skilled workforce is also needed in ensuring the efficiency and quality of Hong Kong's public transportation network. Known to have one of the best-in-class public transportation systems in the world, Hong Kong has an existing railway network of a total length of 262 kilometres (Transport Department, 2020). Such facilities and infrastructure require routine repair and maintenance to ensure delivery of efficient and quality train services to the general public.

Figure 4-42: Key statistics for the engineering industry

圖4-42：工程業的主要統計數據

Demand for engineering specialists in Hong Kong

香港對工程專才的需求



2.7 million | 270萬

Total number of households in Hong Kong in 2020

2020 年香港家庭住戶總數



73%

Percentage of private buildings aged 30 and above in 2018

2018年樓齡達30年及以上的私人樓宇百分比



262 km | 262公里

Total route length of railway network in Hong Kong

香港鐵路網絡全長



69,457 lifts and 9,930 escalators
in Hong Kong in 2020

2020 年香港有

**69,457部升降機及
9,930部自動電梯**

Source: (1) Legislative Council (2017a, 2020a), (2) Transport Department (2020), (3) EMSD (2020), (4) C&SD (2020n), (5) PwC analysis
資料來源：(1) 立法會 (2017a、2020a)、(2) 運輸署 (2020)、(3) 機電署 (2020)、(4) 政府統計處 (2020n)、(5) 羅兵咸永道分析

To ensure smooth day-to-day operations of building utilities and public infrastructure, engineering technicians and specialists are needed. Not only have they helped to ensure the safety of commuters and citizens, but also contributed to sustained growth and development of Hong Kong. Today, the engineering industry (including building services and maintenance, water, gas and electricity engineering and railway engineering) employs over 335,000 professionals. Each year there are around 6,500 – 7,000 registered apprentices being trained by VPET providers (Legislative Council, 2019a).

概覽

由於土地供應匱乏，多層樓宇及摩天大廈成為香港的城市景觀，升降機及自動電梯為樓宇內的主要垂直運輸工具。香港共有69,457部升降機及9,930部自動電梯，其中超過一半(57%)的升降機及47%的自動電梯是在20年前安裝的（圖4-42）（機電署，2020；立法會，2017a）。城市中的電梯密度也很高——平均約110人共享一部升降機，這意味著每部升降機每天至少要上落20次（立法會，2017a）。因此，需要大量的技術人員維修和保養老化的升降機和自動電梯。

除此之外，香港公共交通網絡也需要專業技術工程人員助其維持

系統的效率及質素。香港現有鐵路網絡全長262公里，被譽為全球最先進的公共交通系統之一（運輸署，2020）。這些設施及基礎設施需要例行維修及保養，以確保能為公眾提供高效及優質的列車服務。

為確保樓宇及公共基礎設施運作暢順，社會需要工程技術人員及專家來支援日常營運。這不僅有助確保乘客及市民的安全，還為香港的持續增長及發展作出了貢獻。現時，工程業（包括建築物裝備及維修、水、燃氣和電力工程及鐵路工程）僱用了335,000多名技術人員。每年大約有6,500至7,000名註冊學徒接受職專教育機構的培訓（立法會，2019a）。

VPET's role in training Hong Kong's electrical, mechanical and building services engineers

With the high demand for a skilled workforce in the engineering and building industries, VPET providers, such as the VTC, have been offering a number of related programmes. Examples of these programmes and the associated career opportunities are set out in Figure 4-43.

For instance, the VTC currently offers a Higher Diploma in Electrical Engineering, which is fully accredited by the Hong Kong Institution of Engineers (HKIE) and the Electrical and Mechanical Services Department (EMSD) of the HKSAR Government. This means that a graduate satisfying the academic requirements is eligible to apply for being an Associate Member of the HKIE and a Grade B Registered Electrical Worker at the same time. Furthermore, as part of the curriculum, the VTC collaborates with industrial partners such as AECOM Asia Company Limited, ATAL Engineering Limited and Gammon Construction Limited to provide practical training to students.

Over the past 35 years, VPET has trained nearly 253,000 engineering students, representing 47% of total persons engaged in the engineering industry in 2019.

For the lift and escalator industry, the VTC is the main VPET provider in training technicians through its diploma studies, apprenticeships and E&L Scheme. With the introduction of E&L Scheme, the number of new apprentices enrolled each year has increased from 95 in 2013/14 to 250 in recent years (namely from 2016 to 2019) (EMSD, 2020). In addition, the VTC and HKU SPACE introduced two different courses in lift and escalator maintenance for in-service workers to acquire academic qualifications so as to be eligible in becoming Registered Workers. The CIC also introduced “Contractor Cooperative Training Scheme” for Electrical and Mechanical (E&M) trades (including lift and escalator mechanics), which provides financial incentives for attracting new entrants to the lift and escalator industry.

職專教育在培訓香港機電及屋宇設備工程師方面的角色

由於社會對工程和建築行業的技術專才需求殷切，VTC等職專教育機構開辦了多個與機電及屋宇設備工程有關的課程(見圖4-43)。

舉例來說，VTC現時開辦的電機工程高級文憑獲香港工程師學會及香港特區政府機電工程署認可。符合學歷要求的畢業生有資格申請成為香港工程師學會會員及B級註冊電業工程人員。此外，VTC與業界夥伴合作，例如艾奕康有限公司、安樂工程集團有限公司和金門建築有限公司，為學生提供實習培訓。

35年來，職專教育已培訓了近253,000名工程專業學生，佔2019年從事工程業總人數的47%。

在升降機及電梯行業方面，VTC一直是提供文憑課程、學徒訓練及職學計劃培訓技術人員的主要職專教育機構。職學計劃推出後，每年招收的學徒人數從2013/14年度的95人增至近年（即2016年至2019年）的250人（機電署，2020）。此外，VTC及香港大學專業進修學院開設兩種不同的升降機及電梯維修課程，供在職人員考取學歷，以符合資格成為註冊人員。建造業議會亦為機電業推出「承建商合作培訓計劃」（包括升降機及自動電梯技工），為學員提供資助以吸引更多新人加入升降機及電梯業。

Figure 4-43: Examples of VPET programmes related to electrical, mechanical and building services and the associated career opportunities

圖4-43：與機電及屋宇裝備相關的職專教育課程和職位示例

IVE | 香港專業教育學院

- HD in Automotive Engineering
汽車工程高級文憑
- HD in Building Services Engineering
屋宇裝備工程學高級文憑
- HD in Electrical Engineering
電機工程高級文憑
- HD in Mechanical Engineering
機械工程學高級文憑
- PD in Plumbing Engineering
水務工程專業文憑

OUHK | 香港公開大學

- BEng (Hons) in Building Services Engineering and Sustainable Development
屋宇設備工程及可持續發展 (榮譽) 工學士

PolyU HKCC | 香港理工大學香港專上學院

- HD in Mechanical Engineering
機械工程高級文憑
- BEng (Hons) in Mechanical Engineering
機械工程學 (榮譽) 工學士

SHAPE | 才晉高等教育學院

- BEng (Hons) in Electrical Engineering
電機工程學 (榮譽) 工學士
- BEng (Hons) in Mechanical Engineering
機械工程學 (榮譽) 工學士
- BEng (Hons) in Building Services Engineering
屋宇裝備工程 (榮譽) 工學士

THEi | 香港高等教育科技學院

- BEng (Hons) in Building services Engineering
屋宇設備工程 (榮譽) 工學士

Roles supporting the electrical, mechanical and building services industry
支持機電及屋宇裝備業的相關職位



Building Service Consultants
屋宇裝備顧問



Building Service Engineers
屋宇裝備工程師



Automotive Engineers
汽車工程師



Lift and Escalator Maintenance Engineers
升降機及電梯工程師



Mechanical Engineers
機械工程師



Electrical Engineers
電機工程師

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC analysis

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府的職專教育網站 (無日期)、(2) 羅兵咸永道分析

VPET graduates are demanded by the industry. Taking the VTC's Higher Diploma in Building Service Engineering programme as an example, the average employment rate in recent years exceeded 90%, and graduates are readily employed by both private and public organisations.

Apart from entering employment, VPET graduates are offered with a number of articulation opportunities to pursue further studies in local and overseas universities.

業界對職專教育畢業生的需求殷切，以VTC的屋宇裝備工程學高級文憑課程為例，近年來，畢業生的平均就業率超過90%，包括在私人和公營機構任職。

除了就業外，職專教育畢業生也有很多的升學機會，包括於本地和海外大學繼續深造。



Vplus Engineering | Vplus 工程專才

The Government has introduced a pilot subsidy scheme, named Vplus Engineering by the VTC, to encourage in-service practitioners in the disciplines of construction and engineering to pursue higher education qualifications and enhance their professionalism. Students under this scheme could be provided with a subsidy amounting to 60% of the tuition fees (with a cap at HK\$45,000 per person) to pursue designated professional part-time programmes at the VTC (VTC, n.d.c). This scheme seeks to promote lifelong learning and enhance upward mobility for working adults in the construction and engineering industry. For example, some of the designated programmes provide training and knowledge sharing on applications of latest technologies, such as BIM and smart building technologies.

政府推出了一項資助先導計劃，由VTC提供名為「Vplus工程專才」的計劃，以鼓勵建築及工程學科的在職人士持續進修，爭取更高學歷，並提高其專業水平。在這計劃下，學生可獲資助60%的學費（每人上限45,000港元），以修讀VTC指定兼讀制專業課程（VTC，無日期c）。該計劃旨在鼓勵建築及工程業的在職人士持續進修，協助他們在社會向上流動。舉例來說，某些指定課提供有關最新技術應用的培訓及知識共享，如建築信息模擬及智能建築技術。

VPET's role in training a skilled workforce for the utility industry

The gas, water, electricity and transport sectors represent essential services that are crucial to keep the society running. As such, it is important that these are developed and maintained by qualified personnel so that reliable universal access is available.

In ensuring a sustainable supply of human resources in maintaining the gas and electricity network in Hong Kong, VPET providers partner with leading corporate academies of public utilities companies, namely Towngas Engineering Academy and CLP Power Academy, to co-develop specialised programmes for utilities maintenance.

To serve the gas sector, the VTC and Towngas Engineering Academy jointly offer the first and only part-time Professional Diploma in Gas Engineering in Hong Kong. This programme is designed for working adults who wish to specialise in gas engineering. Students are given opportunities to visit a number of Towngas environmental projects, such as the largest landfill gas

conversion facility at Tseung Kwan O South Landfill in Asia. Apart from specialist qualifications, Towngas Engineering Academy also offers technician and craft apprenticeship programmes to students who are given a full company sponsorship to attend designated VTC programmes.

Similar programmes are also offered in the electricity sector. CLP Power Academy, a corporate academy established by CLP Holdings Limited (CLP), has formed collaborations with the VTC and PolyU SPEED to provide VPET programmes in power engineering. Examples include a Professional Diploma in Power Engineering jointly offered with the VTC, in the areas of electrical fitting, control wiring and switchgear operation, and the part-time Bachelor of Engineering (Honours) in Electrical Engineering programme offered with PolyU SPEED (CLP Power Academy, 2019a, 2019b).

職專教育在培訓公用設施行業技術人員方面的角色

燃氣、水、電力及運輸業等公共服務對香港社會的運作非常重要。因此，相關的設備和設施必須由合資格的人員來建設及保養，以確保這些服務的可靠性。

為了確保香港在維修保養燃氣及電力系統方面有可持續的人力資源供應，職專教育機構與公用事業龍頭公司的企業學院（即中華煤氣工程學院及中電學院）合作，共同開辦與維修公用設施相關的專門課程。

VTC與中華煤氣工程學院合辦全港首創及唯一的兼讀制燃氣工程專業文憑課程。該課程為有志從事燃氣工程的在職人士而設。學生有機會參觀多項煤氣公司的環保項目，例如全亞洲最大的將軍澳南堆填區的堆填氣體轉換設施。除了專業資格外，中華煤氣工程學院還開設技術人員及學徒訓練計劃，為修讀指定的VTC課程的學生提供全額資助。

電力行業也提供類似的課程。由中電控股有限公司（中電）成立的中電學院與VTC及香港理工大學專業進修學院合作，提供電力工程的職專教育課程，包括與VTC共同開辦的電力工程專業文憑課程，該課程涵蓋電氣裝置、控制線路及開關設備操作等的培訓，以及與香港理工大學專業進修學院開辦的兼讀制電機工程學（榮譽）工學士課程（中電學院，2019a，2019b）。

After completion of the programme, graduates are eligible to register as Competent Persons under CLP Power Safety Rules, allowing them to pursue a career with CLP. As described by Ir. Paul POON, Vice Chancellor of CLP Power Academy, “with Hong Kong’s continuing growth and large-scale infrastructural developments, CLP noted the demand for electrical and mechanical professionals. It also saw the gap between vocational career training and higher education, thus its collaboration with other VPET providers in running part-time vocational-based power engineering programmes is a win-win solution for the students, the industry and education providers. The programmes aim to ensure a sufficient supply of competent engineering professionals for the industry and also provide an upward mobility pathway for youths in Hong Kong. This is because the programmes

can meet the latest industry needs through inputs provided by CLP in course contents and practical training/projects, while the education providers can supply the necessary teaching and supporting resources for delivering the programmes – which is an efficient and effective model for VPET development. More importantly, not only can the students develop skills and knowledge required by the industry, they also have more opportunities in securing jobs with CLP and other engineering organisations for their career advancement.”

完成課程後，畢業生即符合資格，根據《中華電力安全規則》註冊成為「勝任人士」，可以在中電工作。如中電學院校長潘偉賢工程師所述：「香港的電力行業一直面對人力資源嚴重短缺，因此與其他職專教育機構合作，對於學生、業界及教育機構而言是三贏模式。因為中電可以通過提供課程及培訓內容，確保受訓的人才能滿足業界的最新需求，而教育機構則可以提供所需的教學資源來舉辦這些課程，這是一種有效的人力資源發展模式。更重要的是，學生不僅可以學到行業所需的技能和知識，還有機會在中電工作，並隨著發展向上流動。」



Green infrastructures with smart power supply are key to Hong Kong's gradual transformation into a world-class smart city. Smart grids which integrate information and communication technologies with the power generation and distribution network can help enhance energy efficiency, reliability and safety. As many new infrastructural projects are under construction, Hong Kong needs more new power engineering talents to help take forward the smart energy initiatives. Let me express my sincere gratitude to the VTC and CLP for grooming skilled professionals for the smart development of the power engineering industry and society. This is a shining example of the collective efforts of academia and the industry.

配備智能供電系統的綠色基礎設施，對香港發展成為世界級智慧城市尤為重要。智能電網結合資訊及通訊科技、發電和配電網絡，能提升能源的效益、可靠性和安全性。本港有不少基建項目正在進行，行業需要更多電力工程人才，推動智慧能源的發展。VTC及中華電力有限公司緊密合作，為電力工程和智慧城市的發展培育專才，成為學界和業界協作的良好典範。



The Hon. Matthew CHEUNG Kin-chung
香港特別行政區政府政務司司長 張建宗

GBM, GBS, JP
Chief Secretary for Administration of the HKSAR Government
Extract of the video speech at the Opening Ceremony of VTC's
CLP Power Engineering Laboratory in April 2021
2021年4月 VTC「中電電力工程實驗室」開幕禮視像致辭節錄

VPET's role in training a skilled workforce for the railway industry

Maintaining a high-quality railway service has been one of the most essential part of Hong Kong's daily operations as it affects local and cross border mobility. The Mass Transit Railway (MTR) remains one of the most frequently used public transport in Hong Kong, accounting for over 40% of all trips made on public transport each day (Transport Department, 2020). In response to the increasing need for railway professionals to maintain and operate trains, the MTR Academy was established in 2016 as a training and research hub to nurture local and international talents for railway transport.

The MTR Academy not only offers about 7,000 classes in management and functional training for the company's staff every year, but also the following accredited programmes to external students:

- Applied Learning – Railway Studies programme (as part of HKDSE Category B courses);
- Diploma in Transport Studies – pegged at QF Level 3;
- Advanced Diploma in Transport Operations and Management – pegged at QF Level 4; and
- Advanced Diploma in Railway Engineering – pegged at QF Level 4.

Students are able to pursue further studies in other higher education institutes upon completion of the above studies with MTR Academy. Details of the articulation pathway for accredited programmes provided by the MTR Academy are shown in Figure 4-44.

職專教育在培訓鐵路業技術人員方面的角色

鐵路服務涵蓋本地及跨境交通，因此維持優質的鐵路服務是香港日常運作中重要的一環。港鐵是香港重要的公共交通工具之一，每日載客量佔公共運輸總載客量40%以上（運輸署，2020）。

因應行業對維修及營運列車專業人員需求日益增加，港鐵學院於2016年成立，作為培訓和研究中心，為鐵路運輸培養本地及國際人才。

港鐵學院不僅每年為公司員工提供約7,000個管理及功能培訓課程，還為外部學生提供以下經評審的課程：

- 應用學習——鐵路學課程（作為文憑試乙類課程的一部分）；
- 運輸學文憑——與資歷架構第三級掛鉤；
- 運輸營運及管理高等文憑——與資歷架構第四級掛鉤；及
- 鐵路工程高等文憑——與資歷架構第四級掛鉤。

在港鐵學院完成以上課程後，學生可以在其他高等教育機構繼續深造。港鐵學院所開辦的「經評審課程」銜接途徑見圖4-44。

Figure 4-44: Accredited programmes offered by the MTR Academy

圖4-44：港鐵學院所開辦的「經評審課程」銜接途徑



Source: (1) MTR Academy (n.d.), (2) PwC analysis

資料來源：(1) 港鐵學院（無日期）、(2) 羅兵咸永道分析

Alumni Stories | 校友故事

Mr. HO Shing Kwan is a graduate of the VTC's Certificate in Gas Services Engineering. He worked as an apprentice at the Towngas for two years after completing the one-year full-time classroom courses.

Shing Kwan shared that the apprenticeship with Towngas broadened his horizon and inspired him to pursue a long-term career in gas engineering. Shing Kwan said: "In Towngas, there are many departments and business units, such as gas production, gas transmission and distribution, maintenance, emergency services, regular safety inspection, new project installation, etc. Then it dawned on me that gas engineering was so much more than the cooking appliances and water heaters at home." Apart from technical skills and knowledge, he also developed communication skills and learnt to work with different people. His hard work and passion enabled him to graduate as the best apprentice in Towngas, brought him the VTC Outstanding Apprentice Award 2013 and Outstanding Apprentice Award of Sir Edward Youde Memorial Fund.

He is now a fully qualified gas utilisation fitter, working his way up to be qualified as a professional gas engineer.

何誠軍先生畢業於VTC氣體燃料工程技工證書課程，並在完成為期一年的全日制課程後，在煤氣公司當了兩年學徒。

誠軍表示在煤氣公司當學徒拓闊了他的眼界，並啟發了他在氣體燃氣工程業追求長遠事業發展的志向。誠軍說：「煤氣公司有很多部門和業務單位，例如燃氣生產、輸氣和配氣、維修、緊急服務、定期安全檢查、新樓項目等……燃氣工程原來不只是家用爐具和熱水器。」

除了專業技能和知識外，他還掌握了溝通技巧，並學會與不同的人共事。他的努力使他能夠成為煤氣公司的最佳學徒，並獲VTC在2013年頒發傑出學徒獎及尤德爵士紀念基金會傑出學徒獎。

他現在已是合資格的燃氣技術員，並繼續努力，以成為一個專業燃氣工程師。



Mr. HO Shing Kwan
何誠軍先生

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自
VTC 校友資料庫。

Ms. Daphne SZE is the only female apprentice in her year in the electronic technician apprentice training programme at MTR. Daphne worked hard during the day and attended night classes at the VTC. Following which, she obtained a bachelor's degree at the Open University of Hong Kong.

Daphne shared that during her apprenticeship, she had the opportunity to work with mechanics and technicians in learning more about the attitude and values required to perform as a railway technician.

She believes having the opportunity to gain hands-on experience was valuable to her. She said: "Every technician has different personality and attitude. They showed care for me in different manners. Some of them pamper me like their daughter. Some of them adopt a hands-off approach and give me opportunities to try things out. That's how I grew as a person and as a worker."



Ms. Daphne SZE
施巧輝女士

施巧輝女士(Daphne)是港鐵電子技術員學徒訓練計劃中同期唯一女學徒，工作間以男性為多。在訓練期間，Daphne日間努力工作，並在VTC修讀夜間課程。之後，她考獲香港公開大學的學士學位。

Daphne表示在當學徒期間，她有機會與機械工及技術員合作，學習更多有關擔任鐵路技術員所需的態度和價值觀。

她認為有機會汲取實際經驗對她來說很寶貴。她說：「每位師傅的作風都不同；關心我的方式也有別，有些視我如女兒般愛惜，有些很樂意給我機會嘗試，令我無論作為一個人還是一個技術人員都有很大得著，也在很多方面影響著我。以前我很大膽，凡事試了再說，做了學徒後反而變得謹慎，因為工作不容有失，即使有絲毫疏忽也會使乘客及自己的安全受到威脅。」



VPET's role in training a skilled workforce for the automotive industry

The number of licensed vehicles (including private cars, taxis, buses, and other types of vehicles) in Hong Kong had increased significantly from around 511,000 in 2000 to 803,000 in 2020 (Transport Department, 2021). Mechanics and technicians with specific knowledge, techniques and those who are experienced in carrying out inspection and maintenance for vehicles are well sought after by the market. However, the industry now encounters challenges in attracting new entrants and is short of the skilled workforce required to catch up with the growth in vehicle numbers.

VPET has a long history in nurturing young people and upskilling in-service practitioners for the automotive industry since 1983 when the VTC established an academic department specialising vehicle engineering. Over the last 35 years, as the main VPET provider of automotive engineering programmes, the VTC constantly develops and modernises its teaching and learning resources in order to catch up with the fast-evolving vehicle technologies.

Currently, the VTC offers apprenticeships, diploma, DVE and HD programmes in automotive engineering, such as the HD in Automotive Engineering accredited by the Institute of the Motor Industry Hong Kong and the Hong Kong Institution of Engineers (HKIE). Graduates from this HD programme can proceed to pursue a bachelor's degree in engineering at local and overseas universities. Those who prefer to learn in the real work environment can participate in the E&L Scheme as an apprentice to have school-based learning and on-the-job training while earning a monthly salary paid by employers with the support of the Government. Employers offering apprentice training include some of the large-scale companies and operators such as Zung Fu, BMW, Crown, New World First Bus, Citybus, EMSD and more.

According to Dr. Ringo LEE, Chairman of the Hong Kong Automobile Association and Chairperson of Automotive Industry Training Advisory Committee of the Hong Kong Qualifications Framework, "The employment prospects are promising for these apprentices, since they are trained by the industry and can develop hands-on skills from the on-the-job training, which typically can enable them to secure a full-time job as a junior mechanic upon completion of the programme."

職專教育在汽車業技術人員方面的角色

香港的持牌車輛（包括私家車、的士、巴士及其他類型的車輛）數量從2000年約511,000輛增至2020年的803,000輛（運輸署，2021）。具有車輛專業知識和維修技術的從業員，在市場上備受歡迎。然而，業界在吸引新人入職上遇到了挑戰，令技術人員的數量不足以追上車輛的增長。

自1983年VTC設立汽車工程的專業學術部門以來，職專教育在培育青少年及提升汽車業從業員技能方面有著悠久的歷史。在過去35年，VTC作為開辦汽車工程課程的主要職專教育機構，不斷發展和現代化其教學資源，以趕上車輛科技的迭代更新。

VTC現時就汽車工程提供學徒訓練、文憑、職專文憑及高級文憑課程，例如獲香港汽車工業學會及香港工程師學會認可的汽車工程高級文憑課程。修讀此高級文憑課程的畢業生可以繼續在本地及海外大學攻讀工程學士學位。喜歡在實際工作環境中學習的人則可參加職學計劃成為學徒，接受校本學習及在職培訓，同時在政府的支援下獲僱主支付月薪。提供學徒訓練的僱主包括一些大型企業及營運商，例如仁孚、寶馬、皇冠、新世界第一巴士、城巴、香港特區政府機電工程署等。

香港汽車會會長和資歷架構汽車業行業培訓諮詢委員會主席李耀培博士表示：「這些學徒的就業前景很好，因為他們由業界的就業前景很好，因為他們由業界訓練，可以從在職培訓中學到實際技能，在完成課程後能成為全職的初級機械技工。」

The continuing professional development courses offered by VPET providers, e.g. the Pro-Act Training and Development Centre of the VTC and ERB, are also crucial for industry practitioners seeking to advance their skills and techniques. “As the automotive industry evolves rapidly and vehicle systems are getting more sophisticated, it is always vital to ensure that mechanics and technicians are equipped with skills and techniques required by the applications of new vehicle technologies and emission standards. For example, hybrid cars and electric cars are becoming more popular. These cars may require more advanced techniques and technical knowledge to work on as compared to traditional vehicles. VPET will continue to be important for supplying new skilled human capital for the automotive industry”, said Dr. LEE.

職專教育機構提供的持續專業進修課程，例如僱員再培訓局及VTC的卓越培訓發展中心，對尋求提升技能及技術的從業員也很重要。李博士指：「隨著汽車行業快速發展及車輛系統日益完善，確保機械技工及技術人員具備應用新一代車輛及排放標準所需的技能和技術極為重要。例如混合動力汽車及電動汽車日益普遍，與傳統車輛相比，這些汽車可能需要更先進的技術及專業知識方能處理。職專教育將繼續為汽車業提供新技術專才。」

Self-developed solar-powered car attained international recognition

自主研发的太陽能電動車 獲國際肯定

A group of students and teachers in IVE Engineering Discipline has been developing an eco-friendly and solar-powered car, SOPHIE. After several years of continuous refinement and upgrades on the style, function, effectiveness and efficiency, the 6th edition of SOPHIE, SOPHIE 6s, was developed in 2019. This new edition is equipped with a brand-new electric motor system co-developed with a Hong Kong motor development company. The team participated in the World Solar Challenge in Australia with SOPHIE 6s and won the second runner-up prize.

香港專業教育學院工程學科的一眾師生研發環保型太陽能電動車SOPHIE。經過多年對設計、功能、效用及效率的不斷完善和升級，SOPHIE第七代SOPHIE 6s於2019年問世。這個新版配備了與香港一間電機發展公司共同開發的全新電機系統。該團隊以SOPHIE 6s出征澳洲的世界太陽能車挑戰賽，得季軍。



SOPHIE 6s

Source: IVE Engineering (2019b)

資料來源：香港專業教育學院工程 (2019b)



Impact Snapshot – Supporting the Environmental Industry

啟發故事 ——
支援環保產業

Environmental industry

With environmental sustainability being one of the key areas of concern locally and internationally, the environmental industry has grown rapidly. Currently, the environmental industry comprises six business areas, including water conservation and pollution control, air and odour pollution control, energy conservation, waste treatment, disposal and recycling, noise control and mitigation as well as environmental consulting services (HKTDC, 2019). The number of the workforce engaged in this industry increased from 32,410 people in 2009 to 44,670 people in 2019 at an annual growth rate of 3.3% (C&SD, 2020e). Going

forward, as public awareness of environmental conservation continues to grow and as the Government and relevant stakeholders continue to promote green initiatives, this industry is expected to require 51,500 people by 2027 (Labour and Welfare Bureau, 2019). Key statistics of the environmental industry are provided in Figure 4-45.

Figure 4-45: Key statistics of the environmental industry

圖4-45：環保產業的主要統計數據

Environmental industry in Hong Kong 香港的環保產業



HK \$ 9.9 billion
99億港元

in GDP in 2019
2019年的本地生產總值



40,600 kilotonnes
40,600千噸

of greenhouse gas emissions in 2018
2018年的溫室氣體排放量



28,700 terajoules
28,700太焦耳

of gas consumed in 2019
2019年的煤氣消耗量



6 million tonnes
600萬噸

solid waste generated in 2019
2019年產生的固體廢物



161,300 terajoules
161,300太焦耳

of electricity consumed in 2019
2019年的電力消耗量



1 billion cubic meters
10億立方米

of sewage generated in 2018
2018年產生的污水

Source: (1) C&SD (2020a, 2020g), (2) Environmental Protection Department (2016, 2020), (3) HKSAR Government (2021), (4) PwC analysis
資料來源：(1) 政府統計處 (2020a、2020g)、(2) 環境保護署 (2016、2020)、(3) 香港特別行政區政府 (2021)、(4) 羅兵咸永道分析

環保產業

隨著環保及可持續發展成為本地及國際關注的重點範疇之一，環保產業發展迅速。目前，環保產業包括六個業務領域，包括節約用水及污染控制，空氣及臭味污染控制，節約能源，廢物處理、棄置及回收，噪音控制及緩和，以及環境顧問服務（香港貿發局，2019）。就業人數從2009年

的32,410人增至2019年的44,670人，年增長率為3.3%（政府統計處，2020e）。展望未來，隨著公眾對環境保護的意識不斷增強，加上政府和相關持份者繼續推行環保措施，預計行業到2027年將需要51,500人（勞工及福利局，2019）。環保產業的主要統計數據見圖4-45。

VPET's role in training a skilled workforce for the environmental industry

According to Arcadis' 2018 *Sustainable Cities Index*, Hong Kong ranks second in Asia's most sustainable city ranking in terms of sustainable development in 2018 (Arcadis, 2018). Green infrastructure development and industrial activities are critical in developing a sustainable Hong Kong. Occupations such as green building consultants, environmental consultants and environmental engineers are increasing in demand. In response to this trend, VPET providers have offered programmes and courses relating to environmental engineering and environmental protection and management to nurture talents for supporting the industry.

For example, THEi currently offers a BEng (Hons) in Environmental Engineering and Management programme. This vocationally-oriented programme aims to equip students with the capability to assume professional roles as environmental engineers and multidisciplinary perspectives on various environmental issues, including air, water, waste and noise pollution. Apart from school-based training, students are required to complete 480 hours of work-integrated learning. Upon graduation, students are expected to be able to assess and control the environmental impact on new infrastructure development and industrial activities, and to manage environmental performance of companies in Hong Kong. More examples of environmental service-related programmes and the associated career opportunities are set out in Figure 4-46.

職專教育在培養環保產業技術人員方面的角色

根據Arcadis《2018年可持續城市指數》，香港在2018年亞洲最具可持續性城市的排名第二（Arcadis，2018）。綠化基建的發展及工業活動對促進香港可持續發展至關重要。行業對環保建築顧問、環保顧問及環境工程師等專才需求正不斷增加。因應這股趨勢，職專教育機構開辦與環境工程、保護及管理有關的課程，以培養行業人才。

例如，香港高等教育科技學院目前開辦環境工程及管理（榮譽）工學士學位，這個以專業為本的課程旨在使學生具備擔任環境工程師專業職務的能力，具有跨領域見解，並從多角度看待各項包括空氣、水、廢物及噪聲污染等環境問題。除了課堂學習外，學生必須完成480個小時的工作綜合學習。畢業後，學生具備評估及控制新基礎設施發展及工業活動對環境影響的相應技能，並能管理香港企業的環保表現。圖4-46展示與環境產業相關的課程及就業機會示例。



Figure 4-46: Examples of VPET programmes related to the environmental industry and the associated career opportunities

圖4-46：與環境業相關的職專教育課程和職位示例

IVE | 香港專業教育學院

- HD in Environmental Engineering
環境工程高級文憑
- HD in Environmental Protection and Management
環境保護及環境管理高級文憑
- HD in Environmental Science
環境科學高級文憑

THEi | 香港高等教育科技學院

- BEng (Hons) in Environmental Engineering and Management
環境工程及管理（榮譽）工學士

OUHK | 香港公開大學

- BEng (Hons) in Building Services Engineering and Sustainable Development
屋宇設備工程及可持續發展（榮譽）工學士
- BEng (Hons) in Civil and Environmental Engineering
土木及環境工程（榮譽）工學士

SHAPE | 才晉高等教育學院

- BSc (Hons) in Environmental Science
環境科學（榮譽）理學士

Roles supporting the environmental industry
支持環境產業的相關職位



Environmental Engineers
環境工程師



Environmental and Sustainable Development Officers
環保及可持續發展主任



Environmental Scientists
環境科學家



Environment Management Roles
環境管理職位



Building Service Providers
建築服務供應商



Environmental Protection Specialist
環保專家

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC Analysis

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府的職專教育網站（無日期）、(2) 羅兵咸永道分析

Mr. Madison TANG is a graduate with a Higher Diploma in Automotive Engineering from IVE. After gaining 23 years of experience in the automobile industry and 16 years of experience in the environmental engineering, he went back to school again and completed his master's degree in environmental engineering.

When Madison first interviewed for a job in the waste treatment company, he had no prior experience, yet his sense of responsibility and confident personality brought him the opportunity to work for his current waste treatment company. He has always been highly involved in his job because of his unswerving sense of responsibility. He said that "If waste and refuse are not treated properly, Hong Kong will be in chaos. Thus, an engineer is not only expected to do his job, but to do it well. It is an obligation we owe to the people we serve, and the best we could do for them." He also actively engaged in charity work to give back to the community.

Madison believed that "Everybody needs to dream. By dreaming, we want a little more and do a little better. We must have high expectations for ourselves. We need the courage to pursue our dreams and to put our thoughts into action. The process itself could be tough, but once you've made a decision, don't give up. Your dreams will come true if you insist."

鄧永漢 (Madison) 工程師於香港專業教育學院修畢汽車工程高級文憑課程。累積了23年的汽車業經驗及16年的環境工程經驗後，他重返校園，完成環境工程碩士學位。

當Madison第一次應徵廢料處理企業時，他並無任何經驗，但是他盡責和自信的性格，為他帶來於廢料處理企業工作的機會。Madison強烈的責任感，使他全情投入工作中。他說：「如廢物處理不當，香港的整體環境水平便會下降。因此，環境工程師不只是完成工作，更要出色地做好工作，這是我們對服務對象的義務及貢獻。」他還積極從事慈善工作，回饋社會。

Madison認為：「人需要有夢想，要想多一點，做得好一點。我們必須對自己抱有高度的期望，而且要敢於追求夢想，將夢想付諸實行。過程可能會遇到困難，但是一旦決定了，就不要輕言放棄。只要堅持不懈，夢想定能實現。」

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事源自 VTC 校友資料庫。



Ir. Madison Tang
鄧永漢 (Madison) 工程師



Waste treatment
company

廢料處理企業

16 years of
experience

16 年經驗

Environmental
engineering job

環境工程工作

23 years of
experience

23 年經驗

Automobile industry job

汽車業工作

IVE

香港專業教育學院

Higher Diploma in Automotive Engineering

汽車工程高級文憑



Impact Snapshot – Supporting the Healthcare Industry

啟發故事 ——
支援健康護理
行業

Healthcare industry

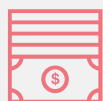
The elderly population in Hong Kong is expected to increase from 1.3 million (18% of total population) in 2019 to 2.7 million (34% of population) in 2049 (C&SD, 2020b). An ageing population, together with the increasing demand for quality healthcare services, have placed increasing pressure on the need for quality healthcare services in Hong Kong. This is further exacerbated with the unprecedented occurrence of the COVID-19 pandemic.

To ensure long-term sustainability of these services, it is one of the Government's priorities to enhance the capacity in providing public healthcare services through the development of healthcare facilities and training of healthcare personnel. Demand for the workforce in the healthcare industry will increase to 240,700 people by 2027 growing from 181,500 people in 2017 (Labour and Welfare Bureau, 2019). Key statistics of the healthcare industry are provided in Figure 4-47. With VPET providers already involved in training healthcare personnel, it is envisioned that they will continue to play an important role in training the next generation of healthcare professionals.

Figure 4-47: Key statistics of the healthcare industry

圖4-47：健康護理行業的主要統計數據

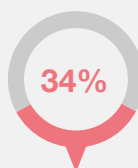
Healthcare industry in Hong Kong 香港的健康護理行業



HK\$ 177 billion
1,770 億港元

Total public and private expenditure on healthcare services in 2019

2019年公營及私營健康護理服務開支



34%

of total population aged 65 or above in 2049

年齡為65歲或以上的人士在2049年將佔總人口的**34%**



55 public and private hospitals and
66 nursing homes in 2019

2019年有**55**家公立及私立醫院和

66所護養院



Nearly 110,000
近110,000 名

registered healthcare professionals in 2019

2019年的註冊健康護理專業人員

Source: (1) Department of Health (2020), (2) C&SD (2020b), (3) PwC analysis

資料來源：(1) 衛生署 (2020)、(2) 政府統計處 (2020b)、(3) 羅兵咸永道分析

健康護理行業

香港的長者人口預計從2019年的130萬（佔總人口18%）增至2049年的270萬（佔人口的34%）（政府統計處，2020b）。隨著人口老化，加上對疾病護理、預防性護理及慢性病治療的需求愈加殷切，使香港對優質健康護理服務需求的壓力不斷增加。隨著2019冠狀病毒病疫情爆發，有關需求更進一步加劇。

為了確保健康護理服務的可持續性，政府的優先工作之一，是通過發展健康護理設施及培訓相關人員來提升公共健康的服務能力。到2027年，對健康護理行業人力的需求將從2017年的181,500人增至240,700人（勞工及福利局，2019）。圖4-47展示健康護理行業的主要統計數據。職專教育機構在培訓相關人員及下一代健康護理專業人員方面發揮著重要作用。

Dispensing

As of 2014, there were a total of 2,200 dispensers serving citizens of Hong Kong. In view of the importance of drug management in residential care homes, the Hong Kong Pharmaceutical Care Foundation and Hong Kong Registered Dispensers Society suggested to the Legislative Council to formally include dispensers in the workforce scheme for residential care homes for elderly (RCHEs) and residential care homes for persons with disabilities (RCHDs) in 2019 (Hong Kong Pharmaceutical Care Foundation, 2020). Inclusion of dispensers in the workforce mix of RCHEs and RCHDs will not only better support medication preparation and management process on a daily basis, but also lead to an increase in demand

for dispensers. Over the past 35 years, over 28,000 VPET students have graduated from the healthcare and sciences related disciplines, accounting for 27% of the total workforce in medical services industry. Particularly, the VTC has trained nearly 10,000 graduates in dispensing since the launch of programme in 1987.

Currently, VPET providers, such as IVE and Caritas Bianchi College of Careers, offer HD programmes in dispensing studies. As part of these programmes, students are required to complete at least 200 hours of on-site training in pharmacies, including those of the Hospital Authority. In addition, HKU SPACE also provides a foundation certificate programme in basic dispensing practice, which takes 7 months to complete.

配藥

截至2014年，香港共有2,201位配藥員為市民服務。鑑於藥物管理對護老院舍非常重要，香港藥學服務基金及香港註冊配藥員學會在2019年向立法會提出建議，將配藥員正式納入安老院舍及殘疾人士院舍的人事計劃（香港藥學服務基金，2020），這不僅能更好地支援日常的藥物準備及管理過程，更增加對配藥員的需求。在過去35年裏，超過28,000名職專教育學生畢業於健康護理及相關的學科，佔健康護理服務行

業總工作人口的27%。特別是自1987年推出相關課程以來，VTC培訓了近10,000名配藥畢業生。

目前，職專教育機構如香港專業教育學院及明愛白英奇專業學校等均開辦配藥學高級文憑課程。作為課程的必修部分，學生須完成至少200小時的藥房實地培訓，包括到醫院管理局的藥房進行培訓。此外，香港大學專業進修學院亦提供初級配藥實務基礎證書課程，為期七個月。



Students of Higher Diploma in Dispensing Studies at the Hong Kong Institute of Vocational Education
香港專業教育學院配藥學高級文憑的學生

Alumni Story | 校友故事

Mr. NG Ping Hei is an alumnus of the VTC.

Amongst 1,500 staff working in pharmacies across the Hospital Authority's network hospitals, there are only 15 Chief Dispensers. Ping Hei, a graduate from IVE, is one of them. Ping Hei has been working in Queen Mary Hospital (QMH) for more than 20 years since the age of 20, during which he earned his title as "Master NG" in the hospital's pharmacy. He noted that, "when I was studying at IVE, I did two rounds of internships and both of them happened to be at the QMH". He believed the internships provided him with the opportunities to understand the skills and knowledge required for working in a hospital and reinforced his learning acquired through school.

Master NG also highlighted that, "the VPET programme does not only emphasise on a particular vocational skill, but also focuses on the whole person development of students to train up their soft skills". Until this day, he remains to be in contact with his VTC teachers and is also responsible for coordinating internship programmes for VTC students at the QMH pharmacy. He encourages young people to take up the internship to pursue all-rounded development and to have a pro-active attitude at the workplace, which would help them to excel in the future.

Source: All alumni stories are sourced from VTC Alumni Database.

資料來源：所有校友故事均取材自VTC校友資料庫。

現時醫院管理局各網絡醫院的1,500名配藥職系員工中，只有15名總配藥員，香港專業教育學院畢業生吳秉禧先生就是其中之一。吳秉禧自20歲起就在瑪麗醫院工作，已經超過20年，在此期間，他在醫院藥房獲得「吳師傅」的稱號。他表示：「我在香港專業教育學院就讀期間，兩輪實習都被派往瑪麗醫院。實習讓我有機會了解在醫院工作所需的技能和知識，並強化從學校所得的學習成果。」

吳秉禧亦強調：「職專教育課程不僅重視行業相關的專業技能，且著重培養學生的全人能力，以訓練他們的軟性技巧。」時至今天，他仍與VTC老師保持聯繫，並負責統籌VTC學生到瑪麗醫院藥房進行實習。吳秉禧鼓勵青少年參加實習，以全面發展，並在職場上保持積極主動的態度，這將有助他們在未來取得成就。



Nursing

The rapid increase in the elderly population is likely to pose continued challenges to the healthcare industry in Hong Kong and around the world. In particular, Hong Kong faces a more acute challenge in the number of nurses available when compared with other advanced economies. As shown in Figure 4-48, Hong Kong on average had 7.3 nurses per 1,000 population in 2017, which remained below the OECD average of 8.8 nurses per 1,000 population. This is significantly below the

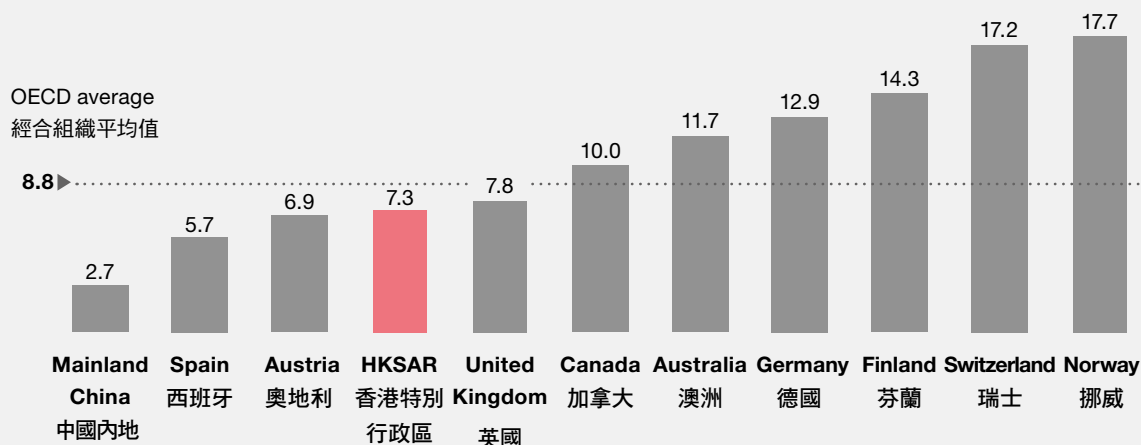
figure available in Switzerland, whereby there were 17.2 nurses per 1,000 people in 2017.

In the light of these trends, nurturing a skilled workforce in the healthcare industry is of critical importance for ensuring sustainable development of Hong Kong. Apart from the Hospital Authority, Tung Wah College, Caritas Institute of Higher Education and OUHK are the main training providers for enrolled nurses in Hong Kong. Not only do these providers offer higher diploma programmes to train

enrolled nurses, some of them also provide degree-level programmes in nursing and medical services. Such programmes include both theoretical components and clinical practical teaching in hospitals and community settings, thus providing a conducive environment for students to develop into competent nursing professionals.

Figure 4-48: The number of nurses in Hong Kong per 1,000 population compared to other regions in 2017

圖4-48：2017年香港每千人的護士數目與其他地區的比較



Note: (1) According to OECD, the number of nurses includes those employed in public and private settings providing services directly to patients ("practising") and in some cases also those working as managers, educators or researchers. (2) The figure for Hong Kong includes Enrolled Nurses and Registered Nurses.

Source: (1) OECD (2019), (2) Food and Health Bureau (2020), (3) PwC analysis

附註：(1) 根據經合組織的資料，護士人數包括在公營及私營機構，直接向患者提供服務（「執業」）的護士，在某些情況下，還包括擔任經理、教育工作者或研究人員的護士。香港的數字包括登記護士及註冊護士。

資料來源：(1) 經濟合作暨發展組織(2019)、(2) 食物及衛生局 (2020)、(3) 羅兵咸永道分析

護理

長者人口的迅速增加，可能會對香港及世界各地的健康護理行業帶來持續挑戰。特別是與其他發達經濟體相比，香港在可聘用的護士人數方面面臨更為嚴峻的挑戰。如圖4-48所示，香港於2017年的護士比例為每一千人有7.3名護士，低於經濟合作暨發展組織每一千人有8.8名護士的平均值，更遠低於瑞士每一千人有17.2名護士的水平。

鑑於這趨勢，培訓健康護理服務行業的技術人員對確保香港的可持續發展至關重要。除醫院管理局外，東華學院、明愛專上學院及香港公開大學是香港登記護士的主要培訓機構。這些機構不僅開辦高級文憑課程以培訓登記護士，其中一些還提供護理及醫療服務的學位課程。這些課程提供有利的學習環境，包括在醫院及社區環境進行理論及臨床實踐兼備的教學，從而讓學生成為稱職的護理專業人員。



**VPET's role in nurturing
nurses remains crucial**

**職專教育在培訓護士方面
發揮重要作用**



According to an interview with Dr. Queenie LAW, an Assistant Professor of the School of Nursing from Tung Wah College, Hong Kong's healthcare industry has been facing a severe workforce shortage, due to the rapid increase in ageing population and demand for quality healthcare services. Recognising the severity and urgency of this issue, the Government has rolled out and is planning to roll out more policies to support the development of nursing professionals. In recent years, there is a significant increase in student intake in nursing as a number of institutions (including Tung Wah College, Caritas Institute of Higher Education and OUHK) began to provide nursing courses, however, the workforce shortage is expected to continue. Taking Tung Wah College as an example, it has trained more than 2,500 nursing graduates between 2010 and 2019. In particular, the number of intakes for the bachelor's degree in nursing has increased from 225 in 2018 to 350 in 2019. These programmes are designed in accordance with the professional requirements set by the Nursing Council of Hong Kong, and compulsory clinical attachments are offered. Thus, going forward, VPET will continue to play a crucial role in supplying workforce in nursing.

The career paths for VPET students in nursing are promising. Most of the graduates (over 90%) from Tung Wah College with a bachelor's degree in nursing are able to secure jobs as registered nurses in hospitals and clinics within the Hospital Authority's network. Other popular options amongst these graduates include working in private hospitals or pursuing further studies. Graduates of higher diploma programme in nursing can also choose to pursue a top-up degree in order to be qualified as a registered nurse.

東華學院助理教授羅佩詩博士表示，由於高齡人口及對優質健康護理服務的需求迅速增長，香港的健康護理行業一直面臨嚴重的人力短缺問題。意識到這個問題的嚴重性及迫切性，政府已推出並計劃更多政策，以支援護理專業人員的發展。近年來，隨著多家職專教育機構（包括東華學院、明愛專上學院及香港公開大學）開始開辦護理課程，護理系的學生人數顯著增加。以東華學院為例，它在2010年至2019年期間培訓了2,500多位護理系畢業生，特別是護理學學士學位的學生數目從2018年的225人增至2019年的350人，但仍未足以解決人才短缺的問題。這些課程是根據香港護士管理局的專業要求而設計的，並為學生提供必修的駐院臨床實習。展望未來，職專教育將繼續在提供護理人員方面發揮關鍵作用。

職專教育的護理系學生事業前途可期。東華學院大多數擁有護理學學士學位的畢業生（超過90%）能夠在醫院管理局的網絡醫院及診所擔任註冊護士，亦有不少畢業生在私家醫院工作或繼續深造。護理學高級文憑課程的畢業生也可以選擇升讀銜接學位課程，以符合資格成為註冊護士。

Gerontechnology

Gerontechnology is a specialised field that combines elderly services with innovative technology. It is becoming increasingly important in Hong Kong given its rapidly ageing population. The use of technological interventions can reduce the burden and stress on care staff, whilst addressing a longstanding shortage in human resources. For instance, care staff can make use of anti-wandering vests embedded with Radio Frequency Identification (RFID) technology to reduce the time required to locate an elderly patient.

Although programmes directly related to gerontechnology are not available in Hong Kong, VTC students in the Health and Life Sciences Discipline and Engineering Discipline can explore and advance their knowledge in gerontechnology during the course of their higher diploma studies. For instance, the VTC has introduced a Smart Living Home at IVE (Kwai Chung) in 2019, which showcases the latest development in gerontechnology. It also provides a practical platform for students in healthcare and rehabilitation services to understand how technology can be applied in elderly care while enabling active and healthy living of the elderly.

With a goal to improve the wellbeing of the elderly, Mr. CHEUNG Chi Leung and Mr. WONG Chun Ho, students of Higher Diploma in Computer Engineering at IVE, designed and developed a Smart Elderly Care Robot, which led them to win the Silver Prize Award in the Innovation X Application Scheme offered by the VTC. The robot was equipped with a number of latest technologies including simultaneous location and mapping, face recognition and voice learning, enabling seamless interaction better the elderly and their caregivers (IVE Engineering, 2017).

The HealthTech Centre was also established with the help of IVE's Health and Life Sciences Discipline to promote the use of health technology in society and to bring the latest advances in health technology to the industry. The HealthTech Centre not only offers internships to IVE students, but also showcases the application of health technology to the community and provides health information to the general public.

樂齡科技

樂齡科技是結合長者服務及創新科技的專業範疇。隨著香港人口迅速老化，樂齡科技在香港變得愈來愈重要。透過科技，可以減輕護理人員的負擔和壓力，亦可解決人力資源長期短缺的問題。例如，護理人員可以使用嵌入無線射頻識別技術的防走失背心，以減少尋找老年患者所需時間。

雖然香港沒有與樂齡科技直接相關的課程，但VTC健康及生命科學學科及工程學科的學生，仍在高級文憑課程中探索並提高樂齡科技方面的知識。例如，VTC於

2019年在香港專業教育學院（葵涌）推出智逸軒（智能家居），展示了樂齡科技的發展。它還為醫療保健及復康服務的學生提供一個實習平台，讓他們了解如何將技術應用於長者護理，同時使長者積極健康地生活。

為幫助照顧長者，香港專業教育學院電腦工程高級文憑課程學生張賜樑先生及黃俊浩先生設計及研發了智能長者護理機械人，並於VTC主辦的「創意X應用」計劃中奪得銀獎。機械人配備了多項科技，包括同步定位與地圖構建、臉部識別及語音學習，使長者及照顧

者能夠進行更好的互動（香港專業教育學院工程，2017）。

在健康及生命科學學科協助下，VTC還建立了健康科技中心，為學生提供實習機會之餘，亦將最新健康科技引入業界，以促進社會使用健康科技，並向公眾傳遞健康資訊。



HealthTech Centre at IVE (Kwai Chung)
香港專業教育學院（葵涌）的健康科技中心

VPET's contribution to society during the COVID-19 pandemic

職專教育在2019冠狀病毒疫情期間對社會的貢獻

U-trap Refill Automator

With the help of its civil engineering graduates Mr. CHOW Wai Keung, Mr. TSANG Chung Chung and Mr. CHAN Leung Kwan, IVE's Engineering Discipline created a gadget that automatically refills U-shaped water traps in homes, so as to ensure that they are water-sealed at all times, and reduce the likelihood of widespread transmission of COVID-19 in buildings. The gadget can also remind users through a mobile application when the water level in the water trap is below a set level. The team won a Gold Award with the design at the Innovative Design Competition in 2020 and the gadget was tested in actual flat units of the Urban Renewal Authority.

U型隔氣彎管自動補水器

在土木工程高級文憑課程畢業生周偉強先生、曾琮淞先生及陳亮均先生的協助下，香港專業教育學院的工程學科團隊創作了一個裝置，為家中的U型隔氣彎管自動補水，以確保彎管時刻注水，有助減低2019冠狀病毒在樓宇間廣泛傳播的可能性。當補水器的水位低於設定水平時，裝置還可以通過流動應用程式提醒用戶。團隊於2020年憑藉設計贏得「創意工程及建築設計比賽」金獎，而裝置亦已在市區重建局轄下的單位進行測試。



The design team and the U-trap Refill Automator
設計團隊與U型隔氣彎管自動補水器

Source: IVE Engineering (2020)

資料來源：香港專業教育學院工程學科（2020）

Smart Delivery Robots

Mr. Steven YEUNG, a graduate of the Information Technology Discipline at IVE, co-developed smart delivery robots and unmanned logistics vehicles with a robotics company in response to the COVID-19 pandemic.

The robot is powered by new technologies including artificial intelligence (AI), internet-of-things (IoT) and cloud computing, which allow it to ride in elevators and avoid pedestrians. It is currently being tested in the restaurants at the Science Park.

智能送餐機械人

香港專業教育學院資訊科技學科畢業生楊嘉強先生與一家機械人企業共同研發智能送餐機械人和無人物流車，以應對2019冠狀病毒疫情。

機械人以人工智能、物聯網及雲端技術，提供運算能力，使其能自行乘坐升降機及避開行人。現時，機械人正在科學園的餐廳進行測試。



The Smart Delivery Robot
智能送餐機械人

Source: WorldSkills (2020)

資料來源：世界技能大賽 (WorldSkills) (2020)

4.3.7

Social mobility

Overview

Social mobility for youths is on the agenda for many countries worldwide. In Hong Kong, it is commonly believed that achieving good academic results in public examinations at the secondary level and pursuing tertiary education at universities would be the only way leading to promising future prospects and upward mobility. However, most of these public examinations tend to focus on assessing students' linguistic ability, reading comprehension skills and mathematical intelligence, while less so on other aspects of competency such as design, creativity, and practical skills. A holistic education system could recognise the diverse strengths of different students and offer education opportunities that cater different aspirations and needs. This could in turn help to cultivate a diversified workforce for sustainable economic and societal development.

VPET unleashes the potential of young people who excel in aspects different from those in conventional academic education. It offers them with education opportunities that not only enhance their employability, but also develop skills and knowledge in the fields of their interests

and where their strengths lie.

As exemplified by a number of alumni stories showcased in the previous and upcoming sections, the opportunities provided by VPET have inevitably helped young people to embark on and excel in careers that they are passionate about, enabling them to move up the social ladders and to improve quality of life in ways that could not be achieved via the academic pathway. As found in many of the stakeholder consultations with VPET graduates, VPET also provides young people with opportunities through:

- Nurturing their interests in respective professions and fields of specialisation;
- Recognising their talent and facilitating them to pursue further studies and attaining higher qualifications and professional recognition;
- Providing vocationally oriented programme curricula and industry-linked learning opportunities (such as industry attachments, project-based collaboration with businesses) to enhance their employability and enable them to be work-ready; and
- Equipping them with both hard and soft skills that enable them to excel in their roles and achieve career progressions and earnings which are on a par with that of degree holders.



4.3.7

社會流動性

概覽

年青人的社會流動性已成為全球各國的討論議題。在香港，社會普遍認為在中學的公開考試中取得好成績，接受大學高等教育，是通往光明前程及向上流動的唯一途徑。但是，大多數的公開考試往往側重於評估學生的語言、閱讀理解和數學能力，而較少涵蓋設計、創造及實踐技能等其他方面的能力。全面的教育體系應接納不同學生有不同的優勢，並提供能滿足他們不同志向及需求的教育機會，從而培育多元人才，以推動經濟及社會持續發展。

職專教育有助年青人於非傳統學術教育領域發揮潛能，培養他們的興趣、專業知識和實用技能，讓他們投身職場，確立個人發展的優勢，取得卓越成就，使他們能在社會向上流動，提高生活質素。此外，正如職專教育畢業生所言，職專教育通過以下方式為他們提供了向上流動的機會：

- 培養他們對其專業領域的興趣；
- 發揮他們的才能，並推動他們進修，獲取更高的資格及專業認可；

- 提供以職業導向為主導的課程及與行業相關的學習機會（例如工作實習、與企業以項目為基礎的合作），以提高他們的就業能力，為投身職場做好準備；及
- 培訓他們的軟硬技能，使他們能夠盡展所長，實現與學位持有人同等的事業發展機會和收入。



In the following section, an impact story relating to the tourism and hospitality industry is presented to illustrate the social impacts of VPET.

下一節中將展示一個與旅遊及款待業有關的啟發故事，以闡述職專教育在社會上發揮的作用。

Figure 4-49: Key economic indicators on the tourism and hospitality industry

圖4-49：旅遊及款待業的主要經濟指標

Tourism and Hospitality | 旅遊及款待

HK \$99 billion
to Hong Kong's GDP in 2019

2019年香港本地生產總值達
990億港元

231,000 persons
employed in 2019

2019年就業人數為
231,000人

Source: (1) C&SD (2020f, 2020I), (2) PwC analysis

資料來源：(1) 政府統計處 (2020f, 2020I)、(2) 羅兵咸永道分析



Impact Story – Tourism and Hospitality Industry

啟發故事 —— 支援旅遊及 款待業

Tourism and hospitality industry

The tourism and hospitality industry is one of Hong Kong's key economic pillars, generating nearly HK\$ 99 billion to GDP and accounting for 3.6% of Hong Kong's GDP in 2019 (Figure 4-50). This industry currently employs around 231,000 people, forming 6% of the workforce in Hong Kong.

As the "Food Capital of the East" and a premier travel destination in Asia, many tourists visit Hong Kong for its diverse culinary scene and excellence in hospitality. Nonetheless, Hong Kong's tourism and hospitality industry has been facing severe shortage of human

resources over the last two decades, growing at 10% annually from 2000 to 2018. There had also been a lack of specific training programmes with emphasis on practical experience in the early 2000s, coupled with limited dedicated facilities for training new entrants at the operation level were available. Among some 16,200 training places of hospitality available, less than 26% were designated for new entrants at managerial, supervisory and operational levels (Federation of Hong Kong Hotel Owners, 2005).

Figure 4-50: Key statistics for the tourism and hospitality industry

圖4-50：旅遊及款待業的主要統計數據

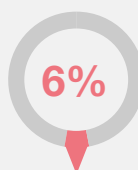
Tourism and hospitality industry's contribution to Hong Kong 旅遊及款待業對香港的貢獻



HK\$ 99 billion
990億港元

GDP contribution by the tourism and hospitality industry in Hong Kong in 2019

2019年香港旅遊及款待業對本地生產總值貢獻



6%

Percentage of **total number of employees** in Hong Kong engaged in the tourism and hospitality industry in 2019

2019年香港旅遊及款待業僱員總人數百分比



65 million
6,500萬

Visitors to Hong Kong in 2018

2018年訪港旅客



20

restaurants per 10,000 population in 2019, one of the top cities worldwide in terms of restaurant density per population

2019年平均每10,000人有**20**家餐廳，就餐廳密度的人均總數而言，香港是全球人均餐廳密度最高的城市之一

Source: (1) C&SD (2020f, 2020l), (2) World Cities Culture Forum (2021), (3) Hong Kong Tourism Board (2019), (4) PwC analysis
資料來源：(1) 政府統計處 (2020f, 2020l)、(2) 世界城市文化論壇2021、(3) 香港旅遊發展局 (2019)、(4) 羅兵咸永道分析

旅遊及款待業

旅遊及款待業是香港的主要經濟支柱之一，為本地生產總值貢獻近990億港元，佔2019年香港本地生產總值的3.6%（圖4-50）。業界現時的就業人數約為231,000人，佔香港工作人口的6%。

作為「東方美食之都」及亞洲理想旅遊目的地，很多旅客均因為各式美食、風光及卓越的款待到訪香港。儘管從2000年到2018年每年以10%的速度增長，但在過去20年，香港的旅遊及款待業仍面臨嚴重的人力資源短缺問題。在2000年代初期，香港缺乏以實

務經驗為重點的專業課程，培訓新人實務操作技能的設施及場所也有限。大約在16,200個款待培訓的名額當中，僅有不足26%是專為管理、督導及營運層面的新入職人員而設（香港酒店業主聯會，2005）。

VPET's role in Hong Kong's tourism and hospitality development

VPET is key to supply workforce for Hong Kong's development in the tourism, hospitality and culinary arts industry. VPET providers proactively address the industry's demand by providing a number of professional programmes to train up new entrants for the industry, with specific focuses on practical skills. Skills upgrading programmes and advanced professional certifications are also provided for in-service professionals for skill enhancement and career progression.

VPET providers, including the VTC's member institutions (e.g. THEi, SHAPE, IVE, ICI, CCI, and HTI), HKU SPACE, PolyU SPEED and CityU SCOPE, currently provide a wide range of programmes and courses in tourism, hospitality and culinary arts (Figure 4-51). These programmes cover an extensive range of specialised areas, such as hotel management, food services, tourism and leisure management and more. Over the past 35 years,

more than 56,400 graduates have been nurtured for the tourism and hospitality industry, representing over 24% of the total number of persons engaged in the industry.

To enhance teaching and learning experience of students, the VTC established The T Hotel at Pok Fu Lam so that hospitality students can apply their classroom training to practical experience in the restaurants, accommodation and other facilities of the T Hotel.

Career prospects

Programmes offered by the VTC are highly recognised by the industry, exemplified by the fact that most of the students are employed by leading hospitality, food and beverage companies before graduation. In particular, CCI has a number of outstanding alumni in culinary arts, some of which currently hold senior positions in Michelin-starred restaurants. An illustrative progression path of a HD graduate in Culinary Arts is provided in Figure 4-52.

職專教育在香港旅遊及款待業發展方面的角色

職專教育為香港的旅遊、款待及廚藝業發展提供了重要的人力資源。職專教育機構通過開辦多個專業課程，以培訓新人，並著重實用技能，積極滿足業界的需求。另外，亦為在職專業人員提供技能提升課程及專業認證，以提高技能水平及職業發展。

VTC的機構成員（例如香港高等教育科技學院、才晉高等教育學院、香港專業教育學院、國際廚藝學院、中華廚藝學院、酒店及旅遊學院）、以及香港大學專業進修學院、香港理工大學專業進修學院及香港城市大學專業進修學院在內的職專教育機構目前開辦各類旅遊、款待及廚藝課程（圖4-51），涵蓋廣泛的專業領

域，包括酒店管理、餐飲服務、旅遊及康體文娛管理等。在過去35年，為旅遊及款待業培育56,400多位畢業生，佔該行業的就業總人數逾24%。

為提升學生學習的體驗，VTC在薄扶林設立T酒店，讓學生可將課堂知識應用到T酒店的餐廳、客房服務及其他設施上，獲取實踐經驗。

就業前景

VTC開辦的課程獲業界高度認可，大部份學生在畢業前已獲知名企業僱用，如中華廚藝學院培育很多廚藝傑出的校友，當中有一些目前更在米芝蓮星級餐廳擔任高級職位。圖4-52展示廚藝高級文憑畢業生的晉升示例。

Figure 4-51: Examples of VPET programmes related to the tourism and hospitality industry and the associated career opportunities

CCI • Diploma in Chinese Culinary Arts • Master Chef Course in Chinese Cuisine • PD in Chinese Culinary Arts and Management CityU SCOPE • Top-up Degree in International Tourism and Airline Management HKU SPACE-PLK • HD in Hotel Management • HD in Tourism and Hospitality Management HTI • Certificate in Food and Beverage Supervision	• Certificate in Housekeeping Supervision • Foundation Certificate in Accommodation Service ICI • Certificate in Pastry and Bakery • Master Chef Course in Western Cuisine • PD in International Culinary Arts and Management IVE • HD in in Hotel and Catering Management • HD in International Hospitality and Tourism Management	OUHK LiPACE • HD in Resort and Theme Park Management PolyU SPEED • Top-up Degree in Convention and Event Management • Top-up Degree in Travel Industry Management SHAPE • BA (Hons) in International Hospitality and Tourism Management THEi • BA (Hons) in Culinary Arts and Management
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Roles supporting the tourism and hospitality industry

	International Hospitality and Tourism Management Roles		International Culinary Artists
	Hotel Operations Management Roles		Chinese Culinary Artists
	Culinary Arts and Management Roles		Hotel and Catering Management Roles
	Leisure Management Roles		Theme Park & Event Management Roles
	Tour Service Operators		Tourism and MICE Coordinators

Note: (1) The programmes listed in this figure are for illustrative purposes only, and this is not an exhaustive list of all the VPET programmes offered in Hong Kong.

Source: (1) HKSAR Government's VPET portal (n.d.), (2) PwC analysis

圖4-51：與旅遊及款待業相關的職專教育課程和事業示例

中華廚藝學院 - 中華廚藝文憑 - 大師級中廚師課程 - 中式廚藝及管理專業文憑	國際廚藝學院 - 西式糕餅及麵包證書 - 大師級西廚師技能測試培訓課程 - 國際廚藝及廚務管理專業文憑	香港理工大學專業進修學院 - 會展管理銜接學位 - 旅遊服務業管理銜接學位
香港城市大學專業進修學院 國際旅遊及航空管理榮譽文學士銜接學位	香港專業教育學院 - 酒店及餐飲業管理高級文憑 - 國際款待業管理(酒店、旅遊及康樂)高級文憑	才晉高等教育學院 國際酒店及旅遊管理(榮譽)文學士
香港大學專業進修學院保良局何鴻燊社區書院 - 酒店管理高級文憑 - 旅遊及酒店管理高級文憑	香港公開大學李嘉誠專業進修學院 度假區及主題樂園管理高級文憑	香港高等教育科技學院 廚藝及管理(榮譽)文學士
酒店及旅遊學院 - 餐飲督導管理證書 - 房務督導管理證書 - 客房服務基礎證書		

支持旅遊及款待業的相關職位



國際款待與旅遊管理職位



國際菜廚師



酒店營運管理職位



中菜廚師



廚藝及管理職位



酒店及餐飲管理職位



康體文娛管理職位



主題公園及活動管理職位



遊覽服務營辦商



會議、獎勵旅遊及展覽統籌

附註：(1) 本圖列出的課程只作說明用途，並非詳列香港職專教育的所有課程。

資料來源：(1) 香港特別行政區政府的職專教育網站(無日期)、(2) 羅兵咸永道分析

Chinese Culinary Institute

中華廚藝學院

The Chinese Culinary Institute (CCI) is one of the Capital Millennium Projects initiated by the HKSAR Government. With a vision to strengthen Hong Kong's reputation as the "Food Capital of the East", CCI is dedicated to provide systematic training in Chinese cuisine, from foundation level all the way up to master chef level, in order to elevate the professional standard and status of Chinese chefs and to promote China culinary art locally and internationally.

Since its establishment, CCI has nurtured a number of outstanding alumni in Chinese cuisine, including considerable amount of Executive Chefs working in renowned hospitality groups such as Mandarin Oriental, the Ritz Carlton and more.

Another role of CCI is to develop into Hong Kong's training and regional accreditation centre in Chinese cuisine through establishing the "One Trade Test, Two Certificates System". Under the System, students who pass relevant examination and assessment as required in the Chinese Master Chef programme will simultaneously attain CCI's "Professional Qualification in Chinese Cuisine" and the "Occupational Qualification Certificate" issued by the Ministry of

Human Resources and Social Security in Mainland China. The programme is available for in-service chefs with at least 12 years of Chinese culinary management experience and those who are recommended by relevant organisations.

中華廚藝學院是特區政府的千禧年項目之一。為了鞏固香港「東方美食之都」的美譽，學院致力提供由基礎級別到主廚級別的系統化中廚培訓，以提升中廚的專業水平及地位，並在本地及海外宏揚中華飲食文化。

自成立以來，學院培育眾多中菜界的傑出廚師，其中包括在文華東方酒店、麗思卡爾頓酒店等知名酒店集團的行政總廚。

學院的另一個職責是透過設立「一試兩證」技能測試，使香港成為區內中廚培訓及資歷評審中心。在這個制度下，通過大師級中廚師課程要求的相關考試及評估的學生，可同時考取由學院頒發的「中廚師專業資格證書」及中國內地國家人社部「國家職業資格證書」。課程適合具備12年或以上中廚師主管經驗及獲相關機構推薦的業內人士。

Source: CCI (n.d.)

資料來源：中華廚藝學院（無日期）

International Culinary Institute

國際廚藝學院

The International Culinary Institute (ICI) is another important institute for providing quality training and professional programmes to nurture talents in culinary arts, wine and event management with the aim to support Hong Kong in becoming an Asian wine-and-dine destination. ICI is well-equipped with the latest facilities to train students with the aspirations to develop careers with specialisation in international cuisines. The culinary programmes offered at ICI cover a vast array of cuisine from European, Mediterranean, American, Middle-Eastern gourmet to Southeast-Asian flavours, as well as pastry bakery and confectionery. Programmes covering other aspects of the culinary industry, such as wine and beverage business management, are also offered.

In order to enhance international recognition of its programmes, ICI collaborates with international institutions, such as the German Education Centre of the Hospitality Industry for Business & Management, Koblenz, and the German Education Centre for Apprenticeship, Handwerkskammer Koblenz (Chamber of Skilled Crafts) to allow ICI graduates to obtain professional qualifications in western cuisine or pastry and bakery after completing trade tests and preparatory courses.

Source: ICI (n.d.)

資料來源：國際廚藝學院（無日期）

國際廚藝學院是另一家致力開辦優質培訓及專業課程，培育廚藝、葡萄酒及活動管理方面人才的院校，以支援香港成為亞洲美酒佳餚之都。學院配備先進的設施，訓練有志發展國際美食事業的學生。學院提供各種廚藝課程，涵蓋歐洲、地中海、美洲、中東及東南亞美食，以及包餅和糖藝，亦提供涵蓋廚藝行業其他方面的課程，如葡萄酒及飲品商業管理。

為了提高課程的國際認受性，學院積極與國際機構合作，例如德國 Education Centre of the Hospitality Industry for Business & Management, Koblenz 及德國 Education Centre for Apprenticeship, Handwerkskammer Koblenz (Chamber of Skilled Crafts)，讓畢業生完成行業測試及課程後，可獲取西餐及包餅的專業資格。





Hotel and Tourism Institute

酒店及旅遊學院

Established in 1985, the Hotel and Tourism Institute (HTI), formerly the Hospitality Industry Training and Development Centre (HITDC), was set up by the VTC to offer professional training and education for secondary school leavers and in-service practitioners. The programmes and training groom students with both theoretical knowledge and practical skills that prepare them to take up roles, such as food and beverage service, front office operations, housekeeping operations, hotel event management, tour services and travel agency operations, which are in strong demand in the tourism and hospitality industry in Hong Kong. The qualifications awarded by HTI are widely recognised by local and international professional bodies, such as the United Nations World Tourism Organisation (UNWTO) TedQual Certification.

酒店及旅遊學院（前稱旅遊服務業培訓發展中心）由VTC於1985年成立，為有意投身款待業的中學離校生及業界人士提供專業培訓及教育。課程理論與實踐並重，讓學生做好準備，擔任餐飲服務、酒店客務營運、房務營運、酒店活動營運、旅遊服務及旅行社營運等職務，以滿足本港旅遊及款待業的人才需求。學院授予的資格廣受本地及聯合國世界旅遊組織的旅遊教育質素認證，學生能在本地及海外就業或繼續深造相關課程。

The T Hotel | T酒店

As part of HTI, The T Hotel opened in 2011 to provide on-the-job training for students in hospitality and tourism. The hotel has 30 rooms and suits, a training spa and training restaurants and is operated by the students under the guidance of experienced professionals in the industry.

From 2015 to 2019, The T Hotel was awarded the Certificate of Excellence Hall of Fame for a consecutive of five years. Further, Hotels.com has named The T Hotel as the “Loved By Guest Award Winner 2019” with the high mark of 9.6 out of 10. These awards demonstrate the recognition of international visitors on the achievement of The T Hotel, VPET students and teachers.

作為酒店及旅遊學院的一部分，T酒店於2011年開業，擁有30間客房及套房、水療訓練中心及培訓餐廳。學生在經驗豐富的专业人員指導下營運酒店並進行在職培訓。

由2015年至2019年，T酒店連續五年獲頒發「Certificate of Excellence Hall of Fame」證書。此外，更由Hotels.com選定為2019年「旅客最喜愛住宿」，住宿評分更高達9.6分（10分為滿分）；足證T酒店、職專教育學生及教師的專業水平廣受國際旅客認可。



Source: The T Hotel (n.d.)

資料來源：T 酒店（無日期）

Mr. Jayson TANG is a graduate of the Chinese Cuisine Training Institute (CCTI), which was later renamed as CCI. In 2016, Jayson took the Master Chef Course in Chinese Cuisine offered by CCI, which led him to become the youngest Executive Chinese Chef of Man Ho Chinese Restaurant at JW Marriott Hotel Hong Kong within merely 10 years after joining the industry. As an Executive Chinese Chef, he is responsible for creating new menus for the restaurant and managing a team of cooks, ensuring quality delivery of the products and services. Under the leadership of Jayson, Man Ho celebrates the first Michelin Star in 2021 edition of the *MICHELIN Guide Hong Kong Macau*.

Jayson chose to study at CCI and later found that it was a wise decision, as the programme provided him opportunities to systematically learn the theories and techniques of Chinese cuisine and gave him a broad exposure to different areas of the Chinese culinary arts. He was then able to specialise in areas of his interests and excel with his hard work, passion and dedication. More importantly, Jayson said that the programme at CCI did not only help him turn his interests into his profession, but also teach him the “ethics”, “techniques” and “management skills” required to be a first-class culinarian. On top of that, the Master Chef course also allowed him to develop management skills, which prepared him to take up supervisory and managerial role. Jayson credited his time at CCI being a keystone to his success as a Master Executive Chef later on in his career.

鄧家濠先生 (Jayson) 畢業於中華廚藝學院。至2016年，Jayson再報讀中華廚藝學院開辦的大師級中廚師課程，有助他入行僅10年就成為香港JW萬豪酒店萬豪金殿最年輕的中菜行政總廚。作為中菜行政總廚的他，負責為餐廳研創新菜單，並管理廚師團隊，確保提供優質的佳餚及服務。在Jayson的領導下，萬豪金殿榮膺《香港澳門米芝蓮指南2021》米芝蓮一星美譽。

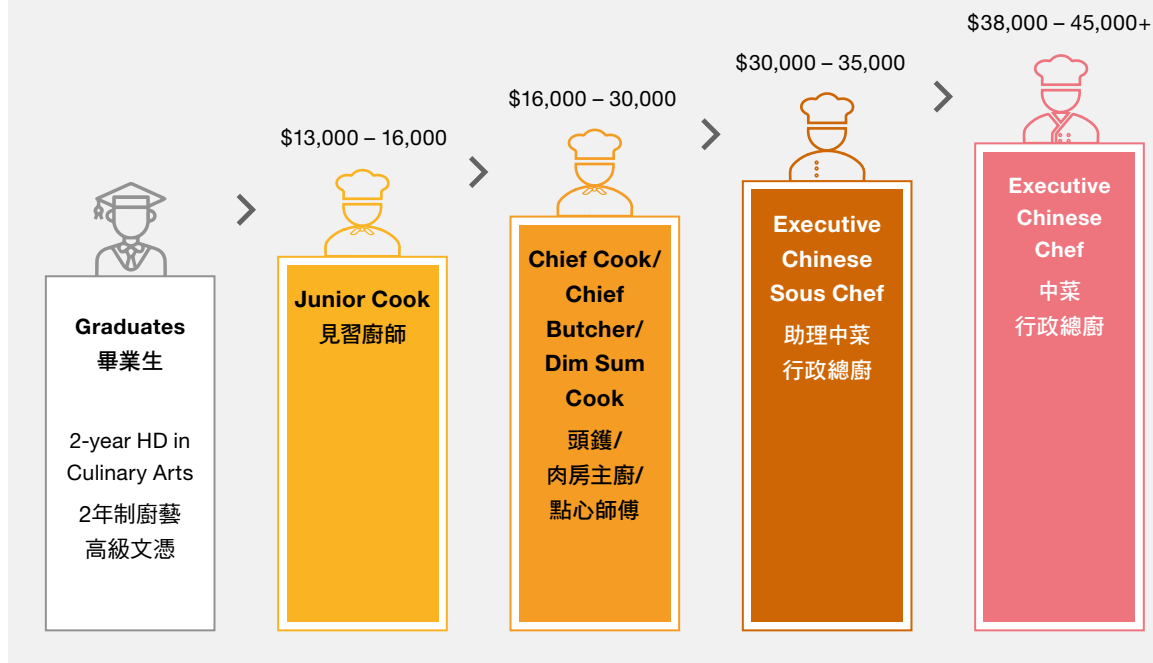
Jayson表示選擇在中華廚藝學院學習是一個明智的決定。因為課程不但讓他有系統性地學習中菜理論及技術，更讓他接觸到不同領域的中式廚藝。其後他專注自己感興趣的領域，憑著努力、熱誠和幹勁做出一番成績。更重要的是，Jayson指出中華廚藝學院的課程不僅幫助他將興趣變為事業，而且教會他成為一流廚師所需的「操守」、「技術」及「管理技巧」。除此以外，大師級中廚師課程亦培養了他的管理技巧，令他能作好準備擔任監督及管理職位。Jayson認為在中華廚藝學院的學習是他成為行政總廚的成功基石。



Mr. Jayson TANG - Executive Chinese Chef at JW Marriott Hotel Hong Kong
鄧家濠先生 —— 香港JW萬豪酒店中菜行政總廚

Figure 4-52: Illustrative progression path of a graduate with HD in Culinary Arts

圖4-52：廚藝高級文憑畢業生的晉升示例



Ms. Michelle IP is a graduate with a Higher Diploma in Culinary Arts at Chinese Culinary Institute/International Culinary Institute. Subsequent to her studies, she received a scholarship to pursue a Bachelor's degree in Culinary Arts Management at University College Birmingham.

In order to obtain knowledge in hotel management and project management skills in catering, Michelle continued her study of a Master's degree in Hotel Management at Swiss Hotel Management School after completing her undergraduate studies.

When studying, she was equipped with professional cooking skills of Chinese and Western cuisine, knowledge of food science as well as practical trainings. She believed that the programmes provided by CCI/ICI were diversified, covering culinary management, menu design and food nutrition, which were valuable for understanding how to deliver excellence in hospitality services holistically. She also earned internship opportunities in a restaurant and a hotel, which could help her to excel in the workplace in the future.

Through her experience, she believed that "It's never too late to pursue your dream. When I look back on my life, I am glad that I was loyal to my interest and chose the most suitable major."

葉欣明女士（Michelle）為中華廚藝學院及國際廚藝學院合辦的廚藝高級文憑課程畢業生。在完成課程後，她獲得英國伯明翰大學學院的獎學金，修讀廚藝及管理學士學位。

為了獲取酒店管理的知識及餐飲業的項目管理技能，Michelle完成本科課程後，繼續在瑞士酒店管理大學攻讀酒店管理碩士學位。

在學習期間，她學到專業的中西廚藝技巧、食物科學知識及實務訓練。她認為院校提供的課程很多元化，涵蓋廚務管理、菜單設計及食物營養，對於全面了解如何提供卓越的款待服務別具價值。她更獲得在餐廳及酒店實習的機會，她相信這有助將來在職場的發展。

Michelle的經驗讓她深信追夢永遠不怕遲：「回望過去，我很慶幸當時忠於自己興趣，選對了科目。」



Ms. Michelle IP (Right)
葉欣明女士 (右)

**Swiss Hotel
Management School**
瑞士酒店管理大學



**Master's degree in
Hotel Management**
酒店管理碩士

**University
College
Birmingham**
伯明翰大學學院

BA in Culinary Arts Management
廚藝及管理學士

**Chinese Culinary Institute/
International Culinary Institute**
中華廚藝學院及國際廚藝學院

HD in Culinary Arts
廚藝高級文憑



I think VPET providers have made immense contributions to Hong Kong's society, but is being slightly undervalued. VPET has provided valuable education opportunities to students who might not be suitable for academic study so that they can develop, grow and excel in a field of profession that interests them. VPET has enormously helped to enhance social mobility and maintain social stability of Hong Kong.

我認為職專教育機構為香港社會作出了許多貢獻，但卻時常被低估。職專教育為未必適合學術教育的學生提供寶貴的學習機會，使他們能夠在自己感興趣的專業領域中發展成長，締造成就。職專教育大大提升了香港的社會流動，並維持社會穩定。



Dr. Daniel YIP | 葉中賢博士, JP

Chairman of Steering Committee on Promotion of Vocational and
Professional Education and Training and Qualifications
Framework Chairman of Federation of Hong Kong Industries
Deputy Chairman of the VTC
Managing Director of G.E.W. International Corporation Limited

推廣職業專才教育和資歷架構督導委員會主席

香港工業總會主席

VTC 副主席

通用國際企業有限公司董事總經理



4.3.8

Social cohesion and equality

Apart from equipping students with the skills and knowledge to develop their careers and move up the social ladder, VPET also helps to improve social cohesion and reduce social inequality by providing programmes and training for various ethnic minority groups and students with special educational needs (SEN).

The Youth College offers a series of Vocational Development Programmes, including the Teen's Programme, Youth Employment and Training Programme (YETP) and Ethnic Minority Project to non-engaged youths for them to discover their potential and regain motivation for future development. Survival Cantonese and Socialising Cantonese courses are also available for non-Chinese speaking (NCS) students. As for students with SEN, a range of supporting services (e.g. clinical psychology, speech therapy and educational psychological services) are provided to support them in maximising their potentials.

The Shine Skills Centre established by the VTC provides skills training programmes in business, information technology and service streams for people with disabilities aged 15 or above to equip them with skills for employment. The programmes help these students not only to develop vocational skills for employment at operational and semi-skilled worker levels, but also to foster their life skills for their living and interpersonal skills that are required at the workplace. These programmes also help to reduce bias and prejudice of the disadvantaged young people, support them to enter the workplace and play a part in the community through meaningful ways – which altogether contribute to building a more cohesive and inclusive society in Hong Kong.



Shine Skills Centre at Pok Fu Lam
薄扶林展亮技能發展中心

4.3.8

社會凝聚力和平等

除了為學生裝備技能及知識，幫助他們發展事業及向上流動之外，職專教育機構還透過為少數族裔人士及有特殊教育需要的學生提供課程及培訓，幫助加強社會凝聚力，促進社會平等。

青年學院為待業待學青少年提供了一系列職業發展計劃，包括Teen才再現、展翅青見計劃及青出於「南」少數族裔培訓計劃，以幫助他們發掘潛能，重拾學習和發展專業的動力。非華語學生也可報讀基礎廣東話及社交廣東話課程。有特殊教育需要的

學生則獲提供多方面的支援服務（例如臨床心理學、言語治療及教育心理服務），以協助他們發揮潛能。

VTC轄下的展亮技能發展中心為15歲或以上的殘疾人士提供商業、資訊科技及服務的技能訓練課程，讓他們具備操作及半熟練職業技能，亦培養他們的生活及人際交往技巧。這些課程亦有助減少社會對弱勢青少年的偏見及成見，支持他們投身職場，貢獻社會，促進社會共融。



Shine Skills Centre at Tuen Mun
屯門展亮技能發展中心

Shine Skills Centre

展亮技能發展中心

Since 1999, the Shine Skills Centre has been offering skills training programmes to approximately 5,600 graduates to increase their employability^[11]. In 2020, the Shine Skills Centre established the Shine Café at IVE (Morrison Hill), so that students with disabilities, such as those with SEN can gain hands-on experience and develop their soft skills through providing catering and customer services at the Café.

Another notable example is La Rosa Café at IVE (Haking Wong), where students are able to experience what it is like working in the food and beverage industry while strengthening their vocational skills and boosting their self-confidence.

Mrs. SO MA Man Fung also expressed her gratitude towards Shine Skills Centre for helping her daughter to become employed, which improved her quality of life. She pointed out that the VPET programmes offered by the Shine Skills Centre help to unleash the potential of people with disabilities whilst promoting diversity to both employers and the society (VTC, n.d.d).

自1999年以來，展亮技能發展中心為大約5,600名殘疾人士提供技能培訓課程，以提升他們的就業能力^[11]。展亮技能發展中心於2020年在香港專業教育學院（摩理臣山）設立Shine Café咖啡店，讓有特殊教育需要的學生透過在咖啡店提供餐飲及顧客服務來獲取實際經驗，同時發展軟技能。

香港專業教育學院（黃克競）的La Rosa Café是另一例子，學生可以在這裏體驗餐飲業工作，同時加強職業技能，提高自信心。

蘇馬文鳳女士感謝展亮技能發展中心幫助其女兒就業，提高了她的生活質素。她指出：「展亮技能發展中心提供的職專教育課程有助發揮殘疾人士的潛能，同時向僱主及社會推廣多元共融。」（VTC，無日期d）

[11]: According to the VTC, the number of graduates of Shine Skills Centre (around 5,600) is an accumulated figure from 1999/2000 with record.

[11]: 根據VTC的資料，自1999 / 2000年度有紀錄以來，展亮技能發展中心的畢業生人數約5,600 人。



Shine Café at IVE (Morrison Hill) provides students with special educational needs with placement opportunities.

香港專業教育學院（摩理臣山）的 Shine Café 為有特殊教育需要的學生提供實踐機會。





In the following section, an impact study on the early childhood education industry is presented to illustrate the social impacts of VPET.

下一節將展示幼兒教育的影響研究，以闡明職專教育對有關行業所作出的貢獻。

Figure 4-53: Key economic indicators of the early childhood education industry

圖4-53：幼兒教育的主要經濟指標

Early Childhood Education | 幼兒教育

14,389

kindergarten teachers in 2019/20

2019/20年度有

14,389位幼稚園教師

1,049

kindergartens in 2019/20

2019/20年度有

1,049所幼稚園

Source: (1) Education Bureau (2020c), (2) PwC analysis

資料來源：(1) 教育局 (2020c)、(2) 羅兵咸永道分析



Impact Snapshot – Supporting the Early Childhood Education Industry

啟發故事 ——
支援幼兒教育
行業

Early childhood education

As defined by UNESCO, early childhood care and education is not only “one of the best investments a country can make to promote human resources development, gender equality and social cohesion, and to reduce the costs for later remedial programmes”, but also “plays an important role in compensating for the disadvantages in the family and combating educational inequalities” (UNESCO, n.d.). In Hong Kong, the important role of early childhood education is also recognised by the Government. Policies have been put in place to enhance professional competence and qualification requirements of kindergarten teachers as well as to provide quality assurance on

pre-primary education. With the prevalence of working parents in Hong Kong, the demand for quality childcare teachers has been continuously increasing. Key statistics of the early childhood education industry are provided in Figure 4-54.

Against this backdrop, VPET plays a pivotal role in nurturing new entrants and in-service professionals in order to provide quality early childhood education in Hong Kong. In addition, to cater for the needs of children with SEN, VPET providers also offer a number of programmes to nurture professionals in the field of special childcare and inclusive education.

Figure 4-54: Key statistics of the early childhood education industry

圖4-54：幼兒教育行業的主要統計數據

The early childhood education industry in Hong Kong 香港的幼兒教育行業



Source: (1) Education Bureau (2020c), (2) Legislative Council (2019b), (3) PwC analysis

資料來源：(1) 教育局 (2020c)、(2) 立法會 (2019b)、(3) 羅兵咸永道分析

幼兒教育

聯合國教育、科學及文化組織指出，幼兒照顧與教育是值得投放資源的地方，這不僅促進一個地方的人力資源開發、性別平等及社會凝聚力，還可以減少日後補救方案的支出，而且對扶助弱勢家庭和減低教育機會不均的情況也起著重要作用（聯合國教育、科學及文化組織，無日期）。政府也意識到幼兒教育的重要性，因而制訂政策，以提升幼稚園教師的專業能力及資歷要求，為學

前教育設立質素保證架構。現今香港家庭一般都是雙職父母，社會對幼兒教育專業人才的需求不斷上升，幼兒教育行業的主要統計數據見圖4-54。

職專教育為香港提供優質的幼兒教育人才，在培育新入職者及在職專業人員方面擔當著舉足輕重的角色。透過開辦特殊幼兒照顧及融合教育領域的課程，支援業內人士照顧有特殊教育需要的兒童。



Currently, major institutions offering early childhood education programmes include the IVE, OUHK LiPACE, Tung Wah College and Caritas Bianchi College of Careers. These programmes, including higher diploma programmes, allow students to put theory into practice through internships at local and international kindergartens and under special education settings. Students can also specialise in infant and toddler education, special child care and inclusive education based on their interests and career aspirations. Graduates of these programmes are eligible to register for relevant professional licenses in becoming a Kindergarten Teacher, Child Care Worker, Child Care Supervisor or a Special Child Care Worker.

Statistically, the VTC, one of the largest VPET providers in Hong Kong, has been training a significant number of graduates to support the increasing demand for child education, with a total of nearly 8,200 graduates over the past 35 years.

現時開辦幼兒教育課程的主要機構包括香港專業教育學院、香港公開大學李嘉誠專業進修學院、東華學院及明愛白英奇專業學校。這些機構均提供幼兒教育或照顧的高級文憑課程。學生通過在本地和國際幼稚園及特殊教育環境下實習，將理論學以致用，並根據自己的興趣及事業抱負，選擇專修嬰幼兒教育、特殊幼兒照顧或融合教育。畢業生符合資格註冊相關專業執照，成為幼稚園教師、幼兒工作員、幼兒中心主管及特殊幼兒工作員。

據統計，VTC是香港最大的職專教育機構之一，在過去35年，共培訓近8,200名畢業生支援對幼兒教育日益增長的需求。

VPET graduates are well received by the market in early childhood education

職專教育畢業生在幼兒教育界別廣受歡迎



Dr. Eunice YIM, an Associate Professor with the School of Education and Languages at OUHK, shared with us her insights in the early childhood education industry. OUHK is positioned as an education university focusing on training talents to meet the workforce needs of business in the real world. Early Childhood Education programmes have been gaining increasing popularity in Hong Kong in recent years. This is not only because graduates from the programmes are eligible to obtain a Certificate in Early Childhood Education and gain professional recognitions for working as registered kindergarten teachers, but also because many entrepreneurs want to gain knowledge and experience in the industry before starting their own businesses in child care.

Dr. YIM also highlighted that their graduates have been well received by the employers as they are humble and willing to work and learn. More importantly, according to the feedback from their employers, their graduates exhibit strong creativity which enables them to be more engaged with children and excel in their careers. These positive outcomes could also be attributable to the strong connection between OUHK and the industry. Most full-time staff have work experience in the early childhood education industry and they are able to bring the latest requirements and feedback from the industry into the course of programme design and curriculum updates, and offer industry placements for their students through their network and relationships with many kindergartens and child care centres.

香港公開大學教育及語文學院副教授嚴沛瑜博士分享她對幼兒教育行業的見解。香港公開大學定位為一所教育大學，專注於培養人才，以滿足業界和企業的人力資源需求。近年來，幼兒教育課程在香港日益受到歡迎。這不僅是因為修讀課程的畢業生符合資格獲取幼兒教育證書，並獲得註冊幼稚園教師的專業認可，還有一些計劃開辦幼兒教育服務的人士希望在開展事業前獲得行業的知識及經驗。

嚴博士強調，他們的畢業生謙虛且樂於工作及學習，因此受到僱主的歡迎。更重要的是，根據僱主的反饋，他們的畢業生展現創意，因而使他們能夠與孩子有更多互動，並在事業上大放異彩。這些正面成果亦可歸功於香港公開大學與業界之間的緊密聯繫。大多數全職員工均具備幼兒教育行業的工作經驗，能夠將行業的最新要求及反饋納入課程設計及更新的過程中，並透過他們與眾多幼稚園及幼兒中心的網絡及關係為學生提供行業相關的實習工作。

Alumni Stories | 校友故事

After completing her HKDSE in 2017 and being offered a place for pursuing bachelor's degree at a university, Ms. Janet LUK chose to enrol in the Higher Diploma in Child Care and Education programme offered by IVE in order to gain more practical experience and develop her career in childhood education. During her internship in a kindergarten as part of her study at IVE, Janet was assigned to be a class teacher of 30 students and she found this internship a very useful experience for her to gain a deeper understanding in the childcare industry and develop the skills required to teach children. Janet also realised the importance of her role in nurturing the future generation of Hong Kong.

In recognition of Janet's excellent performance in her study, she was awarded the Dr. Ng Tat-lun Memorial Outstanding award in 2019. Janet is now pursuing the Bachelor of Arts in Early Childhood Education at the Chinese University of Hong Kong. Upon completion of her bachelor's degree, Janet aims to become a lecturer providing training to teachers in child education and pass on her knowledge and experience in teaching.

陸嘉怡女士（Janet）於2017年應考香港中學文憑考試且獲大學取錄，但她最終選擇報讀香港專業教育學院開辦的幼兒教育高級文憑課程，以發展其幼兒教育事業。Janet在香港專業教育學院就讀期間，獲安排到幼稚園實習，成為30名學生的班主任。她認為這次實習有助她更了解行業，以及掌握教導幼兒的技巧，而Janet也體會到自己對培育香港未來一代的重要性。

為了表揚Janet在學習期間的出色表現，她於2019年獲頒發「伍達倫博士紀念傑出學生獎」。她及後在香港中文大學攻讀幼兒教育文學士課程。完成學士學位後，Janet目標是成為講師，培訓幼兒教育的教師，將教育的知識及經驗傳授給學生。



Ms. Janet LUK
陸嘉怡女士

Source: The alumni stories were sourced from VTC Alumni Database

資料來源：所有校友故事源自 VTC 校友資料庫。

The quality of VPET graduates in childcare is further illustrated through Ms. Alice YEUNG, an awardee of the Chief Executive's Award for Teaching Excellence in 2012 and a graduate of Higher Diploma in Child Care and Education from IVE.

She shared: "The IVE teaching team opened my eyes to the power of educating others, a cause I have taken to heart. I was awarded the Chief Executive's Award for Teaching Excellence in recognition of my teaching efforts and for using storytelling and story acting in class, a model I co-developed with other teachers, to enrich children's learning experience."

香港專業教育學院幼兒教育高級文憑畢業生楊浩敏女士（Alice）於2012年榮獲行政長官卓越教學獎，進一步展示了職專教育畢業生的質素。

她分享表示：「香港專業教育學院的教學團隊讓我領悟到教育的力量，這種體會令我終身受用。我和其他老師共同研發了『繪本教學』課程，豐富幼兒學習經歷。獲得行政長官卓越教學獎，是對我教育工作的肯定及鼓勵。」



Ms. Alice YEUNG
楊浩敏女士

Ms. LUI Yuen Yuen is the Principal of Hong Kong Christian Service Tin Heng Nursery School who graduated from IVE with a Certificate in Childcare.

“IVE’s programme helped me to realise the mission of being a teacher”, Ms. LUI also pointed out that, “Besides equipping me with professional knowledge, IVE taught me how to communicate with children and their parents. Coordination is very important in early childhood education. Teachers must maintain an open attitude and work as a team. IVE also provided many opportunities to strengthen my skills.”

Ms. LUI believes that learning is a continuous process for self-improvement and reflection. When she received feedback from parents, she would focus on identifying her areas for improvement and enhance her skills through continuous learning. This is important for her to keep striving for excellence and in making her way up to become a school principal.

呂婉婉畢業於香港專業教育學院並獲得兒童教育證書，現時是香港基督教服務處天恒幼兒學校校長。

呂校長指出：「香港專業教育學院的課程幫助我實現成為老師的理想。除了教授專業知識外，課程更讓我從中學習到跟幼童及家長的溝通技巧。幼兒教育十分講求協作，教師必須抱持開放態度，參與團隊工作，學院也為我提供了不少磨練技能的機會。」

呂校長認為，學習是一個不斷自我完善及反思的過程。當她收到學生家長的投訴或意見時，會首先檢視是否有需要改進的地方，並透過持續學習來提升技能，使她不斷追求卓越並逐步成為學校校長。



Ms. LUI Yuen Yuen
呂婉婉校長



5 Recommendations 建議

5.1 Introduction

VPET has evolved to support the transformation of Hong Kong's economy from manufacturing-based into a knowledge-based financial, business and technology hub. This report has reviewed the state of VPET in Hong Kong and other selected jurisdictions. It also identifies the best practices that can shed light on ways to enhance VPET development and further support Hong Kong's economic and societal development.

In this section, the key observations / issues impacting Hong Kong's VPET development are identified under five strategic areas (as shown in Figure 5-1) with consideration of international good practices (i.e. in the jurisdictions shown in Figure 5-2). Recommendations for the development of VPET are then proposed respectively for tackling these key observations / issues. These recommendations are

further categorised into two types: a) essential recommendations, and b) desirable recommendations (see Table 5-1). Essential recommendations are defined as those important for the future VPET development and required to be prioritised for implementation in the short-run (e.g. within the coming 5 years). Desirable recommendations are those preferable to be implemented for enhancing VPET development.

Figure 5-1: Five strategic areas for the further development of VPET

圖5-1：針對職專教育進一步發展的五大策略範疇



Source: PwC analysis
資料來源：羅兵咸永道分析

5.1 引言

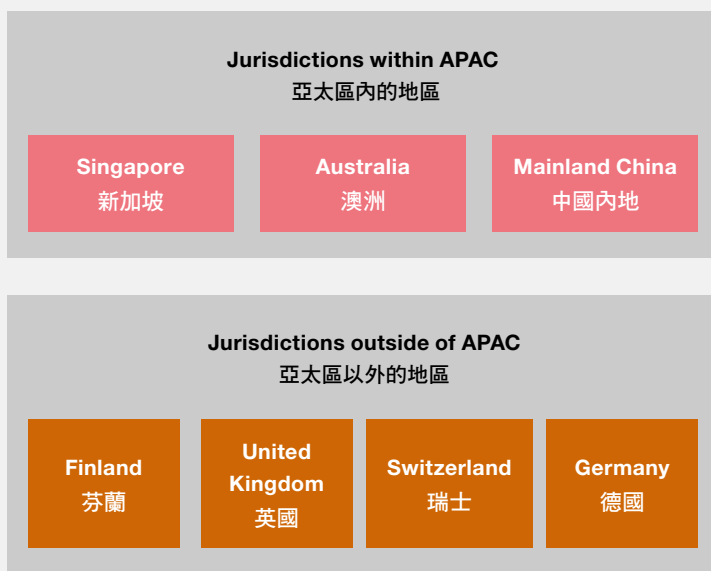
職專教育的發展，有助香港經濟由製造業轉型為知識型的金融、商業及科技中心。本研究檢視了香港的職專教育發展狀況與特定地區作比較，以探討提升職專教育發展的最佳方式，進一步支援香港的經濟及社會發展。

這些建議分別為：a) 重要建議，及b) 可取建議（請參見表5-1）。重要建議定義為對未來職專教育發展很重要的，而且需要在短期內（例如在未來5年內）優先實施，而可取建議則是為加強職專教育發展適宜實行。

本章參考了國際間職專教育的優良模式，（即圖5-2所示的地區），按五個策略範疇（如圖5-1所示）總結影響香港職專教育發展的主要現象和問題，並在這些範疇為職專教育的發展提出建議。

Figure 5-2: Jurisdictions covered in this Analysis

圖5-2：本分析涵蓋的地區



Source: PwC analysis
資料來源：羅兵咸永道分析

Table 5-1: Summary of the observations/key issues and recommendations

	Observation	Recommendation
 Articulation pathway	1. VPET has yet to be positioned on a par with the conventional academic route in Hong Kong, and there is also a lack of Universities of Applied Sciences (UAS) at the higher education level despite VPET's importance to Hong Kong	E 1a. Formalise applied degrees and officially establish a publicly funded UAS at the higher education level E 1b. Formalise VPET at the secondary education level D 1c. Re-define VPET as "Applied Education"
 Upskilling and reskilling of the workforce	2. Lifelong learning culture needs to be further developed and promoted in Hong Kong 3. There is demand for developing a strong talent pool for reindustrialisation, automation and digitalisation 4. Currently, VPET programmes have placed a stronger emphasis on skills development for specific occupations than on developing transferable skills that are applicable across different disciplines	E 2. Enhance the roles of VPET providers in upskilling and reskilling the workforce to meet future needs, bridge skill gaps and promote lifelong learning E 3a. VPET providers should enhance its programme offerings to cater for the human capital needs of Industry 4.0, automation and digitalisation E 3b. Enhance collaboration with other cities in the Mainland China and GBA to build a diversified talent pool E 4. Amalgamate technical skills development and transferable skills development in VPET programme curricula to nurture talents

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation

表5-1：本研究的觀察／主要問題及建議概述

 升學階梯	觀察	建議
 人力資源的專業 技能提升及 再培訓	1. 儘管職專教育對香港十分重要，但由於香港缺乏應用科學大學，其定位仍未能與香港傳統學術途徑看齊 2. 香港需要進一步發展和推廣終身學習的文化 3. 香港需要為再工業化、自動化和數碼化發展多元化的人才資源庫 4. 目前，職專教育課程更著重於特定職業技能的發展，而不是發展適用於不同學科的通用技能	E 1a. 將應用學位正規化，並正式建立政府資助的應用科學大學 E 1b. 在中學開始推行職專教育 D 1c. 重新定義職專教育為「應用教育」 E 2. 加強職專教育在提高工作人口的專業技能和再培訓方面的作用，以滿足未來需要，彌補技能差距，促進終身學習 E 3a. 職專教育機構應加強課程內容，以滿足工業4.0、自動化和數碼化的人力資源需求 E 3b. 加強與中國內地和粵港澳大灣區內的其他城市的合作，建立多元化的人才庫 E 4. 在職專教育課程中融合專業技能與通用技能，以培育人才

附註：**E** 表示擬議的重要建議 **D** 表示擬議的可取建議



Government support

Observation

5. There are differences in Government's funding support provided to the universities and VPET providers and the strategic development direction needs more clarity
6. There is a need for a consolidated web portal which provides integrated, consistent and up-to-date information to the public with regard to workforce and skills development

Recommendation

- E** 5. Strengthen Government's policy and financial support for VPET, including reviewing existing funding policies and financial assistance schemes and establishing an independent overarching body to provide strategic directions and coordinate development of VPET
- D** 6. Introduce a new one-stop online platform for the public to guide decision-making on lifelong learning and career choices with easily accessible, integrated, consistent and up-to-date information on existing and emerging skills shortage and future jobs in high demand



Linkage with the industry

7. The involvement of employers in VPET development could be enhanced
8. Dual-track programmes are currently limited in terms of industry coverage and qualification types
9. The time required for introducing new programmes, updating of curriculum and accreditation could be shortened to cater for the industry's fast-evolving needs

- E** 7. Encourage employers, professional bodies, industry chambers and trade associations to take on more active roles in VPET development and enhance the industry's recognition on VPET
- D** 8. Dual-track programmes should be modernised and extended to a wider range of industries and education levels as well as qualification types
- D** 9. Expedite the internal approval and external accreditation processes for timely programme development and curriculum update, and to improve the "skills match" of VPET graduates with industry needs



Recognition of VPET

10. VPET in Hong Kong needs greater regional and international recognition

- D** 10. Enhance international and regional recognition of VPET in Hong Kong

Note: **E** denotes for proposed essential recommendation **D** denotes for proposed desirable recommendation



政府支持

觀察

5. 政府向大學與職專教育機構提供的資助存在差異，職專教育的發展策略及方向需要更清晰明確
6. 缺乏一站式的資訊平台，向公眾提供有關人力和技能發展的最新綜合資訊

建議

- E** 5. 加強政府對職專教育的政策和財政支持，包括檢視現有的資助政策和財政援助計劃，並建立一個獨立的統籌機構，為職專教育在計劃和發展上提供指導和協助
- D** 6. 建立一站式線上平台，讓公眾能輕易獲取綜合和最新資訊，了解現有及新興的技能短缺和未來高需求的職位，並為公眾就終身學習及職業選擇提供指導



與業界和僱主聯繫

7. 僱主在職專教育中的參與程度有待加強
8. 目前，雙軌制課程僅涵蓋有限的行業及資歷
9. 課程的引入、更新和評審所需的時間有待縮短，以配合行業急速發展

- E** 7. 鼓勵僱主、專業團體、行業商會及協會在職專教育發展中發揮更積極作用，提高業界對職專教育的認可
- D** 8. 雙軌課程應現代化，並擴展到更多不同行業、教育程度和資歷
- D** 9. 加快課程發展及更新的內部批核和外部評審程序，提高職專教育畢業生的技能匹配度，以配合業界需求



對職專教育的認可

10. 香港職專教育需要獲得更廣泛的地區和國際認同

- D** 10. 提升香港職專教育在地區和國際的地位

5.2 Articulation pathway

Issue 1. VPET has yet to be positioned on a par with the conventional academic route in Hong Kong, and there is also a lack of Universities of Applied Sciences (UAS) at the higher education level despite VPET's importance to Hong Kong.

VPET plays a pivotal role in supporting Hong Kong in its transformation from a manufacturing based economy to a service-driven and knowledge-based economy by supplying a skilled workforce in a number of industries, such as business, marketing, tourism and hospitality, design and creative as well as information technology.

VPET addresses the shortage in human resources for engineering services, such as aircraft maintenance, railway maintenance, automotive maintenance, building services (including lift and escalator maintenance), construction, as well as healthcare and community services, which are essential for ensuring the quality of life

in Hong Kong, facilitating the city's daily normal operations as well as upholding Hong Kong's reputation as one of the most efficient cities in the world with state-of-the-art infrastructure and facilities. As illustrated earlier in this Report, VPET makes significant contributions to Hong Kong in bridging the income gaps and providing upward mobility opportunities for young people to attain higher qualifications and advancing their careers.

Such impacts are similar to other jurisdictions. As revealed in the *Macroeconomic Benefits of Vocational Education and Training*, VPET has made positive contributions to workforce productivity through skills enhancement and effective usage of information and communication technologies in Europe (European Centre for the Development of Vocational Training (Cedefop), 2014). The positive impact of VPET is more significant in countries where it is delivered at the early stage of the education pathway, such as apprenticeship training from lower secondary education in Germany.

5.2 升學途徑

問題1：儘管職專教育對香港十分重要，但由於香港缺乏應用科學大學，其定位仍未能與香港傳統學術途徑看齊

透過為商業、市場推廣、旅遊及款待、設計及創意，以及資訊科技等行業提供技術人才，職專教育在支援香港由以製造業為主的經濟體系，轉型為以服務業主導的知識型經濟過程中，擔當著關鍵角色。

職專教育解決了飛機維修、鐵路維修、汽車維修、屋宇裝備（包括升降機及自動電梯維修）、建築、健康護理和社區服務等行業的人力資源短缺問題。這些行業對確保香港居民的生活質素、促進香港的日常運作，以及維持香港作為世界上最有效率的城市之一、擁有世界級基建和設施的

聲譽，至為重要。正如本報告前文，透過收窄收入差距，為年青人提供向上流動的機會，讓他們獲得更高資歷，使事業能更上一層樓，職專教育為香港整個社會作出了重大貢獻。

在世界其他地方亦有這種情況。如《職業教育和培訓的宏觀經濟效益》所述，職專教育通過提升技能，有效利用歐洲的資訊和通訊技術，為提高工作人口生產力作出正面貢獻（歐洲職業培訓發展中心，2014）。在升學途徑早期階段便提供職專教育的國家中，例如德國在初中教育提供學徒訓練，職專教育的正面影響更為顯著。

In recognition of the important role played by VPET to economic and societal development, strong emphasis has been placed on its development in jurisdictions such as Germany, Switzerland, Australia, the United Kingdom, Finland and Mainland China. Vocationally-oriented qualifications and articulation pathways, especially at secondary and post-secondary levels, are formally embedded in the education systems of these jurisdictions. VPET leads to comparable levels of educational attainments as the conventional academic education.

A common feature observed in the education systems of these jurisdictions is that students are required to choose between two major pathways upon completion of lower secondary education, namely conventional academic education or vocational education. In other words, students are given choices to choose the type of education based on their preference for learning models and career aspirations. As a result, as shown in Figure 5-3, the participation rates of VPET among secondary school students are relatively high in these jurisdictions.

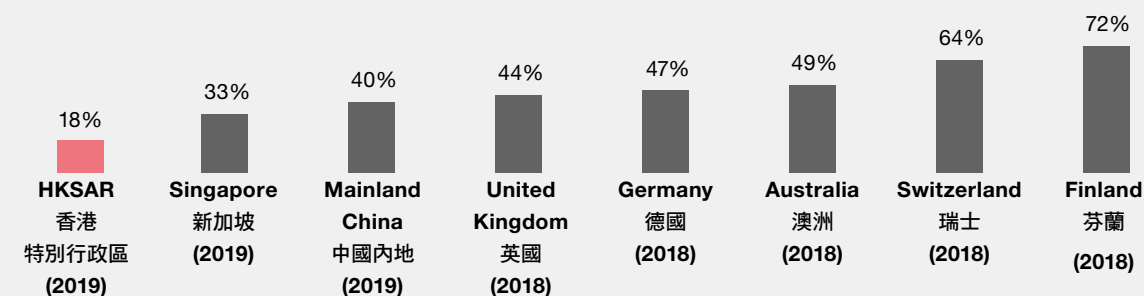
In Germany, the Federal Government, State Governments, employers and chambers have fully recognised the value and benefits to the economy and the society brought about by vocational education and training (VET, as commonly called in overseas countries). These parties make collaborative efforts in offering VET and nurturing a skilled workforce to meet economy and industry development needs. VET is an important component of Germany's education system. Especially at the higher education level, various types of vocational programmes are offered for pre-employment development or in-service upskilling. Students who have taken the VET route can advance their professional skills and knowledge through pursuing programmes with well recognised qualifications, such as advanced vocational qualifications at higher technical and trade schools, or obtaining applied degrees from universities of applied sciences (UAS).

由於認識到職專教育對經濟和社會發展的重要作用，德國、瑞士、澳洲、英國、芬蘭等國家及中國內地均十分重視職專教育的發展。以職業為導向的資歷和銜接途徑已正式併入這些國家的教育系統，特別是中學和專上程度。職專教育可獲相當於傳統學術教育的水平。

從這些國家的教育系統中觀察到一個共同特徵，就是學生在完成初中教育後，可在兩種主要途徑，即傳統學術教育或職專教育之間作出選擇。換言之，根據對學習模式和職業展望的偏好，學生可以選擇各自的教育模式。如圖5-3所示，在所有國家中，中學階段職專教育的參與率較香港高。

Figure 5-3: Participation rate in VPET in upper secondary education

圖5-3：高中階段的職專教育參與率



Note: Data are shown in the latest year available for respective countries from the OECD Education database.

Source: (1) C&SD (2020m), (2) HKEAA (2020), (3) Ministry of Education of Singapore (2020a), (4) Ministry of Education of the People's Republic of China (2020a), (5) OECD (2020), PwC Analysis

附註：上述數據來自經濟合作暨發展組織教育資料庫中各個國家的最新年份數據。

資料來源：(1) 政府統計處 (2020m)、(2) 香港考試及評核局 (2020)、(3) 新加坡教育部 (2020a)、(4) 中華人民共和國教育部 (2020a)、(5) 經濟合作暨發展組織 (2020)、羅兵咸永道分析

在德國，聯邦政府、州政府、僱主及商會充分認可職業教育及培訓（在海外國家通常稱為職業教育及培訓）為經濟及社會帶來的價值和利益。各方齊心合力，提供職業教育及培訓，培育技術工作人口，以滿足經濟及行業發展的需求。職業教育及培訓是德國教育體系的重要組成部分，尤其

在高等教育階段，為學生提供了各類職業課程，促進職前發展或提升在職技能。選取職業教育及培訓途徑的學生可透過報讀具廣泛認受性的課程來提升專業技能及知識，例如高等技術和行業學校的高級職業資歷，或從應用科學大學考獲應用學位。

This is also the case in Mainland China, Switzerland and Finland. It is commonly seen that students who opt for either the VET route or the conventional academic route are able to pursue higher education at degree level or above offered by universities, which are normally categorised into conventional academic universities and UAS. Vocationally-oriented degree programmes (also called applied degrees) are offered in UAS for VET students who want to pursue degree-level study. The cluster of UAS has been well established and formalised as a part of the entire education system at the national level for higher education in these jurisdictions.

In particular, for the case of Mainland China, recognition of the importance of VET has been demonstrated through a recent policy introduced by the Chinese State Council in furthering VET reform. Realising the importance of VET and the increasing needs of a work-ready workforce with technical knowledge, the Central Government announced the Modern Vocational Education Development Strategy (State Council of the People's Republic of China (PRC), 2014). This policy details the Central Government's plan to expand its capacity of vocational education through

developing UAS to offer degree-level qualifications, in order to enhance the quality of vocational education, reduce potential skills mismatch and support the increasing needs of talents for sustaining its economic growth (Embassy of Switzerland in China, 2014). In 2019, 300 conventional academic universities were selected as pilots to be transformed into UAS (Ministry of Education of the PRC, 2019a).

In April 2021, the Central Government called for efforts to speed up the development of the modern vocational education system and cultivate more high-quality technical professionals. The Central Government also promulgated a guideline on improving the country's vocational education, and indicated that vocational education will play a more significant role in the modernisation of the society. The Central Government stressed the need to reform training and education modes as well as management and support mechanisms related to vocational education.

In doing so, the Central Government called for promoting vocational education at the degree level and bringing about a number of quality vocational

education institutions and programmes. All government departments at various levels are urged to enhance policy support and investment to promote "Meistership Spirit" in order to uplift the social status of technical professionals.

Likewise, the Ministry of Education approved the establishment of a new UAS, Shenzhen Technology University in late 2018 (Shenzhen Technology University, 2020). Furthermore, to cater for the increasing workforce demand for specialists with advanced technical and vocational skills and knowledge, a new model, known as "1+X system", has been started to be tested and adopted in 2019 to promote vocational education. Students enrolled in this system can pursue both conventional qualifications (e.g. degree, diploma) (represented by "1") and multiple vocational and skill certificates (represented by "X").

在中國內地、瑞士和芬蘭也是如此。選擇職業教育途徑或傳統學術途徑的學生均可接受大學提供的學位或更高學歷的高等教育，這些大學通常被分類為傳統學術大學和應用科學大學。應用科學大學為希望攻讀學位課程的職業教育學生提供以職業為導向的學位課程（亦稱為應用學位）。這些地區已建立應用科學大學的群體，並已正式成為其地區整個高等教育系統的一部分。

在中國內地，中國國務院最近推出政策，進一步改革職業教育，展現對職業教育重要性的認同。中央政府意識到職業教育的重要性，以及對具有技術知識的工作人口的需求日增，頒布《現代職業教育發展戰略》（中華人民共和國國務院，2014），該政策說明了中央政府計劃發展應用科學大學以提供學位課程，擴大職業教育的影響力，以提升職業教育的質量，減少潛在的技能錯配，增加人才供應以維持經濟增長（瑞士駐中國大使館，2014）。2019年，300所傳統學術大學被選為試點，轉為應用科學大學（中華人民共和國教育部，2019a）。

中央政府在2021年4月要求加快構建現代職業教育體系的發展，並培養更多高素質技術技能人才。對改善國家職業教育方面也作出了指導，指出職業教育將在社會現代化中發揮更大的作用，並強調需要改革職專教育的培訓和教育模式以及相應的管理和支援體系。

為此，學位層面上需要促進職業教育，並建立高質素的職業教育機構和課程。各政府部門要加大制度創新和政策支持，以弘揚「工匠精神」及提高技術技能人才的社會地位。

舉例而言，教育部於2018年底批准設立新的應用科學大學——深圳技術大學（深圳技術大學，2020）。此外，為滿足對具備先進技術及職業技能和知識的專門人才的需求，2019已開始試行一種名為「1+X證書」的新制度，以促進職專教育發展。參與的學生可同時獲取學位、文憑等傳統資格證書（以「1」表示），也可獲多種職業和技能證書（以「X」表示）。

Stepping into the 14th Five-Year Plan, vocational education sets sights on improving the agility of talents facing industrial transformation. The Nanjing Vocational University of Industry Technology is the first pilot undergraduate vocational education institution in Mainland China, another important step in advancing vocational education at the higher education level. For example, in view of the shortage of highly skilled manpower such as aircraft maintenance engineers, vocational institution is working with enterprises to groom practitioners through undergraduate vocational education.

During the 14th Five-Year Plan period, the Ministry of Education will roll out vocational education at the degree level in 27 undergraduate-level vocational institutions, and establish an integrated vocational education system up to bachelor's degree level and above for nurturing high-quality and innovative talent.

Another example of enhancing VET's position as an equivalent pathway to the conventional academic route is seen in the UK. Apart from having 174 further education colleges and 742,400 people participating in apprenticeships, the UK Government has recently

launched T Levels, courses equivalent to A Level qualifications with a combination of classroom learning and "on-the-job" experience in the form of an industry placement of about 45 days. A key feature of the T Levels is that they are similar to A Levels, in terms of the structure of the qualification, grading system adopted, as well as tariff points for articulating to higher education via the Universities and Colleges Admissions Service (UCAS) system. This ensures the articulation pathway under the VET route is readily understood by students, teachers and parents, and is permeable to the conventional academic route. More importantly, T Levels are recognised as equivalent examinations / qualifications to the widely accepted A Levels, providing a means for VET students to access to higher education.

The development of UAS is of high importance for VET development, since there are key differences between a conventional academic university and UAS. Taking Germany as an example (Figure 5-4), UAS awards qualifications at the bachelor's degree level (i.e. which qualifies the holder to carry out a specific professional activity) and the master's degree level (i.e. which provides students with in-depth and specialised

knowledge, preparing them for a more advanced qualification in their respective field). Compared to the conventional academic route, UAS places more emphasis on practical learning by integrating work-based training with classroom-based learning. UAS also has a strong linkage with the industry and conducts research activities that are on an "applied" basis driven by the needs of the businesses.

The role of UAS in supporting applied research cannot be underestimated. UAS has strong connections with businesses to facilitate activities on research and development (R&D), such as product development, production process enhancement and technological innovation.

The success of the manufacturing sector in Germany can be attributable to the UAS cluster publicly funded by the German Government, which has provided strong support for UAS research professors and students to translate ideas into innovative products and services via conducting R&D activities with the private sector (Parilla et al, 2015). The public-private collaboration on applied research, combined with a dual-track vocational training model are considered as crucial factors contributing to Germany's leading position in manufacturing.

踏入「十四五」規劃，職業教育著眼於培養產業轉型的人才。南京工業職業技術大學是中國內地首家試點性的本科職業教育機構，這是在高等教育推進職專教育的一大進步。由於飛機維修工程師等高技能人才短缺，職業教育機構正在與不同企業合作，透過本科專職教育來培養從業員。

「十四五」期間，教育部在27間本科職業教育學校中推行具學位程度的職專教育，並建立一個本科以上學歷的綜合職業教育體系，以培養高素質、高水平的創新人才。

在英國有另一個提高職業教育至與傳統學術途徑同等地位的例子。除了174家進修學院及742,400人報讀的學徒計劃外，英國政府最近推出T Level課程，相當於A Level資格，結合課堂學習及約45天的行業實習「在職」經驗。T Level與A Level類似，其主要特點在於其資歷結構、採用的評分系統及通過大學及院校招生事務處銜接高等教育的對照分數。這確保職業教育的升學途徑能更容易獲學生、教師和家長的認可，並且可以滲透至傳統學術途徑之中。更重要的是，T Level被認為與獲廣泛接受的A Level具相等的考試資格，為職業教育學生提供獲取高等教育的途徑。

應用科學大學對職業教育的發展非常重要，因為傳統學術大學與應用科學大學之間存在著關鍵差異。以德國為例，如圖5-4所示，應用科學大學授予學士級別（即持有人合資格從事特定的專業活動）及碩士級別（即為學生提供深入的專業知識，為他們在各自領域中獲得更高資歷作好準備）的資格。與傳統學術途徑相比，應用科學大學揉合工作實習培訓與課堂學習，更加重視實踐。應用科學大學亦與業界緊密聯繫，並根據業務需求在「應用」基礎上進行研究活動。

應用科學大學支持應用研究所發揮的作用不容忽視。應用科學大學與企業緊密合作，推進研究及開發工作，如產品開發、生產工藝改進及技術創新等。

德國製造業的成功歸功於德國政府以公共資助，為應用科學大學的教授及學生提供強大支援，使他們可與私營機構進行研發活動，從而將創意轉化為創新的產品及服務 (Parilla et al., 2015)。應用研究的公私營合作與職業培訓雙軌結合，被認為是有助德國在製造業保持領先地位的關鍵因素。

In light of the above, there is a converging trend seen internationally that VET has been a high priority in educational reforms, especially at the higher education level. However, as discussed in Section 3.2.4 earlier, there are a number of “myths” surrounding VPET, such as its perceived role as an “alternative” education pathway in Hong Kong. As such, unlike the illustrated best practices in this section, the value and importance of VPET has yet to be fully recognised in Hong Kong. For example, at the secondary level, while students taking the HKDSE Category A subjects can obtain a highest grade of Level 5**, students who opt for Applied Learning (ApL) (Category B) subjects can only best be graded as “Attained with Distinction (II)”, which is equivalent to Level 4 in Category A subjects. This could create an impression to students, parents and secondary school teachers that VPET (in the form of ApL) has not been designed to be on par with conventional academic education. In addition, although VPET providers currently offer a variety of vocationally-oriented programmes for secondary students, such as DVE and DVB, the VPET route has yet to be formally recognised as part of the education system that is equivalent to the

conventional academic routes and the articulation pathways remain unclear to many students, teachers and parents. The establishment of a publicly funded UAS at the higher education level will likely address this and send a clear signal to society.

In Hong Kong, programmes at degree level or above are currently provided by UGC-funded conventional academic universities and self-financing post-secondary institutions. A majority of the conventional academic degree programmes are publicly-funded by the Government in the form of subsidies to students’ tuition fees. The VPET programmes at degree or above levels (also called “applied degrees”) are mainly offered by self-financing post-secondary institutions, such as THEi, Caritas Institute of Higher Education and Tung Wah College, which means most of these VPET programmes are more costly to students than those academic degree programmes offered by the UGC-funded universities. This may impose a financial barrier for

pursuing VPET and results in academic degree programmes remaining the mainstream option for higher education. However, in Switzerland, Finland and Germany, applied degrees at UAS are publicly funded by the respective governments, which means applied degrees are as affordable as academic degrees. In Asia, the Singapore Government also promotes applied education and offers applied degrees through setting up two universities of applied learning, namely Singapore Institute of Technology (SIT) and Singapore University of Social Sciences (SUSS) which was converted from the self-financed SIM University.

The establishment of a publicly funded UAS and formalisation of applied degrees with the Government’s support could be important to promote VPET and gaining public confidence on the prospects of furthering VPET development in Hong Kong.

從國際經驗可得出，在教育改革中，職業教育在高等教育裡越來越受重視。然而，如上文第3.2.4節所述，香港大眾對職專教育仍有很多「誤解」，例如被當作「另類」的升學途徑。有別於其他地區，職專教育的價值及重要性在香港尚未獲得充分認同。舉例來說，在中學階段，雖然報考文憑試甲類科目的學生可獲得最高5**的成績，但是選擇應用學習（乙類）科目的學生最多只能獲得「達標並表現優異(II)」的評級，等同甲類科目的第4級，這可能會給學生、家長及中學教師產生錯覺——以應用學習形式進行的職專教育並非與傳統學術教育看齊。此外，儘管職專教育機構目前為中學生提供各種以職業為導向的課程，例如職專文憑及職專國際文憑，職專教育途徑尚未被正式認同為相等於傳統學術途徑的教育體系。同時，很多學生、教師及家長仍不太清楚職專教育所提供的多元升學途徑。因此設立由公共資助的高等教育程度之應用科學大學可能會解決這個問題，也能向社會發出「政府有意發展職專教育」的明確訊息。

在香港，學位或以上程度的課程目前是由教資會資助的傳統學術大學及自資專上院校所開辦的。大部分傳統學術學位課程由政府以公共資助的形式津貼學生學費。學位或以上程度的職專教育課程（亦稱為「應用學位」）主要由香港高等教育科技學院、明愛專上學院、東華學院等自資專上院校提供，這意味著與教資會資助的大學所開辦的學術學位課程相比，這些職專教育課程費用更高，對報讀職專教育的學生造成財政負擔，導致學術學位課程繼續成為高等教育的主流選擇。然而，在瑞士、芬蘭及德國，應用科學大學的課程均得到政府資助，這意味著與學術學位一樣，學生亦可負擔得起應用學位課程費用。在亞洲，新加坡政府透過設立兩家應用科學大學來促進應用教育，並開辦應用學位，這兩家大學便是新加坡理工大學及由自資的新躍大學轉變而成的新躍社科大學。

建立由公共資助的應用科學大學，並在政府的支持下將應用學位正規化，對推廣職專教育，以及加強公眾對香港職專教育與發展前景的信心極為重要。

Figure 5-4: Differentiators between universities of applied sciences and academic universities in Germany

Germany					
	Universities of applied sciences		Academic universities		
Qualifications offered 	 Bachelor's degree	 Master's degree	 Bachelor's degree	 Master's degree	 Doctorate degree
Curriculum focus 	Curriculum places emphasis on developing applied knowledge and skills with some introduction to basic concepts and theories		Curriculum relies heavily on concepts and theories, with low emphasis on developing practical skills		
Teaching and learning mode 	Combine campus-based learning and on-the-job training		Predominantly campus-based learning		
Staff qualifications 	“Dual professionals” – teachers and trainers with both academic and industry (at least 3-5 years) experience		Academia primarily focusing on academic research		
Industry connection 	Strong linkage with the industry and businesses in terms of attachment opportunities to avoid the mismatch of school and workplace		Limited connection with the industry, more within academia and research institutes		
Research 	Predominantly applied research in collaboration with companies within the region, research results should be immediately implementable in the industry		Predominantly basic research and scientific studies		
Indicative disciplines covered 	Science, business, engineering, technology, design and creative industries		Covering all disciplines, including humanities, social sciences, law and medicine		
Skills development 	Primarily focuses on professional development and industry specific applied knowledge and technical skills, such as problem-solving skills		Primarily focuses on academic knowledge and skills, such as critical thinking, with some coverage on professional development		

Source: (1) Federal Ministry of Education and Research of Germany (n.d.), (2) PwC analysis

圖5-4：德國應用科學大學與學術大學之間的區別

德國		
	應用科學大學	學術大學
所提供的資歷	 學士學位  碩士學位	 學士學位  碩士學位  博士學位
課程重點	課程著重發展應用知識及技能，並簡介基本概念及理論	相比於實踐技能，課程更為著重概念及理論
教與學模式	結合校園學習和在職培訓	主要在校園學習
師資	「雙重專業人員」—— 具備學術及行業（至少3至5年）經驗的教師及導師	學術界主要專注於學術研究
業界聯繫	與業界及企業在實習機會方面緊密聯繫，避免學校與職場出現錯配	與學術界及研究機構有更多聯繫
研究方向	主要是與該地區的企業合作進行應用研究，研究結果可應用於業界	主要是基礎研究及科學研究
指標性學科涵蓋	科學、商業、工程、技術、設計及創意產業	涵蓋所有學科，包括人文、社會科學、法律及醫學
技能發展	專注於專業發展及業界特定的應用知識及專業技能，例如解決問題的能力	專於學術知識及技能，例如批判性思維，並涵蓋一些專業發展的知識

資料來源：(1) 德國聯邦教育及研究部（無日期）、(2) 羅兵咸永道分析

E Recommendation 1a.
Formalise applied degrees
and officially establish
publicly funded UAS at the
higher education level

To reinforce the positioning of VPET in the education system and enhance public recognition of VPET, the Government could consider formalising applied degrees and establishing publicly funded UAS offering programmes at bachelor's degree level or above in Hong Kong. This would help to:

1. Formalise the existing degree programmes with a strong focus on applied and vocational aspects as applied degrees, and position them as a qualification type that is equivalent to conventional academic degrees. The applied degree programmes should focus on equipping students with a high level of employability and enabling them to learn quickly in the workplace. As highlighted by Nobel Laureate Prof. Paul ROMER in the 2021 Asia Financial Forum Keynote Session on vocational education, "... when young people leave the school without a job, they miss not only the chance of earning an income, but a chance of learning on the job";

2. Offer articulation opportunities for VPET students to pursue degree-level qualifications at publicly funded UAS supported by the Government and to attain qualifications that are equivalent to conventional academic degrees offered by UGC-funded universities. This would demonstrate the Government's commitment in providing publicly funded articulation pathways for the VPET route (Figure 5-5);
3. Incentivise the uptake of the VPET route from secondary schools as applied degrees become as affordable as those conventional academic degrees offered by UGC-funded universities; and
4. Provide a platform for applied research activities and encourage collaboration between the industry and education providers to develop Hong Kong's capabilities in applied research.

In Hong Kong, there are existing self-financing post-secondary institutions that operate with similar principles of overseas UAS offering vocationally and professionally oriented applied degrees with programme curriculum addressing industry's workforce needs. For example, THEi adopts a Work Integrated Learning approach and collaborates with the industry in carrying out a number of applied research projects. In addition, THEi as a pilot also offers degree apprenticeship programmes providing opportunities for its students to acquire skills in the workplace and obtain employment opportunities after graduation, thereby fostering lifelong learning. Hence, as a first step in formalising VPET at the higher education level, there could be consideration in converting THEi and other higher education institutions that offer degree programmes with applied focuses into publicly funded UAS to provide applied degrees.

E 建議1a：將應用學位正規化，並正式建立政府資助的應用科學大學：

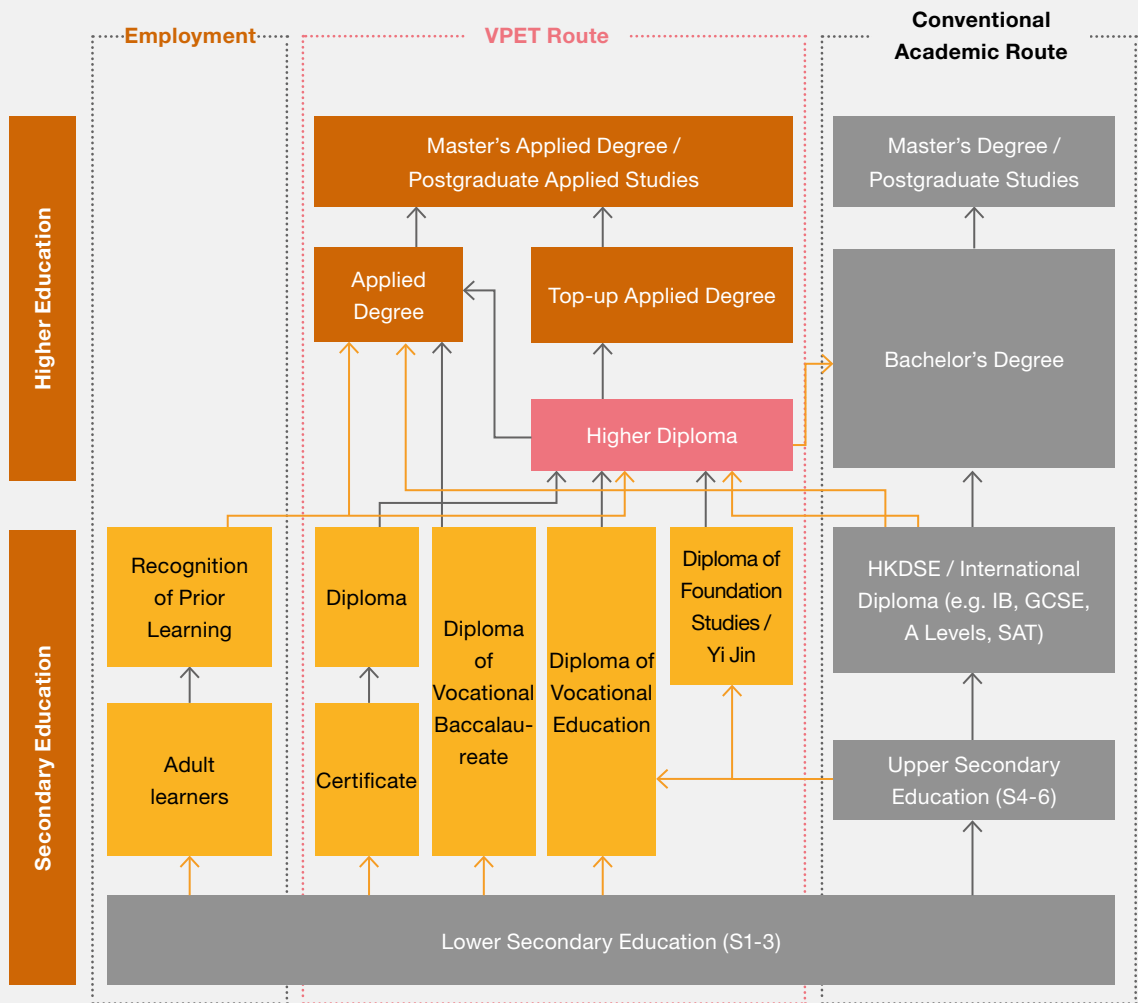
為鞏固職專教育在教育體系中的定位，並提升職專教育的認受性，政府可考慮將「應用學位」正規化，成立政府資助的應用科學大學並開設學士學位或以上學歷的課程。這將有助：

1. 以應用及職業層面為重點的學位課程定為應用學位，並將其定位為與傳統學術學位有同等的資歷。應用學位課程應著重培養學生的就業能力，並使他們能在職場上快速學習。正如諾貝爾獎得主保羅·羅默教授 (Prof. Paul ROMER) 在2021年亞洲金融論壇職業教育主題演講中所強調：「……如果青少年離開學校而沒有工作，他們不僅失去了獲得收入的機會，而且還錯過了在工作中學習的機會」；
2. 為職專教育學生提供升學機會，使其能修讀資助的應用科學大學學位課程，並取得與傳統學術學位同等的資歷。這可顯示政府致力為職專教育課程提供由公共資助的升學途徑（圖 5-5）；

3. 隨著應用學位的學費與資助的傳統學術學位同屬可負擔水平，鼓勵中學生選擇職專教育途徑升讀應用學位；及
4. 為應用研究活動提供平台，並鼓勵企業及職專教育機構合作，以發展應用研究能力。

在香港，自資專上學院現以與海外應用科學大學類似的模式營運，提供以職業及專業為導向的應用學位課程，以配合業界對人才的需求。例如香港高等教育科技學院採用以職專為本的教學模式，與業界合作多個應用研究項目，學院亦以先導方式提供學位學徒計劃，為學生提供在職場學習技能的機會，讓他們在畢業後獲得就業機會，鼓勵終身學習。因此，作為將職專教育正規化的第一步，可考慮將香港高等教育科技學院及其他以應用學習為重心，並有開辦應用學位課程的高等教育機構，轉變為公共資助的應用科學大學。

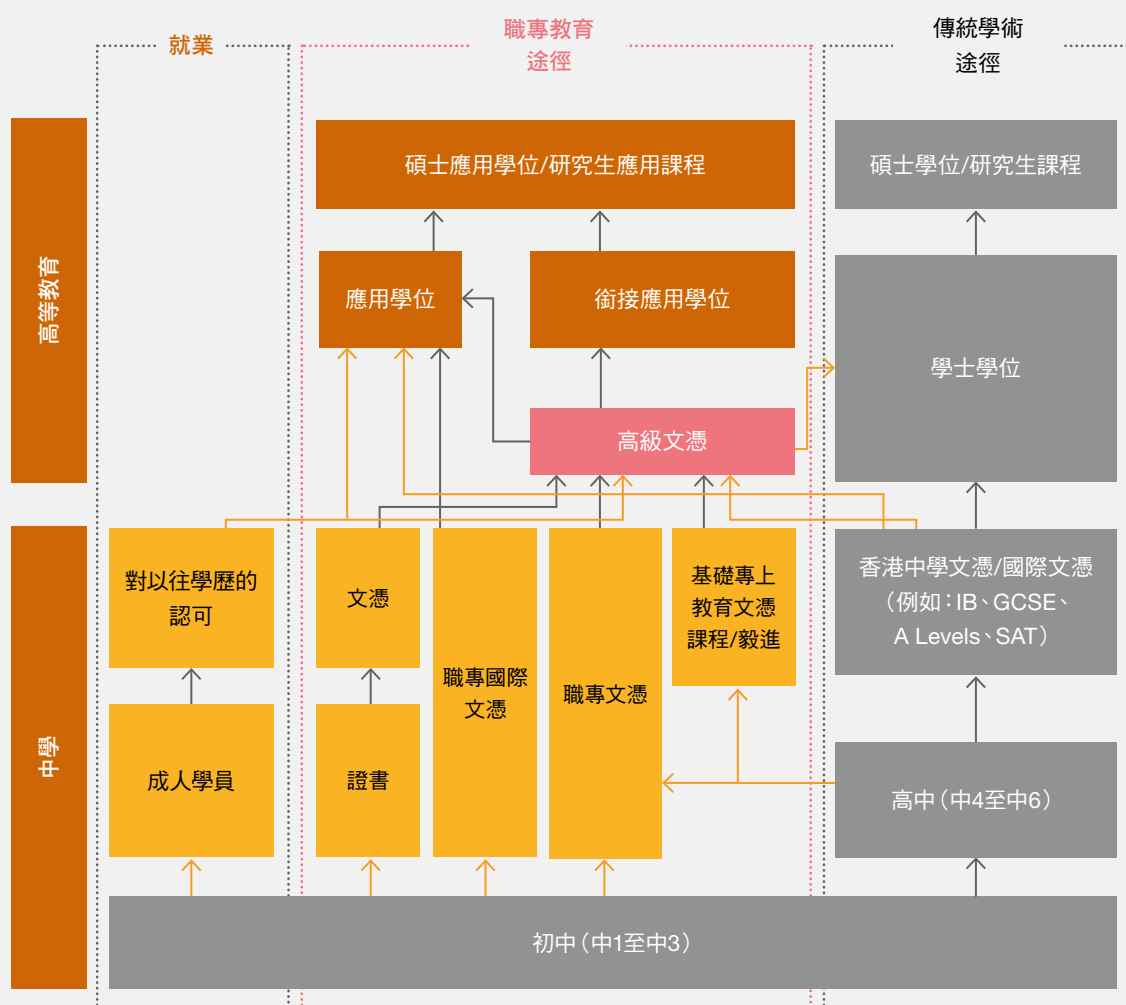
Figure 5-5: Proposed articulation pathway with publicly funded VPET degree programmes



Note: All abbreviations are denoted in Appendix 11.

Source: PwC analysis

圖5-5：政府資助的職專教育學位課程的擬議升學階梯



圖例：→ 代表不同途徑的升學

→ 代表在同一途徑升學

附注：所有縮寫均列明在附錄11中

資料來源：羅兵咸永道分析

E Recommendation 1b. **Formalise VPET at the** **secondary education** **level**

Formalising VPET at the secondary education level would also be crucial for reinforcing the positioning of VPET. In doing so, the following should be considered:

1. Formalise the VPET route (such as certificate, apprenticeship, DVE, DVB) as an education pathway that has parity with the conventional academic route. This could be done by setting a clear diversion into the conventional academic education route or the VPET route among secondary students upon their completion of lower secondary education as shown in Figure 5-5;
2. Formally embed apprenticeships as a qualification type recognised under HKQF in the education system at the secondary education level, with articulation pathways to undertake further higher education (refer to Figure 5-6);
3. Reinforce the role of the Youth College as a secondary school specifically designed for Applied Education at the secondary education level to provide a clear distinction

from conventional secondary education. Such conventions have been adopted in many jurisdictions, including Mainland China, Switzerland, Germany and more;

4. Popularise the use of vocationally oriented syllabus in secondary schools so that workplace training elements (e.g. short-term industry placements) can be enhanced in secondary education; and
5. Recognise the Applied Learning (ApL) (Category B) subjects in the HKDSE by reviewing its learning outcomes and assessment so that they could be awarded using the same grading categorisation as in Category A subjects, with the highest grade of Level 5**. This gives a clear message to the general public, all UGC-funded universities and post-secondary institutions that ApL subjects are on par with Category A subjects, but not inferior.

To conclude, formalising VPET education at the secondary education level will likely help to mitigate the disparity between the two types of education pathways and enable the positioning of applied education to be better perceived as being on a par with the conventional academic education, which are commonly seen in other leading jurisdictions.

E 建議1b：在中學開始推行 職專教育

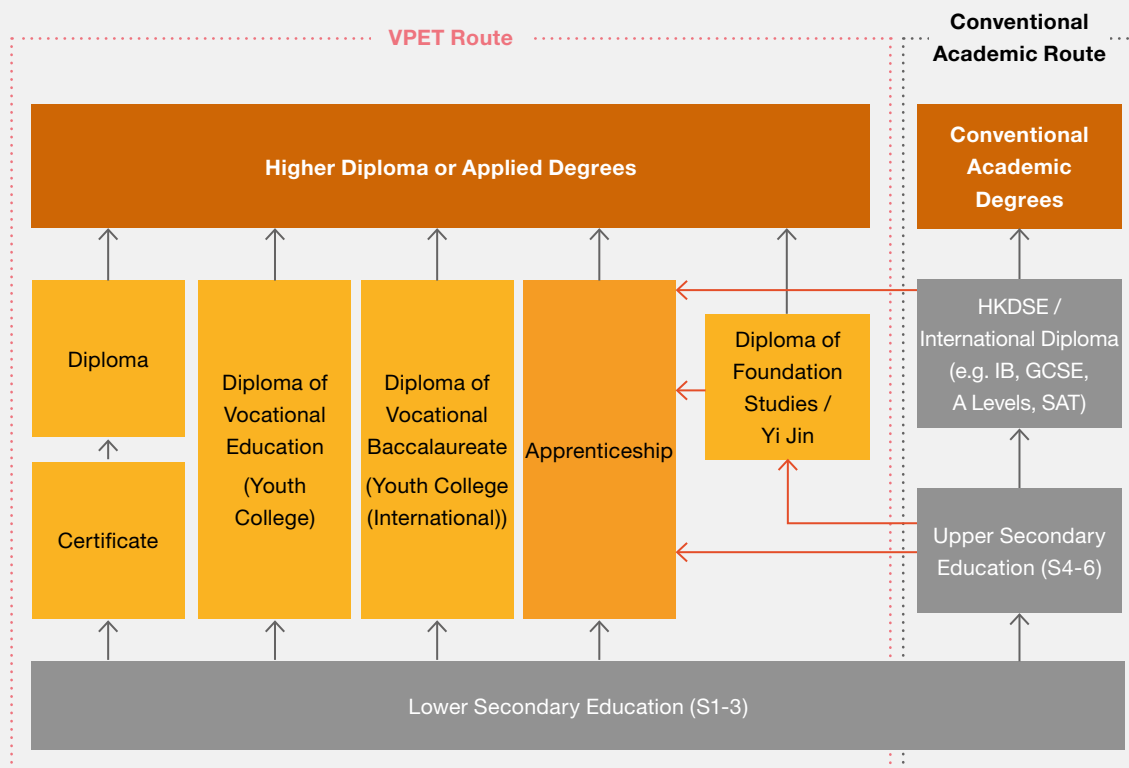
在中學開始推行職專教育，對於加強職專教育的定位尤其重要。為此，有關持份者可考慮以下措施：

1. 將中學教育階段的職專教育課程（例如證書、學徒、職專文憑，職專國際文憑）正規化，使其與傳統學術升學途徑的認受性持平。如圖5-5所示，在中學生完成初中課程後，可以考慮讓學生選擇分流到傳統學術升學途徑或職專教育途徑；
2. 將學徒計劃正式列為香港資歷架構認可的資歷類別，納入中學教育體系，並提供升讀高等教育的途徑（見圖 5-6）；
3. 鞏固青年學院作為一所專門提供應用教育的院校，使其有別於傳統中學教育。很多地方也採用了這種區別方法，包括中國內地、瑞士、德國等；

4. 透過鼓勵中學採用職業導向的課程綱要，加強中學教育中的職場培訓元素（如短期工作實習）；以及
5. 檢討香港中學文憑試中的應用學習科目（乙類）的學習目標及評核方法、使其成績能達5**等級及與甲類科目看齊，讓公眾人士、大學及專上學院承認應用學習科目與一般甲類科目無異。

總括而言，參照其他國家的做法，在中學教育層面推行職專教育，有助拉近兩類升學途徑之間認受的差距，並使應用教育的定位與傳統學術教育看齊。

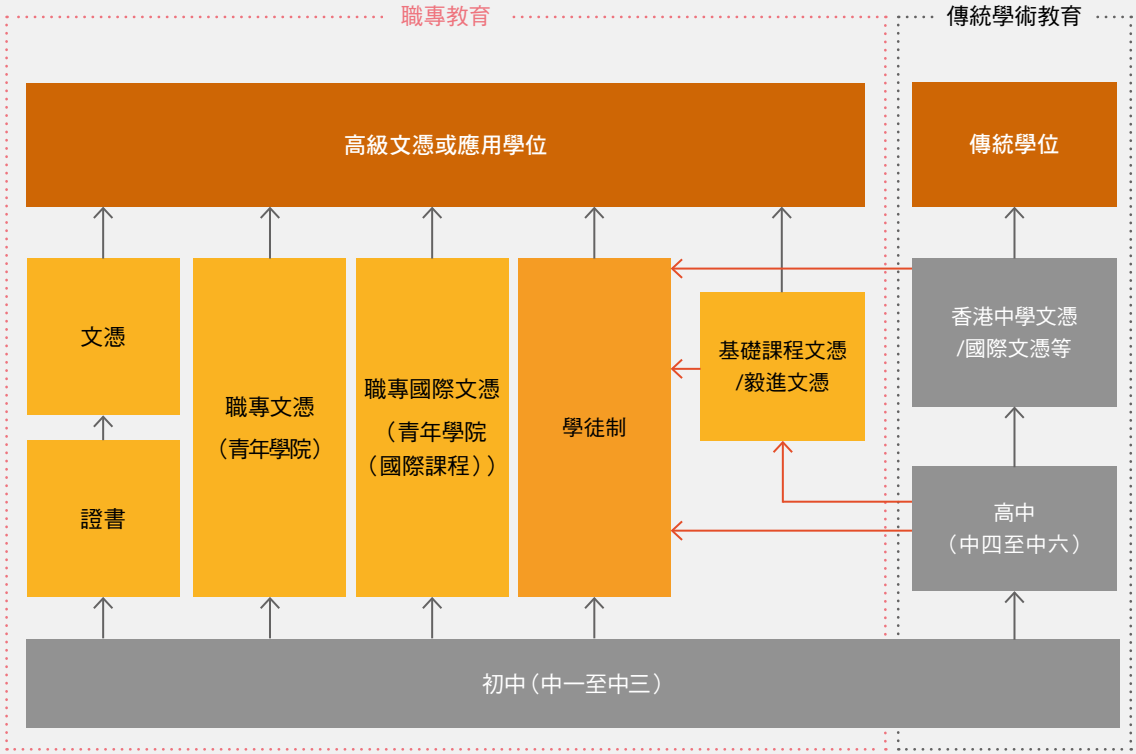
Figure 5-6: Proposed education system at the secondary education level



Legend: → represents progression on the same pathway
 → represents transition across different pathways

Source: PwC analysis

圖5-6：擬議的中學教育系統



圖例：→ 代表同一路線在不同階梯上的進展
→ 代表跨路線在不同階梯上的進展

資料來源：羅兵咸永道分析

D Recommendation 1c. **Re-define VPET as** **“Applied Education”**

One of the key factors underpinning the public’s perception on VPET is that the VPET pathway may not be seen as comparable to conventional academic routes by employers and education providers. As such, it is important for the Government to formalise a clear definition of “Applied Education”. Although there is lack of a standardised definition of “Applied Education”, international organisations such as United Nations Educational, Scientific and Cultural Organization (UNESCO) do clearly define vocational education and training, which can be used as references for defining “Applied Education” as shown in Table 5-2 below.

Apart from formalising a clear definition of “Applied Education”, VPET / Applied Education should be promoted to wider audiences in Hong Kong.

Indicative promotion activities to be undertaken include:

1. Introduce an ambassador scheme, which invites VPET alumni to share their success stories in schools or in events such as seminars and forums, as a means to showcase the strong career prospects and education outcomes that can possibly be achieved with VPET and raise recognition of VPET;
2. Introduce the range and variety of programmes offered by VPET providers to secondary principals and teachers, in order to keep them abreast of development in VPET education and programmes on offer and the value proposition available to students; and
3. Run publicity campaigns directed towards key stakeholders such as students, secondary school teachers, parents and employers to promote key benefits of VPET. This could potentially leverage commercial partners, such as Mass Transit Railway (MTR), Towngas, Hong Kong Telecom (HKT) and China Light & Power (CLP), who benefit from VPET.

D 建議1c：重新定義職專教育為「應用教育」

影響公眾對職專教育課程認知的關鍵因素之一，是僱主和教育機構認為職專教育課程比不上傳統的學術課程。因此，政府必須明確定義「應用教育」。儘管目前國際上對「應用教育」缺乏統一的定義，但聯合國教育、科學與文化組織等國際組織對職業教育和培訓均有明確的定義，因此，可以作為在香港定義「應用教育」的參考，如表5-2 所示。

除了正式界定「應用教育」外，還應加強推廣職專教育/應用教育。

推廣活動可包括：

1. 推行大使計劃，邀請職專教育的校友在學校或在研討會和論壇等活動中分享他們的成功故事，以此來展示職專教育如何幫助他們取得良好的職業前景和教育成果，提升大眾對職專教育的認可；

2. 向中學校長和教師介紹現有的各種職專教育課程，讓他們了解職專教育現時的發展情況、所提供課程以及職專教育可為學生帶來的價值效益；以及

3. 向學生、中學教師、家長和僱主等主要持份者推介職專教育的好處。職專教育一直以來

為企業培育了不少人才，故可透過與業界伙伴的協作，如港鐵、煤氣公司、香港電訊有限公司和中華電力等，加強推廣職專教育。

Table 5-2: Definition of vocational education by international organisations

表5-2：國際組織對職業教育的定義

Organisation 組織	Definition 定義
UNEVOC -UNESCO 聯合國教科文組織 職業技術教育與培訓 國際中心	In addition to general education, the aspects of the educational process, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. 除普通教育外，還包括教育過程中各方面的技能和相關科學的學習，以獲得與經濟和社會生活各個職業有關的實際技能、態度、理解和知識。
OECD 經濟合作暨發展組織	Education and training programmes containing both knowledge (theoretical understanding) and practical skills, designed for, and typically leading to, a particular job or type of job. 包含知識（理論理解）和技能實踐的教育和培訓課程，以應付將來從事某項或某類工作。
European Union Commission 歐洲聯盟委員會	- Training in skills and teaching of knowledge related to a specific trade, occupation or vocation in which the student or employee wishes to participate. 學生或僱員所希望投身的特定行業、職業或工種有關的技能培訓和知識傳授； - May be undertaken at an educational institution, as part of secondary or tertiary education, or may be part of initial training during employment, for example as an apprentice, or as a combination of formal education and workplace learning. 這可以作為中學或高等教育的一部分，或作為就業期間初步的培訓部分，例如作為學徒訓練或結合常規教育和工作場所學習。

Source: (1) UNESCO-UNEVOC International Centre (n.d.), (2) PwC Analysis

資料來源：(1) 聯合國教科文組織職業技術教育與培訓國際中心（無日期）、(2) 羅兵咸永道分析

5.3 Upskilling and reskilling the workforce

Issue 2. A lifelong learning culture needs to be further developed and promoted in Hong Kong

In order to cultivate a continuing education culture in Hong Kong, the Government has introduced a number of financial incentives. For example, the Continuing Education Fund (CEF) subsidises adults with learning aspirations to pursue lifelong learning. Tuition fee subsidies are offered for learners admitted to part-time training courses in “Engineering and Technology” and “Creative Industries” as incentives for pursuing continuous education and training related to these industries.

However, the participation rates in continuing education remained relatively low at just above 25% in Hong Kong (Figure 5-7), which is lower than Singapore (55%), Finland (54%) and Switzerland (69%) (Figure 5-8). The existing reimbursement approach adopted by the CEF and other incentive schemes could be considered as one of the key reasons for this low participation rate in Hong Kong, in which learners have to first pay for the tuition fees. Upon completion of the programme, learners can

then claim for the reimbursement. For the VPET providers, they also have to cover all costs associated with programme setup and preparation in advance.

In contrast, taking Finland as an example, the Finnish education system is developed with the principles of cultivating lifelong learning and education mindset, and all citizens are offered equal learning opportunities. The Finnish Government lowers the financial barriers of education for its citizens through covering a majority of the costs required for the provision of programmes, which means that learners can take the courses free of charge. In addition, there are sufficient resources provided by the Finnish Government in providing education opportunities that are customer-oriented, competency-based and flexible, in catering for different learning needs and fostering lifelong learning culture, enabling it to become one of the countries with the highest participation rates in higher education.

5.3 專業技能提升和再培訓

問題2：香港需要進一步發展和推廣終身學習文化

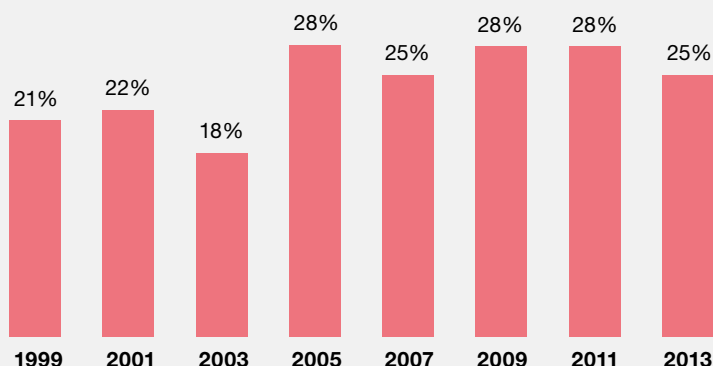
為培養香港的持續進修文化，政府推出了多項資助措施。例如，提供持續進修基金以資助成年人終身學習，亦為參加「工程與科技」和「創意產業」兼讀制培訓課程學員提供學費補貼，以鼓勵他們繼續接受與行業相關的持續進修和培訓。

然而，香港的持續教育參與率仍然處於較低水平，僅有25%（圖5-7），低於新加坡（55%）、芬蘭（54%）和瑞士（69%）（圖5-8）。香港持續進修參與率偏低的原因之一，是因為學員須預先支付學費，課程完成後才可以向持續進修基金和其他資助計劃申請發還款項。同時職專教育機構亦必須預先承擔所有課程設置和籌備有關的開支。

相反，以芬蘭的教育制度為例，所有公民都給予平等的學習機會，以培育終身學習和教育文化。芬蘭政府承擔大部分的籌備開支和課程費用，讓學員可以免費報讀課程，從而減輕市民用於教育的財政負擔。此外，芬蘭政府供應充足的資源，提供以人為本及能力為本的靈活學習機會，以滿足不同學習需要和培養終身學習文化，使其成為高等教育參與率最高的國家之一。

Figure 5-7: Continuing education participation rate in Hong Kong (aged 18-64)

圖5-7：香港的持續進修參與率（18-64歲）

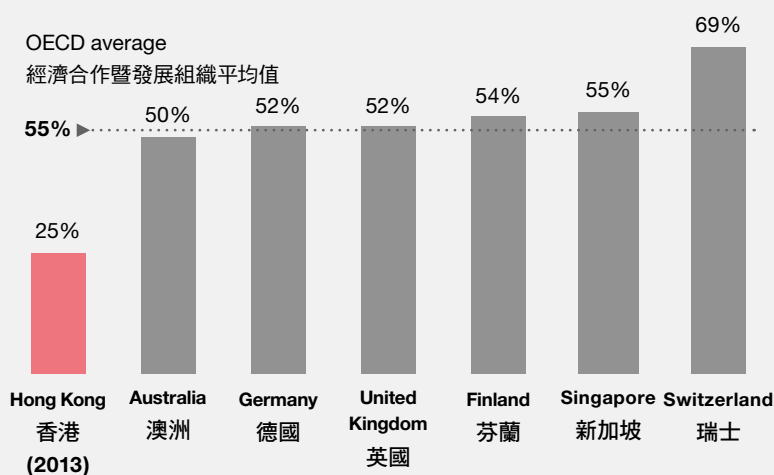


Source: The Education University of Hong Kong (2018)

資料來源：香港教育大學（2018）

Figure 5-8: Continuing education participation rate in 2016: International comparable (aged 25-64)

圖5-8：2016年的持續進修參與率：國際可比水平（25-64歲）



Source: (1) Legislative Council (2017b), (2) European Commission (2020)

資料來源：(1) 立法會（2017b）、(2) 歐洲聯盟委員會（2020）

The importance of lifelong learning, upskilling and reskilling cannot be understated. For instance, the adoption of technologies in automation could mean less workforce is required for certain jobs, while new jobs are created in new areas (World Economic Forum, 2020). In this respect, VPET, as a type of education with strong emphasis on the development of applied and vocational skills, could be the platform where the workforce could upskill and reskill in response to changes in a timely manner.

In addition, as shared by stakeholders engaged in this Analysis, it is becoming a trend that middle to senior management staff, apart from technical staff, are also expected to have digital literacy for driving in-house innovation and digitalisation in coordination with technical staff. Cultivating lifelong learning and providing upskilling and reskilling opportunities would be crucial for developing a skilled workforce that is equipped with design thinking skills and digital literacy and the right mindset that is service-oriented, versatile and agile to change.

E Recommendation 2. Enhance the roles of VPET providers in upskilling and reskilling the workforce to meet future needs, bridge skill gaps and promote lifelong learning

In order to cultivate a lifelong learning culture in Hong Kong and incentivise Hong Kong people to engage in continuing education, the following measures and initiatives should be considered:

1. The focus of Hong Kong's education system and policies should be on lifelong learning. Students should be introduced to the concepts of lifelong learning at an early stage, such as when they are in primary school. With reference to the Finnish practices, skills acquired from previous learning or education should be recognised for pursuing further studies, which will enhance efficiency of the use of educational resources and optimise individual development;
2. The Government could improve the flexibility of the education system and allow students to choose different education pathways from upper secondary schools. Different options of learning modes, such as work-based, school-based and online learning, should be available, so that people who have different priorities can still be engaged in learning. Learning pathways should be tailored and updated for each individual based on their goals, career aspirations and career progression; and
3. The Government could enhance funding policies for lifelong learning and education to cultivate a skilled workforce for future prosperity. For example, to further foster lifelong learning culture and incentivise upskilling and reskilling, the Government may consider providing direct funding support to VPET providers for programme development and the provision of learning and education. For learners, the Government may consider changing the existing arrangement of disbursing the CEF from a reimbursement basis to a voucher redemption basis.

終身學習、提高專業技能和再培訓的重要性不可忽視。自動化技術的普及意味著某些工種對工作人口的需求會減少，而新的領域則創造了新的工作崗位（世界經濟論壇，2020）。為此，職專教育作為一種以應用和職業技能為本的教育模式，可以成為提升專業技能和再培訓的平台，以配合市場變化。

參與本研究的持份者認為，現今趨勢是中高層管理人員也應具備數碼知識技能，以便與技術人員協調推動企業內部創新和數碼化。此外，對於培養一群能以服務為本、靈活變通、兼備設計思維和數碼知識的技術人員，為他們提供專業技能提升和再培訓的終身學習機會，至為重要。

E 建議2：加強職專教育在提高工作人口的專業技能和再培訓方面的作用，以滿足未來需要，彌補技能差距，促進終身學習

為了推動終身學習文化，鼓勵持續進修，應考慮以下措施和計劃：

1. 香港教育制度和政策應著重終身學習。政府應在學生的早期階段，例如在小學階段，向他們灌輸終身學習的概念。參考芬蘭的做法，學生過往取得的知識和教育應被視為持續進修資歷，這可提高教育資源的使用效率和促進個人發展；
2. 政府可以提高教育制度的靈活性，允許學生從高中開始選擇不同的升學途徑。政府應提供不同模式的課程，如以職業為本、學校為本、或線上學習等，讓有不同需求的人士學習。學校應根據每個人的目標、職業願望和職業發展，為其度身定制和更新學習課程；以及
3. 政府可以增加終身學習和職業教育的資助，培育未來技術人才。例如，為進一步培養終身學習文化，鼓勵專業技能提升和再培訓，政府亦可考慮直接資助職專教育機構開展相關課程。對於學員而言，政府可以考慮將現時發放持續進修基金的安排，由發還款項方式轉為換取代用券方式。

Issue 3. There is demand for developing a strong talent pool for reindustrialisation, automation and digitalisation

Reindustrialisation (also called Industry 4.0) - the development of high value-added and less land-intensive manufacturing ("smart manufacturing") industries with a strong focus on applications of new technologies and smart production, such as 3D printing, artificial intelligence, big data and analytics - has been one of the Government's initiatives to reduce Hong Kong's reliance on the service industry for future economic growth (Figure 5-9) (Legislative Council, 2020b). The Government introduced a number of policies to support companies with the necessary infrastructure, technology and talent for the development of reindustrialisation, innovation and technology in Hong Kong. For instance, the Re-industrialisation Funding Scheme (RFS) has been launched under the Innovation and Technology Fund to provide subsidies for manufacturers to set up new smart production lines in Hong Kong on a matching basis. The Reindustrialisation and Technology Training Programme (RTTP) has also been launched to subsidise companies in Hong Kong for staff training in advanced technologies.

To foster Hong Kong's capability in smart manufacturing and build up a strong talent pool in supporting the implementation of reindustrialisation initiatives as well as digitalisation and automation, there is room for VPET to play a bigger role given that technical and practical skills are essential for Industry 4.0.

Hong Kong has aspired to become a R&D hub and smart manufacturing centre in Asia. However, job opportunities related to technical roles in the manufacturing sector remain limited, while in some adjacent cities, such as Shenzhen, Guangzhou and in other parts of Mainland China, where the development of the manufacturing sector is much stronger, more opportunities are provided and the demand for such talent is higher.

Collaboration between corporation in the Mainland China, Hong Kong's VPET providers and education departments are under development. For example, the VTC established Guangxi-Hong Kong Vocational Education Development Alliance in 2015 to facilitate the development of VPET in Guangxi and to provide diversified exchange activities for VPET students in Hong Kong and Guangxi. Since 2015, the VTC and Shenzhen Polytechnic have jointly participated in the "Wan

Ren Ji Hua" (萬人計劃) Project, launched by the Ministry of Education of the Chinese Government to facilitate exchanges between Mainland China and Hong Kong. Nearly 600 students and staff have since enjoyed learning opportunities such as lectures, workshops, industry visits and joint experimental projects.

To embrace the latest trends of technological advancement, Hong Kong could further leverage the opportunities brought by the Greater Bay Area (GBA) initiatives, as promulgated by the Central Government in the *Outline Development Plan for the Guangdong-Hong Kong-Macau Greater Bay Area* published by the State Council of the PRC in 2019, to develop a diversified workforce and nurture talents for supporting Industry 4.0, automation and digitalisation locally in the long run.

問題3：香港需要為再工業化、自動化和數碼化發展多元化的人才資源庫

再工業化（又稱工業4.0）——發展高增值和土地密集程度較低的製造業（「智能製造」），著重於3D打印、人工智能、大數據和分析等新技術和智慧生產，是政府為減少香港未來經濟增長對服務業的依賴而採取的措施之一（圖5-9）（立法會，2020b）。政府推出了多項政策，提供必要的基礎設施、技術和人才，以支援企業促進香港再工業化、創新和科技發展。例如，創新及科技基金推出了「再工業化資助計劃」，以配對形式資助製造商在香港建立新的智能生產線。此外，「再工業化資助計劃」還推出了「再工業化及科技培訓計劃」，資助香港企業進行有關先進技術的員工培訓。

由於技術和實用技能對實現工業4.0不可或缺，職專教育有不少空間去發揮更大的作用，去提升香港在智能製造方面的能力和培育人才資源，以支持再工業化、數碼化和自動化的推行。

香港致力成為亞洲的研發中心和智能製造中心。然而，與本地製造業相關的技術職位仍然有限，而在深圳和廣州等一些鄰近城市，以及中國內地其他製造業較發達的地方，提供更多的就業機會，對相關人才的需求也較大。

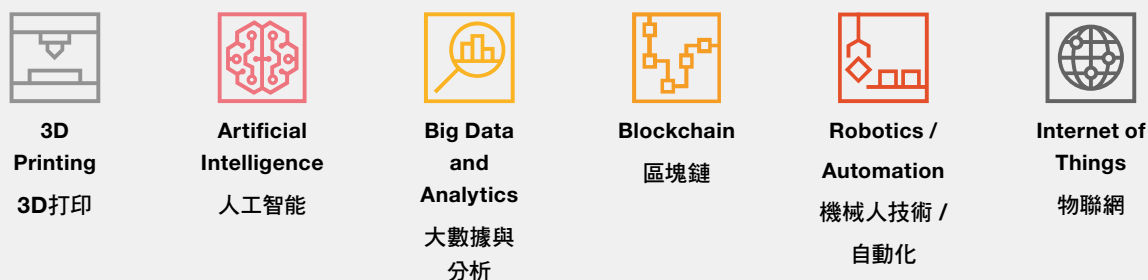
中國內地企業和香港的職專教育機構、教育部門之間正在尋求不同的合作機會。例如，VTC於2015年成立了「桂港現代職業教育發展中心」，促進職專教育在廣西的發展，為廣西和香港兩地

的職專教育學生提供多元化的交流活動。自2015年起，VTC與深圳職業技術學院共同參與中國政府教育部推出的「萬人計劃」，以促進中國內地與香港的交流。目前，已有近600名學生和工作人員參與了講座、研討會、企業參觀和聯合實驗項目等學習機會。

為迎接最新的科技發展趨勢，香港可參考中央政府在2019年發布的《粵港澳大灣區發展規劃綱要》，進一步利用大灣區所帶來的機遇，發展多元化的人力資源和培育人才，以支持本地工業4.0、自動化和數碼化的長遠發展。

Figure 5-9: Key elements in Industry 4.0 and digitalisation

圖5-9：工業4.0和數碼化的關鍵要素



Source: (1) Legislative Council (2020b), (2) PwC Analysis
資料來源：(1) 立法會 (2020b)、(2) 羅兵咸永道分析

E Recommendation 3a.
VPET providers should enhance their programme offerings to cater for the human capital needs of Industry 4.0, automation and digitalisation

The demand for human resources in supporting the implementation and application of latest technologies will likely continue to be high. VPET providers should play a more significant role in bridging the “skill gaps” and nurturing a skilled workforce to support the implementation of Industry 4.0 through the following actions:

1. Offer programmes and training that help to develop a skilled workforce and equip them with new skills (as shown in Figure 5-10) to support the application of technologies required for Industry 4.0 and to take on new roles emerging from Industry 4.0 and technological advancement;
2. Build up strong connections and closely work with the industry in relevant industries in Hong Kong as well as those in other regions/countries with comparative advantages in manufacturing, such as other parts of Mainland China, other cities in the GBA, or overseas countries, like Germany, to ensure feedback and advice

from the industry and relevant stakeholders on the latest skills requirements are collected for enhancing programme offerings in a timely manner;

3. Continue to update the programme curriculum and contents based on industry feedback and suggestions on a timely basis and offer more project-based business collaboration opportunities for students;
4. Build up applied research capability and encourage students and staff in engaging in these activities; and
5. Organise more Industry 4.0 – themed competitions to stimulate students’ interests and foster a vibrant and creative learning environment.

E 建議3a：職專教育機構應加強課程內容，以滿足工業4.0、自動化和數碼化的人力資源需求

為支援最新技術的實施和應用，行業對相關人力資源的需求將會持續上升。職專教育機構應在減少技能差距和培育技術人才方面發揮更重要作用，並通過以下措施支持工業4.0發展：

1. 提供課程和培訓，培育技術人才，令他們具備新技能（如圖5-10所示），以支援工業4.0所需的技術，並擔當由工業4.0和技術發展所創造的新工作崗位；
2. 與香港相關行業，或於製造業發展具有優勢的地區/國家（例如中國內地其他地區或大中華區其他城市，以及德國等海外國家）之企業建立緊密聯繫和合作，收集業界和相關持份者對最新技能要求的意見和建議，以便適時改進課程內容；
3. 根據業界的意見和建議，繼續適時更新課程內容，為學生提供更多與業界以專題為本研習模式的合作機會；
4. 建立應用研究能力，鼓勵學生和員工參與這些項目；以及
5. 舉辦更多以工業4.0為主題的比賽，激發學生興趣，營造充滿活力和創造力的學習環境。



Technological skill

The following skillsets are important in relation to utilising advanced technologies such as 3D printing and autonomous robots.

- Designing skills incorporating simulating, virtualising and modularising capabilities
- Fault and error recovery skills
- Understanding of process digitalisation

Programming skill

Advanced technologies, automated systems and artificial intelligence increase the level of programming skills required, therefore the following skillsets are crucial in the era of industry 4.0.

- Computational skills
- Simulation skills
- Coding techniques
- Computer and software programming skills

Thinking skill

Industry 4.0 advanced technologies and automated systems are increasing the level of skills complexity required in the workforce of the future. Strong critical thinking skill along with the following qualities are essential:

- Creativity, innovation, practical ingenuity
- Critical and logical thinking
- Complex problem solving, trouble-shooting
- Analytical thinking skills
- Technical and literate communication
- Collaboration (particularly between machine and human)

Social skill

The future engineer's interaction with intelligent machines will form a symbiotic partnership that requires a firm base of social skills:

- Teamwork
- Problem solving
- Perspective-taking
- Professional ethics
- Understanding of diversity
- Interpersonal skills
- Intercultural skills

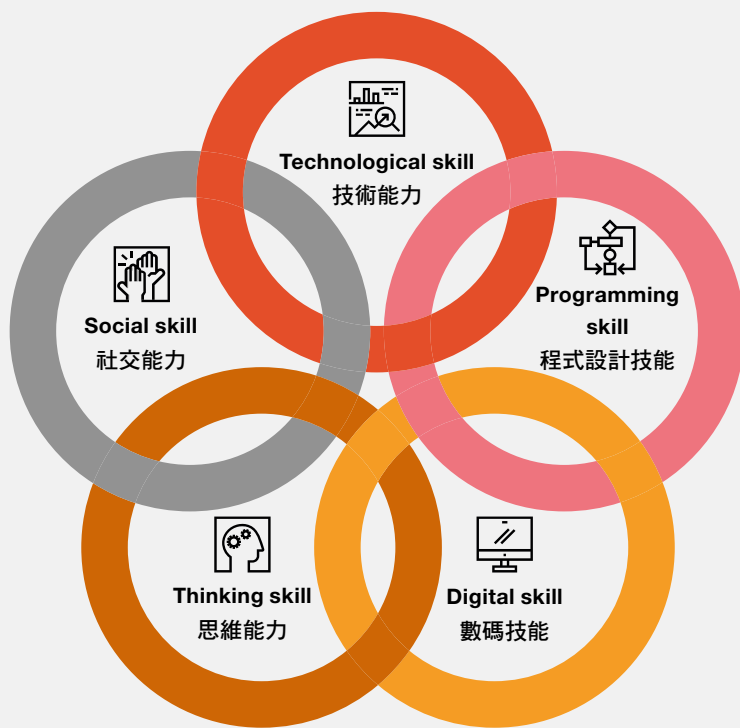
Digital skill

The following skillsets are important for upskilling and reskilling for the digital economy:

- Data analytics/data processing
- IT/data/cyber security
- Cloud computing skills
- IT knowledge and abilities
- Use of artificial intelligence
- Digital content creative ability

Figure 5-10: Essential skills for Industry 4.0

圖5-10：工業4.0的基本技能



Source: (1) South African Journal of Industrial Engineering (2019), (2) PwC analysis
資料來源：(1) 南非工業工程雜誌 (2019)、(2) 羅兵咸永道分析

技術能力

以下技能對於3D打印和自動化機械人等先進技術非常重要

- 設計技能，包括模擬化、虛擬化和模組化能力
- 故障和錯誤恢復技能
- 理解數碼化過程的能力

程式設計技能

先進的技術和自動化系統以及人工智能提高了對程式設計的要求，因此，在工業4.0時代，以下技能是尤其重要的

- 運算技能
- 模擬技能
- 編碼技術
- 電腦和軟件程式設計技能

數碼技能

以下技能組合對於提升數碼經濟和再培訓非常重要

- 數據分析/數據處理
- 資訊科技/數據/網絡安全知識
- 雲端運算能力
- 資訊科技的知識和能力
- 人工智能的使用
- 數碼內容創意能力

思維能力

工業4.0的先進技術和自動化系統正在提高未來工作人口所需的技能複雜程度。具備批判性思維能力及以下質素也是必不可少的

- 創造力、創新力、實踐能力
- 批判性和邏輯性思維
- 解決複雜的問題及排除故障能力
- 分析性思考
- 技術和文化交流能力
- 協作（特別是機器與人之間的互動）

社交能力

未來的工程師與智能機器的互動將形成一種共生的伙伴關係，這需要穩固的基礎社交技能

- 團隊合作
- 解決問題
- 易位思考
- 職業操守
- 了解多樣性
- 人際關係的技能
- 跨文化技能

E Recommendation 3b.
**Enhance collaboration with
other cities in the Mainland
China and GBA to build a
diversified talent pool**

In order to develop Hong Kong as the R&D and smart manufacturing centre in the Industry 4.0 era, Hong Kong needs to have sufficient human resources to support applied research and commercialisation of R&D. In this process, VPET providers could play a crucial role in cultivating talents through enhancing collaboration with other cities in the GBA and other parts of Mainland China. The following actions are suggested for consideration:

1. Forge collaboration between VPET providers in Hong Kong and those in the GBA as well as Shanghai, Beijing, Chongqing and Yangtze Delta cities where ties are already established, for example, setting up GBA vocational training parks in collaboration with relevant stakeholders;
2. Enhance mutual recognition and standards of VPET programmes and qualifications in the region, such as implementing “One programme, dual qualifications” to extend the recognition of the qualification from the place of issuance origins to the entire nation;
3. Provide more support and incentives for students to carry out internships and on-the-job training in GBA and other cities in Mainland China to develop skills and gain experience;
4. Offer more exchange activities for teaching staff and supporting staff to further enhance their industry knowledge and cultural and language skills as well as broaden their experience; and
5. Enable cross-boundary funding programmes to facilitate collaboration with VPET providers in Mainland China.

E 建議3b：加強與中國內地和粵港澳大灣區內的其他城市的合作，建立多元化的人才庫

為了在工業4.0時代把香港發展成為研究開發和智能製造中心，香港需要有足夠的人力資源，以支持應用研究和促進研究成果的商業化。在這過程中，職專教育機構可通過加強與中國內地和粵港澳大灣區其他地區的合作，在培育人才方面發揮重要作用。建議考慮採取以下措施：

1. 促進香港與粵港澳大灣區，以及上海、北京、重慶和長三角城市的職專教育機構的合作，例如與相關持份者合作建立粵港澳大灣區職業培訓中心；
2. 加強區域內職專教育課程和資歷標準的相互認可，如實施「一個專業，雙重資歷」，將資歷的認可範圍從地區擴大到全國；

3. 為學生提供更多支援，鼓勵他們在中國內地和粵港澳大灣區其他城市進行實習和在職培訓，培育技能和累積經驗；
4. 為教職員和輔助人員提供更多交流活動，以進一步提高他們的行業知識、文化和語言技能，同時豐富實務經驗；以及
5. 實施跨境資助計劃，以便中國內地與香港的職專教育機構合作。



Issue 4. Currently, VPET programmes have placed a stronger emphasis on skills development for specific occupations than on developing transferable skills that are applicable across different disciplines

In response to Hong Kong's longstanding demand for the development of a skilled workforce, VPET providers have been offering programmes to cultivate students' practical and technical skills that meet the potential job setting. Nonetheless, other skills – particularly “soft” skills such as problem-solving skills, communication skills and business acumen – are also of equal importance in the workplace.

Based on the stakeholder consultations with VPET providers and alumni, many have pointed out that VPET students performed comparatively well in technical skills and other core competencies (e.g. IT skills), while their soft skills, such as management skills, interpersonal skills, linguistic competence and business acumen may be sharpened. These stakeholders also reflected that some of the programmes are relatively trade-centric in terms of programme design and curriculum contents. It would be desirable to have more opportunities to develop students' multidisciplinary skills and knowledge so as to facilitate their development beyond a specific trade.

E Recommendation 4. Amalgamate technical skills development and transferable skills development in VPET programme curricula to nurture talents

In order to enhance the employability of VPET students and to equip them with skills needed to meet the challenges in the 21st century, it is important that they can be trained with suitable skills that are applicable across different disciplines or industries. These skills need to be transferable, durable and applicable, such as problem-solving, teamwork, communication skills, creative and innovative skills, self-management and cultural adaptability. Thus, the students can stay adaptable to new challenges that could be best addressed when equipped with these transferable skills. The VTC as well as other VPET providers could put more emphasis on developing the following skills of their students:

- Transferable skills, appropriate attitude and values; and
- Multidisciplinary skills.

In doing so, VPET providers could consider spearheading the following initiatives:

- Enhance the development of transferable skills, values and multidisciplinary skills as part of programme curricula and learning activities of VPET;
- Develop multidisciplinary skills and knowledge through organising more cross-disciplinary activities, e.g. conferences and events, to help foster environment for interdisciplinary learning; and
- Organise local innovation competitions for VPET students to develop necessary soft skills.



問題4：目前，職專教育課程更著重於特定職業技能的發展，而不是發展適用於不同學科的通用技能

面對香港長期以來對技術人才的需求，職專教育機構一直開辦不同課程，以培養學生的實用及技術技能，以配合未來的工作環境。儘管如此，其他技能特別是「軟技能」，如解難能力、溝通技巧和商業思維，在工作上也是同樣重要。

在本研究中，不少職專教育機構和校友均指出，職專教育的學生於技術技能和其他核心能力（如資訊科技技能）方面表現相對較佳。但他們的軟技能，如管理能力、人際關係、語言能力和商業思維則需要進一步強調。這些持份者亦反映部分課程設計和內容偏向以職業為主，故需為學生提供機會發展跨學科技能和知識，加強他們在特定行業以外的發展能力。

E 建議4：在職專教育課程中融合專業技能與通用技能，以培育人才

為了提高職專教育學生於不同學科或行業的就業能力，學生應具備應付廿一世紀挑戰的技能。這些技能必須是行業互通的、持久的、並具適用性的，包括解難能力、團隊合作、溝通技巧、創造和創新技能、自我管理和文化適應能力等。當學生配備這些通用技能時，就能夠持續適應新挑戰。因此，VTC和其他職專教育機構可更重點培育學生以下技能：

- 通用技能、正確的態度和價值觀；及
- 跨學科技能。

為此，職專教育機構可以考慮主動採取以下措施：

- 加強培養通用技能、價值觀和跨學科技能，使其作為職專教育課程和學習活動的一部分；
- 通過舉辦更多的跨學科活動（如會議等），營造跨學科學習環境，發展學生跨學科的能力和知識；及
- 舉行本地創新比賽，讓職專教育學生建立必需的軟技能。



5.4 Government support

Observation 5. There are differences in Government's funding support provided to universities and VPET providers and the strategic development direction of VPET needs more clarity

International benchmarking suggests VPET is mainly provided by overseas governments and supplemented with the support from the private sector. Governments typically provide supports in various forms, such as establishing legislative frameworks and standard for accreditation and assessment, setting guidelines on development strategies and directions, promoting to the general public and providing funding support. In Hong Kong, VPET programmes

are mainly provided on a self-financing basis. Although a number of funding schemes, such as the Subsidy Scheme for Designated Professions/Sectors (SSSDP), Non-means-tested Subsidy Scheme for Self-financing Undergraduate Studies (NMTSS), Subsidy Scheme for Students of Professional Part-time Programmes and E&L Scheme as shown in Appendix A.4, have been introduced by the Government, the percentage of public expenditure on VPET in Hong Kong (4.6% of total education expenditure) is lower than that in Mainland China (10%), Singapore (13.7%), Switzerland (20.8%) and Finland (22.9%), as depicted in Figure 5-11.

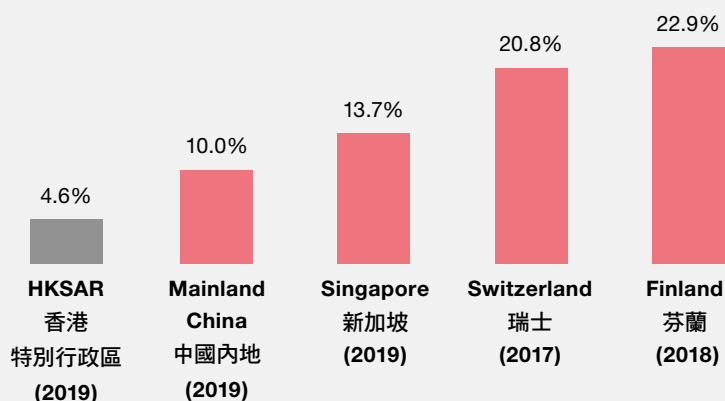
5.4 政府的支持

問題5：政府向大學與職專教育機構提供的資助存在差異，職專教育的發展策略及方向需要更清晰明確

國際基準的比較顯示，海外的職專教育主要由政府提供，並由私營機構作支援。各地區政府通常以不同形式推行，例如設立認證和評估的法律框架和標準；就發展策略和方向提供指導；向公眾推廣和宣傳；以及提供資助。而香港的職專教育課程則主要以自負盈虧的方式運作。儘管政府已推出多項資助計劃，例如「指定專業/界別課程資助計劃」、「為修讀香港自資學士學位課程學生提供的免入息審查資助計劃」、「兼讀制專業課程學生資助」及「職學計劃」（見附錄A.4），但從數據顯示，香港在職專教育的公共開支比例（佔教育總開支的4.6%），仍較中國內地（10%）、新加坡（13.7%）、瑞士（20.8%）及芬蘭（22.9%）低（見圖5-11）。

Figure 5-11: Comparison on the percentage of total government education expenditure on vocational training (%)

圖5-11：政府教育總支出中，職專教育所佔百分比的比較 (%)



Note: (1) The figures are latest available for the respective countries.

(2) The overseas countries cover those having a comparable population size as at 2020 or 2021. Countries with population over 10 million, such as Australia (25 million people in 2020), Germany (84 million people in 2020), and United Kingdom (68 million people in 2020), are not included in this figure.

Source: (1) Education Bureau (2020a, 2020b), (2) University Grants Committee (2020), (3) Ministry of Education of Singapore (2020b), (4) Statistics Finland (2020b), (5) Federal Statistical Office of Switzerland (2020b), (6) Ministry of Education of the PRC (2020b), (7) PwC analysis

附註：(1) 數字是各個國家 / 地區的最新數據。

(2) 海外國家包括 2020 年或 2021 年人口規模相當的國家。人口超過1,000 萬的國家，如澳洲 (2020年為2,500萬)、德國 (2020年為8,400萬) 和英國 (2020年為6,800萬) 不包括在這個數字中。

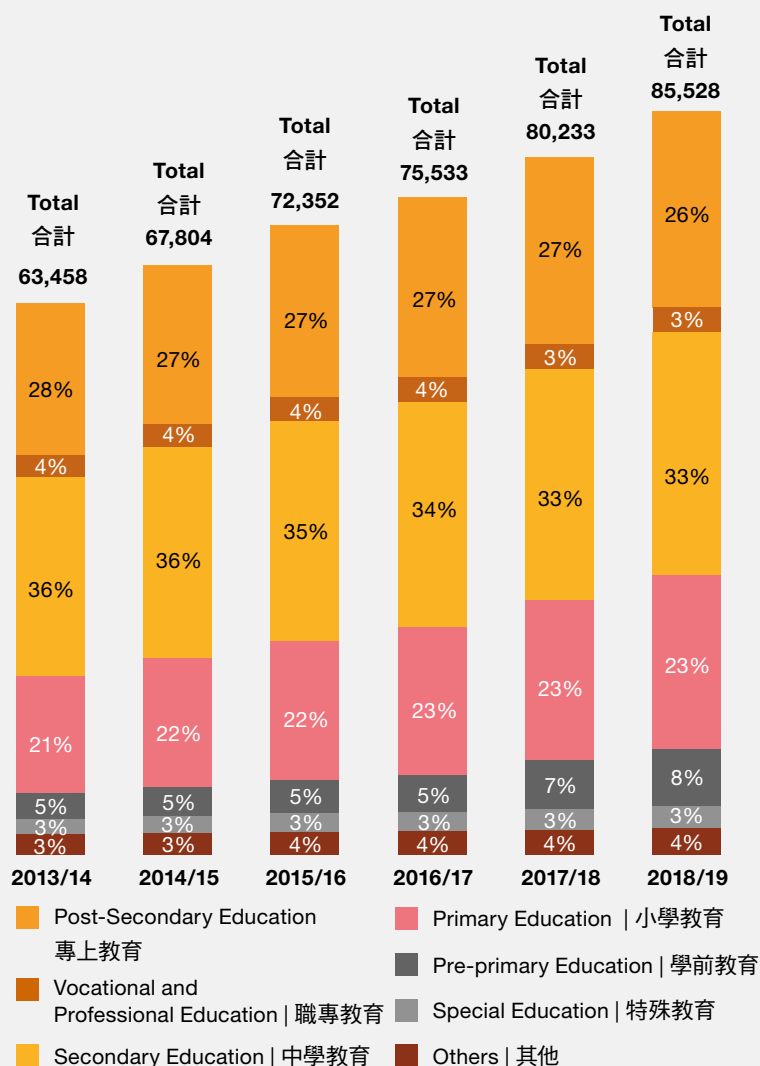
資料來源：(1) 教育局 (2020a, 2020b)、(2) 大學教育資助委員會 (2020)、(3) 新加坡教育部 (2020b)、(4) 芬蘭統計局 (2020b)、(5) 瑞士聯邦統計局 (2020b)、(6) 中國教育部 (2020b)、(7) 羅兵咸永道分析

As pointed out by Our Hong Kong Foundation in its *Report on Applied Education*, the HKSAR Government's funding allocation between UGC-funded universities and self-financing post-secondary institutions is imbalanced (Our Hong Kong Foundation, 2019). Figure 5-12 shows that Government's recurring expenditure on the vocational education was lower than that on the conventional post-secondary education.

正如團結香港基金會在其《應用教育報告》（《團結香港基金會》，2019年）中指出，特區政府在資助大學與自負盈虧的專上院校之間的資金分配不均衡。如圖5-12顯示，在職專教育方面的經常開支亦較傳統專上教育為低。

Figure 5-12: Recurrent government expenditure on education
(HK\$ million)

圖5-12：政府在教育方面的經常性開支（百萬港元）



Note: (1) Expenditure on post-secondary education covers provision for Diploma Yi Jin programme, various programmes for degree or above and sub-degree education (excluding VPET) and related student financial assistance schemes administered by the Working Family and Student Financial Assistance Agency (WFSFAA).

(2) Expenditure on vocational and professional education covers provision for the VTC and related student financial assistance schemes administered by the WFSFAA.

(3) Others include provision for home-school co-operation activities, school uniformed group activities and bureau support, etc.

Source: (1) C&SD (2020m), (2) PwC analysis

附註：(1) 專上教育開支包括毅進文憑課程、各種學士學位或以上及副學士學位（不包括職專教育）的教育課程撥款，以及由在職家庭及學生資助事務處所管理的相關學生資助計劃。

(2) 職專教育開支包括VTC的撥款及由在職家庭及學生資助事務處所管理的相關學生資助計劃。

(3) 其他包括家校合作活動、學校制服團體活動及決策局支援等方面的開支。

資料來源：(1) 政府統計處 (2020m)、(2) 羅兵咸永道分析

The amount of recurring public expenditure on VPET accounts for 3.4% of the Government's total recurrent expenditure on education as compared to 26% on post-secondary education in 2018/19. A comparison in funding between VPET and UGC-funded universities can be illustrated in terms of the funding support on students in UGC-funded universities and the VTC. As shown in Figure 5-13, on average, the amount of Government financial support for each VTC student is 62%-68% lower than that for each student in UGC-funded universities. This discrepancy is higher than that in all of the benchmarking jurisdictions, such as Finland (12%), Singapore (27%), the UK (34%), Germany (39%), Mainland China (45%) and Australia (53%) (OECD, 2020; Ministry of Education of Singapore, 2020b; Ministry of Education in PRC, 2020b).

In contrast, the Singapore Government has demonstrated its commitment in the development of VPET through its financial support in improving the access and quality of training, building modern

campuses for Institute of Technical Educations (ITEs) and equipping these campuses with state-of-the-art learning facilities that are on a par with other local top universities. Sufficient resources are also allocated for VPET students to enjoy an IT-rich and web-based campus environment with spacious classrooms for workshops, student support services and centres for sports and arts activities.

On the policy front, apart from the launch of SkillsFuture^[12], the Singapore Government implemented a number of initiatives in rebranding vocational education, ensuring a skilled workforce supply is available to sustain its economic prosperity. The Singapore Government also carried out public communication campaigns like “using the hand” advertisement, broadcasting competitions like “Top of the Trade” as a television show, and introducing a wide array of award schemes to show respect for outstanding students, such as the “Lee Kuan Yew Model Student/ Trainee Award” and the “Lee Kuan Yew Technology Award”.

[12]: SkillsFuture is the Singapore national movement for opportunities to live life to the fullest.

[12]: 「技能創前程」是新加坡的全國性運動，旨在為人們提供豐富充實的生活。

在2018/19年度，職專教育的經常公共開支僅佔政府在教育方面經常開支總額的3.4%，而專上教育的經常公共開支則佔26%。政府對VTC與資助大學的撥款不均，從它分別對VTC和資助大學的學生資助可以看出。如圖5-13所示，平均每名VTC學生所獲的資助額比資助大學學生所獲的低62%至68%。這差異遠高於其他地區，如芬蘭（12%），新加坡（27%），英國（34%），德國（39%），中國內地（45%）和澳洲（53%）（經濟合作暨發展組織，2020，新加坡教育部，2020b，中華人民共和國教育部，2020b）。

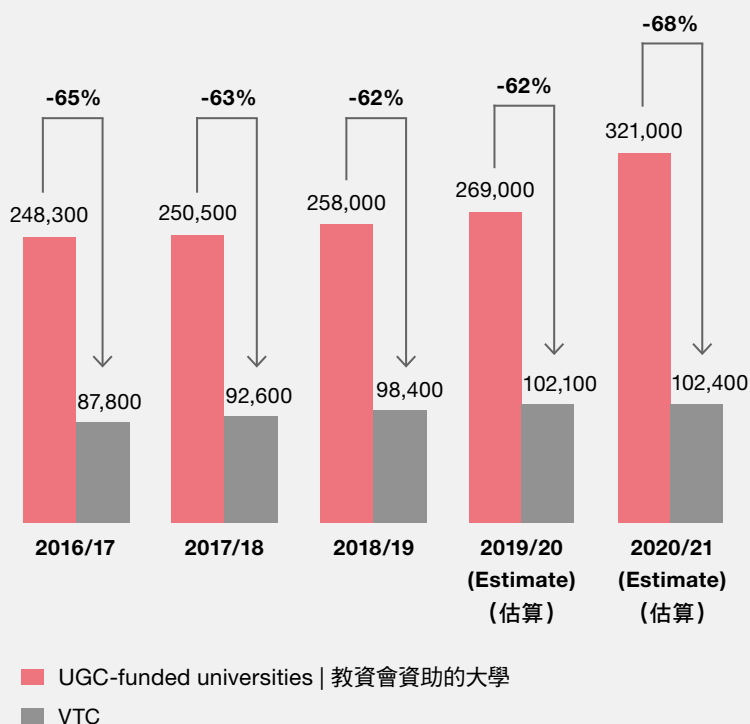
相反，新加坡政府充分支持職專教育的發展，不僅提供了財政支援以增加培訓機會和提升質量，而且為工藝教育學院建設現代化校園，配備先進的學習設施，使其教學質素與其他當地一流大學不相伯仲。此外，職專教育的學生也獲分配充足資源，除可享受到以資訊科技和網絡為基礎的校園環境，還可使用寬敞的教室舉辦工作坊、學生支援服務和體藝活動中心。

在政策方面，除了推出「技能創前程」^[12]外，新加坡政府還實施了一系列重塑職專教育的措施，確保技術人才供應，以維持經濟繁榮。新加坡政府還執行了「動手」廣告

等的公共傳播活動，以電視節目形式播放「貿易之巔」等比賽，並推出「李光耀模範學生/學員獎」、「李光耀科技獎」等一系列獎勵計劃，以表揚優秀學生。

Figure 5-13: Government funding support for a student at UGC-funded universities and the VTC (HK\$)

圖5-13：政府為教資會資助大學及VTC學生提供的資助（港元）



Note: (1) The unit costs are calculated on an academic year and a full-time-equivalent basis.

(2) The financial provision for the VTC covers the VPET courses at higher technician, technician and craft levels offered by the IVE, HKDI, Youth College and other training institutes of the VTC.

Source: (1) Education Bureau (2020b), (2) PwC analysis

附註：(1) 單位成本是按學年和全日制同等學歷計算。

(2) 對 VTC 的財政撥款是用以支付香港專業教育學院、香港知專設計學院、青年學院及VTC各訓練中心開辦的高級技術員、技術員及技工程度的職業專才教育課程的費用。

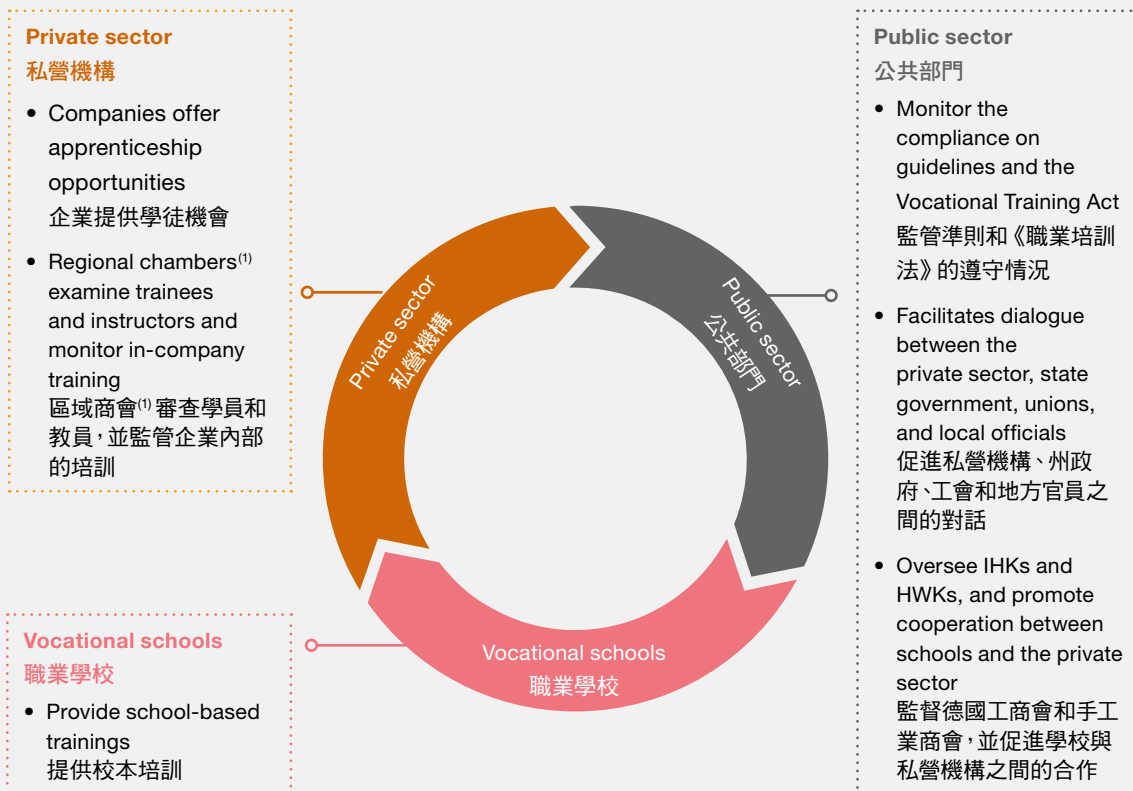
資料來源：(1) 教育局 (2020b)、(2) 羅兵咸永道分析

With respect to the governance model of VPET, international experience suggests that it is a common practice to have an overarching body to take a holistic role in centrally planning, coordinating and implementing strategies for the development of VPET. For example, although VET in Germany is collectively developed and delivered by the private sector, public sector and vocational schools (Figure 5-14), the public sector plays a key role in developing the VET national system, setting the legal and policy framework, providing school-based education for VET students, and facilitating collaboration between the private sector and vocational schools.

關於職專教育的管理模式，根據國際經驗顯示，職業教育通常是由一個統籌機構負責中央計劃、協調和執行。例如，儘管德國的職業教育是由私營機構、公共部門和職業學校共同開發和提供服務（圖5-14），公共部門在發展國家職業教育系統、制定法律和政策框架、為職業教育學生提供校本教育、以及促進私營機構和職業學校之間的合作方面發揮著關鍵作用。

Figure 5-14: Stakeholders involvement in VPET in Germany

圖5-14：參與德國職專教育的不同持份者



Note: (1) The chambers include the chambers of commerce and industry (IHKs) and the chambers of crafts (HWKs).

Source: (1) GOVET (n.d.), (2) PwC analysis

附註：(1) 商會包括德國工商會和手工業商會。

資料來源：(1) GOVET（無日期）、(2) 羅兵咸永道分析

The Federal Institute for Vocational Education and Training (BIBB) is an overarching body under the Federal Government of Germany. The BIBB consists of representatives from employer organisations, labour unions as well as the Federal Government and state governments. It is responsible for the research and monitoring of VET development and related regulations, the introduction and implementation of innovative education concepts and international advisory services (Figure 5-15) (BIBB, 2020). BIBB representatives also lead expert groups, comprising groups of experts with experience in vocational education, for the development and update of VET and coordination on standards of in-company training and school-based training (GOVET, n.d.). In addition, each of the federal state governments establishes a dedicated board for advising on continuous development of VET. The dedicated boards under the federal state governments are also responsible for coordination of VET between the private sector and vocational schools. In sum, the governments at the federal and state level play significant roles in developing VET in Germany, providing the framework for the private sector to take part in VET and coordinating collaboration of the vocational schools and the private sector in delivering VET.

聯邦職業教育和訓練學院（聯邦職業教育研究所）是德國聯邦政府轄下的一個管理機構。聯邦職業教育研究所由僱主組織、工會以及聯邦政府和州政府的代表組成。它負責研究和監督職業教育的相關發展和法規，引進和實施創新教育理念和國際諮詢服務（圖5-15）（聯邦職業教育研究所，2020）。聯邦職業教育研究所的代表還帶領著一群具有職業教育經驗的專家，以發展和更新職業教育與培訓，和協調企業和校內培訓的標準（GOVET，無日期）。此外，聯邦各州政府都成立專門委員會，為職業教育的持續發展提供諮詢。聯邦各州政府下設立的專門委員會還負責協調私營機構和職業學校之間的職業教育與培訓。總而言之，德國聯邦和各州政府在職業教育和培訓的發展中發揮了重要作用，為私營機構參與職業教育提供框架，並協調職業學校和私營機構之間的合作。

Figure 5-15: Roles of BIBB in Germany

圖5-15：聯邦職業教育研究所在德國的作用

01	Regulatory framework Develop and update initial and advanced education and training regulations for recognised vocational qualifications	監管框架 制定和更新初級和高等教育和培訓條例，以認可其職業資格
02	International and European vocational education and training Monitor and examine VET at a European and international level through carrying out research, development and consultancy tasks	國際和歐洲職業教育和培訓 通過研究、開發和諮詢工作，以對歐洲和國際層面的職業教育展開監測和審查
03	Vocational education and training research Advise the Federal Government and examine the ongoing and systematic developments in VET, including the training market situation, competency development and importance of continuing VET	職業教育和培訓研究 向聯邦政府提供建議，並檢視職業教育的發展情況及系統性，包括培訓市場的情況、能力發展和延續職業教育的重要性
04	Research-based policy consultation Fund future-oriented education and training concepts in the areas of career orientation, training management and continuing VET	基於研究的政策協商 資助以未來發展為導向的教育和培訓理念，其理念包括職業為本、培訓管理和延續職業教育

Source: (1) BIBB (2020), (2) PwC analysis

資料來源：(1) 聯邦職業教育研究 (2020)、(2) 羅兵咸永道分析

In contrast, in the case of Hong Kong, although the HKSAR Government has enacted the Apprenticeship Ordinance, and set up three statutory bodies for provision of VPET, there is a lack of an overarching body to establish and to maintain the linkage between VPET providers and the industry as well as to coordinate on-the-job training and school-based learning for VPET. According to the stakeholder consultations, currently the linkage between the VPET providers and the private sector in Hong Kong are mainly built on a decentralised basis, which is different from international practices. The teaching staff have to seek placement opportunities for their students through their personal network rather than through an organised and systematic approach. This means that apart from the responsibility of teaching, the teachers have to identify industry placement opportunities for their students.

With reference to international experience and the governance model of VET in other countries (Appendix A.7), it is necessary to have an overarching independent governmental body in place for enhancing VPET development in Hong Kong. Given that the provision and development of VPET involves various stakeholders, such as education providers (including the VTC, CIC and ERB, self-financing post-secondary institutions and corporate academies), employers, professional bodies and government departments in Hong Kong, the presence of an independent body could serve as a central body for overall planning and coordination of VPET development in the future.

相比之下，雖然香港特區政府已制定《學徒制度條例》，並設立了三個法定機構以提供職專教育，但卻缺少一個統籌機構負責建立和維持職專教育機構與業界之間的聯繫，以及協調職專教育的在職培訓和校本學習工作。根據本研究諮詢的持份者所示，目前香港的職專教育機構與私營機構之間的聯繫是以分散方式建立，這與國際上的做法不同。在香港，教學人員必須通過其人際網絡為學生尋找實習機會，且未有組織和系統地進行這項工作。換言之，除了教學責任，教師還負起為學生尋找實習機會的責任。

因為在香港提供和發展職專教育涉及不同的持份者，包括教育機構（包括VTC、建造業議會和僱員再培訓局、自資專上院校和企業學院）、僱主、專業團體和政府部門，故此參照國際經驗和其他國家的職業教育管理模式（附錄A.7），香港有必要設立一個獨立的中央統籌機構，作全面規劃和協調未來職專教育的發展。

**E Recommendation 5.
Strengthen Government's
policy and financial
support for VPET, including
reviewing existing funding
policies and financial
assistance schemes
and establishing an
independent overarching
body to provide strategic
directions and coordinate
development of VPET**

Based on the review of international practice and feedback from stakeholders, it is suggested that the Government may consider adopting the following measures to support VPET development:

1. Introduce new funding policies and financial incentives to encourage corporates to participate in VPET and nurture skilled workforce for the industry. For example, the UK Government introduced an Apprenticeship Levy (as shown in Figure 5-17) that requires large corporates to contribute to the training of apprentices nationally. The Government may consider introducing a similar policy that requires large companies to contribute to training of the future workforce through VPET by providing more training places and financial support.

2. As suggested by the 2018 Task Force in the review report^[13] published in 2020, the Government could continue promoting VPET among various stakeholders, especially parents, teachers, principals in secondary schools, and career counsellors, and enhance their knowledge on the variety of VPET programmes and diversified vocational education pathways available.
3. As previously discussed in Recommendation 1, the Government could formalise applied education by offering publicly funded applied degrees and establishing UAS in Hong Kong.
4. Take lead in recognising the value of VPET by being an active recruiter of VPET graduates and offering work-based training to VPET students. Specifically, the Government could revisit its recruitment requirements and criteria and ensure people holding vocational qualifications have equal opportunities being recruited as compared with those with other academic qualifications (e.g. HKDSE, academic degrees).
5. Review and revise its funding policies and existing financial assistance schemes, and formulate a holistic development plan to assist VPET providers in enhancing teaching and learning experience through:
 - Offering more international or regional exchange /collaboration opportunities / placements for VPET students;
 - Providing up-to-date learning and training spaces and state-of-the-art facilities and equipment for students;
 - Leveraging digital technologies advancement to upgrade and enhance teaching and learning of VPET, including the curriculum, pedagogies and assessment, in a timely manner, so as to keep updated with the latest trends and future needs in the industry; and
 - Enhancing the quality and supporting continuous learning of teaching staff, and keeping them connected with the industry by providing financial incentives to corporates to offer job secondment opportunities for teaching staff to gain industry exposure.

[13]: The review report can be accessed via: https://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/VPET_TF_Report_2019_e.pdf

E 建議5：加強政府對職專教育的政策和財政支持，包括檢視現有的資助政策和財政援助計劃，並建立一個獨立的統籌機構，為職專教育在計劃和發展上提供指導和協助

根據本研究對國際做法的檢視及持份者的意見，建議政府考慮採取以下措施，以支持職專教育的發展：

1. 推出新政策和財政資助，以鼓勵企業參與職專教育，並為業界培育人才。如英國政府推出的學徒制徵費（如圖5-17所示），要求大企業在全國出資培訓學徒。香港特區政府可考慮推出類似政策，要求大企業向職專教育提供資金以增加培訓名額，為未來的人力資源作出貢獻。
2. 正如2018專責小組在2020年檢討報告^[13]中建議，政府可繼續向各持份者，特別是家長、教師、中學校長和職業輔導員推廣職專教育，並加強他們對各種職專教育課程和多元化就業前景的認識。
3. 如建議1所述，通過向應用學位提供資助和設立應用科學大學，將應用教育正規化。

4. 積極招聘職專教育的畢業生，並為學生提供在職培訓，提高對職專教育的認可。特別是，政府應重新審視其招聘要求和標準，確保持有職專教育資歷的人士與持有傳統學術資歷（如香港中學文憑、學位）人士有同等的就職機會。
5. 檢討及修訂其撥款政策及現行的資助政策，並制訂全面的發展計劃，以協助職專教育機構提升教學的水平：
 - 為職專教育學生提供更多國際或地區交流/合作機會/實習機會；
 - 為學生提供新的學習和培訓空間，以及先進的設施和設備；
 - 配合數碼科技的進步，適時提升和加強職專教育的教學，包括課程、教學法和評估，以掌握行業最新趨勢和未來需要；以及
 - 通過向企業提供資助，為教職員提供工作借調的機會，支持他們不斷學習，以提高教學質素，讓他們與行業保持聯繫。

[13]: 可通過以下網址查閱審查報告：https://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/VPET_TF_Report_2019_e.pdf

6. Establish an independent overarching body under the Education Bureau (as shown in Figure 5-16) to provide strategic directions and to centrally coordinate VPET development through granting of authority for the body to carry out the following duties:
- To act as the representative of VPET providers and oversee holistic VPET development in Hong Kong, conduct an overall planning, formulate and implement strategies for VPET development;
 - To formulate initiatives in workforce planning, skills requirements and development in coordination with different stakeholders, such as governmental departments, industry councils, representatives of employers and VPET providers, other education institutions (e.g. secondary schools and universities);
 - To work closely with the Human Resources Planning Commission (HRPC), provide inputs for overall workforce development representing the VPET sectors and play an active role in workforce planning taking into account needs and requirements of the industry;
 - To oversee programme and curriculum design among different VPET providers and harmonise the VPET programme offerings with other education providers, such as conventional academic universities, to avoid duplication in the types of workforce trained and optimise uses of resources;
 - To collaborate with industry councils and professional bodies in encouraging industries, businesses and corporates to support VPET, and ensure a high level of standards and quality for on-the-job training required for the respective occupations; and
 - To closely collaborate with Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ), provide feedback in standard setting and ensure consistency of the quality of the programmes and curriculum offered by VPET providers.
6. 可在教育局轄下成立一個獨立統籌機構（如圖5-16所示），並授權該機構執行以下職務，制定職專教育策略方向及統籌其發展：
- 擔任職專教育的代表，監督香港職專教育機構整體發展，進行規劃，制定和推行發展策略；
 - 與不同持份者，如政府部門、行業委員會、企業代表和職專教育機構、其他教育機構（如中學和大學）等協調，制定在人力資源規劃、技能要求和發展等方面的措施；
 - 代表職專教育界別，與人力資源規劃委員會緊密合作，考慮行業需求，積極投入在整體人力發展及規劃中發揮作用；
 - 監督不同職專教育機構的課程及其設計，並使職專教育與其他教育機構（例如傳統學術大學）的課程互補，善用資源，避免重複培訓人才；
 - 與行業委員會和專業團體合作，鼓勵行內企業支持職專教育，並確保相關職業所需的在職培訓達到高標準和高質量的水平；以及
 - 與香港學術及職業資歷評審局緊密合作，在制訂標準時提供意見，並確保職專教育機構所提供的課程質素一致。

Figure 5-16: An overarching body to provide strategic directions and central coordination

圖5-16：提供計劃指導和協調的統籌機構



Source: (1) PwC analysis

資料來源：羅兵咸永道分析

Case Study

個案分析

The Apprenticeship Levy in the UK

The UK Government set a target of doubling the investment in apprenticeships by 2020 from 2010 levels to £2.6 billion and producing 3 million additional new apprenticeships in 5 years from 2015. In doing so, the UK Government introduced the Apprenticeship Levy in 2017, which requires employers to share the costs for providing training and developing the UK apprentice workforce.

This Apprenticeship Levy is a tax payable by all employers in any sector with an annual pay bill of over £3 million at a rate of 0.5% of their total salary bill^[14]. (Figure 5-17).

The amount of levy paid is held in a “digital fund” kept in an apprenticeship service account, which can be used by the employer to pay for the training and assessment of apprentices on a monthly basis. The funds are available for 24 months from the date of payment, and the unspent amount will expire after that period. The levy-paying firms are able to share up to 25% of their levy with other businesses in their supply chain. The UK Government will then use the unspent/expired amount on apprenticeship for non-levy paying employers.

This is a funding approach that ensures sizeable firms can contribute to upskilling the workforce.

[14]: The pay bill is defined as the earnings liable to class 1 secondary National Insurance contributions

[14]: 薪金單被定義為應繳納第一類國民保險繳款。

英國的學徒制徵費

英國政府制定的目標是於2020年，把學徒制的投資在2010年的基礎上翻一倍，達到26億英鎊，並從2015年起的5年內新增300萬個學徒。因此，英國政府於2017年推出了學徒制徵稅，要求僱主分擔提供學徒培訓和培養英國工作人口的費用。

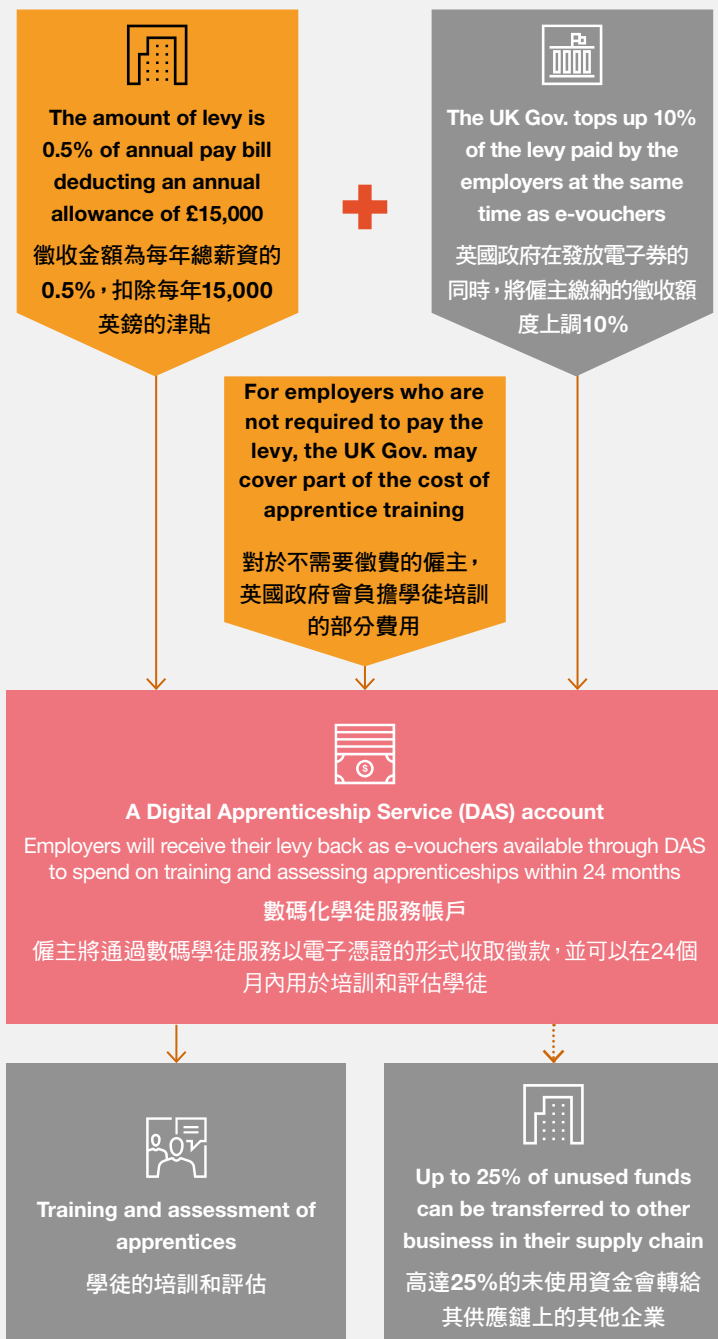
這筆學徒制徵稅是任何行業每年工資支出超過300萬英鎊的僱主都要繳納的一種稅項，稅率為其公司給付總薪資的0.5%^[14]。（圖5-17）

所支付的徵費金額以「數碼基金」的形式保存在僱主的學徒服務賬戶中，僱主可以使用該基金來支付學徒每月的培訓和評估費用。資金使用期限為繳費之日起的24個月，逾期未用的金額將在到期日後失效。徵稅企業可以與供應鏈中的其他企業共享多達25%的徵稅。然後，英國政府會將未使用/逾期的金額用於非徵稅僱主的學徒培訓上。

這是一種確保大型企業能夠為提高工作人口技能作出貢獻的資金籌措方式。

Figure 5-17: Apprenticeship Levy in the UK

圖5-17：英國的學徒制徵費



Source: (1) House of Parliament of the Government of United Kingdom (2020a), (2) PwC Analysis

資料來源：(1) 英國議院 (2020a)，(2) 羅兵咸永道分析

Issue 6. There is a need for a consolidated web portal which provides integrated, consistent and up-to-date information to the public with regard to workforce and skills development

Converting workforce planning into guidance for the general public in making decisions on education and learning would promote the efficiency and effectiveness of VPET delivery and workforce development. Currently, there are various information portals maintained by different stakeholders. For example:

- *Report on Manpower Projection*, conducted by the Labour and Welfare Bureau every 5 years, provides projection on workforce supply and requirements at the macro level, by economic sector, occupation group and education level.
- talent.gov.hk, an information portal established by the Human Resources Planning Commission, provides information on qualifications and skills requirements, occupations by industries, career paths and education opportunities for respective occupations based on the *Report on Manpower Projection* conducted by the Labour and Welfare Bureau.

- Occupation Dictionary, an online portal developed by the VTC, provides information on the entry requirements, skills and competencies, duties and work environment for occupations in a wide range of industries for education and career planning.
- Industry webpages, which are set up by the Industry Training Advisory Committees under the HKQF, provide information on career progression pathways, skills requirements and qualification requirements attached to the QF levels for relevant industries or sectors.
- *Manpower Survey Report* and *Manpower Update Report* for each of the 24 major industry sectors, which is conducted by the respective Training Boards under the VTC, facilitates workforce planning and development for different stakeholders.

These information portals and reports provide a lot of information on different aspects of workforce planning, on a fairly scattered basis. This may pose challenges for users to search for relevant information relating to different aspects of lifelong learning and career planning.

Reference can be made to the example of Singapore in which a holistic and collaborative approach has been used in the planning of economy, workforce and education. Relevant information is also conveyed to the public through a consolidated and comprehensive web portal.

Planning of workforce and skills requirements is conducted based on the needs for future transformation of the industries and the economy. Singapore's National Manpower Council is the overarching body governing these national workforce planning and training activities, while ensuring the provision of education and learning opportunities is guided by the requirements of skills and workforce needs (Figure 5-18).

The division of responsibilities among different Government departments is clear and transparent to the general public. The SkillsFuture (SSG) under the Ministry of Education takes overall responsibilities in developing Skills Framework, sectoral workforce development strategies and measures in collaboration with the Future Economy Council. The Future Economy Council is responsible for driving the future growth and transformation of the economy and industries of Singapore, as well as formulating and implementing transformation strategies such as drafting and implementing Industry Transformation Maps (ITMs).

問題6：缺乏一站式的資訊平台，向公眾提供有關人力和技能發展的最新綜合資訊

將社會人力資源規劃轉化為指引，令公眾能參考而選擇自己的教育和學習路向，有助提升社會人力資源發展的效益和職專教育的成果。目前，不同的資訊網站由不同持份者管理，例如：

- 勞工及福利局每五年進行一次《人力資源推算報告》，從宏觀層面、經濟行業、職業群體及教育水平對人力資源的供應及需求進行預測。
- 由人力資源規劃委員會設立的資訊一站式網站（talent.gov.hk），根據勞工及福利局的《人力資源推算報告》，提供有關各種職業的資歷及技能要求，以及按行業劃分的職業、前景、就業途徑及教育機會的資料。
- 由VTC開發的網站職業資料庫，提供各行各業的入職條件、技術及能力、職責和工作環境等資訊，用以進行教育和職業規劃。
- 由香港資歷架構下的「行業培訓諮詢委員會」所設立的行業網頁，提供有關職業發展的資料，以及相關業界或界別的資歷等級所附帶的技能和資歷要求。

- VTC轄下各訓練委員會分別就24個主要行業進行的《人力調查報告》及《人力更新報告》，旨在協助不同持份者進行工作人口的規劃及發展。

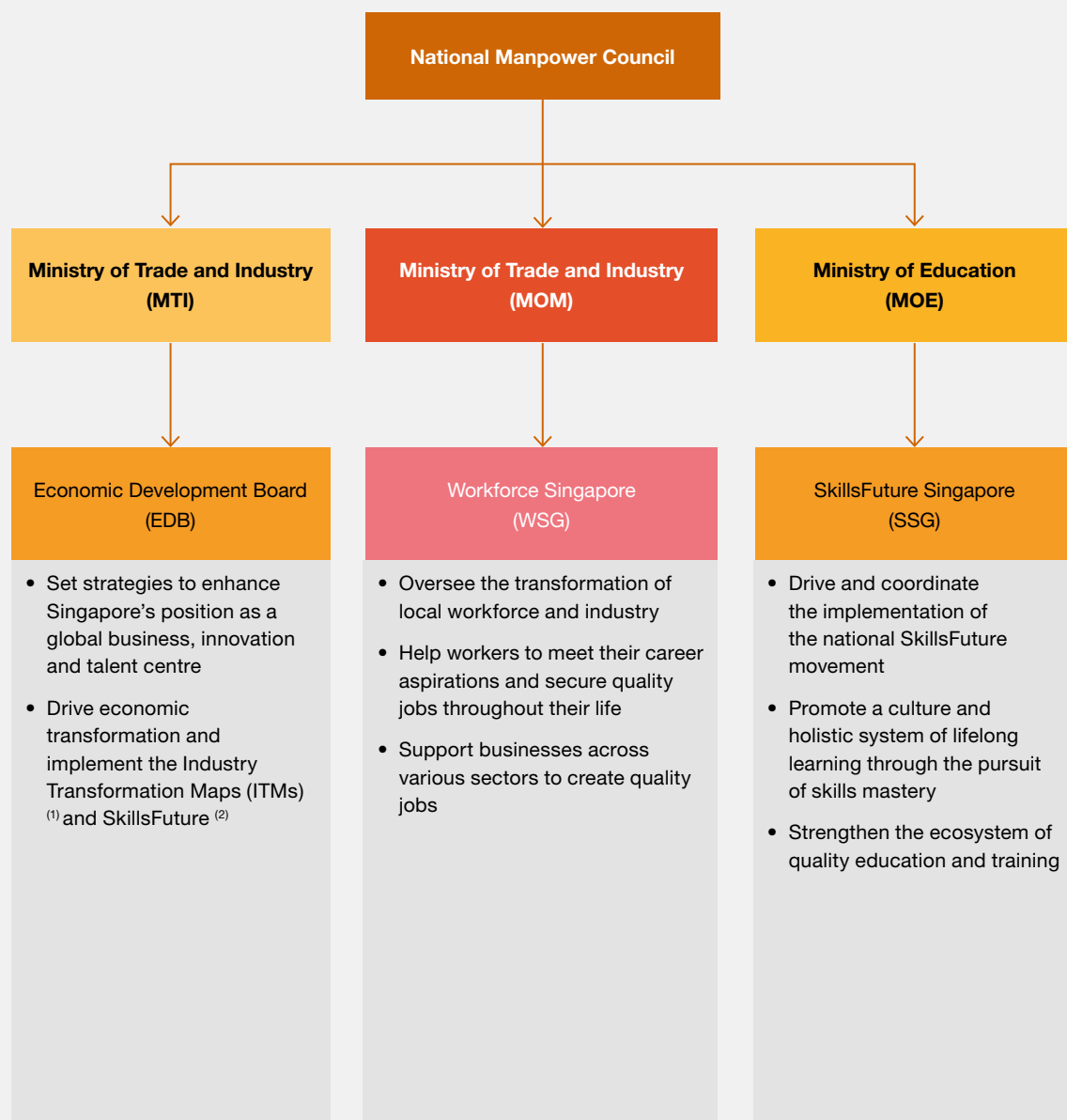
這些資訊網站和報告提供了很多關於工作人口規劃方面的資訊，但卻相當分散。這可能會對用戶搜尋相關資料，以作出與終身學習和職業規劃有關決定時構成不便。

以新加坡為例，他們在經濟、人力資源和教育規劃上採用了全面和協作的方法，相關資訊通過一個綜合全面的網站向公眾傳達。

社會人力資源和其技能要求是根據未來產業和經濟的轉型而進行規劃的。新加坡國家人力委員會作為統籌機構，管理國家工作人口規劃和培訓活動，同時確保教育和學習機會能按技能和人力資源需求而提供（圖5-18）。

新加坡政府各部門分工明確，能給公眾提供清晰指導。教育部屬下的「技能創前程」與「未來經濟委員會」合作，全面負責制定技能框架、部門工作人口發展的計劃和措施。「未來經濟委員會」亦負責推動新加坡經濟和產業的未來增長和轉型，制訂和實施轉型策略，例如起草和實施產業轉型藍圖。

Figure 5-18: Governmental departments involving in manpower planning in Singapore



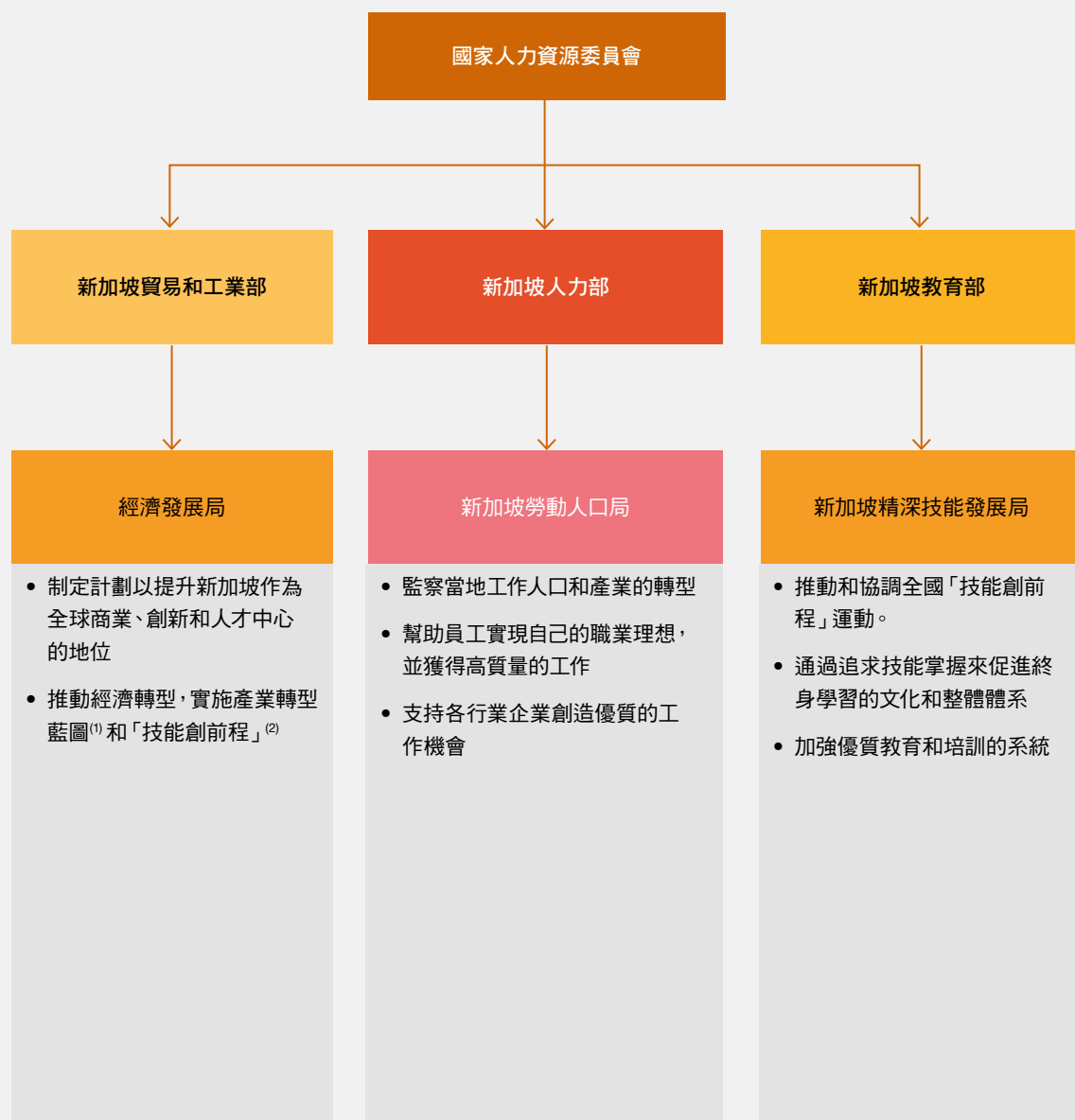
Note:

(1) ITMs acts as a guide for planning key factors for sustaining economic growth such as productivity, jobs and skills, innovation and trade and internationalisation, which is developed by the Future Economic Council.

(2) EDB established the Future Economy Council (FEC), which is responsible for overseeing the implementation of the recommendations put forth by the Committee on the Future Economy (CFE), building on the work of the earlier Council for Skills, Innovation and Productivity, which includes SkillsFuture initiatives and Industry Transformation Maps.

Source: (1) Government of Singapore (n.d.), (2) MTI (2021), (3) PwC analysis

圖5-18：新加坡政府部門參與當地的人力資源規劃



附註

(1)：由「未來經濟理事會」所制定的產業轉型藍圖，可視作是規劃可持續經濟增長的關鍵因素的指南，如生產力、就業和技能、創新和貿易以及國際化。

(2)：教育部成立了「未來經濟理事會」，負責監督和落實由「未來經濟委員會」所提出的建議，並以較早期的「技能、創新和生產力委員會」的工作項目為基礎繼續擴展，包括「技能創前程」計劃和產業轉型藍圖。

資料來源：(1) 新加坡政府（無日期）、(2) MTI (2021)、(3) 羅兵咸永道分析

MySkillsFuture portal is a one-stop online portal developed by the SkillsFuture in Singapore that enables Singaporeans to chart their own career and lifelong learning pathways, through access to industry information and tools to search for training programmes to broaden and deepen skills.

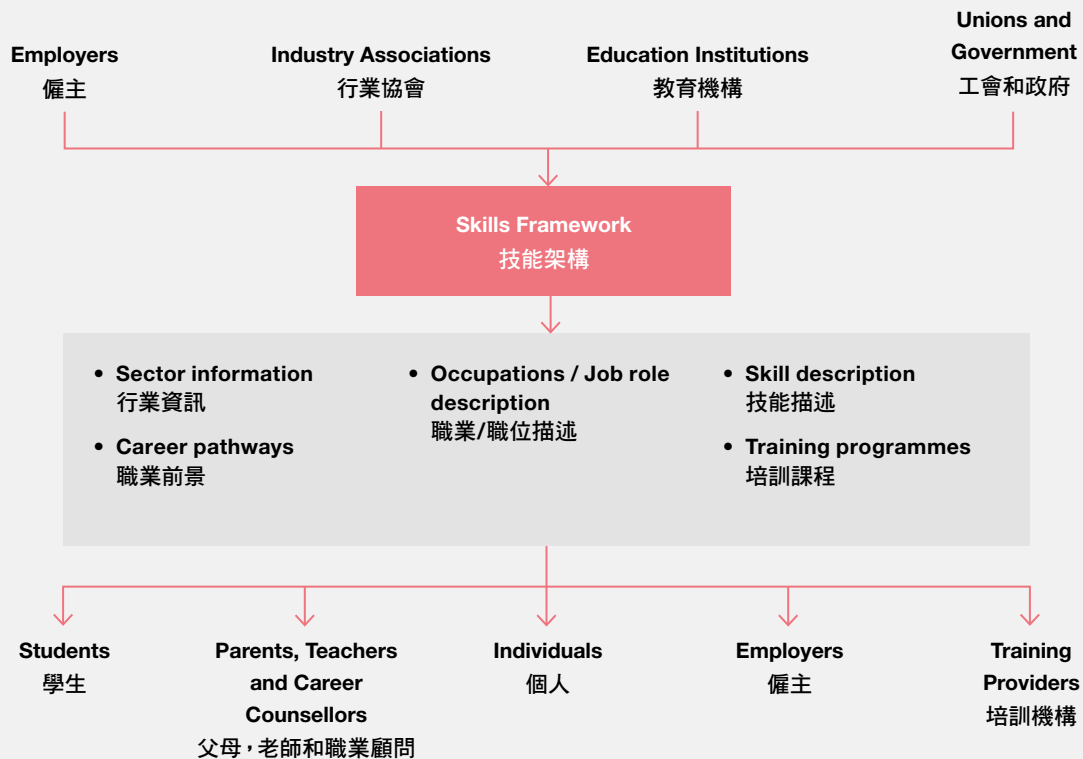
The Skills Framework, as part of the ITMs, takes into account views from various stakeholders, including the Singapore Government, industry associations, employers and education institutions. It serves as a guidance and provides information on sectoral development and employment, skills requirements (e.g. existing and emerging skills required for the identified occupations/job roles) for students and individuals, and training programmes available from relevant education providers (Figure 5-19). It also provides a list of training programmes for skills upgrading and mastery for those who would like to further their studies.

MySkillsFuture是由新加坡「技能創前程」開發的一站式網站，新加坡市民可以通過該網站獲得行業資訊，檢索培訓課程來擴展和深化技能，從而規劃自己的職業和終身學習。

「技能創前程」計劃作為產業轉型藍圖的一部分，考慮了相關持份者的意見，包括新加坡政府、行業協會、僱主和教育機構。它提供了有關行業發展和就業、學生和個人技能的要求（例如某職業/工作角色所需的現有和新興技能），還有相關教育機構提供的培訓資訊（圖5-19），更為那些想繼續進修的人提供了一系列提升和掌握技能的培訓計劃。

Figure 5-19: Skills Framework in Singapore

圖5-19：新加坡技能架構



Source: (1) SkillsFuture Singapore (n.d.), (2) PwC analysis

資料來源：(1)新加坡精深技能發展局（無日期）、(2) 羅兵咸永道分析

D Recommendation 6.
Introduce a new one-stop online platform for the public to guide decision-making on lifelong learning and career choices with easily accessible, integrated, consistent and up-to-date information on existing and emerging skills shortage and future jobs in high demand

A comprehensive one-stop online platform, targeting at different types of audiences such as pre-employment learners, in-service practitioners, recruiters, parents, teachers and education providers, could be developed. This platform will effectively and efficiently convey the sectoral requirements on workforce for future development and provide guidance for the general public on career and skills development, as well as education planning.

An efficient way could be revamping and integrating the existing sources of information, such as talent.gov.hk, Occupation Dictionary, the industry webpages developed by HKQF, *Manpower Survey Report* and *Manpower Update Report*, into a one-stop workforce information portal. This one-stop workforce portal could then be used to facilitate various aspects of workforce development activities to be carried out by different parties, including students, parents, teachers and career counsellors, employers and training providers.



D 建議6：建立一站式線上平台，讓公眾能輕易獲取綜合和最新資訊，了解現有及新興的技能短缺和未來高需求的職位，並為公眾就終身學習及職業選擇提供指導

開發一個一站式綜合網絡平台，以不同類型的受眾為對象，如職前學員、在職從業員、招聘單位、家長、教師和教育機構等，讓公眾能了解行業對未來的人力需求，並提供職業和技能發展、教育規劃方面的指引。

另一個有效方法是改革和整合現有的資訊來源，例如talent.gov.hk、職業資料庫、資歷架構開發的行業網頁、《人力調查報告》和《人力更新報告》，建立一站式的人力資源資訊網站，用於滿足不同類型的使用者，包括學生、家長、教師、職業輔導員、僱主和培訓機構的需求。



5.5 Linkage with the industry

Issue 7. The involvement of employers in VPET development could be enhanced

The linkage between VET providers and employers is crucial for enhancing the quality and attractiveness of VET (European Commission, 2017). A study conducted by the KOF Swiss Economic Institute showed that top performing countries in VET development tend to involve employers in various aspects of VET such as setting qualification standards, designing and updating curriculum as well as setting standards for assessment and examination. This study also revealed that students tend to learn more in the workplace environment rather than in classroom (Renold et al., 2018).

The importance of building such linkages is recognised by the European Commission, which found that the VET-business cooperation model can be classified in two main dimensions namely, VET process and areas of cooperation as shown in Figure 5-20.

The successful experiences of Germany and Switzerland in developing leading VET systems also highlighted the important role played by employers in supporting VET. Both jurisdictions are well-known for their adoption of a dual-track approach for VET, which integrates workplace learning with classroom training. A majority of corporates in these two jurisdictions are also involved in providing training places in collaboration with VET providers (including UAS). Generally, students enrolled in apprenticeship VET programmes spend 3 to 4 days each week at their host companies and attend supplementary classroom training for the rest of the week. Employers also play key roles with involvement in designing and delivering curriculum as well as providing feedback to learners.

5.5 與業界和僱主的聯繫

問題7：僱主在職專教育中的參與程度有待加強

職業教育機構與僱主之間的聯繫對於提高職業教育的質量和吸引力尤其重要（歐盟委員會，2017年）。KOF瑞士經濟學會進行的一項研究顯示，在職業教育發展較好的國家往往會讓僱主在各方面參與職業教育的發展，如制定資歷標準、設計和更新課程，以及制定評估和考試標準。這項研究亦顯示，相比起課堂，學生更能在工作中學習到知識 (Renold et al., 2018)。

歐洲聯盟委員會認可建立這種聯繫的重要性，認為職業教育的企業合作模式可以分為兩方面，即職業教育過程和合作領域（圖5-20）。

德國和瑞士在職業教育的成功經驗也突顯了僱主支持職業教育所發揮的重要性。這兩個國家都因採用職業教育雙軌學習模式而聞名，亦即結合職場培訓與課堂學習。很多企業與職業教育機構（包括應用科學大學）合作提供職場培訓，一般來說，參加職業教育學徒制的學生每週會有3至4天時間在公司進行實習工作，其餘時間則進行課堂培訓。在設計課程、提供課程以及向學員提供回饋意見方面，僱主也發揮著關鍵作用。

In particular, the dual track programme in Germany has been widely recognised as one of the most successful examples of VET development in the world. Workplace training has been well integrated with school-based learning across a wide spectrum of industries. Many companies support the apprenticeship programmes, which effectively help address shortages in human capital. The cluster of UAS also has strong linkage with the private sector, providing strong support in carrying out comprehensive applied research. Through these linkages, there is an established channel for translating R&D findings into new products and technologies, driving innovation. At the same time, such cooperation also helps to ensure that the workforce are equipped with knowledge and skills that match with industry needs (Parilla et al., 2015).

特別是德國的雙軌學習模式更被公認為世界上在職業教育發展上最成功的例子之一。職場培訓與課堂學習在各行各業都得到了很好的結合，許多公司都支持學徒計劃，以有效地解決人力資源短缺的問題。應用科學大學還與私營機構有著緊密聯繫，合作發展綜合應用研究，研發新產品和技術，以推動創新。同時，確保人才具備與業界所需的相關知識和技能（Parilla et al., 2015）。

Figure: 5-20: Dimension of VPET-business cooperation

圖5-20：職業教育與企業合作的層面

VPET process - Curriculum development – businesses set targets for VPET providers to enhance efficiency in matching supply and demand - VPET delivery – businesses get involved in providing training to learners - Feedback – businesses provide feedback on the relevance of skills and competences of the graduates and efficiency of the process	職專教育過程 - 開發課程 —— 企業為職專教育設定目標，提高效益 - 提供職專教育 —— 企業參與學員培訓 - 回饋意見 —— 企業提供有關畢業生的技能和能力，以及過程效率的回饋意見
Areas of cooperation - Matching supply and demand - Work-based learning - Digital skills - Innovation - Mobility - Entrepreneurial skills - Social inclusion - Raising awareness	合作領域 - 供求匹配 - 工作導向學習 - 數碼技能 - 創新 - 流動性 - 創業技能 - 社會包容 - 提高認識

Source: (1) European Commission (2017), (2) PwC analysis
 資料來源：(1) 歐洲聯盟委員會 (2017)、(2) 羅兵咸永道分析

In the case of Switzerland, the implementation of VET is facilitated by active involvement of professional organisations - including trade associations, trade unions, training service providers and host companies. These organisations are required to participate in the formulation and implementation of VET-related policy, starting from the initial stage of programme and training content design to the completion of the federal examination. The Swiss system is largely led by private-sector initiatives, with the Swiss Government providing the qualifications framework, examining course quality and ensuring regulatory compliance.

Based on the review on the current practice in Hong Kong, different degrees of collaboration between VPET providers and businesses can be observed from the stage of programme design to assessment. In the programme design phase, industry representatives provide inputs and feedback on the programme and the associated curriculum through industry-specific training boards. In the programme delivery phase, the linkage between VPET providers and businesses are mainly seen in the delivery of apprenticeships,

internships, industry placement, project-based collaborations, guest lectures and site visits. In the programme assessment phase, the Government's Pilot Incentive Scheme to Employers has been offered through the VTC to incentivise employers' participation in students' workplace learning and assessment. However, the involvement of employers in assessing students' performance in the workplace is still at the early stage of implementation and the effectiveness of this scheme is yet to be seen.

In industries where apprenticeships are offered, such as construction, lift and escalator maintenance, aircraft maintenance; as well as in industries where industrial placements are required for professional qualifications, such as nursing, employers are relatively more involved in training up a skilled workforce to support the growth of their businesses and the industries. In comparison, for other industries such as banking, insurance and innovation and technology, employers' involvement in supporting VPET development are comparatively low.

在瑞士，因專業機構包括同業協會、工會、培訓服務機構和提供實習的企業均積極參與，促進了職業教育的實施。從設計課程和培訓內容的初始階段開始，到設計聯邦考試，這些組織必須參與，並制定和執行有關職業教育的政策。瑞士的制度主要由私營機構主導，瑞士政府則提供資歷框架，審查課程質量並確保遵守法規。

根據對香港現行做法的研究，從課程設計到評估階段，可以看到職專教育與企業之間有不同程度的合作。如在VTC課程的設計階段，行業代表通過訓練委員會就課程內容和範圍提供意見和回饋。在開展課程階段，職專教育機構與企業之間的聯繫主要在提供學員訓練、行業實習、項目合

作、講座和實地考察等各方面中體現。在課程評估階段，政府透過VTC提供「職場學習及評核先導計劃」，以鼓勵僱主參與學生在職場的學習和評估。然而，這個計劃仍處於初期階段，效果有待觀察。

那些提供學徒訓練的行業，例如建造業、升降機和自動梯的維修、飛機維修，以及需要在業界實習以取得專業資格的行業（例如護士），僱主相對更多地參與培訓工作，以支持其業務和行業的發展。相比之下，銀行、保險、創新科技等其他行業，僱主在職專教育的參與和支持程度相對較低。

Overall, the role of employers and industry in nurturing students' development appears modest, in comparison to jurisdictions such as Germany and Switzerland.

Workplace training and interactions with businesses at the early phase of programmes would be desirable for students to understand the types of opportunities (e.g. specialisation, roles, positions) available in the industry and the associated skills and knowledge required specifically for those opportunities.

It is also found that VPET programmes that are recognised by professional bodies and with better compensation (e.g. career progression and/or wages) or those with professional certificates granted upon completion of the programmes tend to be more attractive to students in Hong Kong. For example, according to the feedback collected from VPET providers, the demand for HD programmes in nursing has been extremely high over the years. One of the reasons for such demand is that the programmes

are recognised by the Nursing Council of Hong Kong, the professional body overseeing registration of nurses.

HD programmes relating to early childhood education offered by VPET providers are also some of the most popular programmes. For example, as the HD in Child Care and Education offered by IVE is recognised by the Education Bureau and the Social Welfare Department of the HKSAR Government. Graduates of this programme are eligible for registration as kindergarten teachers with the Education Bureau, and as child care workers, child care supervisors and special child care workers as registered with the Social Welfare Department.

The VTC's HD in Dispensing Studies is another popular programme, which is recognised by the Hospital Authority where graduates can be employed as dispensers in public hospitals, private hospitals, other healthcare institutions and residential care homes.

總括而言，與德國和瑞士等國家相比，香港的僱主和業界在培訓學生發展的角色較不顯著。

學生應在課程的早期階段接受職場培訓和與企業互動，以了解該行業的職位種類和機會（如專業、角色、職位），以及得到所需的相關技能和知識。

研究亦發現，那些獲專業團體認可，待遇較好（例如有更好的職業發展機會或較高的薪金），或在完成課程後獲頒專業證書的職專教育課程，往往對學生更具吸引力。例如，從提供職專教育的人士收集到的意見反映，一直以來，護理學高級文憑需求量大，是學生的熱門選擇之一。其中一個導致這高需求的原因是該課程得到了監督護士註冊的專業機構—香港護士管理局的認可。

由職專教育機構提供，有關幼兒教育的高級文憑課程也很受歡迎。例如香港專業教育學院提供的幼兒教育高級文憑，畢業生具有在教育局註冊成幼稚園教師的資格，並可在社會福利署註冊為幼兒工作人員、幼兒中心主管和特殊幼兒工作人員。

另一例子是VTC的配藥學高級文憑，該課程得到了醫院管理局的認可，畢業生可在公立醫院、私立醫院、其他醫療機構和安老院舍擔任配藥員。

**E Recommendation 7.
Encourage employers,
professional bodies,
industry chambers and
trade associations to take
on more active roles in
VPET development and
enhance the industry's
recognition on VPET**

With consideration of the context above, industry plays one of the three critical roles in the tripartite collaboration involving i) industry stakeholders, professional bodies/ associations, ii) Government agencies; and iii) VPET educational institutions (Figure 5-21). Employers and industry representatives, industry chambers and trades associations as well as professional bodies could take more active and collaborative roles in VPET development in the following aspects:

- Establishing training standards, programme and curriculum design, teaching, assessment and certification (if applicable) for work-based training. These parties could take more responsibilities in: i) acting as the voice of businesses to provide inputs and feedback to programme and curriculum design, programme delivery

and skills development, ii) coordinating the provision of training places for trainees offered by companies, and iii) providing mentorship and assessment at the workplace in collaboration with educators;

- Enhancing the recognition of VPET programmes by professional bodies through collaborating with VPET providers in order to i) offer elective modules that are designed for students to attain professional qualifications awarded by industry bodies/ associations; and ii) design the programme curriculum and assessment standards that are recognised by the relevant professional bodies; and
- Recognising the value and contributions made by VPET graduates as well as experienced and skilled employees through providing competitive compensation packages and career progression opportunities.

E 建議7：鼓勵僱主、專業團體、行業商會及協會在職專教育發展中發揮更積極作用，提高業界對職專教育的認可

業界在三方協作中扮演著關鍵角色，這些關鍵角色可分為：（i）業界持份者、專業團體/協會；（ii）政府機構；和（iii）職專教育機構（圖5-21）。本研究建議僱主、行業代表、行業商會和協會，以及專業團體可以通過

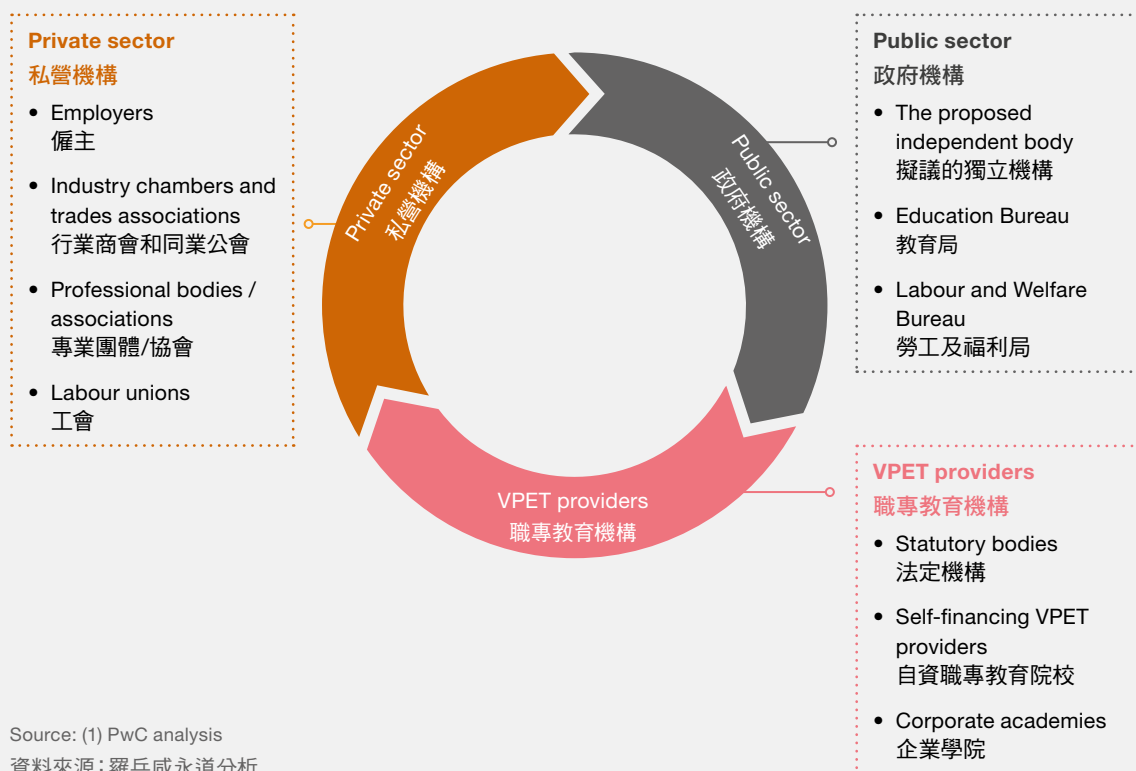
以下方式在職專教育發展中發揮更積極作用：

- 為在工作場所進行的培訓制定標準、課程設計、教學、評估和認證（如適用）。這些行業參與機構可以在以下各方面承擔更多的責任：（i）作為企業的代表，於課程設計、實施和技能發展上提供意見和回饋；（ii）協調企業為學員提供培訓；（iii）與教育機構合作，在工作場所提供指導和評估；

- 通過與職專教育機構合作，提高專業團體對職專教育課程的認可，以便：（i）提供相關專業證書選修課程，讓學生能獲得業界機構／協會頒發的專業資格；以及（ii）設計的課程和評估標準得到相關專業團體的認可；以及
- 通過提供有競爭力的薪酬待遇和職業發展機會，肯定職專教育畢業生、以及經驗豐富和技術熟練的員工的價值和貢獻。

Figure 5-21: Tripartite collaboration

圖5-21：三方協作



Issue 8. Dual-track programmes are currently limited in terms of industry coverage and qualification types

Internationally, dual-track programmes are important for companies to develop future employees. For example, in Germany, apprentices typically spend 70% of their time in the workplace and the remaining 30% of time in campus-based learning. Currently, apprenticeship scheme (also known as dual-track model internationally) in Hong Kong are mainly available for students pursuing DVE or HD programmes. Apprenticeships at degree level are offered by THEi only recently. As such, recognition of these degree apprenticeships by employers and their attractiveness for students are yet to be seen. Dual-track programmes are primarily available for industries and trades such as electrical and mechanical engineering, construction, automotive maintenance. There is only a limited amount of dual-track programmes for other key industries with keen workforce demand such as design and creative as well as innovation and technology.

In the case of the UK, the UK Government has provided significant support in developing apprenticeship programmes, as it recognises the importance of these programmes in creating a skilled workforce that will in turn contribute to the country's economic development. There are over 700,000 to 900,000 people taking up apprenticeship roles in the UK each year (House of Parliament of the Government of United Kingdom, 2020b). Currently, apprenticeship programmes in the UK cover a wide spectrum of industries (Figure 5-22). There are over 1,500 types of apprenticeship roles available. These programmes are offered at four levels, namely intermediate, advanced, higher and degree levels. Learners can apply for the programmes based on their capabilities and the level of skills they would like to attain. Since the launch of the programmes, the apprenticeships have gained significant popularity, with business, administration and law, health, public services and care as well as engineering and manufacturing technologies being the most popular industries for apprentices.

問題8：目前，雙軌制課程僅涵蓋有限的行業及資歷

在國際上，雙軌制課程對企業培養未來員工尤其重要。例如，在德國，學徒通常有70%的時間在職場接受培訓，其餘30%的時間則在院校學習。目前，香港的學徒計劃（國際上又稱雙軌制）主要於職專文憑或高級文憑課程中提供，香港高等教育科技學院近年才提供學位學徒制課程。因此，僱主對這些學位學徒制的認可度和對學生的吸引力還有待觀察。此外，這種雙軌制課程僅於電機、建造、汽車等行業開辦，於其他工作人口需求旺盛的關鍵行業，如設計和創作以及創新科技等，雙軌制課程的選擇仍非常有限。

就英國而言，英國政府大力支持開展學徒計劃，因為這些計劃對培育技術人才相當重要，亦有助於國家的經濟發展。目前，英國每年有超過70至90萬人擔任學徒（英國政府國會，2020b），而學徒訓練涵蓋各行各業（圖5-22），超過1,500種的學徒職位可供選擇。

課程分為四個級別，分別是中級、高級、高等和學位級別。學員可因應自己的能力和期望達到的技能水平來申請合適的課程。學徒制自推出以來大受歡迎，當中包括商業、行政、法律、醫療衛生、公共服務和護理，以及工程和製造行業。

Figure 5-22: Industry coverage of apprenticeships in the UK

圖5-22：英國學徒制的行業覆蓋率

Agricultural sector
農業界別



- Agriculture
農業
- Animal Care
動物護理
- Arboriculture
樹藝
- Environmental Conservation
環境保護
- Farriery
蹄鐵業
- Forestry
林業
- Floristry
花藝
- Game and Wildlife Management
遊戲及野生動物管理
- Horticulture
園藝
- Pest Control
除蟲
- Trees and Timber
樹木和木材
- Veterinary Nursing
獸醫護士

Industrial sector
工業界別



- Civil Engineering
土木工程
- Composite Engineering
複合工程
- Construction Management
施工管理
- Gas and Water Engineering
氣體及水務工程
- Glass Industry
玻璃行業
- IT Application
資訊科技應用
- Maritime Occupations
海運業
- Plumbing and Heating
管道和暖氣
- Print and Printed Packaging
印刷和印刷包裝
- Rail Infrastructure
鐵路基礎設施
- Vehicle Maintenance and Repair
車輛保養與維修

Services sector
服務業界別



- Accounting
會計
- Beauty Therapy
美容療法
- Catering and Professional Chefs
餐飲和專業廚師
- Creative and Digital Media
創意與數碼媒體
- Customer Service
客戶服務
- Emergency Care
緊急護理
- Hairdressing
理髮
- Hospitality Management
酒店管理
- Legal Services
法律服務
- Sports Development
體育發展
- Supply Chain Management
供應鏈管理

Source: (1) UK National Apprenticeship Service (2019), (2) PwC analysis

資料來源：(1) 英國國家學徒制服務 (2019)、(2) 羅兵咸永道分析

In the case of Germany, the “Meister” qualification has been developed. This qualification, which is a master craftsman certificate, is the highest professional qualification issued by the chambers of the respective industries and trades. The Meister qualifications in the crafts, agriculture, institutional management or industry are classified as ISCED^[15] levels 5-6 and recognised as a part of formal continuing vocational education and training (CVET) in Germany (European Union, n.d.a).

The Meister qualification can be awarded to a pool of master craftsmen who have extensive relevant industry experience, completed a specialised vocational training course in the specific craft and passed the Meister examination. The duration of the specialised vocational training courses can take 1 to 2 years. The examination includes theoretical,

practical and oral components and may need to be conducted over a duration of 5 to 7 days (depending on the craft). Regulated by the *Vocational Training Act* and the *Trade and Crafts Code*, this advanced vocational qualification is developed to focus on certifying occupational competence, allowing qualified Meister to work in intermediate management positions, train apprentices and study at universities in Germany.

In the case of Hong Kong, there are yet to be qualification examinations and standards similar to that in Germany in order to certify those who have achieved a certain level of occupational competence without higher education. Development of such qualification and standards could provide flexibility for people to succeed in their own field of specialty even if they do not wish to pursue conventional academic education. Such development could also help promote recognition of VPET.

[15]: The International Standard Classification of Education is a widely used a global reference classification for education systems that is maintained and periodically revised by the UIS in consultation with Member States and other international and regional organizations. ISCED 2011 is the second major revision of this classification (initially developed in the 1970s and revised in 1997). It was adopted by the UNESCO General Conference in November 2011.

Source: Westerhuis, A. (2001)

[15]: 國際教育標準分類：是一種在全球廣泛使用的教育系統參考分類，由統計研究所與成員國及其他國際和地區組織協商維持並定期修訂。2011版《國際教育標準分類法》是第二次的重大修訂（最初制定於1970年代，並在1997年修訂）。2011年11月，聯合國教育、科學與文化組織大會通過了該計劃。

資料來源：Westerhuis, A. (2001)

德國發展的「大師」資格，是手工藝美術大師證書，亦是由各業界商會頒發的最高職業資格證書。手工藝、農業、機構管理或工業領域的大師資格證書被列為《國際標準教育分類》^[15]中的第5至6級，在德國被承認為正規的持續職業教育與培訓的一部分（歐洲聯盟，無日期a）。

大師資格會授予具有豐富行業經驗、完成特定工藝的專職培訓課程、並通過大師資格考試的工藝大師。專職培訓課程可能需時1至2年，考試包括理論、實踐和口試三個部分，可能需要進行5至7天（視工藝種類而定）。該資格受

《職業訓練法》和《貿易和手工法》規範，其開發重點是認證職業能力，讓合格的大師在德國從事中級管理職位，培訓學徒，並可在大學進修。

在香港，目前還沒有類似的資格考試和標準，以認證那些沒有受過高等教育而又達到一定職業能力的人。制定大師資格和標準可讓技術人才即使不選擇傳統學術教育，也可以在專業領域中取得成功，這亦有助於提高大眾對職業教育的認可。



D Recommendation 8.
Dual-track programmes should be modernised and extended to a wider range of industries and education levels as well as qualification types

In order to promote integrated work-based training, increase the attractiveness of the existing apprenticeship schemes, and open up apprentice opportunities to students who wish to attain degree qualifications through work-based training in Hong Kong, the VTC and other VPET providers could apply an innovative approach in developing apprenticeship schemes by:

- Extend industry coverage to services and emerging industries, such as the design and creative industry, innovation and technology industry, and other industries that are transformed by Industry 4.0 and digitalisation to allow students to have more options in choosing their preferred learning modes;
- Seek the Government's support on providing policy support and financial incentives so as to encourage companies to offer apprentice training places;
- Offer more apprenticeships at degree level to cater for the increasing needs of integrated learning and to enhance the practicality of degree qualifications; and
- Introduce "Skill Master" qualifications recognised under HKQF to allow those highly skilled workers (e.g. graduates of apprenticeships) in their field of specialisation to attain qualifications recognised by professional bodies / industry councils and the Government. The "Skill Master" qualifications can be designed into a system with tiers specifying the level of skills and competencies required for specific industries and trades. Those who are eligible for attaining the qualifications may also be required to have certain years of work experience and be able to demonstrate excellence in professional skills in respective industries and trades.

D 建議8：雙軌課程應現代化，並擴展到更多不同行業、教育程度和資歷

為了推廣綜合職場培訓，增加現有學徒訓練計劃的吸引力，以及為有意修讀職專教育學位課程的學生提供學徒機會，VTC及其他職專教育機構可採用創新的方法發展學徒計劃，包括：

- 將學徒計劃覆蓋的行業擴至服務業和新興產業，如設計和創作、創新科技等，以及通過工業4.0和數碼化轉型的其他行業，以提供更多學習模式讓學生選擇；

- 尋求政府在政策和經濟方面的支持，以鼓勵企業提供學徒培訓名額；
- 提供更多學位學徒制機會，以滿足不斷增長的綜合學習需求，並增加學位課程中的實習部分；以及
- 引入香港資歷架構認可的「技能大師」資歷，讓專業領域中的高技術人才（例如學徒制課程畢業生）獲得專業團體/行業協會和政府認可的資歷。「技能大師」資格證書可以設計成一個按特定行業、技能和能力水平的分層體系。符合資格的人也可能需要有一定年資的工作經驗，並在相關行業和工作中表現出卓越的專業技能。



Issue 9. The time required for introducing new programmes, updating of curriculum and accreditation could be shortened to cater for the industry's fast-evolving needs

The development of new industries has been evolving faster than ever. New occupations and roles are created with the introduction and application of new disruptive technologies, such as automation, digitalisation, cybersecurity, 5G and connectivity. Having an efficient programme and curriculum development and update mechanism in place is important for VPET providers to address the latest workforce needs, bridge “skill gaps” and equip students with skills that are relevant and readily needed by the industry. However, according to the stakeholder consultations with employers, the current internal and external approval procedure for a new VPET programme tend to be a lengthy process, which may take up to 2 years. Figure 5-23 shows the process that VPET providers generally need to go through when developing a new programme, seeking internal approval and external accreditation in Hong Kong.

The four-stage quality assurance process of the HKCAAVQ is shown in Figure 5-24. Typically, the time required to complete each stage of the HKCAAVQ's accreditation exercise (from receipt of the accreditation document to the issuance of the accreditation report) would take 16 to 20 weeks for combined Stage 1 Initial Evaluation (IE) and/or Stage 2 Learning Programme Accreditation (LPA), 24 weeks for Stage 3 Programme Area Accreditation (PAA) or Stage 4 Periodic Institutional Review (PIR) (HKCAAVQ, 2020).

Although certain VPET providers, who have been granted the PAA status by the HKCAAVQ, are only required to go through internal approval process when introducing new programmes, this lead time could still hinder the relevancy of the skills and their efficiency in supplying the industry with a skilled workforce. Thus, it is prudent to consider ways for expediting the process for programme and curriculum update and new programme approval, including HKCAAVQ's accreditation, to ensure that the skills and knowledge of VPET students continue to match with the needs of the industry on a timely basis.

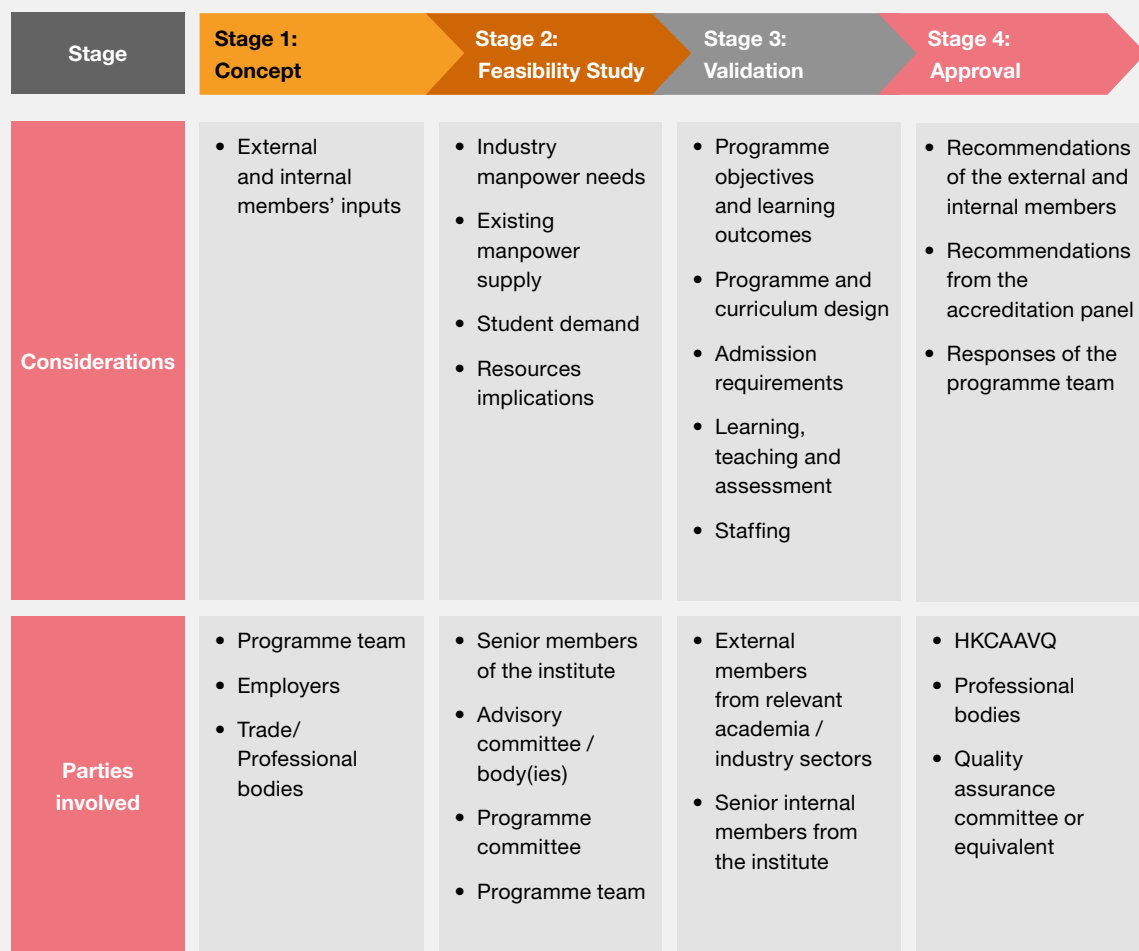
問題9：課程的引入、更新和評審所需的時間有待縮短，以配合行業急速發展

新行業的發展速度較以往來得更快。通過引入和應用自動化、數碼化、網絡安全、5G等新興技術，新職業和角色應運而生。開發適切的課程及更新機制，對於職專教育機構是非常重要的，因為這可以滿足行業日新月異的人才需求，彌補技能差距，更可使學生掌握行業相關和急需的技能。然而，據本研究向僱主進行的諮詢發現，目前職專教育課程的內部和外部評審程序需時冗長，可能長達兩年。圖5-23展示職專教育在香港發展新課程、尋求內部和外部評審時的一般程序。

香港學術及職業資歷評審局（評審局）的四個階段質素保證程序如圖5-24所示。一般來說，評審局完成（由收到評審文件至發出評審報告）第一階段的綜合初步評估及/或第二階段的課程評審需時16至20週，而第三階段的學科範圍評審或第四階段的機構定期覆審則需時24週（香港學術及職業資歷評審局，2020）。

雖然某些獲評審局授予「學科範圍評審」資格的職專教育機構，在推出新課程時只需通過內部審批程序，但所需的時間仍然較長，有機會阻慢技術人才的培訓。因此，評審局及職專教育機構應考慮如何加快更新課程，以及審批新課程的程序，以確保學生的技能和知識能繼續適時地配合業界需要。

Figure 5-23: Typical new VPET programme development and approval process



Source: (1) VTC (n.d.i), (2) PwC analysis

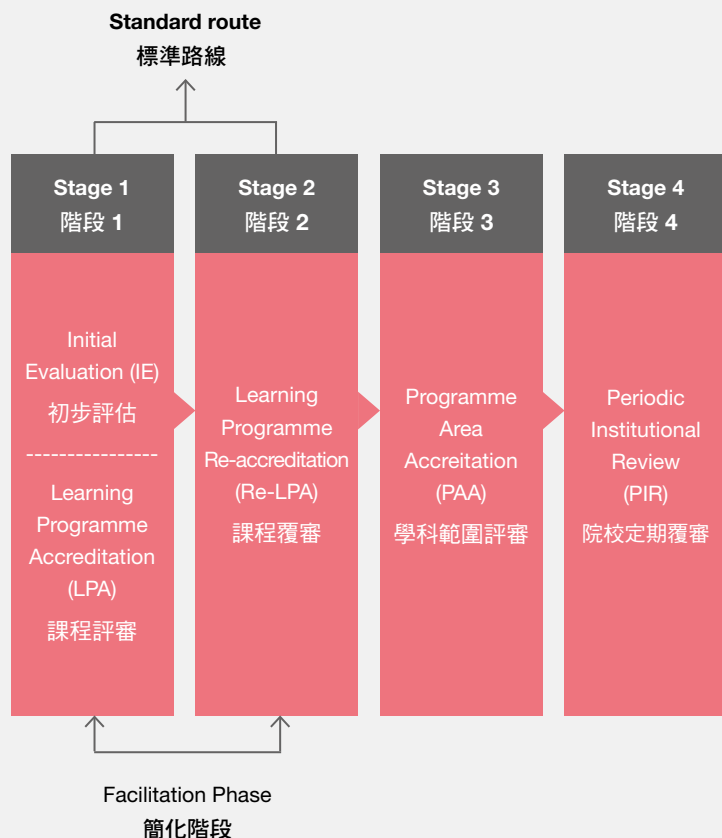
圖5-23：典型職專教育課程的制定和評審過程



資料來源：(1) 職訓局（無日期），(2) 羅兵咸永道分析

Figure 5-24: The four-stage quality assurance process

圖5-24：四個階段質素保證程



Source: (1) HKCAAVQ (2020), (2) PwC analysis

資料來源：(1) 香港學術及職業資歷評審局 (2020)、(2) 羅兵咸永道分析

D Recommendation 9.
Expedite the internal approval and external accreditation processes for timely programme development and curriculum update, and to improve the “skills match” of VPET graduates with industry needs

In order to swiftly respond to industry needs and be flexible in tailoring programmes to equip students with the required skills and knowledge, VPET providers and accreditation bodies should consider streamlining the internal approval and external accreditation process.

Internally, VPET providers may consider introducing a one-stop online system to collect development trends from respective industries and feedback from stakeholders on existing programmes on a timely basis.

External stakeholders, namely the HKCAAVQ, may consider streamlining and simplifying the four-stage quality assurance process so as to shorten the time required for accreditation and provide credible VPET providers with more flexibility in developing programmes and updating curriculum contents.



**D 建議9：加快課程發展及更新
新的內部批核和外部評審
程序，提高職專教育畢業
生的技能匹配度，以配合
業界需求**

為了迅速回應業界需求，並靈活地發展新課程，讓學生掌握相關行業技能和知識，職專教育及評審機構應考慮簡化課程內部批核和外部評審程序。

在內部方面，職專教育機可考慮使用一站式網上系統適時地收集行業的最新發展及持份者對現有課程的意見。

而外部方面，評審局亦應考慮簡化的四個階段質素保證程序，以縮短所需評審時間，以及讓一些具公信力的職專教育機構能更靈活地發展和更新其課程及內容。

5.6 Recognition of VPET in Hong Kong

Issue 10. VPET in Hong Kong needs greater regional and international recognition

To promote VPET in Hong Kong, the Government has established the Steering Committee on Promotion of Vocational and Professional Education and Training and Qualifications Framework in 2020. VPET providers have also been taking initiatives to promote Hong Kong's role in the international arena, such as organising international VPET conferences, providing international exchange opportunities for students and encouraging participation in international competitions. However, regional and international recognition could be enhanced.

References could be drawn from the experiences of Germany and Switzerland. For example, VET in Germany, which is well-known as the “German Dual System”, is regarded as one of the best practices for vocational education internationally. The German Government is committed to raising the international reputation of its education around the world with the implementation of various initiatives. One such initiative was the establishment of German Office for International Cooperation in Vocational Education and Training, a dedicated official body that acts as the central contact point for coordinating and driving international cooperation with overseas parties on behalf of the Federal Government in Germany.

In the case of Switzerland, the country's strength in providing VET programmes in hospitality stems from its historical reputation as a centre of culinary excellence. Excellence in services and quality are expected by guests. Switzerland now embraces some of the most advanced hospitality management programmes offered by hospitality management institutes. The Swiss programmes are unique because of their inclusion of some non-conventional fields of study as part of the training, such as event management, spa and wellness, and luxury retail.

Whilst Hong Kong VPET providers have been providing regional and international exchange opportunities, internships and articulation pathways to overseas universities, its recognition in the international community has yet to be fully established. There is a need to continue raising the profile of VPET in Hong Kong regionally and internationally.

5.6 香港對職專教育的認同

問題10：香港職專教育需要獲得更廣泛的地區和國際認同

為推廣職專教育，政府在2020年成立了「推廣職業專才教育和資歷架構督導委員會」。此外，職專教育機構亦一直採取措施，提升香港在國際舞台上的角色，例如舉辦國際性的職專教育會議、為學生提供國際交流機會，以及鼓勵學生參加國際比賽。不過，香港職專教育在地區和國際上的認可度還可以進一步提高。

香港可以借鑑德國和瑞士的經驗，例如，被公認為最佳職業教育訓練模式之一的「雙軌制」，德國政府成立了一個官方職業教育與培訓國際合作辦公室，專門代表德國聯邦政府協調和推動國際合作。

瑞士作為卓越烹飪中心，餐飲業的職業教育課程一直擁有優勢。因此，瑞士一些酒店管理學院提供了先進的課程，獨特之處在於將一些非常規的學習領域納入培訓範圍，如活動管理、水療和健康、奢侈品零售等，旨為客人提供卓越服務和質量。

雖然香港的職專教育機構一直為學生提供國際交流、海外實習機會和升學途徑，但仍未能完全獲得國際社會的認同，故有必要繼續在地區和國際上提高其職專教育的地位。



D Recommendation 10.
Enhance international
and regional recognition
of VPET in Hong Kong

The Government/VPET providers in Hong Kong can enhance the regional and international profile of VPET by considering the following measures/initiatives:

1. Work with relevant VPET stakeholders in the GBA to develop holistic internationalisation strategies for enhancing international positioning of Hong Kong and other GBA cities as promulgated in the *Work Plan of Framework Agreement on Hong Kong / Guangdong Co-operation* (HKSAR Government, 2020a);
2. Organise more exchange programmes with overseas VPET institutions and corporations as a means to showcase VPET students' capabilities and professional skills;
3. Strengthen connections and collaboration, and establish long-term partnerships to benchmark regional and international vocational best practices with leading stakeholders, such as Central Institute for Vocational and Technical Education (CIVTE), Ministry of Education in Mainland China, Organisation for Economic Co-operation and Development (OECD), United Nations Educational, Scientific and Cultural Organisation – International Centre for Technical and Vocational Education and Training (UNESCO-UNEVOC), the World Federation of Colleges and Polytechnics (WFCP), German Office for International Cooperation in Vocational Education and Training (GOVET), the Federal Institute for Vocational Education and Training (BIBB), Technical and Further Education (TAFE) Australia, SkillsFuture Singapore, European Forum of Technical and Vocational Education and Training (EfVET) and the Swiss Federal Institute for Vocational Education and Training (SFIVET);
4. Establish mutual recognition of VPET qualifications with local and overseas institutes and professional bodies to attract international students to Hong Kong; and
5. Enhance the quality and international recognition of specific programmes, which Hong Kong has an edge on, such as Chinese culinary arts, aircraft maintenance engineering and financial technology.

D 建議10：提升香港職專教育在地區和國際的地位

政府及職專教育機構可考慮以下措施/計劃，以提升職專教育的地區及國際地位：

1. 根據《粵港合作框架協議》（香港特別行政區政府，2020a），香港可與粵港澳大灣區內相關的職專教育機構合作，制訂全面的發展策略，以提升香港及粵港澳大灣區其他城市於國際間的定位；

2. 與海外職專教育機構和企業舉辦更多交流活動，以展示職專教育學生的能力和專業技能；
3. 與主要持份者加強聯繫和合作，以建立長期合作伙伴關係，並參照地區和國際職專教育最佳的基準。主要持份者包括教育部職業技術教育中心研究所、中國教育部、經濟合作暨發展組織、聯合國教科文組織國際職業技術教育與培訓中心、世界職教院校聯盟、職業教育與培訓德國國際合作辦公室、聯邦職業教育與培訓學院、澳洲公立專科技術學院、新加坡精深局、職業教育與培訓歐洲論壇，和瑞士聯邦職業教育培訓學院；
4. 與本地及海外機構和專業團體建立互相認可的職專教育資歷，以吸引國際學生來港；及
5. 提高香港具優勢的特定課程之質素和國際認可度，例如中式烹飪藝術、飛機維修工程和金融科技。





Appendix

附錄

A. Structure of the Appendix

No.	Contents
A.1	Analysis approach
A.2	Methodology for the economic impact assessment
A.3	Hong Kong Qualifications Framework
A.4	Funding and subsidy schemes
A.5	List of statutory bodies and institutions in Hong Kong providing VPET programmes
A.6	Limitation on the economic impact assessment
A.7	Supplementary information on international benchmarking
A.8	PwC Team
A.9	VTC Working Group
A.10	List of stakeholders contributed to this Analysis
A.11	Abbreviations and acronyms
A.12	References

A. 附錄結構

項目	目錄
A.1	分析方法
A.2	經濟影響評估方法
A.3	香港資歷架構
A.4	資助和補貼計劃
A.5	提供職專教育課程的香港法定組織和機構名單
A.6	影響經濟評估的限制
A.7	國際基準
A.8	羅兵咸永道團隊
A.9	職業訓練局工作小組
A.10	參與本分析的持份者名單
A.11	縮寫和縮略詞
A.12	參考文獻

A.1 Analysis approach

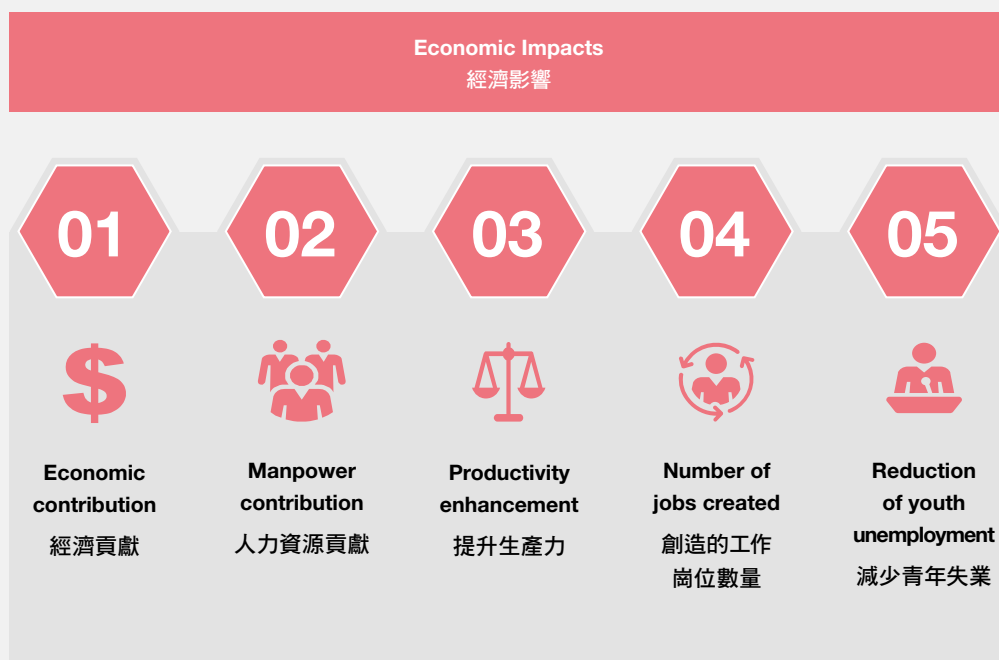
The Analysis consists of a bespoke assessment that provides a framework comprising a series of key indicators accounted for the economic and social impacts assessment. These indicators have been widely used in other studies to assess the socio-economic impacts of VPET in overseas countries.

For assessing economic impacts, the Analysis focused on key indicators such as economic contribution, manpower contribution, productivity enhancement, number of jobs created from VPET operations and reduction in youth unemployment.

In terms of social impacts, the Analysis focused on aspects such as educational pathways, transferable skills development, development of innovative and entrepreneurial skills, upskilling and reskilling of the workforce, environmental sustainability and healthcare services, social mobility, social cohesion and equality.

Figure A-1: Indicators for economic and social impacts

圖A-1：本研究的經濟和社會影響指標



Source: PwC analysis

資料來源：羅兵咸永道分析

A.1 分析方法

本研究中利用特定的評估架構，包括一系列廣泛使用作研究其他國家的主要指標，以評估香港職專教育對經濟和社會的影響。

在評估經濟影響方面，主要指標包括經濟貢獻、人力資源貢獻、生產力的提升，和職專教育機構所創造的工作崗位數量，以及減少青少年失業率的成效。

在社會影響方面，本研究重點關注升學途徑、通用技能的發展、創新和創業技能發展、人力的專業技能提升和再培訓、環境可持續性和健康護理服務、社會流動性、社會凝聚力和和平等。



This Analysis was carried out in three work stages: 1) Data / Information Collection, 2) Impact Analysis, and 3) Future Recommendation, as shown below.

Figure A-2: The three-stage approach adopted for this Analysis



Source: PwC analysis

本研究分三個階段進行，分別是：（1）數據/資料收集、（2）影響分析、（3）未來建議，如下圖所示。

圖A-2：本研究的三個分析階段



資料來源：羅兵咸永道分析

The types of stakeholders engaged in this Analysis and the aspects covered in the interviews and consultations are summarised in Figure A-3.

Figure A-3 also outlines the areas and questions covered in the consultations with these four types of stakeholders respectively.

Figure A-3: Summary of stakeholder engagement

		Key Stakeholders		Employers	Graduates
		VTC and its member institutions	Other statutory bodies and institutions offering VPET programmes	Employers of VPET graduates	VPET Graduates
No.		12 Interviews	11 Interviews	6 Interviews	13 Interviews
Objectives for engagement		- Current demand of VPET programmes in Hong Kong - VPET programme's contributions to key industries and how they have supported the sustainable development of core industries in Hong Kong - Future trends and strategies of VPET programmes - Career prospects of VPET graduates		- The way the graduates of VPET programmes support the development of the core industries - The sufficiency of VPET graduates' skills and knowledge meeting the employers' needs - Career progression and salary growth of VPET graduates - Linkage between VPET providers and the industry - Strengths and weaknesses of VPET graduates as compared with other graduates	- Development of soft skills and hard skills - Demand and future prospect of students - Career progression path and salary growth of graduates - Linkage between VPET programmes and the industry - Graduates' mastery of skills in meeting job requirements
	Interviewees	Senior management and representatives from the VTC and its member institutions	- Statutory bodies - Post-secondary institutions - Corporate academy - Government department - Others external stakeholders (e.g. professional bodies)		

Source: PwC analysis

圖A-3總結本研究所涉及的持份者類型，以及訪問和磋商中各方面的細節。

圖A-3：持份者的參與情況摘要



資料來源：羅兵咸永道分析

A.2 Methodology for the economic impact assessment

The Analysis adopted an economic impact assessment approach which is widely used internationally to quantitatively assess the economic contribution of VPET in Hong Kong generated from two major sources below:

- 1) The operations of the VPET providers, and
- 2) The productivity enhancement of VPET graduates in Hong Kong.

The approach adopted for the economic impact assessment is shown in Figure A-4 below. The economic impacts are quantified in two conventional terms:

- **Economic contribution:** the monetary economic contribution quantified in terms of Value Added, generated from the operations of VPET providers through the generation of profits and payment of salaries, and the enhancement in productivity

or business performance of the companies made by VPET graduates that otherwise would not have existed. Based on the definition from C&SD, the direct Gross Value Added (GVA) is computed by deducting income from other sources and operating expenses (or “operational profit” and “salary expenses”) from sales and other receipts; and

- **Manpower contribution:** the number of Full-time Equivalent (FTE) jobs created through the operations of VPET providers that otherwise would not have been created without VPET in Hong Kong.

The resulting economic tangible impacts of 1) the operations of the VPET providers and 2) VPET graduates in Hong Kong are calculated as the direct, indirect and induced tangible economic benefits.

A.2 經濟影響評估方法

本研究採用了國際上廣泛使用的經濟影響評估方法，以量化職專教育在以下兩方面對香港的直接、間接和連帶經濟效益：

- 1) 職專教育機構的營運，以及
- 2) 提高香港職專教育畢業生的生產力。

經濟影響評估採用的方法如圖A-4所示。經濟影響可使用以下兩個術語來量化：

- 經濟貢獻：以附加價值額來量化的經濟貢獻，是由職專教育機構通過利潤和薪金支出，以及其畢業生提高企業的生產力或業績而產生的。根據政府統計處的定義，直接附加價值的計算法是扣除來自其他收入來源和其他營業費用（或「營

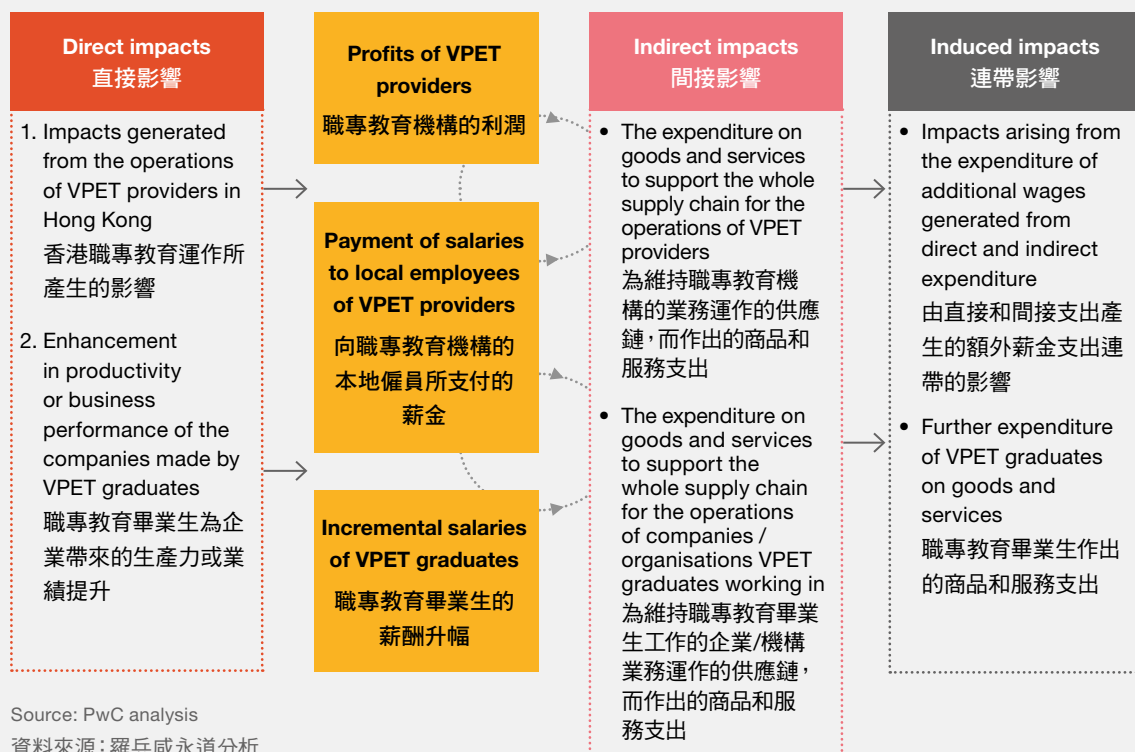
業利潤」和「薪金開支」）；以及

- 人力資源貢獻：透過職專教育的運作而創造的全職職位數目，若沒有職專教育這些職位便不會在香港出現。

(1) 職專教育機構的營運，以及
(2) 香港的職專教育畢業生對經濟的影響，是以直接、間接及連帶的有形經濟效益來計算的。

Figure A-4: Approach adopted for economic impact assessment

圖A-4：評估經濟影響所採用的方法



Take the operation of the VPET providers as an example:

- a) **Direct impacts** arise from the operations of VPET institutes (i.e. number of jobs hired and Gross Value Added (GVA) – salary expenses and operational profits), which can be assessed based on the internal financial statements of the VPET providers.
- b) **Indirect impacts** arise from the expenditure of the operation of the VPET institutes on goods and services, which can be generated throughout the whole supply chain, including the business partners of outsourced services such as business support and cleansing services.
- c) **Induced economic benefits** arise from the spending created by the economic activity in a) and b) above. As a normal practice, 12 to 15 percent of the direct and indirect impact are used as induced impact as per the HKSAR Government's convention.

Apart from the economic benefits generated from the operation of VPET providers, another key economic impact - productivity enhancement of the workforce - can be measured through the incremental salary gains and career path enhancement as a result of the students completing VPET programmes.

In doing so, the methodology assessed the wage uplift of the students resulting from taking VPET programmes (by comparing the average wage of VPET graduates with those who did not attend any post-secondary education) as a conventional approach to evaluate the productivity enhancement of education and training (Figure A-5).

In this connection, one of the key underlying assumptions for the economic impact assessment would be the cumulative number of VPET graduates over the last 35 years (i.e. from 1985 to 2020, though it is important to note that graduates in 1985 would be 60 years old as at 2020, thus they may have reached the ages for retirement).

以職專教育機構的營運為例：

- a. 職專教育機構業務產生的直接影響（即僱用職位的數量和總附加值（GVA）——薪酬支出和經營利潤），可根據職專教育機構的內部財務報表進行評估。
- b. 間接影響來自職專教育機構在產品和服務方面的支出，包括外判服務如業務支援和清潔服務等業務伙伴的整個供應鏈。
- c. 財政誘因效益來自於上述（a）和（b）中經濟活動所產生的支出。根據香港特區政府的慣例，通常會以直接和間接影響的12%至15%作為連帶影響。

除了職專教育運作所帶來的經濟效益外，另一個關鍵經濟影響（即提高生產力）可以通過學生完成課程後的薪酬增長和職業發展前途來衡量。

本研究以常規方法評估學生因修讀職專教育課程而獲得的薪酬提升（職專教育畢業生的平均薪金與沒有接受任何專上教育的畢業生的平均薪金作比較），以評估教育及培訓對生產力的提升（圖A-5）。

經濟影響評估是採用過去35年，職專教育畢業生的累計人數（即1985年至2020年，但必須注意的是，1985年的畢業生在2020年時經已是60歲，因此可能已經達到退休年齡）作主要基本假設之一。

Based on the data provided by the VTC as shown in Table A-1, the VTC has provided full-time and part-time VPET programmes to over 776,000 graduates between 1983/84 and 2018/19. Other VPET providers have trained over 130,600 graduates between 2003/04 and 2018/19. As a whole, there are a total of 907,000 VPET graduates as shown in Table A-1 and Table A-2.

根據圖A-1由VTC所提供的數據，在1983/84至2018/19年度，VTC為超過776,000名畢業生提供了全日制和非全日制的職專教育課程。在2003/04至2018/19年度，其他職專教育訓練機構已經培訓了超過130,600名畢業生。總括而言，如表A-1和A-2所顯示，職專教育畢業生總數為907,000人。

Table A-1: Cumulative VPET graduate number from 1983/84 to 2018/19

表A-1：1983/84至2018/19年職專教育累計的畢業生人數

Type of graduates 畢業生類型	VTC	Other VPET programme providers 其他職專教育機構	Cumulative number of VPET graduates 職專教育畢業生累計人數
Diploma/Certificate 文憑/證書	536,442	7,100	543,542
Higher Diploma 高級文憑	212,061	78,686	290,747
Degree/Top-up Degree 學士學位/銜接學位	27,895	44,863	72,758
Total 合計	776,398	130,649	907,047

Note:

(1) The graduate number of the VTC collected from the VTC's in-house database covers the period from 1983/84 to 2018/19.

(2) The graduate number of other VPET programme providers for the period from 2012/13 to 2018/19 is based on data available from the database maintained by the CSPE. The graduate number of other VPET providers from 2003/04 is based on the graduate statistics of full-time Higher Diploma graduates from 2003/04 to 2012/13 prepared by the 2014 Task Force on the Review of Self-financing Post-secondary Education. The graduate number for other VPET providers prior to 2003/04 is not available.

Source: (1) VTC, (2) CSPE (2020), (3) Education Bureau (2019a), (4) Legislative Council (2018), (5) PwC Analysis

附註：

(1) 從VTC內部數據庫收集到1983/84至2018/19年度的畢業生人數。

(2) 2012/13至2018/19年度，其他職專教育機構的畢業生人數是基於自資專上教育委員會數據庫中所提供的數據。2003/04年度其他職專教育的畢業生人數是根據2014年自資專上教育委員會編制的2003/04至2012/13年度全日制高級文憑畢業生統計數字所得出的。其他職專教育機構在2003/04年前的畢業生人數不詳。

資料來源：(1) VTC、(2) 自資專上教育委員會 (2020)、(3) 教育局 (2019a)、(4) 立法會 (2018)、(5) 羅兵咸永道分析

Table A-2: Cumulative graduate number from VPET from 1983/84 to 2018/19 by related industries of VPET programmes/degree types

表A-2：1983/84至2018/19年根據職專教育課程的相關行業和學位類型劃分的累計畢業生人數

Related industries of VPET programmes/Degree types 職專教育課程的相關行業/ 學位類型	Degree/Top-up Degree 學士學位/ 銜接學位	Higher Diploma 高級文憑	Diploma/Certificate 文憑/證書	Subtotal 小計
Business and Marketing 商業及市場推廣	28,991	64,105	97,290	190,386
Education and Community Services 教育及社會服務	6,632	13,994	1,446	22,072
Design and Creative 設計及創作	9,891	30,982	32,666	73,539
Engineering (incl. Construction) 工程（包括建造）	1,190	66,561	185,205	252,956
Health and Sciences 健康護理及科學	4,055	18,186	5,820	28,061
Tourism and Hospitality 旅遊及款待	7,587	23,389	25,411	56,387
Information Technology 資訊科技	2,660	26,322	17,765	46,747
Others 其他	11,752	47,208	177,939	236,899
Subtotal 小計	72,758	290,747	543,542	907,047

Note:

(1) The graduate number of the VTC collected from the VTC's in-house database covers the period from 1983/84 to 2018/19.

(2) The graduate number of other VPET programme providers for the period from 2012/13 to 2018/19 is based on data available from the database maintained by the CSPE. The graduate number of other VPET providers from 2003/04 is based on the graduate statistics of full-time Higher Diploma graduates from 2003/04 to 2012/13 prepared by the 2014 Task Force on the Review of Self-financing Post-secondary Education. The graduate number for other VPET providers prior to 2003/04 is not available.

Source: (1) VTC, (2) CSPE (2020), (3) Education Bureau (2019a), (4) Legislative Council (2018), (5) PwC Analysis

附註：（1）從VTC內部資料庫收集到1983/84至2018/19年度的VTC畢業生人數。

（2）其他職專教育機構2012/13至2018/19年度畢業生人數是從自資專上教育委員會數據庫中收集的。2003/04年度其他職專教育畢業生人數是根據2014年自資專上教育委員會編制的2003/04至2012/13年度全日制高級文憑畢業生統計數字所得出的。其他職專教育機構在2003/04年前的畢業生人數不詳。

資料來源：（1）VTC、（2）自資專上教育委員會（2020）、（3）教育局（2019a）、（4）立法會（2018）、（5）羅兵咸永道分析

Figure A-5: Approach on quantifying productivity enhancement

圖A-5：提高生產力的量化方法



Sources: PwC Analysis

資料來源：羅兵咸永道分析

Figure A-6a: Calculation of total Value-added from VPET (2019 price)

圖A-6a：職專教育附加值總額的計算方法（2019價格）

 Total Value-added (VA) of VPET and its full-time graduates 職專教育及其全日制畢業生的附加值總額		=	 Total VA of VPET operations 職專教育機構的附加值總額	+	 Total VA of VPET graduates 職專教育畢業生的附加值總額
Direct VA 直接附加值	HK\$ 56,531 m 565.31億港元		HK\$ 8,082 m 80.82億港元		HK\$ 48,448 m 484.48億港元
Indirect VA 間接附加值	HK\$ 29,637 m 296.37億港元		HK\$ 2,638 m 26.38億港元		HK\$ 27,000 m 270億港元
Induced VA 連帶附加值	HK\$ 10,340 m 103.40億港元		HK\$ 1,286 m 12.86億港元		HK\$ 9,054 m 90.54億港元
Total VA 附加值總額	HK\$ 96,508 m 965.08億港元		HK\$ 12,006 m 120.06億港元		HK\$ 84,502 m 845.02億港元

Direct VA – Direct value-added is the sum of impacts generated by 1) operations of VPET providers in Hong Kong and 2) incremental salary in VTC graduates

Indirect VA – Indirect value-added is the impacts from further expenditure on goods and services to support whole supply chain of VPET providers and companies / organisations VPET graduates working in

Induced VA – Induced value-added is the impacts arising from the expenditure of additional wages generated from direct and indirect impacts (Based on the assumptions generally adopted in the relevant studies in Hong Kong – about 12% of direct and indirect impacts is used)

Total VA – Total value-added is the total of direct, indirect, and induced value-added

From the economic definition, Value Added (“VA”) is equivalent to “GDP”.

直接附加值 —— 直接附加值是指（1）香港職專教育機構的運作和（2）職專教育畢業生為企業帶來的生產力或業績提升的總和

間接附加值 —— 間接附加值是指為維持職專教育機構以及職專教育畢業生工作的企業/機構的業務運作的供應鏈，而作出的商品和服務支出

連帶附加值 —— 連帶附加值是指直接和間接影響所產生的額外薪金帶來的影響（根據香港相關研究普遍採用的假設，約佔直接和間接影響的12%）

附加值總額 —— 附加值總額是指直接、間接和連帶附加值的總和從經濟學的定義來看，附加值總額（VA）相當於「本地生產總值」。從經濟學的定義來看，附加值（VA）相當於「本地生產總值」。

Figure A-6b: Calculation of total value-added from VPET operations (2019 price)

圖A-6b：職專教育附加值總額的計算方法（2019價格）

		Direct VA	=	Operating profits	+	Total staff expenses	
		直接附加值	=	營運利潤	+	薪金總開支	
		HK\$ 8,082 m	=	HK\$ 327 m	+	HK\$ 7,755 m	
		80.82億港元	=	3.27億港元	+	77.55億港元	
		Indirect VA	=	Direct VA	×	Indirect VA multiplier	
		間接附加值	=	直接附加值	×	間接附加值倍數	
		HK\$ 2,638 m	=	HK\$ 8,082 m	×	0.3264	
		26.38億港元	=	80.82億港元	×		
		Induced VA	=	(Direct VA + Indirect VA)	×	Indirect VA multiplier	
		連帶附加值	=	(直接附加值 + 間接附加值)	×	間接附加值倍數	
		HK\$ 1,286 m	=	HK\$ 10,720 m	×	0.1200	
		12.86億港元	=	107.20億港元	×		
		Total VA	=	Direct VA + Indirect VA + Induced VA			
		附加值總額	=	直接附加值 + 間接附加值 + 連帶附加值			
		HK\$ 12,006 m	=	HK\$ 8,082 m + HK\$ 2,638 m + HK\$ 1,286 m			
		120.06億港元	=	80.82億港元 + 26.38億港元 + 12.86億港元			

• Based on Hong Kong and overseas multipliers for the relevant sectors (such as education providers, NGO and government sector etc.)
根據香港和海外相關業界（如教育機構、非政府組織和政府部門等）的倍數來計算。

• Based on the assumptions generally adopted in the relevant studies in Hong Kong – about 12% of direct and indirect impacts
根據香港相關研究普遍採用的假設——約佔直接和間接影響的12%

Figure A-6c: Calculation of total value-added from VPET graduates (2019 price)

圖A-6c：職專教育畢業生附加值總額的計算方法（2019價格）

 VPET graduates 職專教育畢業生	Direct VA 直接附加值	=	Incremental in VTC graduates' salary × ratio of VA to staff compensation VTC畢業生的薪酬升幅×附加值額與員工薪酬比率		Based on C&SD data - Value Added / Staff Salary ratio for the relevant sectors (such as business, maintenance engineering etc.) 根據政府統計處的數據 —— 相關行業（例如商業、維修工程等）的附加值額/員工薪酬比率	
	HK\$ 48,448 m 484.48億港元	=	HK\$ 31,460 m 314.60億港元	×	1.5400	
	Indirect VA 間接附加值	=	Direct VA 直接附加值	×	Indirect VA multiplier 間接附加值倍數	Based on Hong Kong and overseas multipliers for the relevant sectors (such as business and maintenance engineering etc.) 根據香港及海外相關行業（如商業及維修工程等）的倍數計算
	HK\$ 27,000 m 270億港元	=	HK\$ 48,448 m 484.48億港元	×	0.5573	
	Induced VA 連帶附加值	=	(Direct VA+ Indirect VA) (直接附加值+ 間接附加值)	×	Indirect VA multiplier 間接附加值倍數	Based on the assumptions generally adopted in the relevant studies in Hong Kong – about 12% of direct and indirect impacts 根據香港相關研究普遍採用的假設 —— 約佔直接和間接影響的12%
	HK\$ 9,054 m 90.54億港元	=	(HK\$ 48,448 m + HK\$ 27,000 m) (484.48億港元 + 270.00億港元)	×	0.1200	
	Total VA 附加值總額	=	Direct VA + Indirect VA + Induced VA 直接附加值 + 間接附加值 + 連帶附加值			
	HK\$ 84,502 m 845.02億港元	=	HK\$ 48,448 m + HK\$ 27,000 m + HK\$ 9,054 m 484.48億港元 + 270億港元 + 90.54億港元			

Note: Number may not tie due to rounding

註：由於四捨五入的關係，數字可能不相等

A.3 Hong Kong Qualifications Framework 香港資歷架構

The Hong Kong Qualifications Framework (HKQF) is launched by the HKSAR Government in 2008, with an aim to promote lifelong learning and enhancing the quality, professionalism and competitiveness of the workforce in Hong Kong.

The HKQF is a seven-level hierarchy measuring qualifications across academic, vocational, professional, continuing education and training sectors. The HKQF recognises qualifications that are quality assured and rated in levels in accordance with clearly defined objective and standards. In 2007, the *Accreditation of Academic and Vocational Qualifications Ordinance* (Chapter 592 of the Laws of Hong Kong) mapped out the legal framework which then was included to create the HKQF.

The seven-level in HKQF shows how qualifications are measured to be recognised in an in-depth complex framework. Each qualification is assigned a level based on a set of Generic Level Descriptors (GLD) that specifies the expected outcome standards of the qualifications at each level in four domains, which are (1) Knowledge and Intellectual Skills, (2) Processes, (3) Autonomy and Accountability, (4) Communication, ICT and Numeracy.

From October 2012, the Award Titles Scheme (ATS) are used to standardise and simplify the use of titles for qualifications recognised under HKQF at all QF levels, as shown in Figure A-7.

香港特區政府在2008年推出資歷架構，旨在推動終身學習，提升香港工作人口的質素、專業水平和競爭力。

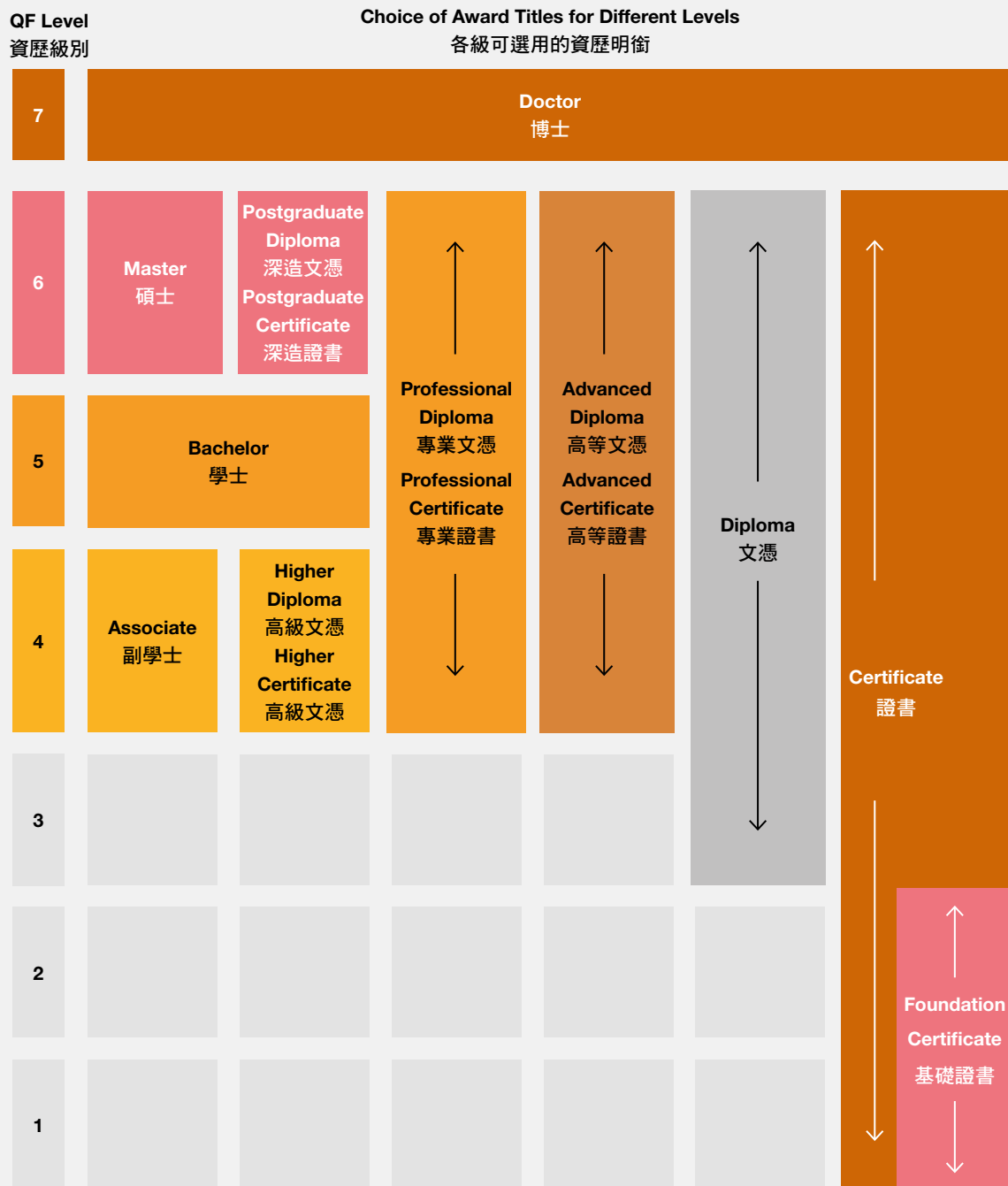
資歷架構共分為七級，分別涵蓋學術、職業、專業、持續教育及培訓部門。資歷架構認可有質素保證的資歷，並根據明確的目標和標準進行評級。在2007年，《學術及職業資歷評審條例》（香港法例第592章）制定了相關法律框架，並將其納入香港資歷架構。

香港資歷框架中的七級顯示如何在一個複雜的架構中衡量認可資格。每項資歷均按照一套《資歷級別通用指標》來劃分，指標按四個範疇說明各個級別應達致的標準，包括（1）專業知識及知識性技能，（2）過程，（3）自主性及問責性，（4）溝通、資訊及通訊科技及運算。

由2012年10月起，資歷名銜計劃用作統整及簡化資歷架構下資歷名銜的使用，如圖A-7所示。

Figure A-7: Hong Kong Qualifications Framework

圖A-7：香港資歷架構



Source: Education Bureau (2018)

資料來源：教育局（2018）

In order to allow industry stakeholders provide inputs and views for the implementation of HKQF on the training needs and workforce development, the Education Bureau (EDB) set up Industry Training Advisory Committees (ITACs) or Cross-Industry Training Advisory Committee (CITAC) on industry or sector basis comprising of members of employers, employees, professional bodies and regulatory bodies of relevant industries.

The main responsibility of ITACs/ CITAC is to put together competency standards with respect to key function areas of the industries (also referred to as the Specification of Competency Standards (SCS). ITACs/CITAC also supports the Government on developing and implementing the Recognition of Prior Learning (RPL) mechanism, which is used to recognise the experiences and competencies acquired by practitioners in the field of work in respective industries based on the SCS.

Vocational Qualifications Pathway (VQP) is a learning progression roadmap to show learners how they can learn to achieve different employment opportunities in respective industries. Learners can progress to multiple levels by attaining the required vocational-oriented qualifications. VQP courses are education and training courses, created and designed to meet the standards and requirements of specific job roles defined by the respective ITACs.

In summary, these initiatives are to provide information and guidance for both new entrants and in-service practitioners with a clear progression pathway to equip with skills and competencies required and to facilitate workforce training and education based on industry needs.

為了收集業界持份者就香港資歷架構相關的僱員培訓提出的意見，教育局成立了行業培訓諮詢委員會及跨行業培訓諮詢委員會，成員包括相關行業的僱主、僱員、專業團體及監管機構的成員。

行業培訓諮詢委員會及跨行業培訓諮詢委員會的主要職責是就行業的主要功能制訂能力標準（即《能力標準說明》）。行業培訓諮詢委員會及跨行業培訓諮詢委員會同時支持政府制定和實施「過往資歷認可」機制，並根據《能力標準說明》確認從業員在職場上所積累的工作經驗和能力。

職業資歷階梯是一個進修及就業的進階藍圖，向學員展示如何通過學習在相關行業獲得不同的就業機會。學員可以通過獲得所需的職業為本資格，向多個級別發展。職業資歷階梯課程是教育和培訓課程，是為了滿足行業培訓諮詢委員會定義的特定工作角色的標準和要求而設立和設計的。

總而言之，這些措施旨在為新入職者和在職從業員提供資訊和導向，並提供明確的晉升途徑，使其具備所需的技能和能力，並根據行業需求促進工作人口的培訓和教育。

A.4 Funding and subsidy schemes related to VPET

According to the HKSAR Government's VPET portal, the following outlines the major funding and subsidy schemes that were proposed by the two Task Forces and implemented by the HKSAR Government.

Training and Support Scheme (TSS) (also known as VTC Earn & Learn Scheme)

Implemented since 2014/15, VTC students can gain exposure to the industry through this scheme and earn money earlier on during the course of study. This may provide more incentives to students who may need to earn money earlier to apply to the VTC.

Student Industrial Attachment Programme (SIAP)

It is a work-based experience programme offering a real-life organisational context for students to develop specific or generic skills. This programme provides employers a sustainable, flexible and effective channel to source and select talents to meet their short and / or long-term workforce need. Students can

learn essential skills that match their focus of studies in a broad range of disciplines.

Qualifications Framework (QF) Fund

The QF Fund is an endowment fund to support different schemes/initiatives for the sustainable development and implementation of QF, including but not limited to the Designated Support Schemes for QF and funding for ITACs, QF-related studies or projects and public education.

Maritime and Aviation Training Fund

The fund is to sustain and enhance existing training schemes and scholarships, as well as to launch new initiatives for the maritime and aviation sectors. The aim is to build up a vibrant, diversified and competitive pool of professionals and technical personnel to support Hong Kong's future development in these two sectors.

A.4 資助和補貼計劃

根據香港特區政府的職專教育網站，以下概述了由兩個專責小組建議並由政府推行職專教育有關的主要撥款及資助計劃。

學院培訓津貼計劃（亦稱為職學計劃）

由VTC自2014/15年度起推行，使學生可以通過該計劃接觸行業，並在學習過程中獲取收入，從而吸引那些需要提早謀生的學生報讀。

學生工作實習計劃

計劃為學生提供一個真實的工作環境，令他們有機會發展專業或通用技能。計劃亦為僱主提供一個可持續、靈活和有效的途徑，尋找和挑選人才，以滿足他們短期或長期人力資源需求。學生可以在廣泛的學科中學習適合自己的基本技能。

資歷架構基金

資歷架構基金是一項信託基金，以資助持續發展和推行資歷架構的不同計劃或措施，包括但不限於支援資歷架構的指定計劃及資助行業培訓諮詢委員會，與資歷架構相關的研究或計劃和公眾教育。

海運及空運人才培訓基金

該基金用於維持和加強現有的培訓計劃和獎學金，並為海事和航空業推出新的措施。其目的是建立一個充滿活力、多元化和具競爭力的專業和技術的人才隊伍，以支援香港在這兩個領域的未來發展。

Career and Life Planning Grant (CLPG)

Starting from the 2014/15 school year, the Education Bureau has provided public sector (including special schools) schools and Direct Subsidy Scheme schools operating classes at senior secondary levels with an annual recurrent cash grant at the mid-point salary of the Graduate Master to enhance the capacity of responsible teaching team and to facilitate the co-ordination and implementation of life planning.

Reindustrialisation and Technology Training Programme (RTTP) Grant

This scheme is established with the aim to subsidise local enterprises on a 2(Government):1(Enterprise) matching basis to train their staff in advanced technologies, especially those pertinent to “Industry 4.0”. Eligible enterprise must be a non-government and non-subsidised organisation registered in Hong Kong under the Business Registration Ordinance (Cap. 310).

Pilot Subsidy Scheme for Students of Professional Part-time Programmes

To encourage working adults in designated industries to pursue higher qualifications, the Government has launched a Pilot Subsidy Scheme to offer tuition fee subsidy for students admitted to designated professional part-time programmes offered by the VTC, covering programmes in the disciplines of construction, engineering and technology. The scheme was further extended to support students studying creative industry in 2019.

Study Subsidy Scheme for Designated Professions/ Sectors (SSSDP)

The scheme was launched in 2015 with the aim to subsidise more undergraduate places increasing the supply of the self-financing post-secondary education sector and support nurturing talents in specific industries, expanding and diversifying opportunities for students to study.

Other government funding and support measures are also providing to self-financing post-secondary institutions, such as the Matching Grant Scheme, Land Grant Scheme, Start-up Loan Scheme, Qualifications Framework Fund, Research Endowment Fund, Self-financing Post-secondary Education Fund, Student Finance, Reimbursement of Government Rents and Rates, Non-means-tested Subsidy Scheme for Self-financing Undergraduate Studies in Hong Kong and the Enhancement and Start-up Grant Scheme for Self-financing Post-secondary Education.

生涯規劃津貼

教育局已由2014/15學年開始，為每所開設高中課程的公營學校(包括特殊學校)及直接資助計劃中學提供一項相等於一位學位教師中點薪金的經常性現金津貼，提升專責教師團隊的能量，促進學校加強統籌及推動生涯規劃。

再工業化及科技培訓計劃

這計劃是以政府和企業二比一的配對形式資助本地企業讓其員工接受高端科技培訓，尤其是與「工業4.0」有關的培訓。合資格企業必須是符合《商業登記條例》（第310章）在香港註冊的非政府及非受資助機構。

兼讀制專業課程學生資助試行計劃

為鼓勵在指定行業發展的在職人士取得更高學歷，政府推行兼讀制專業課程學生資助試行計劃，向入讀VTC建築、工程及科技學科指定兼讀制專業課程的人士提供學費資助。在2019年，試行計劃進一步擴展至創意行業。

指定專業/界別課程資助計劃

該計劃於2015年推出，旨在善用自資專上教育界別的供應，以增加資助學士學位課程的學額，並為有殷切人力資源需求的特定行業培育人才，擴大和豐富學生的學習機會。

政府亦為自資專上院校提供其他資助及支援措施，例如配對補助金計劃、批地計劃、開辦課程貸款計劃、資歷架構基金、研究基金、自資專上教育補助金計劃、學生資助、發還地租和差餉、香港自資學士學位課程免入息審查資助計劃及自資專上教育提升及開辦課程資助計劃。

A.5 List of statutory bodies and institutions in Hong Kong providing VPET programmes

Table A-3: List of statutory bodies and institutions in Hong Kong providing VPET programmes as listed on the HKSAR Government's VPET portal as of 31 January 2021

1	Caritas Bianchi College of Careers
2	Caritas Institute of Community Education
3	Caritas Institute of Higher Education (formerly known as Caritas Francis Hsu College)
4	Chinese Culinary Institute
5	Centennial College
6	Chu Hai College of Higher Education
7	City University of Hong Kong – School of Continuing and Professional Education
8	Clothing Industry Training Authority
9	CLP Power Academy
10	UOW College Hong Kong (formerly known as Community College of City University)
11	Construction Industry Council
12	Employees Retraining Board
13	Gratia Christian College
14	HKCT Institute of Higher Education
15	Hong Kong Design Institute
16	HKPC Academy
17	HKU SPACE Po Leung Kuk Stanley Ho Community College
18	Hong Kong Baptist University - Academy of Film
19	Hong Kong Baptist University - College of International Education
20	Hong Kong Baptist University - School of Continuing Education
21	Hong Kong College of Technology
22	Hong Kong Institute of Construction
23	Hong Kong Institute of Technology
24	Hong Kong International Aviation Academy
25	Hong Kong Nang Yan College of Higher Education

A.5 提供職專教育課程的香港法定組織和機構名單

表格 A-3：截至2021年1月31日在香港特別行政區政府的職專教育網站上所列出的法定機構列表

- 1 明愛白英奇專業學校
- 2 明愛社區書院
- 3 明愛專上學院（舊稱為明愛徐誠斌學院）
- 4 中華廚藝學院
- 5 明德學院
- 6 香港珠海學院
- 7 香港城市大學專業進修學院
- 8 製衣業訓練局
- 9 中電學院
- 10 香港伍倫貢學院（舊稱香港城市大學專上學院）
- 11 建造業議會
- 12 僱員再培訓局
- 13 宏恩基督教學院
- 14 港專學院
- 15 香港知專設計學院
- 16 生產力學院
- 17 香港大學專業進修學院保良局何鴻燊社區書院
- 18 香港浸會大學電影學院
- 19 香港浸會大學國際學院
- 20 香港浸會大學持續教育學院
- 21 香港專業進修學校
- 22 香港建造學院
- 23 香港科技專上書院
- 24 香港國際航空學院
- 25 香港能仁專上學院

- 26 Hong Kong Shue Yan University
- 27 Hotel and Tourism Institute
- 28 International Culinary Institute
- 29 Integrated Vocational Development Centre
- 30 Hong Kong Institute of Vocational Education
- 31 Lingnan University - Lingnan Institute of Further Education
- 32 Maritime Services Training Institute
- 33 MTR Academy
- 34 Institute of Professional Education and Knowledge
- 35 Pro-Act Training and Development Centres
- 36 School for Higher and Professional Education
- 37 Shine Skills Centre
- 38 The Chinese University of Hong Kong – School of Continuing and Professional Studies
- 39 The Hang Seng University of Hong Kong
- 40 The Hong Kong Polytechnic University – Hong Kong Community College
- 41 The Hong Kong Polytechnic University – School of Professional Education and Executive Development
- 42 The Open University of Hong Kong – Li Ka Shing School of Professional and Continuing Education
- 43 The University of Hong Kong – HKU School of Professional and Continuing Education
- 44 The University of Hong Kong – HKU SPACE Community College
- 45 Technological and Higher Education Institute of Hong Kong
- 46 Towngas Engineering Academy
- 47 Tung Wah College
- 48 Vocational Training Council
- 49 YMCA College of Careers
- 50 Youth College

Note: Many of these providers offer various types of programmes, which including both VPET programmes and other non-VPET programmes such as associate degrees.

Source: (1) HKSAR Government's VPET portal (2018), (2) CTAN-VPET (n.d.), (3) PwC analysis.

- 26 香港樹仁大學
- 27 酒店及旅遊學院
- 28 國際廚藝學院
- 29 匯縱專業發展中心
- 30 香港專業教育學院
- 31 嶺南大學 —— 嶺南大學持續進修學院
- 32 海事訓練學院
- 33 港鐵學院
- 34 高峰進修學院
- 35 卓越培訓發展中心
- 36 才晉高等教育學院
- 37 展亮技能發展中心
- 38 香港中文大學專業進修學院
- 39 香港恒生大學
- 40 香港理工大學香港專上學院
- 41 香港理工大學專業進修學院
- 42 香港公開大學李嘉誠專業進修學院
- 43 香港大學 —— 香港大學專業進修學院
- 44 香港大學 —— 香港大學附屬學院
- 45 香港高等教育科技學院
- 46 中華煤氣工程學院
- 47 東華學院
- 48 職業訓練局
- 49 青年會專業書院
- 50 青年學院

附註：這些機構中有很多提供各種類型的課程，包括職專教育課程和其他非職專教育課程，例如副學士學位。

資料來源：(1) 香港特別行政區政府的職專教育網站 (2018)、(2) CTAN-VPET (無日期)、(3) 羅兵咸永道分析

A.6 Limitations of the economic impact assessment

Several challenges and limitations were encountered when conducting this Analysis.

- In order to quantify the productivity enhancement of the graduates owing to the VPET programmes offered by the VPET providers, the calculation requires a full set of graduate numbers from all the VPET providers by types of qualification as well as the incremental salaries of VPET students by types of qualification compared with that of those secondary school students who do not attend post-secondary education. However, there is a lack of such comprehensive set of data and information on VPET graduates and their earnings.
 - In terms of graduate numbers, the data provided only has the full set of graduate numbers from the VTC covering all disciplines and award-bearing programmes for the entire period from 1983/84 to 2018/19. However, for the other VPET providers, the analysis can only refer to the CSPE database for the graduate numbers from 2012/13 onwards and the 2014 Task Force on the Review of Self-financing Post-secondary Education for the higher diploma graduate number from 2003/04 to 2015/16, because these are the most comprehensive data sources that could be identified. However, the graduate numbers from other VPET providers from 1983/84 to 2002/03 are not available even in these two sources. In data collection process, only partial discrete cumulative graduate numbers are acquired from other VPET providers through stakeholder consultations. Thus, the graduate numbers used for the economic impact assessment are not inclusive of all VPET graduates over the last 35 years.
 - For assessing VPET's impact on productivity enhancement, the calculation would require statistics on wages by different types of VPET qualifications in Hong Kong, namely diploma/certificate, higher diploma, top-up degree and degree. However, such detailed wage information is not publicly available. The information provided in C&SD regarding the salary information for employees with sub-degree, which include associate degree and higher diploma, does not provide the full narrative of this economic factor. Therefore, due to data unavailability, the results should be interpreted with care.
- To assess the economic benefits generated from VPET providers, the analysis would need a full set of financial data such as operational profits and salary expenses of all VPET providers in Hong Kong. However, there is limited financial information publicly available for VPET providers apart from the VTC. Thus, the assumptions on salary expenses based on the number of staff of other VPET providers and assume other VPET providers make zero operational profits, using a conservative estimate.
- To assess the contribution of VPET graduates to the workforce in different industries in Hong Kong, the analysis would require information on the current employment status of VPET graduates and the industries that they are currently engaged in to pinpoint the impacts of VPET. However, since there is a lack of such data and information, the analysis could only construe an assumption that most of the VPET graduates are engaged in the industries relevant to the disciplines they studied in.

A.6 經濟評估的限制

以下是在進行本研究時遇到的一些挑戰和限制。

- 為了量化職專教育機構開辦的課程所提升的生產力，本研究需要所有職專教育機構按資歷類別劃分的畢業生數目，以及與沒有接受專上教育的中學生相比的增薪數字。然而，本研究目前還缺乏關於職專教育畢業生及其收入的全面數據和資訊。
 - 畢業生人數方面，本研究只能從VTC收集到1983/84至2018/19年度涵蓋所有學科和學歷頒授課程的畢業生人數，然而，就其他職專教育機構而言，本研究只能參考自資專上教育委員會數據庫中2012/13年度及以後的畢業生人數，以及2014年自資專上教育檢討專責小組中2003/04至2015/16年度的高級文憑畢業生人數。但是，卻沒有1983/84至2002/03年度職專教育的畢業生人數。本研究只能透過諮詢持份者的意見，向其他職專教育機構收集一些零散的畢業生人數。因此，經濟影響評估所使用的畢業生人數並不包括過去35年間所有職專教育的畢業生。
 - 為了評估職專教育對提高生產力的影響，本研究需要統計香港不同的職專教

育資歷（即文憑/證書、高級文憑、銜接學位和學士學位）可取得的薪酬。然而，不同職專教育資歷的詳細薪酬未有公開提供。本研究只能使用政府統計處為僱員提供的薪酬資料，包括副學位內的副學士和高級文憑。因此，由於數據並不詳盡，應謹慎闡釋結果。

- 本研究需要一套完整的財務數據，才可以評估由職專教育所帶來的經濟效益，例如香港所有職專教育機構的經營利潤和薪酬開支。然而，除了VTC外，職專教育機構的公開財務資料有限。因此，根據其他職專教育機構的員工數量對薪酬開支進行假設，本研究採用較保守估計，假設其他職專教育機構的經營利潤為零。
- 為評估職專教育畢業生對香港不同行業工作人口的貢獻，本研究需要有關職專教育畢業生目前的就業情況和他們現時從事的行業的資料，以衡量職專教育的影響。但是，由於缺乏這些數據和資料，本研究只能假設大部分的職專教育畢業生都從事與所學專業相關的行業。

A.7 Supplementary information on international benchmarking

The governance structure of Technical and Vocational Education and Training (TVET) in Mainland China is similar to that in Singapore, while different from that in Switzerland and Australia.

In Mainland China, the development of TVET is mainly guided by the Ministry of Education and the Ministry of Human Resources and Social Security at the national level (Figure A-8). The Central Government and the Ministry of Education are responsible for overall planning and inter-ministerial coordination, drafting legislations, providing policy guidelines and directions. The local and municipal Government departments and bureaux at the provincial level are responsible for the execution of these policies and supervision of TVET institutes in the respective provinces and municipals.

The department of Vocational and Adult Education under the Ministry of Education is to provide overall strategic directions and formulating policies on TVET development. The Central Institute for Vocational and Technical Education is a research institute providing advice and conducting research on policy, curriculum development, improvement on teaching capacity and delivery for the Ministry of Education.

The Modern Vocational Education Development Strategy 2014 – 2020 outlines the Central Government's strategy to decentralised TVET and provides more autonomy and financial flexibility on TVET development for the provincial governments. This means that local Governments adopt the central guidelines as appropriate based on the local contexts, in terms of curriculum design, cooperation with local industries and student admission policy.

A.7 國際基準

中國內地的職業技術教育和培訓的管理結構與新加坡相似，但卻與瑞士和澳洲不同。

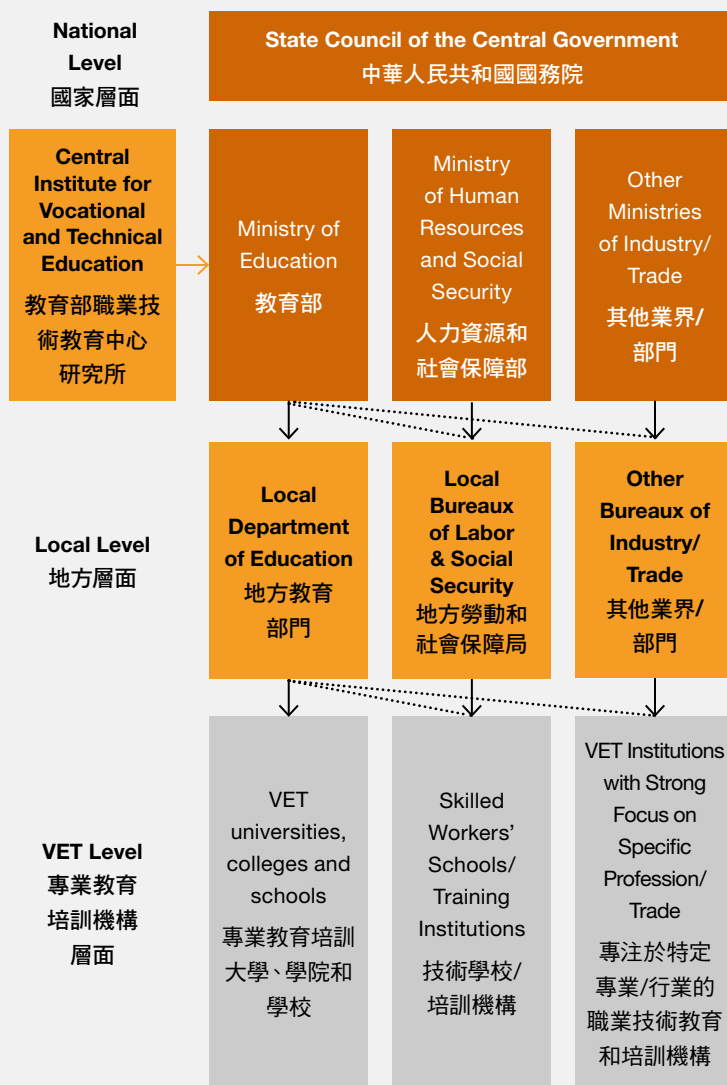
在中國內地，職業技術教育和培訓的發展主要由教育部及人力資源和社會保障部在國家層面進行指導（圖A-8）。中央政府和各部委負責整體規劃和部際協調，起草立法，提供政策方針和方向。省政府、市政府和各廳局負責執行這些政策，並對省市的職業技術教育和培訓機構進行監督。

教育部屬下的職業教育與成人教育司負責為職業技術教育和培訓的發展提供總體計劃指導和制定政策。教育部職業技術教育中心研究所是一個研究機構，為教育部提供有關政策、課程開發、提高教學能力和授課方式的諮詢和研究。

《2014-2020年現代職業教育體系建設規劃》概述了有關職業技術教育和培訓計劃方面，中央政府為省政府提供了更多的職業技術教育和培訓發展的自主權和財政靈活性。地方政府可以根據本地情況，在課程設計、與本地產業合作、招生政策等方面適當採用中央的指導方針。

Figure A-8: Administration of Vocational Education and Training in Mainland China

圖A-8：中國內地職業技術教育和培訓



Source: Guo and Lamb (2010)

資料來源：Guo and Lamb (2010)

The VET in Switzerland is collectively delivered by three parties, including the a) Confederation, b) the cantons and c) professional organisations (including Trade associations/ branch organisations, social partners and companies). This public-private partnership ensures quality delivery and consistency of VPET by involving parties from public and public sectors at the national level and canton level. At the national level, the State Secretariat for Education, Research and Innovation (SERI) is the overarching body mainly responsible for the strategic management and development of VET, supervision and enactment of VET ordinances, development of VET programmes and establishing regulations for the Federal Vocational Baccalaureate. SERI works in close collaboration (as indicated in Figure A-9 below) with the 26 Cantons and professional organisations for the development of vocational education and training.

瑞士的職專教育課程由三方共同實施，包括：(a) 聯邦制、(b) 各個小行政區、和(c) 專業組織（包括行業協會/分支組織、社會伙伴和企業）。這種公私營合作關係使國家和地方的公共機構和部門都參與其中，確保了職專教育的質量和一致性。在國家層面，瑞士聯邦教育科研與創新國務秘書處主要是負責專業教育培訓的課程管理和發展、監督和頒佈專業教育培訓法令、制定專業教育課程以及為聯邦職業文憑設立規定。瑞士聯邦教育科研與創新國務秘書處與26個州和專業機構緊密合作（如下圖A-9所示），並共同發展職業教育和培訓。

Figure A-9: Major stakeholders for the development of VPET in Switzerland

圖A-9：瑞士發展專業教育和培訓的主要持份者



Source: (1) SERI (2020), (2) PwC analysis

資料來源：(1) 國家教育、科研與創新秘書處 (2020)、(2) 羅兵咸永道分析

In Australia, the Ministerial Council of Tertiary Education and Employment (MCTEE) in Australia is a key decision-making body responsible for the development of Higher Education, Vocational Education and Training (VET), International Education, Adult and Community Education, the Australian Qualifications Framework (AQF), employment and youth in higher education (Figure A-10). Supported by a number of councils on various aspects, such as skills requirements, training standards, equity and innovation specific to VET, MCTEE coordinates the development of VET and harmonises it with the entire higher education sector, as well as allocates national funds for higher education.

在澳洲，高等教育與就業部長委員會是一個重要的決策機構，負責高等教育、職業教育和培訓、國際教育、成人社區教育、澳洲學歷資歷框架、就業和青年高等教育的發展（圖A-10）。在專業教育培訓的技能要求、培訓標準、公平和創新等各方面的理事會支持下，高等教育與就業部長委員會協調專業教育培訓的發展，使其與整個高等教育部門相協調一致，並為高等教育分配資源。

Figure A-10: Major stakeholders for the development of TVET in Australia

圖A-10：澳洲發展職業教育與培訓的主要持份者



Source: (1) iVET (n.d.), (2) PwC analysis

資料來源：(1) iVET (無日期)、(2) 羅兵咸永道分析

VET in Germany

Popularity of VET

The VET in Germany is one of the most well-established VET systems around the world and VET is widely accepted nationally. At the secondary level, around half of upper secondary students are enrolled in VET. Over two-third of these VET secondary students pursue apprenticeship programmes and less than one-third pursue school-based VET (BIBB, 2020). VET graduates are highly employable with the employment rate increased to 90% in 2019, which reflects that VET is widely recognised by the employers in Germany (Cedefop, 2020).

Articulation pathways

The articulation pathways for VET students are diverse in Germany at the secondary, post-secondary and even tertiary level. Students after completion of the 9-year compulsory general education have to choose either general or vocational education. Students on the VET pathway after attaining occupational qualifications are able to articulate to pursue degree or above qualifications at UAS or vocational academies. Some choose to study advanced vocational programmes offered in trade and technical schools or pursue advanced vocational qualifications, being certified as professional specialists, bachelor professionals (i.e. master craftspersons, specialists) or master professionals (i.e. managers and experts), after passing relevant examinations. These advanced vocational qualifications are recognised nationally at the tertiary level equivalent to academic qualifications (Cedefop, 2020). For some programmes, a vocational qualification is recognised as an official entrance qualification for students to study at UAS.

Funding model

Vocational schools and UAS are mainly funded by the Federal Government, the state governments and local authorities (European Union, n.d.b). In 2017, the public expenditure on vocational education was nearly EUR 25 billion (Federal Ministry of Education and Research of Germany, 2019). The government is also supportive of private corporations providing their own in-company vocational training programmes. The companies offering practical training normally bear the costs of training and pay for the remuneration of apprentices.

德國的職業教育和培訓

職業教育和培訓的普及

德國的職業教育和培訓是世界上最完善的體系之一，在全國被廣泛接受。在中學階段，約有一半的高中生參與職業教育和培訓。在這些接受職業教育和培訓的中學生中，有超過三分之二參加學徒課程，其他的則在學校進行職業教育和培訓（德國聯邦職業教育局，2020年）。職業教育畢業生的就業率很高，2019年就業率上升至90%，反映出職業教育和培訓在德國得到了僱主的廣泛認可（歐洲職業培訓發展中心，2020年）。

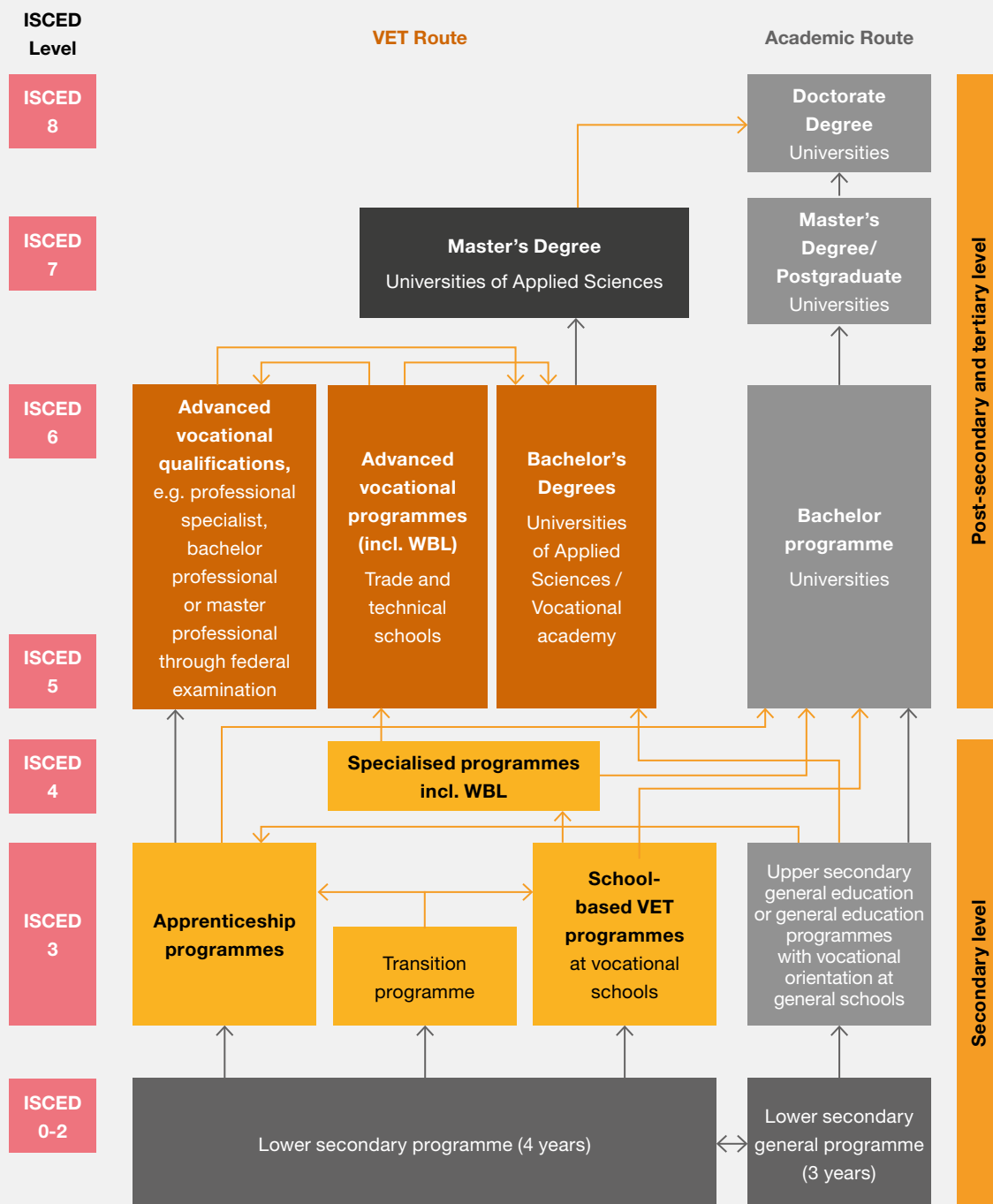
銜接途徑

在德國，職業教育和培訓銜接途徑在中學至大專階段都是多樣化的。學生在完成9年普通義務教育後，必須選擇普通教育或職業教育。職業教育和培訓的學生在取得職業資格後，可以銜接到應用科學大學或職業學院攻讀學士學位或以上課程，或選擇學習行業和技術學校提供的高級職業課程，追求高級職業資格。在通過相關考試後，會被認證為專門人員、學士（即工藝大師、技術員）或碩士（即主管和專家）。這些高級職業資格在全國被認可為高等教育學歷（歐洲職業培訓發展中心，2020）。在某些課程，職業資格證書亦被認可為應用科學大學的正式入學資格。

資助模式

職業學校和應用科學大學主要由聯邦政府、州政府和地方政府資助（歐洲聯盟，無日期b）。2017年，職業教育的公共支出接近250億歐元（德國聯邦教育及研究部，2019年）。政府還支持私營企業提供內部職業培訓計劃。提供實習培訓的企業通常會承擔培訓費用，並支付學徒的薪酬。

Figure A-11: Education system in Germany



Legend: → represents transition across different pathways → represents progression on the same pathway

Note: (1) ISCED is the reference international classification for organising education programmes and related qualifications by levels and fields.

(2) WBL denotes work-based learning

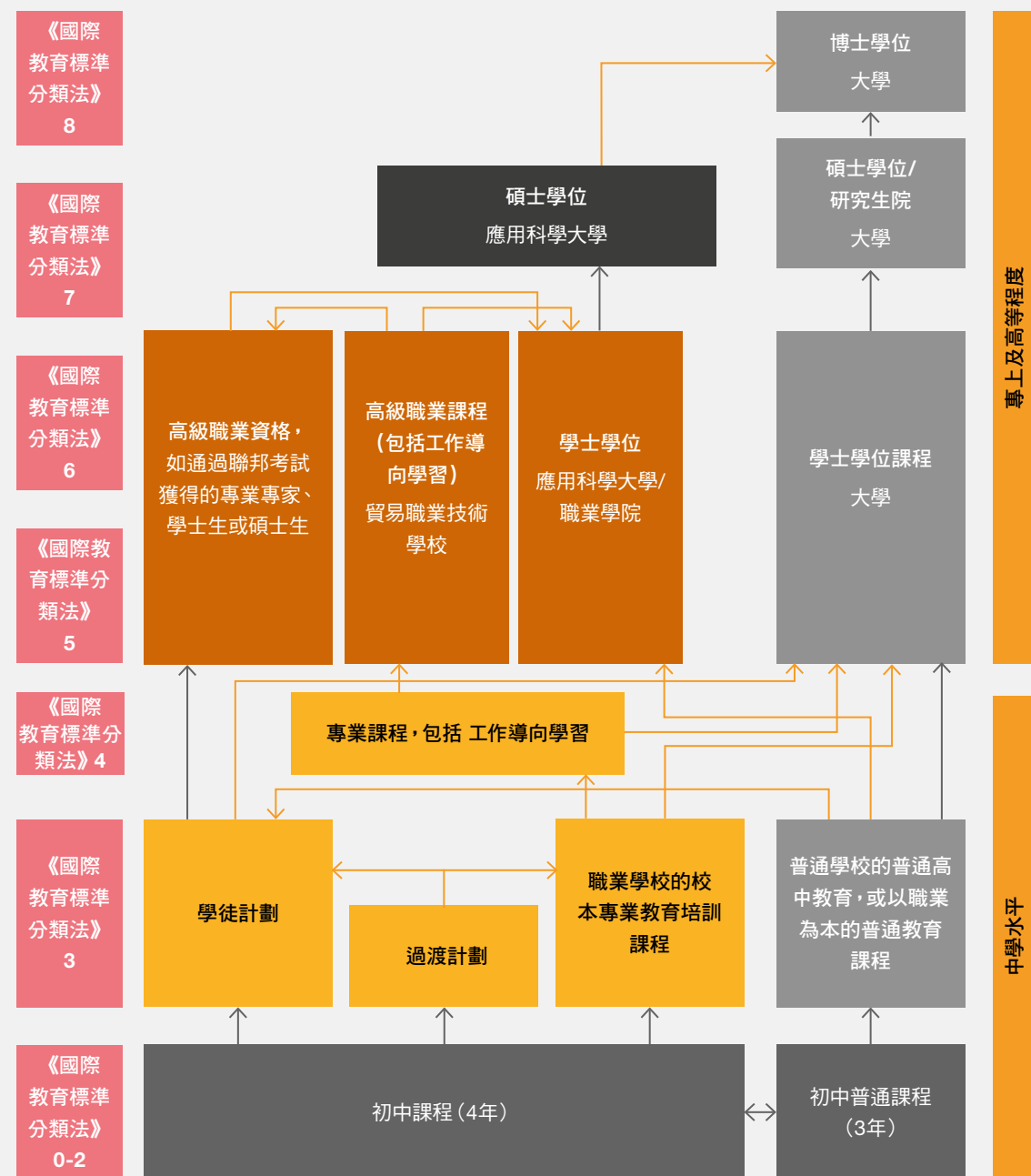
Source: (1) OECD (2020), (2) Cedefop (2020), (3) PwC Analysis

圖A-11：德國的教育系統

《國際教育標準分類法》等級

職業教育途徑

學術途徑



圖例： → 代表不同途徑的升學

→ 代表在同一途徑升學

註：(1)《國際教育標準分類法》是按等級和領域組織教育課程和相關資格證書的國際參考分類法。

(2) 工作導向學習表示基於工作的學習

資料來源：(1) 經濟合作暨發展組織 (2020)、(2) 歐洲職業培訓發展中心 (2020)、(3) 羅兵咸永道分析

VET in Mainland China

Popularity of VET

In 1985, the Government started expanding vocational education, especially at the secondary level to facilitate the increasing demand for a technical and skilled workforce for its economic growth, especially for the development of its manufacturing and other trade sectors. Mainland China operates the largest VET system in the world, with 15.8 million enrolled students at the secondary level, accounting for around 40% of upper-secondary students were enrolled in VET programmes, and 30.3 million enrolled VET students at the higher education level, representing around 42% of total enrolled students receiving higher education. The employment rates of VET students were high at over 95% consistently for secondary VET graduates and over 92% for VET graduates at the higher education level in 2017 (Ministry of Education of the PRC, 2019b).

Articulation pathways

Vocational programmes are provided across a range of secondary schools and tertiary institutions. Students can start to take the vocational training pathway as early as completing their six-year primary education at the age of 12, or take the technical and vocational training pathway after they finish the 12-year compulsory education at the age of 15. Upon completion of secondary education, these VET students can pursue higher technical vocational education. Many of those who take the conventional academic secondary education pathway progress to academic degree education or short-cycle education courses. The Government is implementing a vocational education scheme, allowing students enrolled in Vocational High Schools / Specialised Schools or Skilled Workers' Schools to pursue further studies similar to those who go through the National College Entrance examination, "Gaokao".

Funding model

The Government's funding in vocational education at the secondary level and higher education level amounted to RMB 502 billion, which accounts for 10% of total government funding in education in 2019 and increased by nearly 9% from 2018 (Ministry of Education of the PRC, 2020b). The tuition fee of the students receiving vocational education as part of their 9-year compulsory education is fully subsidized by the Chinese Government. For non-compulsory education, including vocational education, the Chinese Government adopts "training cost sharing mechanism" - the costs are mainly covered by the Government, the remaining parts are shared by the students or covered by other sources (Ministry of Education of the PRC, 2020c).

中國內地的職業教育和培訓

職業教育和培訓的普及

1985年，為滿足因經濟增長——尤其是製造業和其他商貿行業的發展——對技術人才的需求，中國政府於中學階段層面開始拓展職業教育和培訓。中國內地擁有世界上最大的職業教育和培訓體系。在高中階段的1,580萬名在校生當中，約40%人就讀職業教育和培訓課程。在高等教育階段的3,030萬名在校生當中，約42%人就讀職業教育和培訓課程（專科）。2017年，中等職業教育和培訓畢業生就業率保持在95%以上，高等職業教育和培訓畢業生就業率則超過92%（中華人民共和國教育部，2019b）。

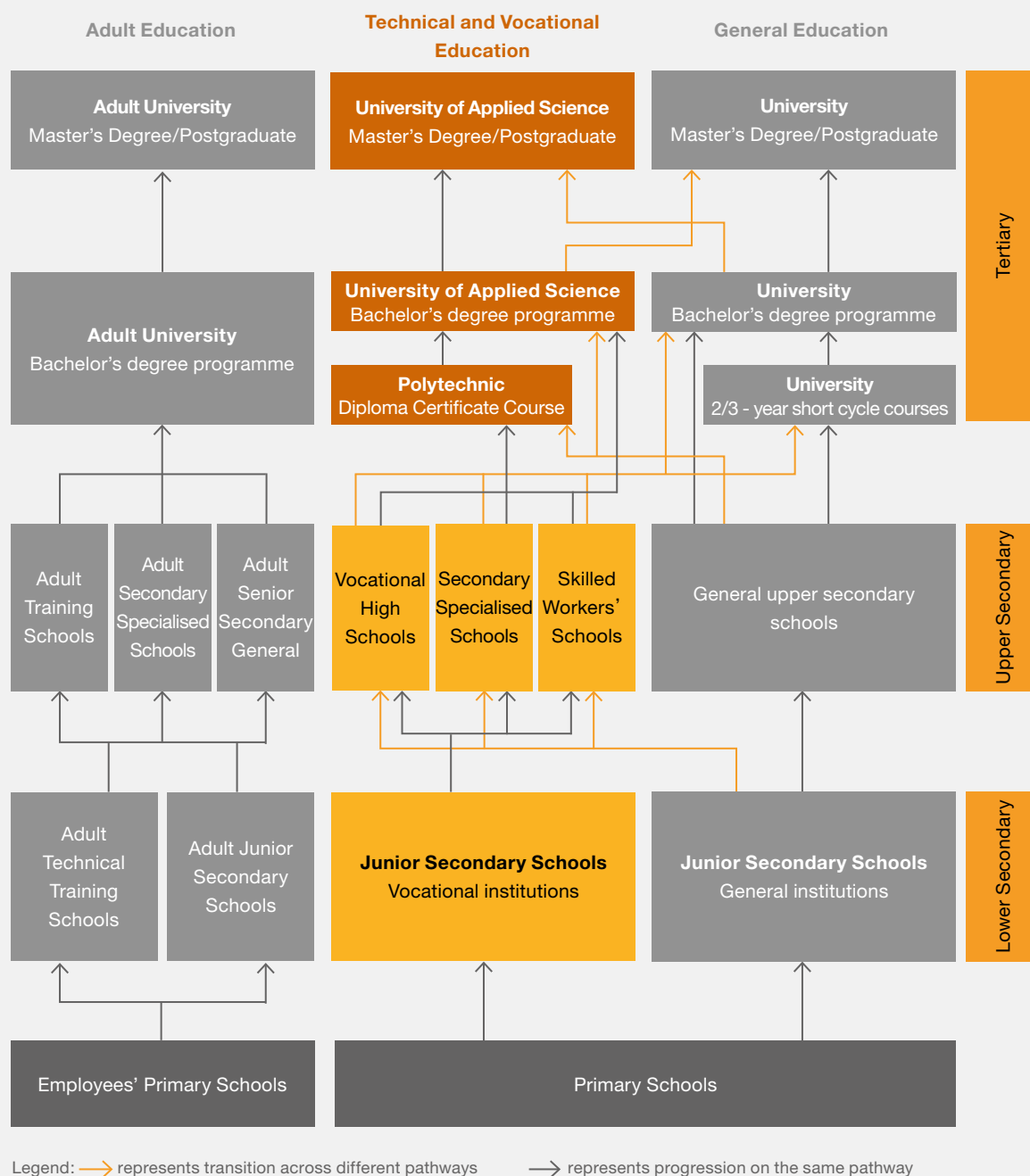
銜接途徑

中學和高等教育院校都開設了職業教育和培訓課程。學生最早可以在12歲完成六年小學教育後開始入讀，也可以在15歲完成十二年義務教育後接受技術和職業培訓。對於那些接受傳統中學教育的學生，很多都會升讀普通學位或短期課程。中國內地政府正在實施職業教育和培訓計劃，允許就讀於職業高中/專業學校或技術工人學校的學生繼續升學，類似通過「高考」升學的學生。

資助模式

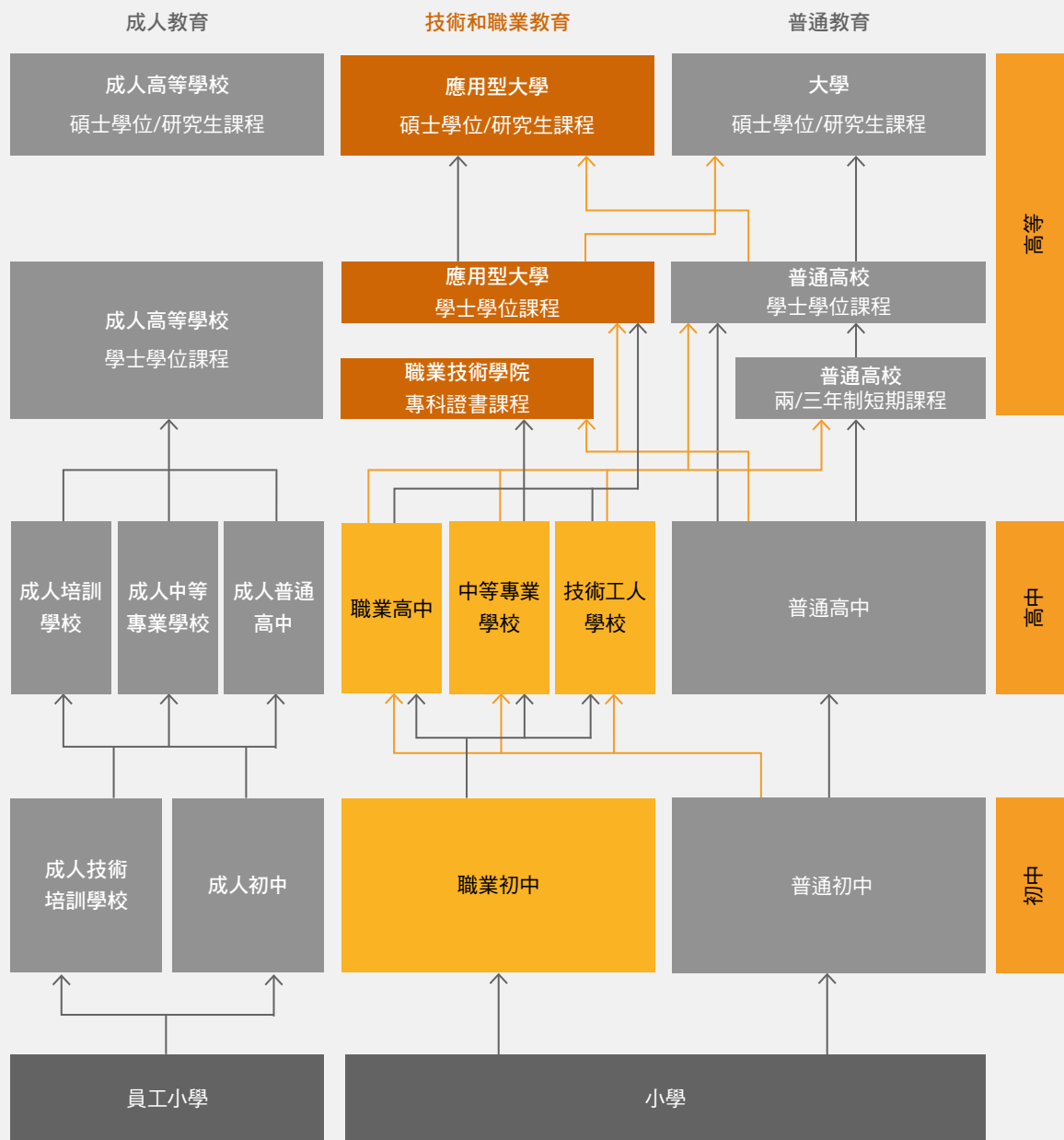
政府對中等職業教育和高等職業教育經費為人民幣5,020億元，佔2019年政府教育經費總額的10%，比2018年增長近9%（中國教育部，2020年b）。在九年義務教育中選擇職業教育學生的學費由政府全額補貼。至於非義務教育（包括職業教育），政府採用“非義務教育培養成本分擔機制”——由政府承擔主要費用，其餘部分由學生承擔或由其他來源資助（教育部2020年c）。

Figure A-12: Education system in Mainland China



Source: (1) Guo and Lamb (2010), (2) State Council of the People's Republic of China (PRC) (2019), (3) PwC Analysis

圖A-12：中國內地的教育制度



圖例： —→ 代表不同途徑的升學

—→ 代表在同一途徑升學

資料來源：(1) Guo and Lamb (2010)、(2)中華人民共和國國務院 (2019)、(3) 羅兵咸永道分析

VPET in Switzerland

Popularity of VET

Switzerland's VET has played an important role in helping Switzerland score the second highest GDP per capita in the world. Over two-third of young graduates from lower secondary education undertake VET prior to entering the Swiss workforce making the country one of the leading global exemplars of VPET. A substantial cross-section of students in Switzerland (64%) opt for the VET stream enrolling either in a shortened or standard dual-track VET programme integrating classroom learning and workplace training (SERI, 2020). After completing compulsory schooling in Switzerland, 55% of the students enroll to VET programmes for further education, either pursuing the 2-year Federal VET Certificate or the Federal VET Diploma which takes three to four years (SERI, 2020). While VET is provided at the upper secondary level, professional education is provided at the tertiary level. Tertiary-level professional qualifications holders earn 30% more than those holding upper secondary level vocational qualifications on average.

Articulation pathways

VET in Switzerland adopts a dual system approach in delivery VET, such as apprenticeships, vocational school education. Apprenticeships typically take 3 to 4 years to complete with a federal diploma or certificate on passing a federal examination. VET students who wish to continue their study can choose to obtain the Federal Vocational Baccalaureate (FVB). Passing the FVB allows students to enroll into one of the Swiss UAS without having to go through an entrance exam. FVB holders can also prepare for the University Aptitude Test (UAT) to enroll in a cantonal university or federal institute of technology.

Funding model

As for the public funding of the Swiss VET system, the States contribute three-fourth of the funding while the confederations pay for the remaining quarter. There is also funding provided by professional organisations to cover the costs for providing apprenticeship trainings and the apprentices' salaries.

瑞士的職業教育和培訓

職業教育和培訓的普及

2020年瑞士取得世界第二高的人均生產總值，其職業教育和培訓發揮了重要作用。三分之二以上的初中畢業生在進入職場前都接受了職業教育和培訓，使瑞士職業教育和培訓成為全球典範之一。瑞士有很大部分學生（64%）選擇參加短期或標準的雙軌制職業教育和培訓課程，將課堂教學與職場培訓相結合（瑞士聯邦教育科研與創新國務秘書處，2020）。學生完成義務教育後，55%會參加職業教育和培訓以繼續接受教育，當中包括修讀聯邦職業教育培訓的兩年制證書，或三至四年制的文憑（瑞士聯邦教育科研與創新國務秘書處，2020）。此外，職業及專業教育分別於高中及大專院校提供。一般而言，完成專業教育的畢業生平均收入會比高中畢業生高30%。

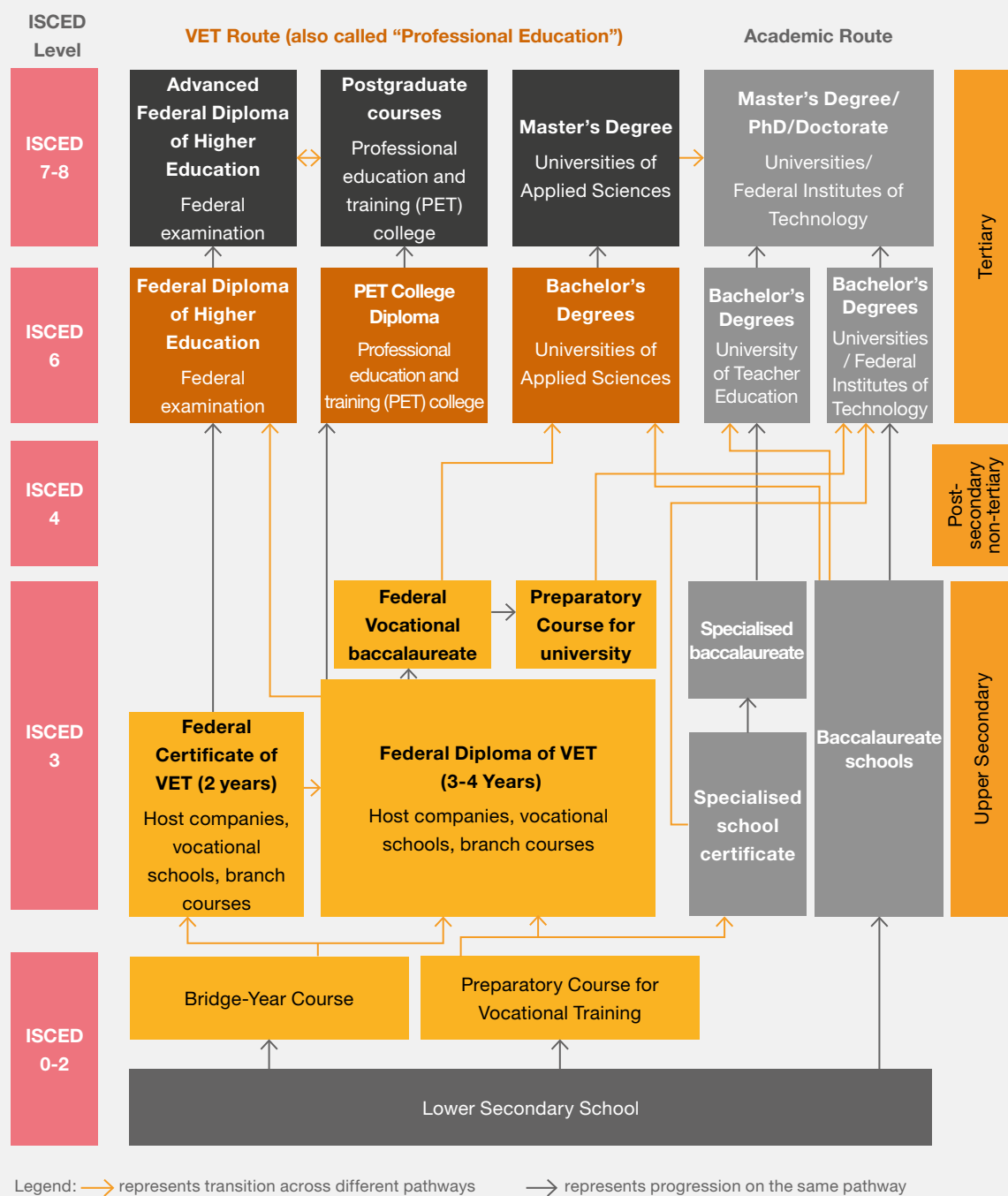
銜接途徑

瑞士的職業教育和培訓採用雙軌制，包括學徒制和課堂職業培訓。學徒制一般需要三至四年才能完成，通過聯邦考試後可獲得聯邦文憑或證書。職業教育和培訓的學生如果想繼續進修，可以選擇考取聯邦職業文憑。通過聯邦職業文憑試的學生可以直接進入瑞士的應用科學大學，或通過大學入學測試進入州立大學或聯邦技術學院。

資助模式

瑞士的職業教育是由各州提供四分之三的資金，而聯邦則支付餘下的資金。此外，還有專業機構提供私人資助，為學員提供學徒培訓計劃，並向他們支付薪金。

Figure A-13: Education system in Switzerland



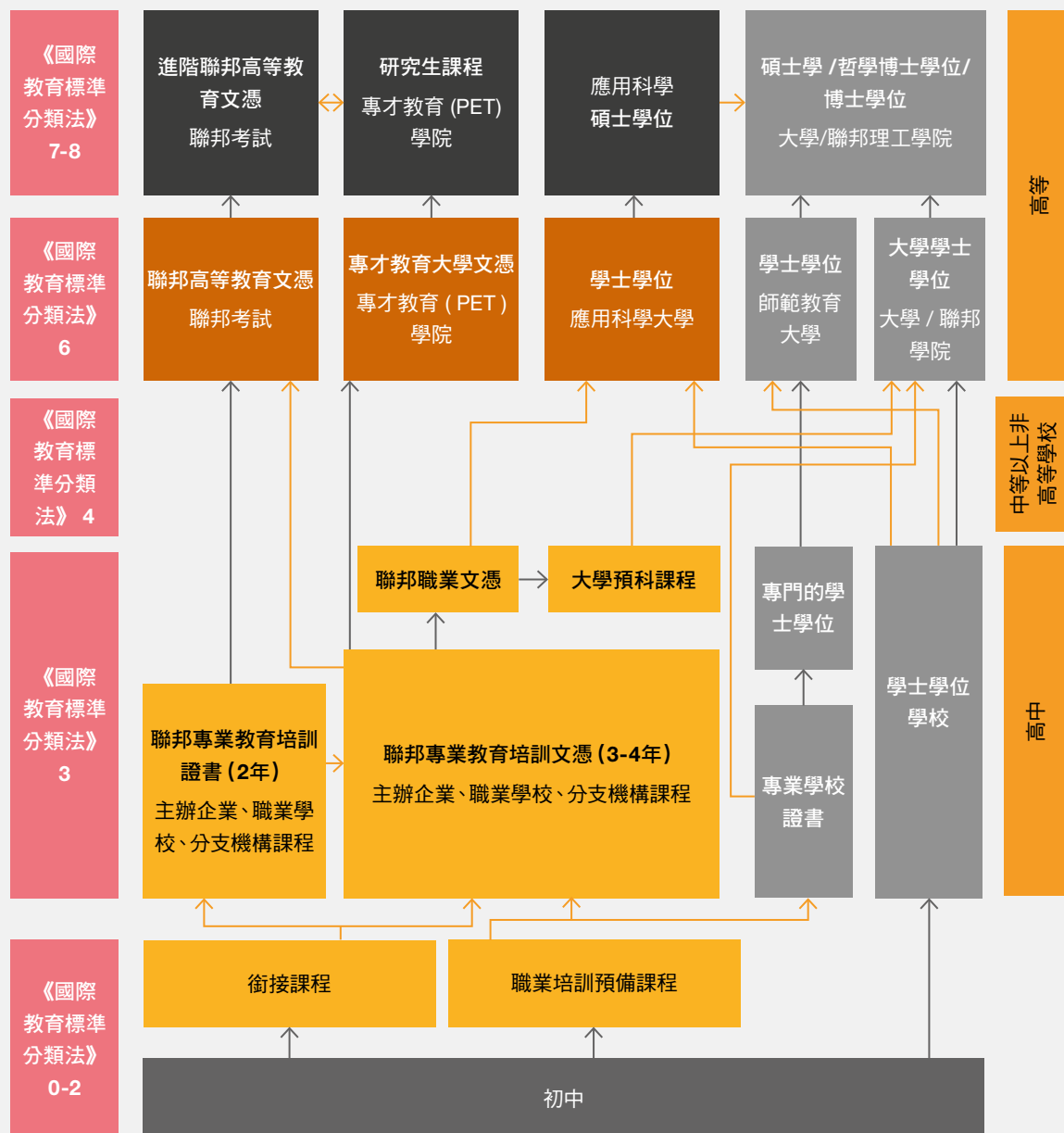
Source: (1) OECD (2020), (2) PwC Analysis

圖A-13：瑞士的教育系統

《國際教育標準
分類法》等級

職業教育途徑 (亦稱為「專業教育」)

學術途徑



圖例： → 代表不同途徑的升學

→ 代表在同一途徑升學

資料來源：(1) 經濟合作暨發展組織 (2020)、(2) 羅兵咸永道分析

VET in Finland

Popularity of VET

VET plays a key role in promoting economic competitiveness in Finland as the future labour market requires versatile vocational skills coupled with constant renewal of competencies by way of upskilling/reskilling existing workforce. Currently the highest workforce receiving VET are in these three sectors - human health, social work, manufacturing, the wholesale and retail trade. In 2019, 60.3% of upper secondary graduates hold a vocational qualification.

Articulation pathways

Finland's present VET strategy reflects its holistic approach to lifelong learning, as demonstrated by its competence-based approach. The Finnish education allows opportunities to holders of both general and vocational upper secondary qualifications to pursue higher education. The universities of applied sciences (UAS), known as the Finnish polytechnics, support vocational qualifications or foreign studies. The UAS offers a systematic pathway for vocational graduates to pursue higher education at a UAS within two years of their graduation. Graduates of vocational qualifications in Finland are all qualified to apply for higher education, that consists universities and UAS. However, not many VET graduates choose to continue studies right after their studies.

Funding model

Both public and private VET providers receive government subsidies (~97% of funding) and private funding (~2.6% of funding). The new funding system introduced from the beginning of 2018 will allocate funds on the basis of (i) core activities, (ii) performance, (iii) effectiveness and (iv) strategy development.

芬蘭的職業教育和培訓

職業教育和培訓的普及

芬蘭透過職業教育和培訓提高/再培訓現有人力的技能，從而應對未來就業市場的多元需要，及促進經濟競爭力。目前，工作人口最高的四個行業分別是：人類健康、社會工作、製造業、批發和零售業。於2019年，60.3%高中畢業生具職業資歷。

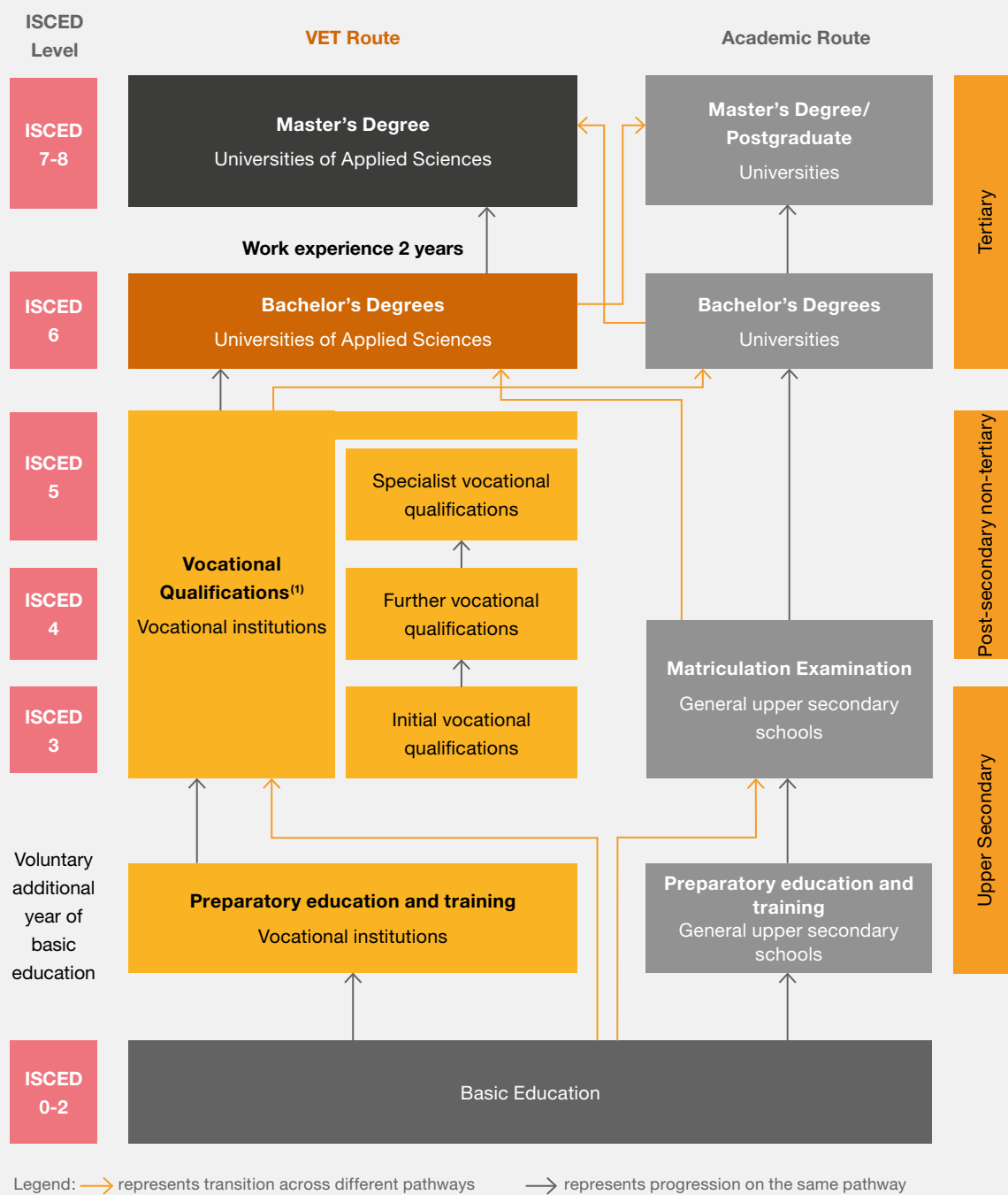
銜接途徑

芬蘭的職業教育和培訓計劃，採用以能力為基礎的終身學習策略。其教育制度容許學生同時獲得普通和職業高中資歷。完成職業高中後，畢業生可在兩年內進入應用科學大學（亦被稱為芬蘭理工學院）以獲得職業或外國資歷，或申請大學以接受高等教育。然而，並不多職業教育畢業生會選擇立即繼續升學。

資助模式

公立和私立職業教育和培訓機構都得到了政府補貼（約97%的資金）和私人資金（約2.6%的資金）。從2018年初開始實施的資助制度，將根據(i)核心活動，(ii)表現，(iii)效益和(iv)策略發展來分配。

Figure A-14: Education system in Finland



Note: (1) Also available as apprenticeship training or by training agreement.

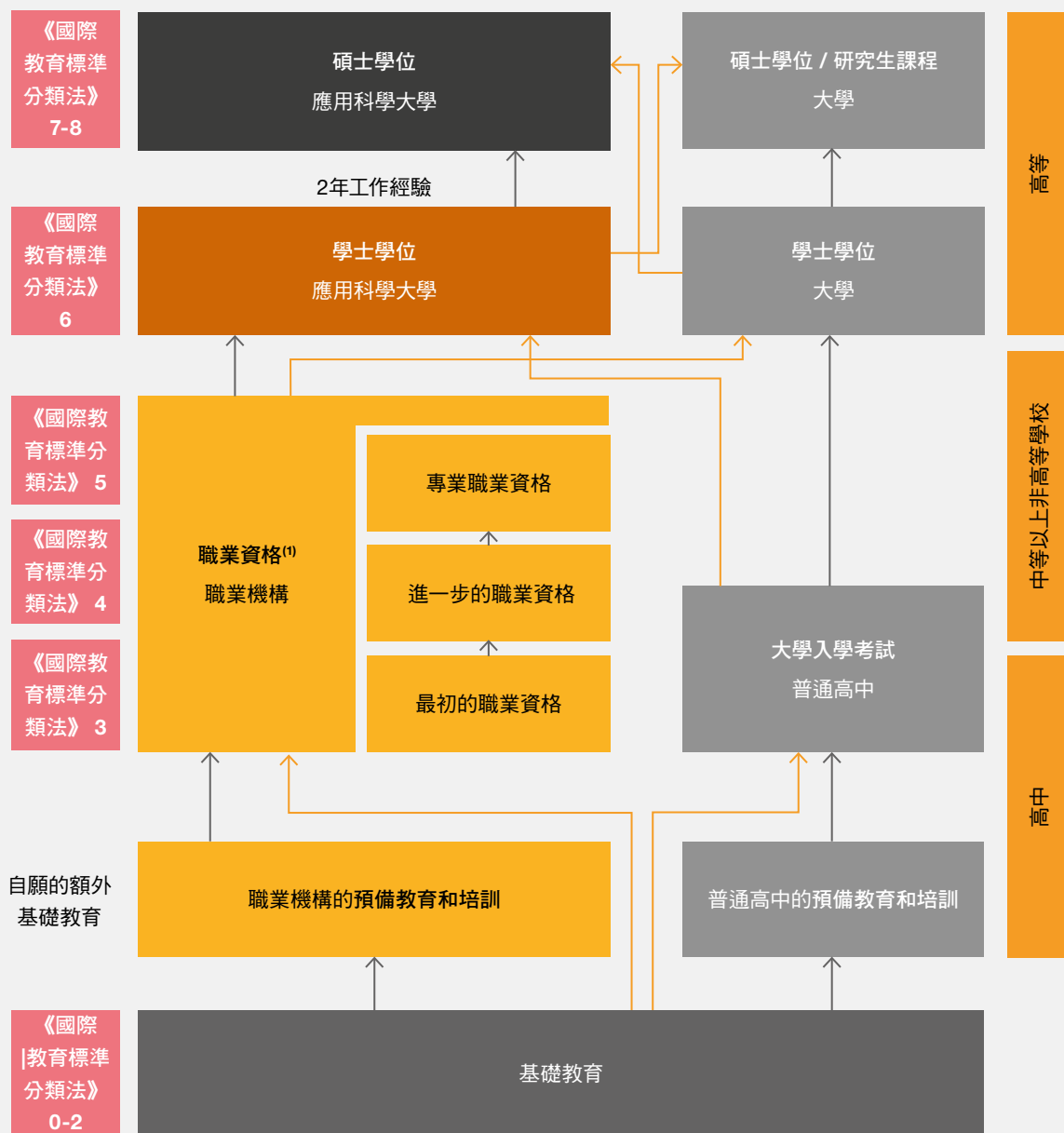
Source: (1) Ministry of Education and Culture in Finland (2019), (2) PwC Analysis

圖A-14：芬蘭的教育系統

《國際教育標準
分類法》等級

職業教育途徑

學術途徑



圖例： → 代表不同途徑的升學

→ 代表在同一途徑升學

註：(1) 亦可以是學徒培訓或簽訂培訓協議。

資料來源：(1) 芬蘭教育及文化部 (2019)、(2) 羅兵咸永道分析

VET in the United Kingdom

Popularity of VET

In the UK, around 200 general further education colleges (including specialist colleges) offer about 60% of further education up to upper secondary level 3, and the rest is provided by private training providers, other sixth form colleges, school sixth forms and publicly funded training providers including local authorities, charities and higher education institutions. Around 44% of UK students choose the vocational training pathway for their upper secondary education. The employment rate of VET programmes at the upper secondary level is above 80%. To prevent owing student loans and subsequent debt, students are showing more interests in degree apprenticeships, which enable them to be employed full-time while studying in universities.

Articulation pathways

Students in UK after finishing the GCSE can choose to take A levels or T levels (new in 2020) for completing upper secondary education and to get into universities. Students can also choose to take the VET route that consists of two pathways. Around 65% of VET students enroll in a college-or school-based system, while the remaining 35% participate in apprenticeships. College-based VET provides an alternative route to bachelor's degree programmes offered by universities whereas apprenticeships are usually undertaken on-site at employers' premises. The school-based component is divided into two parts for students aged 14-16 to take applied GCSEs and for students aged 16 or above to do Vocational Certificate of Education (VCE), a work-related qualification combining a broad area of study with a focus on a specific industry sector. Apprenticeships in UK are considered as jobs that consist 80% of work and 20% of study. Not only the course fee will be covered by employers and the government, learners will be able to earn a salary while pursuing further education.

Funding model

In 2018/19, the spending on each student in further education colleges (£5,900) is higher than that on each student in sixth-form colleges (£4,800) (Institute for Fiscal Studies of the UK, 2019). Companies also support students for doing degree apprenticeships since they are training potential recruits for their companies. They cover all the fees for students so graduates of degree apprenticeships do not owe any tuition-related debt.

英國的職業教育和培訓

職業教育和培訓的普及

在英國，約44%學生選擇在高中階段接受職業培訓，畢業生就業率逾80%。現時，英國約有200所持續教育學院（包括專業學院），提供約60%的高等教育學位給高中畢業生，其餘學位則由私人培訓機構、其他預科學院、學校預科和公費培訓機構（包括地方政府、慈善機構和高等教育機構）提供。此外，因學位學徒能在大學期間全職就業，讓學生避免欠下貸款和往後出現的債務，他們一般對此表現出更大興趣。

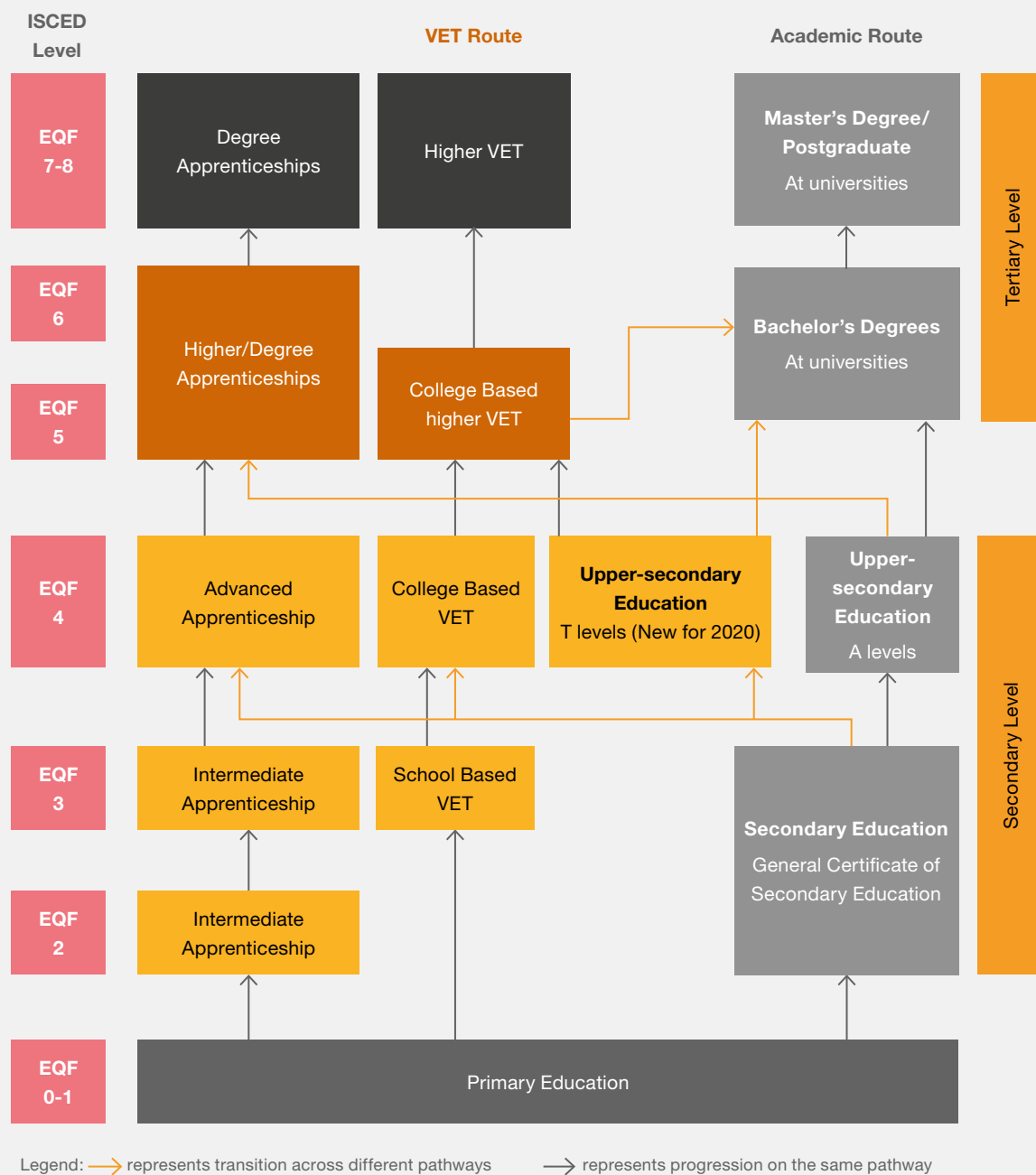
銜接途徑

英國的學生在完成中等教育普通證書後，可選擇通過英國高等程度或技術資格課程（2020年新增）作為高中教育，進入大學。學生也可以選擇另外兩種職業教育和培訓的途徑。現時，大約65%的職業教育學生進入學院或學校系統，而其餘35%的學生則參加學徒制計劃。當中職業教育院校提供進入大學的另一種途徑。學校系統的職業教育課程提供兩類選擇，一是讓14-16歲的學生參加英國應用中等教育普通證書考試，另一類則讓16歲或以上的學生參加職業教育證書課程。而英國的學徒制一般由80%的工作和20%的學習組成。不僅學費由僱主和政府承擔，學員在繼續深造的同時還能賺取薪金。

資助模式

在2018/19年度，持續教育學院每個學生的支出（5,900英鎊）高於六年制學校每個學生的支出（4,800英鎊）（英國財政研究所，2019）。為培養潛在新血，企業也支持學生參加學位學徒制，並承擔了所有費用，因此學位學徒制的畢業生不需擔心與學費有關的債務。

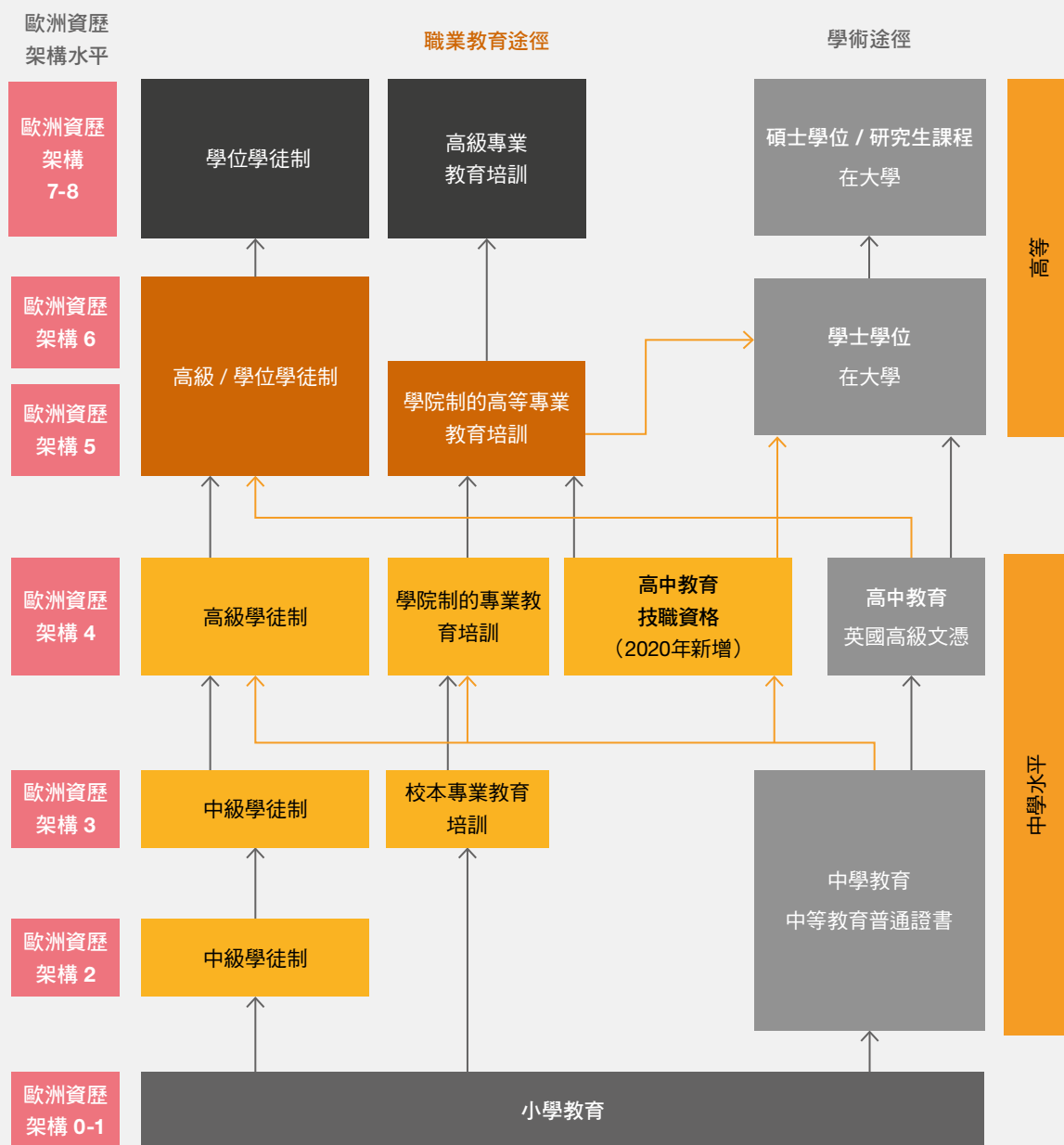
Figure A-15: Education system in United Kingdom



The EQF is an 8-level, learning outcomes-based framework for all types of qualifications that serves as a translation tool between different national qualifications frameworks.

Source: (1) Cedefop (2019), (2) PwC Analysis

圖A-15：英國的教育系統



圖例：↪ 代表不同途徑的升學

→ 代表在同一途徑升學

歐洲資歷架構是一個以學習成果為基礎的8級框架，適用於所有類型的資歷，是不同國家資歷架構之間的一項轉換工具。

資料來源：(1) 歐盟職業訓練發展中心 (2019)、(2) 羅兵咸永道分析

VET in Australia

Popularity of VET

Since the TAFE (Technical and further education) system in the 1990s, nowadays Australia VET has evolved into an established national competence-based system of qualifications that has responded to Australia's evolving economic environment of increased global trade and industry restructuring. The Australian VPET system is also open to people of all ages. 49% of upper secondary students were enrolled in VET.

Articulation pathways

Australia's present VPET strategy is based on a "training packages" that are "fit for purpose" and specifically developed to meet the training needs of specific or groups of industries. The VET offerings fall into four broad categories: (i) short courses, (ii) institutional VPET qualifications, (iii) apprentices and trainees, and (iv) VPET in schools. Across Australia approximately 4.2 million students participated in these forms of VET activities in 2017. Around half of the VET students undertake training in a short course. The remaining students were enrolled in completing an Australian Qualifications Framework (AQF) qualification with students undertaking an institutional VPET qualification, an apprenticeship, traineeship, or school students undertaking VET as part of their secondary certification of education.

Funding model

In 2019, the Australian Government is contributing AUD 2.6 billion while the state and territory governments are contributing AUD 3.7 billion to the VET funding arrangements (NCVER, 2020). Students are expected to pay course fees that range from AUD 4,000 to AUD 22,000 per year but the Australian Government does also offer student loan schemes.

澳洲的職業教育及培訓

職業教育和培訓的普及

自1990年代澳洲公立專科技術學院成立以來，職業教育與培訓已經發展成為一個成熟，並以能力為基礎的國家資格認證體系，以應對全球貿易增長和產業結構改變。在澳洲，任何年紀的人都可以入讀職業教育。其中，49%的高中生入讀了職業教育和培訓。

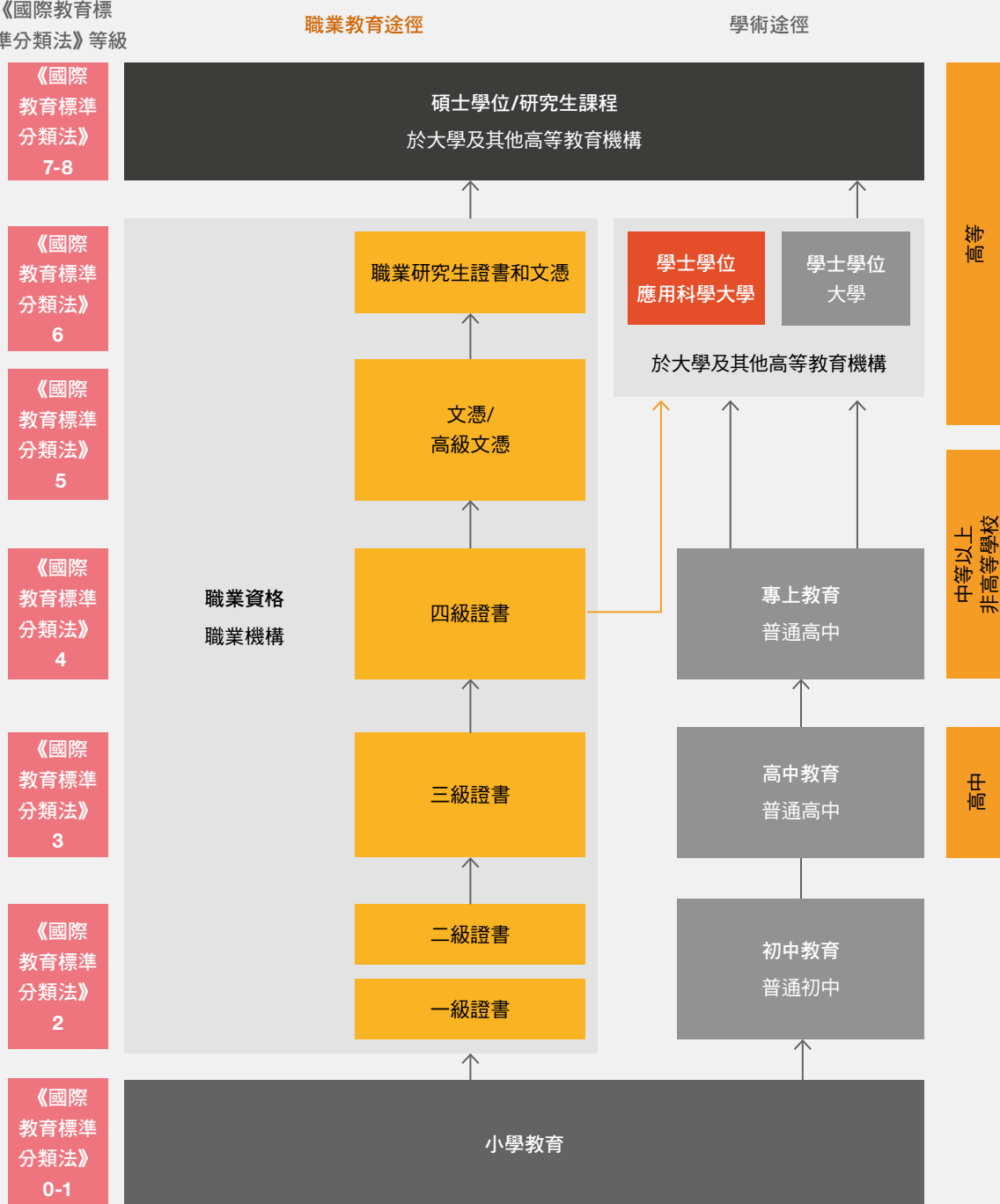
銜接途徑

澳洲目前的職業教育和培訓課程是建立在「目標為本」的培訓計畫基礎上，是專門為滿足特定行業或群體的培訓需求而制定的。職業教育和培訓課程可分為四大類：(i)短期課程，(ii)機構職業教育和培訓資格，(iii)學徒和見習人員，以及(iv)學校職業教育和培訓。2017年澳洲約有420萬學生參加了這些形式的職業教育和培訓。當中接近一半學生參與短期課程，其餘的則參與澳洲學歷資格框架認可的課程，包括機構職業教育和培訓資格、學徒和見習人員和學校職業教育和培訓。

資助模式

在2019年，澳洲政府出資了26億澳元，而各州和地方政府亦出資了37億澳元以支持職業教育和培訓，（澳洲職業教育研究中心，2020）。修讀職業教育和培訓學生需支付每年4,000至22,000澳元不等的課程費用，同時澳洲政府也為學生提供貸款計劃。

圖A-16：澳洲的教育系統



資料來源：(1) 經濟合作暨發展組織 (2020)、(2) 羅兵咸永道分析

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A.11 Abbreviations and acronyms

Abbreviation	Full Form
3D	3 Dimensions
5G	5th Generation Mobile Networks
A Level	General Certificate of Educational Advanced Level
AD	Associate Degree
AI	Artificial Intelligence
AIR	Artificial Intelligence and Robotics
AMEC	Aviation and Maritime Education Centre
APAC	Asia Pacific Accreditation Cooperation
ApL	Applied Learning
AQF	Australian Qualifications Framework
ATC	Air Traffic Control
ATS	Award Titles Scheme
AY	Academic Year
BA	Bachelor of Arts
BBiG	Vocational Training Act
BBA	Bachelor of Business Administration
BEng	Bachelor of Engineering
BIBB	Federal Institute for Vocational Education and Training
BIM	Building Information Modelling
BIMiHub	BIM Innovation Hub
BSc	Bachelor of Science
BSPP	Business-School Partnership Programmes
BTEC	Business & Technology Education Council
C&C	Cultural and Creative
C&SD	Census and Statistics Department
CBA	Cost Benefit Analysis
CBD	Central Business District
CCD	Centre of Communication Design
CCI	Chinese Culinary Institute
CCTI	Chinese Cuisine Training Institute
CDSS	Centre of Design Services and Solutions
Cedefop	European Centre for the Development of Vocational Training

A.11 縮寫和縮略詞

縮寫	全寫
3D	3維
5G	第五代移動網絡
A Level	高級程度會考
AD	副學士學位
AI	人工智能
AIR	人工智能與機械人
AMEC	航空及航海教育中心
APAC	亞太認可合作組織
ApL	應用學習
AQF	澳洲學歷資歷框架
ATC	航空交通管制
ATS	資歷名銜計劃
AY	學年
BA	文學士
BBiG	職業教育法案
BBA	工商管理學士
BEng	工學士
BIBB	聯邦職業教育研究所
BIM	建築信息模型
BIMiHub	建築信息模型創新中心
BSc	理學士
BSPP	商校合作計劃
BTEC	英國商業技術教育委員會
C&C	文化與創意
C&SD	政府統計處
CBA	成本效益分析
CBD	核心商業區
CCD	傳意設計研究中心
CCI	中華廚藝學院
CCTI	中華廚藝學院
CDSS	設計企劃研究中心
Cedefop	歐洲職業培訓發展中心

Abbreviation	Full Form
CEF	Continuing Education Fund
CFE	Committee on the Future Economy
CHC	Chu Hai College of Higher Education
CHD	Cloudera Hadoop Distribution
CIC	Construction Industry Council
CIMT	Centre of Innovative Material and Technology
CITA	Clothing Industry Training Authority
CITAC	Construction Innovation and Technology Application Centre
CityU SCOPE	School of Continuing and Professional Education, City University of Hong Kong
CIVTE	Central Institute for Vocational and Technical Education
CLP	China Light and Power Group
CLPG	Career and Life Planning Grant
COVID-19	Coronavirus Disease 2019
CPCE	College of Professional and Continuing Education
CPI	Consumer Price Index
CSPE	Committee on Self-financing Post-secondary Education
CTAN	Corporate Tech Academy Network
CUHK	The Chinese University of Hong Kong
CVET	Continuing Vocational Education and Training
DAS	Digital Apprenticeship Service
DESI	Design for Social Innovation and Sustainability
DFS	Diploma of Foundation Studies
DVB	Diploma of Vocational Baccalaureate
DVE	Diploma of Vocational Education
DYJ	Diploma Yi Jin
E&L Scheme	Earn and Learn Scheme
E&M	Electrical and Mechanical
EBA	Economic Benefit Analysis
EDB	Education Bureau

縮寫	全寫
CEF	持續進修基金
CFE	新加坡未來經濟委員會
CHC	香港珠海學院
CHD	Cloudera Hadoop 大數據分佈
CIC	建造業議會
CIMT	知專設創源
CITA	製衣業訓練局
CITAC	建造業創新及科技應用中心
CityU SCOPE	香港城市大學專業進修學院
CIVTE	教育部職業技術教育中心研究所
CLP	中電集團
CLPG	生涯規劃津貼
COVID-19	2019 冠狀病毒病
CPCE	專業及持續教育學院
CPI	消費者物價指數
CSPE	自資專上教育委員會
CTAN	企業技術學院網絡
CUHK	香港中文大學
CVET	持續職業教育和培訓
DAS	數碼學徒服務
DESI Lab	社會設計工作室
DFS	基礎課程文憑
DVB	職專國際文憑
DVE	職專文憑
DYJ	毅進文憑
E&L Scheme	職學計劃
E&M	電氣及機械
EBA	經濟效益分析
EDB	教育局

Abbreviation	Full Form
EDK	Swiss Conference of Cantonal Ministers of Education
EfVET	European Forum of Technical and Vocational Education and Training
EMSD	Electrical and Mechanical Services Department
ERB	Employees Retraining Board
EU	The European Union
F&B	Food and Beverage
FA	Fashion Archive
FEC	Future Economy Council
Fintech	Financial Technology
FLAG	Flexible Learning Advisory Group
FTE	Full-time Equivalent
FVB	Federal Vocational Baccalaureate
GBA	Greater Bay Area
GCSE	General Certificate of Secondary Education
GDP	Gross Domestic Product
GFA	Gross Floor Area
GLD	Generic Level Descriptors
GOVET	German Office for International Cooperation in Vocational Education and Training
GVA	Gross Value Added
HAECO	Hong Kong Aircraft Engineering Company Limited
HD	Higher Diploma
HITDC	Hospitality Industry Training and Development Centre
HK	Hong Kong
HKAPA	The Hong Kong Academy for Performing Arts
HKBU	Hong Kong Baptist University
HKCAAVQ	Hong Kong Council for Accreditation of Academic and Vocational Qualifications
HKCAD	Hong Kong Civil Aviation Department
HKCEC	Hong Kong Convention and Exhibition Centre
HKCT	The Hong Kong College of Technology
HKDI	Hong Kong Design Institute

縮寫	全寫
EDK	瑞士各州教育局長聯合會議
EfVET	歐洲技術和職業教育與培訓論壇
EMSD	機電工程署
ERB	僱員再培訓局
EU	歐洲聯盟
F&B	餐飲業
FA	時裝資料館
FEC	未來經濟理事會
Fintech	金融科技
FLAG	靈活學習諮詢小組
FTE	全職的職位
FVB	聯邦職業文憑
GBA	粵港澳大灣區
GCSE	中等教育普通證書
GDP	本地生產總值
GFA	總建築面積
GLD	資歷級別通用指標
GOVET	德國國際技職合作中心
GVA	總增加值
HAECO	香港飛機工程有限公司
HD	高級文憑
HITDC	旅遊服務業培訓發展中心
HK	香港
HKAPA	香港演藝學院
HKBU	香港浸會大學
HKCAAVQ	香港學術及職業資歷評審局
HKCAD	香港民航處
HKCEC	香港會議展覽中心
HKCT	香港專業進修學校
HKDI	香港知專設計學院

Abbreviation	Full Form
HKDSE	Hong Kong Diploma of Secondary Education
HKEAA	Hong Kong Examinations and Assessment Authority
HKIA	Hong Kong International Airport
HKIAA	Hong Kong International Aviation Academy
HKIC	Hong Kong Institute of Construction
HKIE	Hong Kong Institution of Engineers
HKPC	Hong Kong Productivity Council
HKQF	Hong Kong Qualifications Framework
HKSAR	Hong Kong Special Administrative Region
HKSAR Government	The Government of the Hong Kong Special Administrative Region
HKTDC	The Hong Kong Trade Development Council
HKU	The University of Hong Kong
HKU SPACE	The University of Hong Kong School of Professional and Continuing Education
HKUST	The Hong Kong University of Science and Technology
Hons	With Honours
HRPC	Human Resources Planning Commission
HSU	The Hang Seng University of Hong Kong
HTI	Hotel and Tourism Institute
HWKs	Chambers of Crafts
I&T	Innovation and Technology
IAL	International Advanced Levels
IATA	International Air Transport Association
IB	International Baccalaureate
ICE	Institution of Civil Engineers
ICI	International Culinary Institute
ICT	Information and Communication Technologies
IE	Initial Evaluation
IGCSE	International General Certificate of Secondary Education
IHKs	Chambers of Commerce and Industry
Innov8	Innov8 Enterprise Start-up Centre
IoT	Internet-of-things
ISCED	International Standard Classification of Education

縮寫	全寫
HKDSE	香港中學文憑
HKEAA	香港考試及評核局
HKIA	香港國際機場
HKIAA	香港國際航空學院
HKIC	香港建造學院
HKIE	香港工程師學會
HKPC	香港生產力促進局
HKQF	香港資歷架構
HKSAR	香港特別行政區
HKSAR Government	香港特別行政區政府
HKTDC	香港貿易發展局
HKU	香港大學
HKU SPACE	香港大學專業進修學院
HKUST	香港科技大學
Hons	榮譽
HRPC	人力資源規劃委員會
HSU	香港恒生大學
HTI	酒店及旅遊學院
HWKs	德國手工業商會
I&T	創新科技
IAL	國際高級程度會考
IATA	國際航空運輸協會
IB	國際文憑
ICE	土木工程師學會
ICI	國際廚藝學院
ICT	資訊及通訊科技
IE	初步評估
IGCSE	國際中等教育普通證書
IHKs	德國工商會
Innov8	Innov8 初創培育中心
IoT	物聯網
ISCED	國際教育標準分類

Abbreviation	Full Form
IT	Information Technology
ITAC	Industry Training Advisory Committee
ITB	Innovation and Technology Bureau
ITE	Institute of Technical Education
ITMs	Industry Transformation Maps
IVDC	Integrated Vocational Development Centre
IVE	Hong Kong Institute of Vocational Education
IVTO	International Vocational Training Organisation
KOL	Key Opinion Leader
LegCo	Legislative Council of the Hong Kong Special Administrative Region
LPA	Learning Programme Accreditation
LPE	Life Planning Education
LWB	Labour and Welfare Bureau
MCAST	Malta College of Arts, Science And Technology
MCTEE	Ministerial Council of Tertiary Education and Employment
MiC	Modular Integrated Construction
MICE	Meetings, Incentives, Conventions and Exhibitions
MMO	Mercantile Marine Office of the Marine Department
MOE	Ministry of Education
MOM	Ministry of Manpower
MSTI	Maritime Services Training Institute
MTR	Mass Transit Railway
NATESE	National Advisory for Tertiary Education, Skills and Employment
NCCS	National Cancer Centre Singapore
NCEE	The National College Entrance Examination
NCS	Non-Chinese Speaking
NCVER	National Centre for Vocational Education Research
NMTSS	Non-means-tested Subsidy Scheme for Self-financing Undergraduate Studies
NSSC	National Skills Standards Council
OECD	Organisation for Economic Co-operation & Development

縮寫	全寫
IT	資訊科技
ITAC	行業培訓諮詢委員會
ITB	創新科技局
ITE	工藝教育學院
ITMs	產業轉型藍圖
IVDC	匯縱專業發展中心
IVE	香港專業教育學院
IVTO	國際技能競賽組織
KOL	網紅
LegCo	香港特別行政區立法會
LPA	課程評審
LPE	生涯規劃教育
LWB	勞工及福利局
MCAST	馬耳他藝術科技學院
MCTEE	澳洲高等教育與就業部長委員會
MiC	組裝合成建築法
MICE	會議、獎勵旅遊及展覽
MMO	海事處商船海員管理處
MOE	新加坡教育部
MOM	新加坡人力部
MSTI	海事訓練學院
MTR	港鐵
NATESE	國家高等教育、技術及就業諮詢委員會
NCCS	新加坡國立癌症中心
NCEE	普通高等學校招生全國統一考試
NCS	非華語
NCVER	國家職業教育研究中心
NMTSS	為修讀香港自資學士學位課程學生提供免入息審查資助計劃
NSSC	國家技能標準委員會
OECD	經濟合作暨發展組織

Abbreviation	Full Form
OIC	Open InnoChallenge
OLE	Other Learning Experience
OCHK	The Open University of Hong Kong
OCHK LiPACE	The Open University of Hong Kong, Li Ka Shing School of Professional and Continuing Education
PAA	Programme Area Accreditation
PC	Professional Certificate
PD	Professional Diploma
PEAK	Institute of Professional Education and Knowledge
PET	Professional Education and Education
PhD	Doctor of Philosophy
PIR	Periodic Institutional Review
PolyU	The Hong Kong Polytechnic University
PolyU CPCE	The Hong Kong Polytechnic University – College of Professional and Continuing Education
PolyU HKCC	The Hong Kong Polytechnic University - Hong Kong Community College
PolyU SPEED	The Hong Kong Polytechnic University - School of Professional Education and Executive Development
PRC	People's Republic of China
Pro-Act by VTC	Pro-Act Training and Development Centres
PwC	PricewaterhouseCoopers Advisory Services Limited
QF	Qualifications Framework
QG	Qualifications Guidelines
QMH	Queen Mary Hospital
R&D	Research and Development
RCHDs	Residential Care Homes for Persons with Disabilities
RCHE	Residential Care Homes for Elderly
Re-LPA	Learning Programme Re-accreditation
RFID	Radio Frequency Identification
RFS	Re-industrialisation Funding Scheme
RPL	Recognition of Prior Learning
RTTP	Reindustrialisation and Technology Training Programme
SARS	Severe Acute Respiratory Syndrome
SAT	Scholastic Assessment Test

縮寫	全寫
OIC	開創社
OLE	其他學習經歷
OCHK	香港公開大學
OCHK LiPACE	香港公開大學李嘉誠專業進修學院
PAA	學科範圍評審
PC	專業證書
PD	專業文憑
PEAK	高峰進修學院
PET	專業教育與培訓
PhD	哲學博士
PIR	機構定期覆審
PolyU	香港理工大學
PolyU CPCE	香港理工大學專業及持續教育學院
PolyU HKCC	香港理工大學香港專上學院
PolyU SPEED	香港理工大學專業進修學院
PRC	中華人民共和國
Pro-Act by VTC	卓越培訓發展中心
PwC	羅兵咸永道諮詢服務有限公司
QF	資歷架構
QG	資歷指引
QMH	瑪麗醫院
R&D	研究及開發
RCHDs	殘疾人士院舍
RCHE	安老院舍
Re-LPA	課程覆審
RFID	無線電射頻識別
RFS	再工業化資助計劃
RPL	過往資歷認可
RTTP	再工業化及技術培訓計劃
SARS	嚴重急性呼吸系統綜合症
SAT	學術評估測試

Abbreviation	Full Form
SCMP	South China Morning Post
SCS	Specification of Competency Standards
SEN	Special Educational Needs
SERI	The State Secretariat for Education, Research and Innovation
SFIVET	Swiss Federal Institute for Vocational Education and Training
SHAPE	School for Higher and Professional Education
SIAP	Student Industrial Attachment Programme
SIT	Singapore Institute of Technology
SSG	SkillsFuture Singapore
SSSDP	Study Subsidy Scheme for Designated Professions/ Sectors
STCW	Seafarers' Training, Certification and Watch-keeping Code
SUSS	Singapore University of Social Sciences
TAFE	Technical and Further Education
TEUs	Twenty-foot Equivalent Units
THEi	Technological and Higher Education Institute of Hong Kong
T Levels	Technical Qualification with Equal Status to A Levels
TSS	Training and Support Scheme
TVET	Technical and Vocational Education and Training
TWC	Tung Wah College
UAS	University of Applied Sciences
UAT	University Aptitude Test
UCAS	Universities and Colleges Admissions Service
UGC	University Grants Committee
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UNEVOC	United Nations Educational, Scientific and Cultural Organization – International Centre for Technical and Vocational Education and Training
UniSIM	SIM University
UNWTO	United Nations World Tourism Organisation
VA	Value-Added

縮寫	全寫
SCMP	南華早報
SCS	能力標準說明
SEN	特殊教育需要
SERI	瑞士聯邦教育科研與創新國務秘書處
SFIVET	瑞士聯邦職業教育培訓學院
SHAPE	才晉高等教育學院
SIAP	學生工作實習計劃
SIT	新加坡理工大學
SSG	新加坡精深技能發展局
SSSDP	指定專業/ 界別課程資助計劃
STCW	航海人員訓練、發證及航行當值標準國際公約
SUSS	新加坡新躍社科大學
TAFE	澳洲公立專科技術學院
TEUs	20 呎標準貨櫃
THEi	香港高等教育科技學院
T Levels	技術資格
TSS	職業教育和就業支援計劃
TVET	職業技術教育和培訓
TWC	東華學院
UAS	應用科學大學
UAT	大學入學測試
UCAS	英國大學及院校招生事務處
UGC	大學教育資助委員會
UK	英國
UNESCO	聯合國教育、科學與文化組織
UNESCO-UNEVOC	聯合國教科文組織— 職業技術教育與培訓國際中心
UniSIM	新加坡新躍大學
UNWTO	聯合國世界旅遊組織
VA	附加值

Abbreviation	Full Form
VCE	Vocational Certificate of Education
VET	Vocational Education and Training
VPET	Vocational and Professional Education and Training
VQP	Vocational Qualifications Pathway
VTC	Vocational Training Council
WBL	Work-based Learning
WFCP	World Federation of Colleges and Polytechnics
WFSFAA	Working Family and Student Financial Assistance Agency
WSG	Workforce Singapore
WSI	WorldSkills International
WSOS	WorldSkills Occupational Standards
YC	Youth College
YETP	Youth Employment and Training Programme

縮寫	全寫
VCE	職業教育證書
VET	職業教育與培訓
VPET	職業專才教育
VQP	職業資歷階梯
VTC	職業訓練局
WBL	職業為本學習
WFCP	世界職教院校聯盟
WFSFAA	在職家庭及學生資助事務處
WSG	新加坡勞動人口局
WSI	世界技能組織
WSOS	世界技能職業標準
YC	青年學院
YETP	展翅青見計劃

A.12 References | 參考資料

1. Arcadis (2018). The Sustainable Cities Index. Retrieved from: https://www.arcadis.com/media/B/F/E/%7BBFEC9176-BF34-4EDA-8B87-DF153D808B92%7DSCI_Hong%20Kong.pdf
2. Big Exam (2020). HKDSE Candidature Statistics. Retrieved from: <https://dse.bigexam.hk/en/dseCandStat>
3. Caritas Institute of Higher Education (n.d.). Bachelor of Science (Honours) in Artificial Intelligence. Retrieved from: <https://www.cihe.edu.hk/en/programmes/bachelor-s-degree-programmes/bachelor-of-science-honours-in-artificial-intelligence/history-of-bscai/index.html>
4. Census and Statistics Department (2020a). Hong Kong Energy Statistics 2019 Annual Report. Retrieved from: https://www.censtatd.gov.hk/fd.jsp?file=B10100032020AN20B0100.pdf&product_id=B1010003&lang=1
5. Census and Statistics Department (2020b). Hong Kong Population Projections 2020-2069. Retrieved from: <https://www.statistics.gov.hk/pub/B1120015082020XXXXB0100.pdf>
6. Census and Statistics Department (2020c). Key Statistics on Business Performance and Operating Characteristics of the Building, Construction and Real Estate Sectors in 2009-2019. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp330.jsp?productCode=B1080011>
7. Census and Statistics Department (2020d). Statistics Tables (Excel) - Table E005 : Number of establishments, persons engaged and vacancies (other than those in the Civil Service) analysed by industry section / industry division. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp452.jsp?productCode=D5250009>
8. Census and Statistics Department (2020e). Statistics Tables (Excel) - Table E104: Employment in selected industries 2019 Edition. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp80.jsp?productCode=D5500003>
9. Census and Statistics Department (2020f). Statistics Tables (Excel) - Table 190 : Employment in respect of the Four Key Industries. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp80.jsp?tableID=190&ID=0&productType=8>
10. Census and Statistics Department (2020g). Statistics Tables (Excel) - Table E102: Value added of selected industries 2019 Edition. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp80.jsp?productCode=D5500001>
11. Census and Statistics Department (2020h). Statistics Tables (Excel) - E210: GDP by economic activity at current price 2019 Edition. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp250.jsp?productCode=D5240210>
12. Census and Statistics Department (2020i). 2019 Gross Domestic Product. Retrieved from: <https://www.statistics.gov.hk/pub/B10300022019AN19E0100.pdf>

13. Census and Statistics Department (2020j). Table E033 : Median monthly employment earnings of employed persons by educational attainment. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp200.jsp?productCode=D5250037>
14. Census and Statistics Department (2020k). Table 011 : Unemployment Rate by Sex and Age. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp200.jsp?tableID=011&ID=0&productType=8>
15. Census and Statistics Department (2020l). Table188: Value added of the Four Key Industries. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/sp80.jsp?tableID=188&ID=0&productType=8>
16. Census and Statistics Department (2020m). Hong Kong Annual Digest of Statistics - Section 12 Education. Retrieved from: <https://www.statistics.gov.hk/pub/B10101232020AN20B0100.pdf>
17. Census and Statistics Department (2020n). Overview of population statistics. Retrieved from: <https://www.censtatd.gov.hk/hkstat/sub/so20.jsp>
18. Chinese Culinary Institute (CCI) (n.d.). Retrieved from: <http://www.cci.edu.hk/cci/html/en/>
19. CLP Power Academy (2019a). Professional Diploma in Power Engineering (Power Systems Stream). Retrieved from: [https://www.clp.com.hk/zh/about-clp-site/clp-power-academy-site/Documents/Leaflet_PD_en%20\(Jan%202019\).pdf?&_ga=2.122226888.296777488.1551164939-2124923978.1551164939](https://www.clp.com.hk/zh/about-clp-site/clp-power-academy-site/Documents/Leaflet_PD_en%20(Jan%202019).pdf?&_ga=2.122226888.296777488.1551164939-2124923978.1551164939)
20. CLP Power Academy (2019b). Programme Brochure of Bachelor of Engineering (Honours) in Electrical Engineering 2018/19. Retrieved from: [https://www.clp.com.hk/zh/about-clp-site/clp-power-academy-site/Documents/Leaflet_Degree_en%20\(Jan%202019\).pdf?&_ga=2.122226888.296777488.1551164939-2124923978.1551164939](https://www.clp.com.hk/zh/about-clp-site/clp-power-academy-site/Documents/Leaflet_Degree_en%20(Jan%202019).pdf?&_ga=2.122226888.296777488.1551164939-2124923978.1551164939)
21. Commission on Poverty (2005). Training and Employment Opportunities for Youth. Retrieved from: [https://www.povertyrelief.gov.hk/archive/2007/textweb/eng/pdf/CoP%20Paper%2017.2005\(e\).pdf](https://www.povertyrelief.gov.hk/archive/2007/textweb/eng/pdf/CoP%20Paper%2017.2005(e).pdf)
22. Committee on Self-financing Post-secondary Education (CSPE) (2017). Updated Revised Common Descriptors for Associate Degree and Higher Diploma Programmes under the New Academic Structure. Retrieved from: [https://www.cspe.edu.hk/resources/pdf/en/Updated%20Revised%20Common%20Descriptors%20for%20Associate%20Degree%20and%20Higher%20Diploma%20Programmes%20under%20the%20New%20Academic%20Structure%20\(Updated%20in%20February%202017\)%20UPDATED.pdf](https://www.cspe.edu.hk/resources/pdf/en/Updated%20Revised%20Common%20Descriptors%20for%20Associate%20Degree%20and%20Higher%20Diploma%20Programmes%20under%20the%20New%20Academic%20Structure%20(Updated%20in%20February%202017)%20UPDATED.pdf)
23. Committee on Self-financing Post-secondary Education (CSPE) (2020). Database - Statistics on enrolment, graduates and staff from 2012/13 to 2018/19. Retrieved from: <https://www.cspe.edu.hk/en/customised-data-retrieval.page>
24. Construction Industry Council (2019). Skilled Construction Workers Forecast (2019 – 2023). Retrieved from: [http://www.cic.hk/files/page/56/Manpower%20Forecast%20-%20Workers%20\(2019-2023\)_e_20190503.pdf](http://www.cic.hk/files/page/56/Manpower%20Forecast%20-%20Workers%20(2019-2023)_e_20190503.pdf)
25. CTAN-VPET (n.d.). Introduction to Corporate Tech Academy Network. Retrieved from: <http://www.ctan-vpet.com/> Department of Health (2020). Health Facts of Hong Kong in 2020. Retrieved from: https://www.dh.gov.hk/english/statistics/statistics_hs/files/2020.pdf

26. Department of Health (2020). Health Facts of Hong Kong in 2020. Retrieved from: https://www.dh.gov.hk/english/statistics/statistics_hs/files/2020.pdf
27. Development Bureau and Planning Department (2016). Hong Kong 2030+ Towards a Planning Vision and Strategy Transcending 2030 Public Engagement. Retrieved from: https://www.hk2030plus.hk/document/2030+Booklet_Eng.pdf
28. Dutta, S., Lanvin, B. and Wunsch-Vincent, S. (2020). Global Innovation Index 2020. Retrieved from: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf
29. Education Bureau (2018). Generic Level Descriptors (2018 Revised Edition). Retrieved from: https://www.hkqf.gov.hk/filemanager/en/content_13/The%20revised%20GLD%20and%20the%20Explanatory%20Notes_Eng_April_2018.pdf
30. Education Bureau (2019a). Consultation Document of the Task Force On Promotion Of Vocational And Professional Education And Training. Retrieved from: https://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/VPET_TF%20Consultation_2019_e.pdf
31. Education Bureau (2019b). Review Report of the Task Force on Promotion of Vocational and Professional Education and Training. Retrieved from: https://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/VPET_TF_Report_2019_e.pdf
32. Education Bureau (2020a). Head 156 – Government Secretariat: Education Bureau. Retrieved from: <https://www.budget.gov.hk/2020/eng/pdf/head156.pdf>
33. Education Bureau (2020b). Replies to initial written questions raised by Finance Committee Members in examining the Estimates of Expenditure 2020-21. Retrieved from: <https://www.edb.gov.hk/attachment/en/about-edb/press/legco/repplies-to-fc/20-21-edb-e.pdf>
34. Education Bureau (2020c). Kindergarten Education. Retrieved from: <https://www.edb.gov.hk/en/about-edb/publications-stat/figures/index.html>
35. Electrical and Mechanical Services Department (EMSD) (2020). Examination of Estimates of Expenditure 2020-21 (DEVB(W)143). Retrieved from: [https://www.emsd.gov.hk/filemanager/en/content_1395/DEVB\(W\)143-3697.pdf](https://www.emsd.gov.hk/filemanager/en/content_1395/DEVB(W)143-3697.pdf)
36. Embassy of Switzerland in China (2014). Reporting from Beijing: China Announces Modern Vocational Education Development Strategy 2014 – 2020. Retrieved from: https://www.sinoptic.ch/textes/education/2014/20140729_Ambassade.de.Suisse_Apprentissage.en.Chine-en.pdf
37. Environment Protection Department (EPD) (2016). Sludge Reception. Retrieved from: https://www.epd.gov.hk/epd/english/environmentinhk/waste/prob_solutions/reception.html
38. Environmental Protection Department (2020). Greenhouse Gas Emissions in Hong Kong by Sector. Retrieved from: <https://www.climate-ready.gov.hk/files/pdf/Greenhouse%20Gas%20Emissions%20in%20Hong%20Kong%20by%20Sector.pdf>
39. European Centre for the Development of Vocational Training (Cedefop) (2014). Macroeconomic Benefits of Vocational Education and Training. Retrieved from: https://www.cedefop.europa.eu/files/5540_en.pdf

40. European Centre for the Development of Vocational Training (Cedefop) (2019). Vocational education and training in Europe: United Kingdom. Cedefop ReferNet VET in Europe reports 2018. Retrieved from: <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vocational-education-and-training-europe-united-kingdom-2018>
41. European Centre for the Development of Vocational Training (Cedefop) (2020). Vocational education and training in Germany: short description. Retrieved from: <http://data.europa.eu/doi/10.2801/329932>
42. European Commission (2014). EU Skills Panorama - Entrepreneurial skills Analytical Highlight. Retrieved from: https://skillspanorama.cedefop.europa.eu/sites/default/files/EUSP_AH_Entrepreneurial_0.pdf
43. European Commission (2017). Business cooperating with vocational education and training providers for quality skills and attractive futures. Retrieved from: <https://op.europa.eu/en/publication-detail/-/publication/8ba02362-e46f-11e7-9749-01aa75ed71a1/language-en>
44. European Commission (2020). Participation rate in education and training by age. Retrieved from: https://ec.europa.eu/eurostat/databrowser/view/trng_aes_101/default/table?lang=en
45. European Union (n.d.a). Apprenticeship Toolbox – Germany Profile. Retrieved from: <https://www.apprenticeship-toolbox.eu/?id=142:education-system-and-vet-system-in-germany>
46. European Union (n.d.b). European Alliance of Apprenticeship (2019). Funding Arrangements in Germany. Retrieved from: <https://www.apprenticeship-toolbox.eu/financing/funding-arrangements/47-funding-arrangements-in-germany>
47. Federal Institute for Vocational Education and Training (BIBB) (2020). BIBB-INFO. Retrieved from: <https://www.bibb.de/veroeffentlichungen/en/publication/show/16143>
48. Federal Ministry of Education and Research of Germany (2019). Education and Research in Figures 2020 - Fig. 21 Budget for education, by expenditure areas, in billions of euros (2010-2018). Retrieved from: <https://www.datenportal.bmbf.de/portal/en/B2.html>
49. Federal Ministry of Education and Research of Germany (n.d.). The right university. Retrieved from: <https://www.daad.de/en/study-and-research-in-germany/plan-your-studies/the-right-university/>
50. Federal Statistical Office of Switzerland (2020a). Education Statistics 2019. Retrieved from: <https://www.bfs.admin.ch/bfs/en/home/statistics/education-science/pupils-students.assetdetail.12607178.html>
51. Federal Statistical Office of Switzerland (2020b). Education finance. Financial years 2017/18. Retrieved from: <https://www.bfs.admin.ch/bfs/en/home/statistics/education-science.assetdetail.12947704.html>
52. Federal Statistical Office of Switzerland (2020b). Education finance. Financial years 2017/18. Retrieved from: <https://www.bfs.admin.ch/bfs/en/home/statistics/education-science.assetdetail.12947704.html>
53. Federation of Hong Kong Hotel Owners (2005). Manpower Shortage at Operative Level of the Hotel Industry in Hong Kong. Retrieved from: <https://www.yumpu.com/en/document/read/42439140/manpower-shortage-at-operative-level-of-the-hotel-industry>
54. Food and Health Bureau (2020). Table 1. Health Care Resources. Retrieved from: https://www.fhb.gov.hk/statistics/en/health_statistics.htm

55. German Office for International Cooperation in Vocational Education and Training (GOVET) (n.d.). Presentation on the Stakeholders of the German VET System. Retrieved from <https://www.govet.international/en/54881.php>
56. Government of Singapore (n.d.). About SkillsFuture. Retrieved from: <https://www.skillsfuture.gov.sg/>
57. Guo, Z. and Lamb, S. (2010). International Comparisons of China's Technical and Vocational Education and Training System. Retrieved from: <https://www.springer.com/gp/book/9789048187423>
58. HK01 (2019). 昔日HKDI畢業生 今日自家品牌創辦人. Retrieved from: <https://www.hk01.com/%E7%A4%BE%E6%9C%83%E6%96%B0%E8%81%9E/346192/%E6%98%94%E6%97%A5hkdi%E7%95%A2%E6%A5%AD%E7%94%9F-%E4%BB%8A%E6%97%A5%E8%87%AA%E5%AE%B6%E5%93%81%E7%89%8C%E5%89%B5%E8%BE%A6%E4%BA%BA>
59. HK01 (2020). 【學海無涯】負笈瑞士酒店管理大學進修碩士 女生向廚藝夢想進發. Retrieved from: <https://opentalk.hk01.com/story/5f4701cf4d458f001f6726cc>
60. Hong Kong Design Institute (HKDI) (2017). HKDI Centre of Innovative Material and Technology (CIMT) Grand Opening. Retrieved from: https://www.hkdi.edu.hk/en/news/news-detail.php?news_id=450&news_type=events
61. Hong Kong Design Institute (HKDI) (2020). Hong Kong Design Institute Prospectus 2020/21. Retrieved from: https://www.hkdi.edu.hk/uploaded_files/publications_programmes/2/3828626106e7730e63c1e7b879fa8dfda978650e.pdf
62. Hong Kong Design Institute (HKDI) (n.d.). Centre of Innovative Material and Technology. Retrieved from: <https://www.hkdi.edu.hk/en/knowledge-centre/cimt.php>
63. HKSAR Government (1982). Cap. 1130 Vocational Training Council Ordinance. Retrieved from: <https://www.elegislation.gov.hk/hk/cap1130>
64. HKSAR Government (2000). The Chief executive's 2000 Policy Address. Retrieved from: <https://www.policyaddress.gov.hk/pa00/p66e.htm>
65. HKSAR Government (2019). First Hong Kong woman qualifies as chief engineer of seagoing vessels (with photos). Retrieved from: <https://www.info.gov.hk/gia/general/201907/08/P2019070800644.htm>
66. HKSAR Government (2020a). 2020 Work Plan of Framework Agreement on Hong Kong / Guangdong Co-operation. Retrieved from: <https://www.info.gov.hk/gia/general/202010/30/P2020103000495.htm?fontSize=1>
67. HKSAR Government (2020b). Government releases Smart City Blueprint for Hong Kong 2.0. Retrieved from: <https://www.info.gov.hk/gia/general/202012/10/P2020121000626.htm>
68. HKSAR Government (2020c). Reimbursement Procedures (Applicable to CEF reimbursable courses commenced on or after 1 April 2019). Retrieved from: <https://www.wfsfaa.gov.hk/cef/en/application/procedures.htm>
69. HKSAR Government (2021). Information on Municipal Solid Waste. Retrieved from: <https://www.gov.hk/en/residents/environment/waste/treatment/msw.htm#:~:text=The%20amount%20of%20municipal%20solid,the%20rest%20went%20to%20landfills>

70. HKSAR Government's VPET portal (2018). HKSAR Government's VPET providers. Retrieved from: <https://www.vpet.edu.hk/en/providers.page>
71. HKSAR Government's VPET portal (n.d.). HKSAR Government's VPET portal – industry and career, programmes and providers. Retrieved from: <https://www.vpet.edu.hk/en/index.html>
72. Hong Kong Council for Accreditation of Academic and Vocational Qualifications (HKCAAVQ) (2020). Manual for the Four-stage Quality Assurance Process under the Hong Kong Qualifications Framework. Retrieved from: https://www.hkcaavq.edu.hk/file/page/1738/Four-stage_Manual_EN_20201109.pdf
73. Hong Kong Design Institute (2019). HKDI outstanding student's project "Tri Cane" won "Red Dot: Best of the Best" award at the Red Dot Award: Design Concept 2019. Retrieved from: https://www.hkdi.edu.hk/en/news/news-detail.php?news_id=631&news_type=student_award
74. Hong Kong Examinations and Assessment Authority (HKEAA) (2020). Examination Statistics. Retrieved from: https://www.hkeaa.edu.hk/DocLibrary/HKDSE/Exam_Report/Examination_Statistics/dseexamstat20_7.pdf
75. Hong Kong International Airport (HKIA) (2011). Hong Kong International Airport Master Plan 2030. Retrieved from: http://vps.hongkongairport.com/mp2030/mp2030_full_en.pdf
76. Hong Kong International Airport (HKIA) (n.d.). Overview. Retrieved from: <https://www.hongkongairport.com/en/the-airport/hkia-at-a-glance/fact-figures.page>
77. Hong Kong International Aviation Academy (HKIAA) (2019). Hong Kong International Aviation Academy's Professional and Vocational Training Services. Retrieved from: [https://www.fste.edu.hk/conference/forum2019/files/ppt/20191206%20-%20OHKF%20Applied%20Education%20Forum%20-%20Presentation%20PPT%20\(Mr%20Richard%20Skinner\)%200002.pdf](https://www.fste.edu.hk/conference/forum2019/files/ppt/20191206%20-%20OHKF%20Applied%20Education%20Forum%20-%20Presentation%20PPT%20(Mr%20Richard%20Skinner)%200002.pdf)
78. Hong Kong Maritime and Port Board (2018). Hong Kong Maritime Professions. Retrieved from: <https://www.hkmpb.gov.hk/publications/22.pdf>
79. Hong Kong Pharmaceutical Care Foundation (2020). LC Paper No. CB(2)1288/19-20(01). Retrieved from: <https://www.legco.gov.hk/yr19-20/english/panels/ltcp/papers/ltcp20200623cb2-1288-1-e.pdf>
80. Hong Kong Tourism Board (2019). Retrieved from: <https://www.discoverhongkong.com/eng/about-hktb/annual-report/annual-report-20182019/tourism-performance/>
81. Hong Kong Trade and Development Council (HKTDC) (2019). Green Technology & Environmental Services Industry in Hong Kong. Retrieved from: <https://hkmb.hktcdc.com/en/1X09TYPH/hktcdc-research/Green-Technology-Environmental-Services-Industry-in-Hong-Kong>
82. House of Parliament of the Government of United Kingdom (2020a). Effectiveness of the apprenticeship levy. Retrieved from: <https://researchbriefings.files.parliament.uk/documents/CDP-2020-0024/CDP-2020-0024.pdf>
83. House of Parliament of the Government of United Kingdom (2020b). Apprenticeship Statistics. Retrieved from: <https://researchbriefings.files.parliament.uk/documents/SN06113/SN06113.pdf>
84. IATA Economics (2018). The Importance of Air Transport to Hong Kong (SAR), China. Retrieved from: <https://www.iata.org/en/iata-repository/publications/economic-reports/hong-kong--value-of-aviation/>

85. Institute for Fiscal Studies of the UK (2019). 2019 annual report on education spending in England. Retrieved from: <https://www.ifs.org.uk/publications/14369>
86. International Culinary Institute (n.d.). Recognition. Retrieved from: <http://www.ici.edu.hk/html/en/partnership-recognition.html>
87. IVE Engineering (2017). IVE Engineering Students Shined in Innovation X Application Scheme. Retrieved from: <https://engineering.vtc.edu.hk/en/EngineeringDisciplineLifeDetails.php?EDLDID=79>
88. IVE Engineering (2019a). 「企業技術學院網絡」 (CTAN). Retrieved from: <https://engineering.vtc.edu.hk/tc/PastHighlightsOthersDetails.php?EDLDID=78>
89. IVE Engineering (2019b). IVE Engineering Solar Car SOPHIE 6s Launch & Oath-taking Ceremony. Retrieved from: <https://engineering.vtc.edu.hk/en/EngineeringDisciplineLifeDetails.php?EDLDID=89>
90. IVE Engineering (2020). IVE Engineering Students Show Creativity in Innovative Design Competition 2020. Retrieved from: <https://engineering.vtc.edu.hk/en/EngineeringDisciplineLifeDetails.php?EDLDID=112>
91. iVET (n.d.). Key VET Stakeholders. Retrieved from: <http://www.ivet.com.au/a/305.html>
92. Keystone Academic Solutions (2021). 22 Bachelor Programs in Artificial Intelligence 2021. Retrieved from: <https://www.bachelorstudies.com/Artificial-Intelligence/>
93. Labour and Welfare Bureau (2019). Report on Manpower Projection to 2027. Retrieved from: https://www.lwb.gov.hk/en/other_info/mp2027_en.pdf
94. Legislative Council (2010). Sea-going Training Incentive Scheme. Retrieved from: <https://www.legco.gov.hk/yr09-10/english/panels/edev/papers/edev0426cb1-1658-6-e.pdf>
95. Legislative Council (2015). Review of development of vocational education in Hong Kong. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1415in15-review-of-development-of-vocational-education-in-hong-kong-20150813-e.pdf>
96. Legislative Council (2017a). Lift and escalator safety. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1617issh33-lift-and-escalator-safety-20170818-e.pdf>
97. Legislative Council (2017b). Research Brief Issue No. 1 (2017 – 2018) Continuing education in Hong Kong. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1718rb01-continuing-education-in-hong-kong-20171117-e.pdf>
98. Legislative Council (2018). Progress of the Task Force on Review of Self-financing Post-secondary Education. Retrieved from: <https://www.legco.gov.hk/yr17-18/english/panels/ed/papers/ed20180713cb4-1340-1-e.pdf>
99. Legislative Council (2019a). LCQ19: Apprenticeship Ordinance. Retrieved from: <https://www.info.gov.hk/gia/general/201911/13/P2019111300377.htm>
100. Legislative Council (2019b). Special educational needs. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1819issh22-special-educational-needs-20190219-e.pdf>

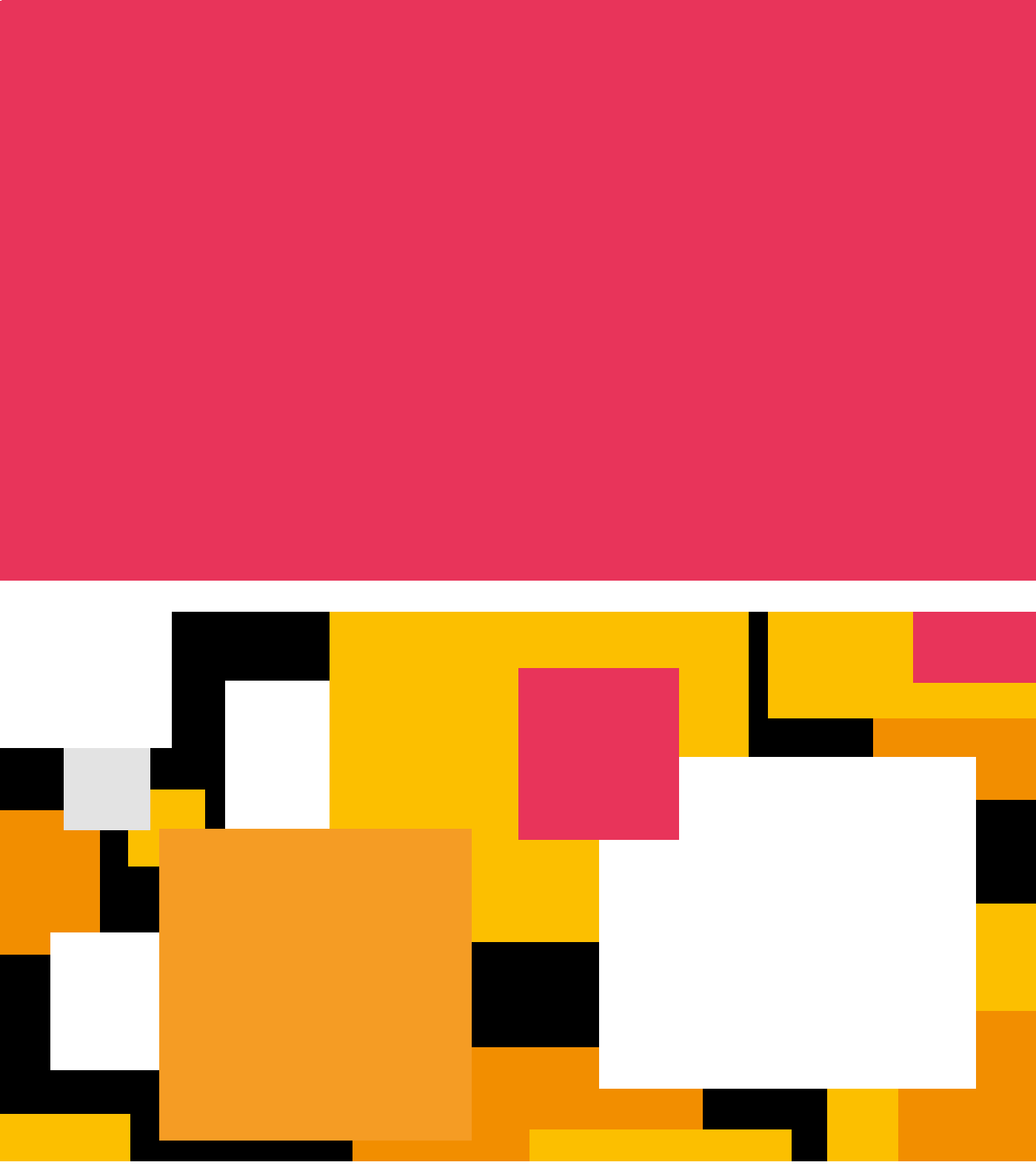
101. Legislative Council (2020a). Urban unauthorised building works in Hong Kong. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1920issh18-urban-unauthorised-building-works-in-hong-kong-20200220-e.pdf>
102. Legislative Council (2020b). Measures to promote re-industrialization in selected places. Retrieved from: <https://www.legco.gov.hk/research-publications/english/1920in15-measures-to-promote-re-industrialization-in-selected-places-20200714-e.pdf>
103. Leung Yung, Y.L. and Tse W-C.V. (2018). An Exploration of the History of Vocational Education in Hong Kong. Retrieved from: <https://hub.hku.hk/bitstream/10722/263426/1/content.pdf?accept=1#:~:text=The%20first%20government%20Daided%20full,on%20Wood%20Road%20in%20Wanchai>
104. Marine Department (2016). Steering Committee on Systemic Reform of the Marine Department – Final Report. Retrieved from: <https://www.mardep.gov.hk/en/publication/pdf/steeringcom.pdf>
105. Marine Department (2019). Port of Hong Kong Statistical Tables 2019. Retrieved from: https://www.mardep.gov.hk/en/fact/pdf/portstat_ast_2019.pdf
106. Maritime Services Training Institute (MSTI) (n.d.). Overview. Retrieved from: <http://www.msti.edu.hk/about.php>
107. Ministry of Education of Singapore (2020a). Education Statistics Digest 2020. Retrieved from: <https://www.moe.gov.sg/about-us/publications/education-statistics-digest>
108. Ministry of Education of Singapore (2020b). Government Recurrent Expenditure on Education. Retrieved from: <https://data.gov.sg/dataset/government-recurrent-expenditure-on-education>
109. Ministry of Education of the People's Republic of China (PRC) (2019a). 支持应用型本科高校发展有关工作情况. Retrieved from: http://www.moe.gov.cn/fbh/live/2019/50294/sfcl/201902/t20190219_370019.html
110. Ministry of Education of the People's Republic of China (PRC) (2019b). Statistical report on China's vocational education in 2018. Retrieved from: http://en.moe.gov.cn/documents/reports/201906/t20190605_384566.html
111. Ministry of Education of the People's Republic of China (PRC) (2020a). 2019年全国教育事业发展统计公报. Retrieved from: http://www.moe.gov.cn/jyb_sjzl/sjzl_fztjgb/202005/t20200520_456751.html
112. Ministry of Education of the People's Republic of China (PRC) (2020b). China's education spending for 2019. Retrieved from: http://en.moe.gov.cn/news/press_releases/202006/t20200622_467671.html
113. Ministry of Education of the People's Republic of China (PRC) (2020c). 教育部等五部门印发《关于进一步加强和规范教育收费管理的意见》的通知. Retrieved from: http://www.moe.gov.cn/srcsite/A05/s7503/202008/t20200827_480721.html
114. Ministry of Education and Culture in Finland (2019). Finnish VET in a nutshell. Retrieved from: <https://www.oph.fi/sites/default/files/documents/finnish-vet-in-a-nutshell.pdf>
115. Ministry of Trade and Industry (MTI) (2021). The Future Economy Council. Retrieved from: <https://www.mti.gov.sg/FutureEconomy/TheFutureEconomyCouncil>

- 116.MTR Academy (n.d.). Accredited Programmes. Retrieved from: <https://www.mtracademy.com/en/accreditedprogrammes/Railway/information.html>
- 117.National Centre for Vocational Education Research (NCVER) of Australia (2020). Australian vocational education and training statistics: government funding of VET 2019 — data tables. Retrieved from: <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/government-funding-of-vet-2019>
- 118.National Apprenticeship Service of the UK Government (2019). The A-Z of apprenticeships. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/787716/Apps_Framesworks-150319.pdf
- 119.Ng, T.S.T., Chan, A.P.C., Wong, J.M.W. and Ng, J.W.S. (2007). The Changing Landscape of the Hong Kong Construction Industry. Retrieved from: http://www.hkicm.org.hk/pdf/NL_Spring_2007_P10-12.pdf
- 120.Organisation for Economic Co-operation and Development (OECD) (2019). OECD Health Statistics 2019. Retrieved from: <https://doi.org/10.1787/888934017386>
- 121.Organisation for Economic Co-operation and Development (OECD) (2020). Education GPS. Country Profile – Australia, Switzerland, Germany and Finland. Retrieved from: <https://gpseducation.oecd.org/>
- 122.Our Hong Kong Foundation (2019). Applied Education – A Holistic and Flexible Education System for the Digital Age. Retrieved from: https://ourhkfoundation.org.hk/sites/default/files/media/pdf/EducationAdvocacy2019_ENG_OP_0812.pdf
- 123.Parilla, J., Trujillo, J.L. and Berube, A. (2015). Skills and In-novation Strategies to Strengthen U.S. Manufacturing. Retrieved from: <https://www.brookings.edu/wp-content/uploads/2016/06/LessonsFromGermany.pdf>
- 124.Renold, U., Bolli, T., Caves, K., Bürgi, J., Egg, M.E., Kemper, J. and Rageth, L. (2018). Comparing International Vocational Education and Training Programs: The KOF Education-Employment Linkage Index. Retrieved from: <https://files.eric.ed.gov/fulltext/ED589125.pdf>
- 125.School of Higher and Professional education (SHAPE) (n.d). Retrieved from: <https://www.shape.edu.hk/>
- 126.Shenzhen Technology University (2020). Introduction to Shenzhen Technology University. Retrieved from: <https://www.sztu.edu.cn/xxgk/xxjj1.htm>
- 127.SkillsFuture Singapore (n.d.). Skills Framework. Retrieved from: <https://www.ssg.gov.sg/wsqa/skills-framework.html>
- 128.South African Journal of Industrial Engineering (2019). An Investigation of Industry 4.0 Skills Requirements. Retrieved from: https://www.researchgate.net/publication/337327291_An_Investigation_of_Industry_40_Skills_Requirements
- 129.State Council of the People's Republic of China (PRC) (2014). 国务院关于加强发展现代职业教育的决定. Retrieved from: http://www.gov.cn/zhengce/content/2014-06/22/content_8901.htm
- 130.State Council of the People's Republic of China (PRC) (2019). Outline Development Plan for the Guangdong-Hong Kong-Macau Greater Bay Area. Retrieved from: https://www.bayarea.gov.hk/filemanager/en/share/pdf/Outline_Development_Plan.pdf

- 131.State Council of the People's Republic of China (PRC) (2020). 国务院关于印发国家职业教育改革实施方案的通知. Retrieved from: http://www.gov.cn/zhengce/content/201902/13/content_5365341.htm
- 132.State Secretariat for Education, Research and Innovation (SERI) (2020). Vocational and Professional Education and Training in Switzerland: Facts and Figures 2020. Retrieved from: https://www.sbf.admin.ch/dam/sbf/en/dokumente/webshop/2020/bb-f-z-2020.pdf.download.pdf/fakten_zahlen_bb2020_e.pdf
- 133.Statistics Finland (2020a). Total number of students in universities of applied sciences in 2019. Retrieved from: https://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__kou__akop/statfin_akop_pxt_11www.px/table/tableViewLayout1/
- 134.Statistics Finland (2020b). Current expenditure on education has decreased in real terms since 2010. Retrieved from: https://www.stat.fi/til/kotal/2018/kotal_2018_2020-05-07_tau_001_en.html
- 135.The Education University of Hong Kong (2018). Status Report on Lifelong Learning in Hong Kong. Retrieved from: https://www.eduhk.hk/include_n/getrichfile.php?key=6148c1517703b52c30736f797366e845&secid=53239&filename=unescochair/reports/Lifelong_Learning_in_Hong_Kong_2018_-_EdUHK_report.pdf
- 136.The Open University of Hong Kong (OUHK) (n.d.). Open InnoChallenge. Retrieved from: <http://www.ouhk.edu.hk/SAO/Career%20Promotion/OIC/LowResBooklet.pdf>
- 137.The T Hotel (n.d.). Retrieved from: <https://www.thotel.edu.hk/>
- 138.Technological and Higher education Institute of Hong Kong (THEi) (n.d.a). Programme Brochure of Bachelor of Engineering (Honours) in Aircraft Engineering. <https://www.thei.edu.hk/f/programme/2504/FST-AE.pdf>
- 139.Technological and Higher education Institute of Hong Kong (THEi) (n.d.b). Innov8 Enterprise Start-up Centre. Retrieved from: <https://www.thei.edu.hk/student-services/innov8>
- 140.Technological and Higher education Institute of Hong Kong (THEi) (n.d.c). THEi Application for Programmes with Available Study Places. Retrieved from: <https://thei.edu.hk/page/detail/2810/#choice>
- 141.Transport and Housing Bureau (2020). Study on the Economic Contribution of Maritime and Port Industry in 2018. Retrieved from: https://www.hkmpb.gov.hk/document/Study_on_Economic_Contribution_of_Maritime_and_Por.pdf
- 142.Transport Department (2020). Transport in Hong Kong – Railways. Retrieved from: [https://www.td.gov.hk/en/transport_in_hong_kong/public_transport/railways/index.html#:~:text=Hong%20Kong's%20railways%20are%20run,\(XRL\)%20and%20Light%20Rail](https://www.td.gov.hk/en/transport_in_hong_kong/public_transport/railways/index.html#:~:text=Hong%20Kong's%20railways%20are%20run,(XRL)%20and%20Light%20Rail)
- 143.Transport Department (2021). Table 4.1(a): Registration and Licensing of Vehicles by Class of Vehicles. Retrieved from: https://www.td.gov.hk/filemanager/en/content_4883/table41a.pdf
- 144.UK National Apprenticeship Service (2019). The A-Z of apprenticeships. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/799897/A_to_Z_of_apprenticeships.pdf

145. UNESCO-UNEVOC International Centre (n.d.). TVETipedia Glossary - Vocational education and training (VET). Retrieved from: <https://unevoc.unesco.org/home/TVETipedia+Glossary/filt=all/id=545>
146. United Nations (2015). Transforming our world: the 2030 Agenda for Sustainable Development. Retrieved from: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
147. United Nations Educational, Scientific and Cultural Organization (UNESCO) (n.d.). Early childhood care and education. Retrieved from: <https://en.unesco.org/themes/early-childhood-care-and-education>
148. University Grants Committee (2020). Grants for UGC-funded Universities as a whole, 2013-14 to 2019-20. Retrieved from: <https://cdcf.ugc.edu.hk/cdcf/searchStatSiteReport.action>
149. Vocational Training Council (VTC) (2013a). First Hong Kong female to become an ocean-going vessel captain. Retrieved from: https://www.vtc.edu.hk/html/en/media/media_feature_271.html
150. Vocational Training Council (VTC) (2013b). 21st Century Learning Skills. Retrieved from: <http://cltcms.vtc.edu.hk/21st-century-learning-skills-english-version-only/>
151. Vocational Training Council (VTC) (2018a). 3D Heat Conductive Knee Sleeve developed by HKDI CIMT team wins Red Dot Award: Design Concept 2018. Retrieved from: https://www.vtc.edu.hk/html/en/about/press_1544.html
152. Vocational Training Council (VTC) (2018b). IVE students on internship in Singapore researching new drug for cancer. Retrieved from: https://www.proact.edu.hk/html/en/media/vtc_digest_250.html
153. Vocational Training Council (VTC) (2019a). IVE Graduates Win Award with AI-aided "Drone-based Search and Rescue Support System for Extreme Terrains". Retrieved from: https://www.vtc.edu.hk/html/en/media/vtc_digest_362.html
154. Vocational Training Council (VTC) (2019b). IVE student of Higher Diploma in Child Care and Education awarded scholarship, turning destiny on its head through perseverance. Retrieved from: https://www.proact.edu.hk/html/en/media/vtc_digest_377.html
155. Vocational Training Council (VTC) (2020). Scholarship and Award Schemes. Retrieved from: <https://www.vtc.edu.hk/admission/f/upload/2547/scholarship-pamphlet-Jul-2020.pdf>
156. Vocational Training Council (VTC) (n.d.a). VPET History in Hong Kong. Retrieved from: https://vpvet.vtc.edu.hk/wiki/index.php?title=VPET_History_in_Hong_Kong
157. Vocational Training Council (VTC) (n.d.b). VTC Lifelong Learning. Retrieved from: <https://lifelonglearning.vtc.edu.hk/>
158. Vocational Training Council (VTC) (n.d.c). Vplus Engineering. Retrieved from: https://cpe.vtc.edu.hk/ad/vplus/index_en.html
159. Vocational Training Council (VTC) (n.d.d). Shine Skills Centre - Achievement and Recognition. Retrieved from: <https://www.vtc.edu.hk/shine/html/en/achievement/recognition.html>
160. Vocational Training Council (VTC) (n.d.e). Apprenticeship. Retrieved from: <http://apprenticeship.vtc.edu.hk/en/>

161. Vocational Training Council (VTC) (n.d.f). Aviation Programmes for Young Talents in Hong Kong. Retrieved from: [http://engineering.vtc.edu.hk/Downloads/3.1%20Aviation%20Programmes%20for%20Young%20Talents%20in%20Hong%20Kong%20V4%20\(Dr%20Liu\).pdf](http://engineering.vtc.edu.hk/Downloads/3.1%20Aviation%20Programmes%20for%20Young%20Talents%20in%20Hong%20Kong%20V4%20(Dr%20Liu).pdf)
162. Vocational Training Council (VTC) (n.d.g). Earn and Learn Scheme. Retrieved from: <https://www.vtc.edu.hk/earnlearn/html/en/>
163. Vocational Training Council (VTC) (n.d.h). Vco-create Facilities. Retrieved from: <https://vco-create.vtc.edu.hk/facilities>
164. Vocational Training Council (VTC) (n.d.i). Quality Assurance in Action. Retrieved from: https://www.vtc.edu.hk/uploads/files/publications/Quality_Assurance/QualityAssurance_Aug2018.pdf
165. Vocational Training Council (VTC) (n.d.j). Skilling for the Future. Retrieved from: https://www.vtc.edu.hk/ero/Skilling_for_the_Future_2020_Update/8/#zoom=z
166. VTC Alumni database (n.d.). Retrieved from: https://alumniportal.vtc.edu.hk/wps/portal/lut/p/z1/jVHBboJAEP2WHjiWGRbRtbdf4IJbs9FE0LkYbOhKiQxBIPj3xfS0tS2d28y8N3nvDRCsgarsUuisKUyVIV2_oeE24OOIqykupFoyFKtolOMg8VAipDYAw7HA55i9yFfIMckZkMUfLvXuPfcTqSZePGOQAAGdmu937oH0Hx34Swns05H2GaW_z6c3Hz0KbA0qiAYoJmE44tPQw1tUNuA-yxmQLs3u6y-i2vIcA9X5e17ntXuuu_G-aY6nJwcdbNvW1cboMnffzMHBnyh70yW_tpFwPKyqa1E8fiz51S_1wycSMbIT/dz/d5/L2dBISEvZ0FBIS9nQSEh/
167. VTC Occupation Dictionary (n.d.a). Aircraft Maintenance Technicians. Retrieved from: <https://occupation-dictionary.vtc.edu.hk/occupation/aircraft-maintenance-technicians>
168. VTC Occupation Dictionary (n.d.b). Executive Chinese Chefs. Retrieved from: <https://occupation-dictionary.vtc.edu.hk/occupation/executive-chinese-chefs>
169. Westerhuis, A. (2001). European Structures of Qualification Levels (Volume II). Retrieved from: <https://www.cedefop.europa.eu/files/5116en.pdf>
170. World Cities Culture Forum (2021). Retrieved from: <http://www.worldcitiescultureforum.com/data/number-of-restaurants-per-100.000-population>
171. World Economic Forum (2020). The Future of Jobs Report. Retrieved from: http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf
172. WorldSkills (2020). Hong Kong skilled talent's agile response to a global pandemic. Retrieved from: <https://worldskills.org/media/news/hong-kong-skilled-talents-agile-response-global-pandemic/>
173. WorldSkills Hong Kong (n.d.). Champions Sharing – So Ka-yu, Pearl. Retrieved from: <https://worldskillshongkong.org/en/skills-change-lives/details/145590>
174. Youth College (n.d.). Retrieved from: <https://www.yc.edu.hk/ybsite/html/en/>



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