



FINAL REPORT

**The importance of
TAFE to Victoria's
prosperity**

June 2018

Disclaimers

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Key findings

Victorian TAFEs and dual sector universities

Across Victoria, there are 12 stand-alone TAFEs and four dual-sector universities

Economic contribution



In 2016 -17, Victorian TAFEs contributed **\$2.9 billion** to Victoria's Gross State Product

Every \$1 spent by Victorian TAFEs and dual sector universities supports **\$2.19 of value-added in the Victorian economy**



TAFEs contribute towards significant improvement in employment outcomes for their students



62.2% employment prior to training to 72.5% employment after training

Victorian TAFEs directly employ **over 5,000**

full-time equivalent teaching staff and

3,500

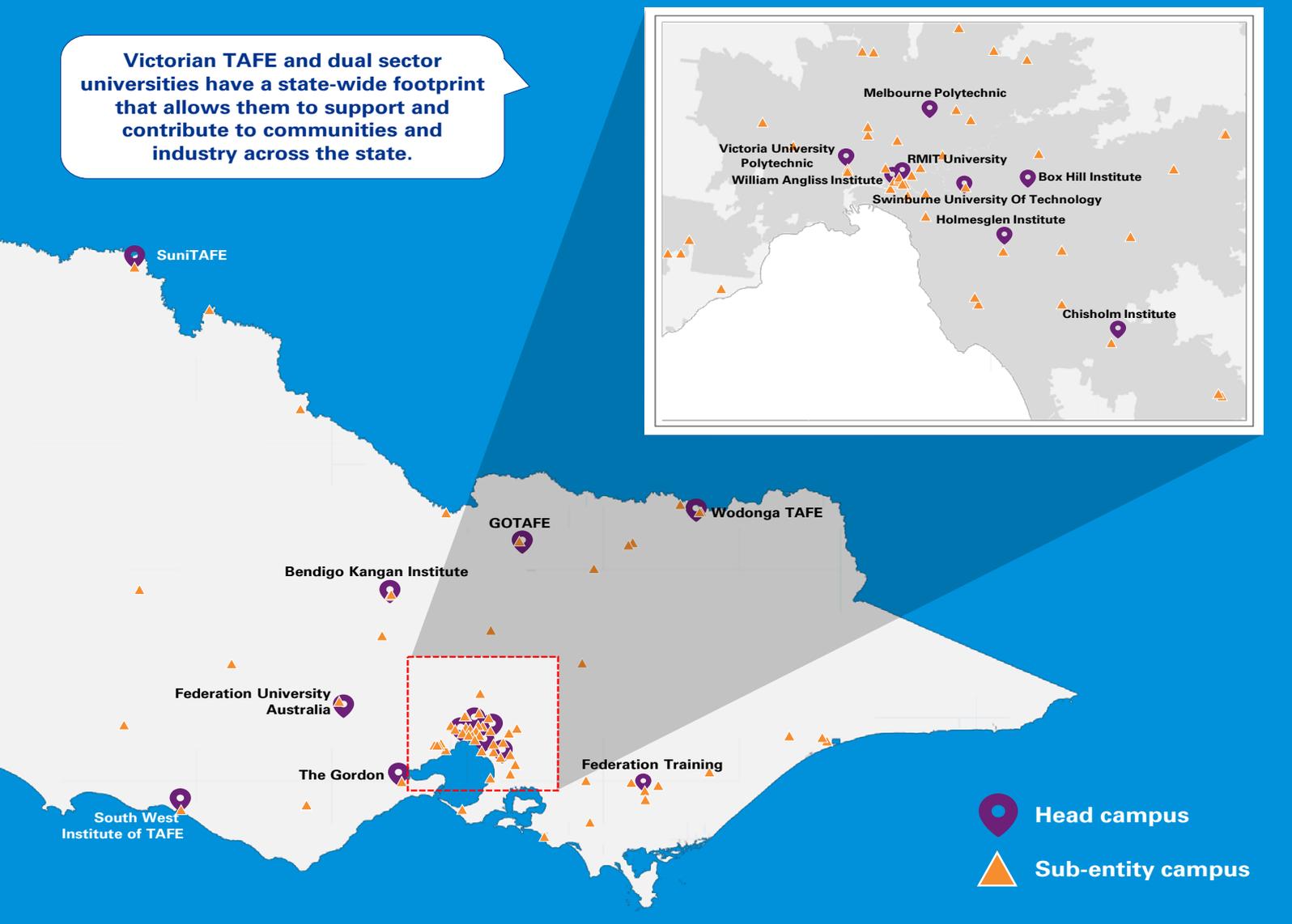
full-time equivalent non-teaching staff



TAFEs lift the overall productivity of Victoria's workforce



Victorian TAFE and dual sector universities have a state-wide footprint that allows them to support and contribute to communities and industry across the state.



 Head campus
 Sub-entity campus

Social contribution



Victorian TAFEs have a broad range of **successful partnerships and linkages with industry**, which help drive innovation across the state

Victorian TAFEs and dual sector providers provide equity and access to education and training for all Victorians



Victorian TAFEs have some **world class facilities and courses**



Regional TAFEs play a prominent role in their local community, and **train proportionately more regional students** than private providers or higher education

In 2016, international students spent ~\$98 million on education fees, and ~\$171 million in the local economy, **contributing directly to local industries, and to vibrant and inclusive communities across the state**



Summary

While the economic and social contributions of TAFEs are important in their own right, **many of the key themes highlighted are interrelated** – the economic and social benefits do not occur in isolation of each other. That is, **the economic benefits of Victorian TAFEs lead to social benefits, and vice versa.**

Victorian TAFEs provide opportunities for key student cohorts to access training and education that leads **to increased participation in the workforce** and **higher levels of employment**

Industry partnerships both help companies transform and grow, and provide students with **opportunities to up-skill and transition into higher paying positions, and contribute to a lift in the overall productivity of the workforce**

Increased participation in the labour force and higher levels of employment are key components in **reinforcing social cohesion, and providing opportunities for equity and access to education for all students**



Victorian TAFEs demonstrate an explicit commitment to community engagement, which provides **employment for local communities, who grow their operations and investments in the region**

Improved skills provide Victorians with **the ability to give back to their communities**, and to **move to industries which provide key services to Victoria**

International students attracted to study in Victorian TAFEs **contribute to a greater sense of multiculturalism and provide the broader student cohort with a global outlook**

Case Studies and Impact Snapshots throughout the report bring to life the breadth of tangible examples where **TAFE and dual sector universities are delivering outcomes and impact for Victoria, and Victorians.** These exemplars illustrate the significant influence Victorian TAFE and dual sector universities have, including through the provision of equity and access to education and training, their long-standing relationships with industry, and their commitment to and integration with communities across Victoria.



Shaping
Victoria's future

TAFEs play a crucial role in supporting Victoria to address ongoing challenges to its prosperity:

- rapid industry transformation
- ongoing skills shortages in key growth sectors
- the growing need for workforce up-skilling
- access to skills for disadvantaged Victorians

1. Executive Summary

INTRODUCTION

For decades, public policy experts have pointed to clear evidence that higher levels of education lead to public and private benefits, financially and socially. Not only do post-secondary qualifications mean graduates earn more and are more likely to be employed, they are also more likely to have better health outcomes, parenting skills and volunteering rates — adding to overall social cohesion.

If Victoria, and the country more broadly, is to meet the skills needs of the future, to have a sufficient number of highly skilled individuals to work in new and emerging industries, up-skill and re-skill many whose lives have been disrupted by shifting industrial demand, and provide second chances for those who failed to successfully negotiate the school system, then a healthy and vibrant TAFE system is a non-negotiable part of the education system.

As the Productivity Commission noted in 2017, the vocational education and training system has three broad aims: to deliver a productive and highly skilled workforce; to enable everyone, regardless of their background, to participate in the labour market, and contribute to Australia's economic future; and to contribute to the increasing skill levels of working Australians.¹ The Productivity Commission further stated that the system must achieve these basic aims in ways that are affordable, timely, appropriate, relevant and accessible with a quality teaching and learning framework.

Given the evolutions in policies of the past decade, it is now overdue that we take time to reflect on the contribution of the state's 16 TAFEs and dual sector universities to the Victorian economy, in social and economic terms.

SCOPE

KPMG has been engaged by the Victorian TAFE Association to undertake an analysis of the contribution of TAFEs to Victoria's prosperity.

As part of KPMG's engagement, a range of data sources have been used to guide the assessment of the social and economic benefits of Victoria's TAFE system – this includes identification of the direct economic impacts, and indirect economic and social impacts.

¹ <https://www.pc.gov.au/research/ongoing/report-on-government-services/2017/child-care-education-and-training/vocational-education-and-training/rogs-2017-volumeb-chapter5.pdf>

KEY FINDINGS

KPMG's analysis has found that Victorian TAFEs are uniquely placed to position their students to take advantage of substantial disruption being caused by technological and structural changes in the economy. Working collaboratively with industry to shape education and training, TAFEs are equipping the future workforce with skills in a range of sectors, including medical technology, pharmaceuticals, clean energy, food and agribusiness, transport, defence, construction and professional services.

The fourth industrial revolution — that collision of related technologies such as automation, artificial intelligence, machine learning, blockchain, the internet of things, brain enhancement, additive manufacturing, synthetic biology and data analysis — will fundamentally change the nature of jobs. Victorian TAFEs have the flexibility, cost advantage, and responsiveness to be the first responder in most communities.

More specifically:

KPMG's analysis has highlighted that Victorian TAFEs have a broader remit than the delivery of training and education alone, with a role in providing a substantial service to the public and in supporting local communities. The public charter that Victorian TAFEs fulfil is extensive and differentiates them from other providers – commitments related to this role are wide-ranging, and include the breadth of education and training offered, even when there may be low demand, and the extensive locations of TAFE campuses across the state. Across a range of areas, TAFEs deliver demonstrable benefits to Victoria, and Victorians, which would otherwise not be realised.

KPMG's social impact analysis has found that **Victorian TAFEs confer a range of significant and positive impacts**, which can be categorised as both those which directly impact the individual, and those which have wider effects on businesses and the community.

KPMG's economic impact analysis has demonstrated that **Victorian TAFEs make a vital contribution to the Victorian economy** through a range of significant inputs and outputs.

Social

- **TAFEs provide significant social and economic flow-on benefits by championing and delivering equity and access to education and training for all Victorians.** Students enrolled in TAFE are more likely to be Indigenous, have a disability, live in a rural or remote area or come from a low socio-economic background when compared with students enrolled in private registered training providers (RTOs) and universities. In fact, 40 per cent of students enrolled in TAFEs come from a low socio-economic background, compared to 33 per cent in private RTOs and 14 per cent in universities.
- While there is an over-representation of students from low socio-economic backgrounds in TAFEs, these students complete their qualifications at a higher than average rate.
- **Victoria's public VET providers have long-standing relationships with local employers and communities and are an important asset in helping the state meet workforce development needs** and address equity challenges. For example, Healthscope has co-located a hospital on the grounds of Holmesglen Institute which gives TAFE students access to a world-class acute care hospital while giving Healthscope clinical staff access to state-of-the-art simulation facilities.
- **Victorian TAFEs have a broad range of successful partnerships and linkages with industry which help drive innovation.** These relationships are critical in aligning delivery in areas of emerging and evolving sectors while re-skilling those affected by uncertain employment in declining sectors. For example, a partnership between SuniTAFE and Agromillora Australia is trialling the planting of super, high-density olives and almonds at the SuniTAFE training farm, benefitting Agromillora and exposing students to the newest horticulture methods and technology.

Economic

- TAFEs and dual sector universities make a substantial contribution to the Victorian economy. In 2016-17, **Victorian TAFEs contributed \$2.9 billion to Gross State Product (GSP)**. This comprised:
 - **Increased household consumption of \$1.17 billion per annum** relating to education spending and additional consumption due to higher household incomes as a result of higher workforce participation, higher employment, and increased household wages.
 - Increased TAFE education activity **enables Victorian industries to export an additional \$934 million per annum**.
- TAFEs in regional **areas play a prominent role in their local community by supporting local and emerging workforce needs and through a range of engagement activities** that benefit local governments, businesses and individuals. In 2016, Victorian TAFEs earned aggregate income of \$1.35 billion of which \$1.32 billion was spent back into the economy in the form of wages, procurement, maintenance and other operating expenses.
- **International TAFE students contributed an estimated \$170 million to the Victorian economy.**
- Every \$1.00 spent by Victorian TAFEs and dual sector universities supported \$2.19 of value-added in the Victorian economy.
- A raft of sectors benefit directly from TAFE-trained labour workforces. In 2016-17, an additional \$413 million could be attributed to outputs in the construction sector due to productivity increases related to TAFE training, \$353 million to the manufacturing sector and \$246 million to the health care and social assistance sector.
- Through TAFEs, an increase in skilled labour supply allows industries to fill labour shortages and produce more output, providing growth for the Victorian economy – for example, while a significant proportion of students were employed prior to undertaking their TAFE study, another 8,700 people were employed after completion of study, increasing total employment in the student cohort from 62.2 per cent prior to training to 72.5 per cent after training.

CONCLUSION

Victoria faces ongoing challenges to its prosperity, including rapid industry transformation, ongoing skills shortages in key growth sectors and the growing need for workforce up-skilling, and broader questions about inequality and the associated implications for social cohesion.

Through their support of key student cohorts, close community engagement, industry partnerships, and industry-leading training, Victorian TAFEs have a vital role in sustaining and growing Victoria's prosperity into the future.

2. Introduction

2.1 Scope of work

KPMG has been engaged by the Victorian TAFE Association (VTA) to undertake an analysis of the contribution of TAFEs to Victoria's prosperity.

2.2 Methodology

As part of the engagement, a range of data sources were used to guide the assessment of the social and economic benefits of Victoria's TAFE system – this includes identification of the direct economic impacts, and indirect economic and social impacts.

To support the economic modelling and market overview that was undertaken as part of this engagement, KPMG developed a data request which was circulated to all Victorian TAFEs and dual sector universities. Prior to circulation, KPMG assessed all publicly available data sources, and tested a draft of the data request with a small number TAFEs to reduce the reporting burden.

KPMG received data requests from TAFEs, and sourced additional inputs for analysis from the National Centre for Vocational Education Research (NCVER), Australian Bureau of Statistics (ABS), HILDA, and Commonwealth Department data (refer to Appendix A.4 for further discussion).

To estimate the *economic contribution* of the TAFE sector to the state of Victoria, KPMG used computable general equilibrium (CGE) modelling; a comprehensive tool for estimating economy-wide effects. Economy-wide impacts consist of the direct and indirect (or flow-on) effects of the TAFE sector's activity on the economy. KPMG's sophisticated in-house regional CGE model (KPMG-REG), used extensively to analyse policy reform and economic impacts at the regional level, was utilised. Detailed information regarding the KPMG-REG Model is provided in Appendix A.4.

To analyse the *social impact* of the TAFE sector, a comprehensive and strategic analysis of current literature was undertaken to identify emerging themes, including reference to domestic and international evidence.

To support the key themes emerging from the social impact analysis, case studies were sourced to provide additional context and tangible examples of the wider benefits to individuals, businesses, and communities. Case studies were collated from publicly available sources, including annual reports and published materials, the VTA, and through consultation with TAFEs.

2.3 Report governance

This report has been developed with input from the Project Steering Committee, which included KPMG subject matter experts (SMEs), TAFEs and dual sector representatives, and representatives from the VTA, the TAFE Chief Executive Officer and Chair's group.

2.4 Structure of this report

This report is structured around the following sections:

- **Infographics:** The three pages of infographics at the start of this report provide a graphical overview of the key findings and insights contained throughout this report.
- **Section 1 – Executive Summary:** The Executive Summary provides an overview of the development of the report and its key messages.

- **Section 2 – Introduction (this section):** The introduction outlines the scope of work that KPMG has been engaged to provide, and the methodology for developing this report.
- **Section 3 – Overview of Victorian TAFEs:** This section provides an overview of TAFEs and dual sector universities in Victoria, their distinct role in Victoria’s education system, and the number of participating students.
- **Section 4 – Key Themes: Social and Economic Impact Analysis:** This section provides detailed analysis and discussion of each of the key messages contained in this report. The section first discusses social impacts and then discusses economic impacts. Throughout the section, the interrelationship between social and economic impacts is discussed. Each of the social and economic impacts is supported by case studies and impact snapshots which illustrate specific practical examples of the contribution of TAFEs and dual sector universities.
- **Section 5 – The Future of Work:** This section provides an overview of the future challenges and opportunities for the TAFE system in responding to the rapidly changing needs of employers, as well as the job aspirations of students.
- **Section 6 – Appendices:** This section provides technical details regarding key aspects of the analysis undertaken as part of this report.

Throughout this report, Case Studies and Impact Snapshots have been included to bring to life the breadth of tangible examples where TAFEs and dual sector universities are delivering outcomes that impact Victoria and Victorians. These exemplars illustrate the significant influence they have, including through the provision of equity and access to education and training, their long-standing relationships with industry, and their commitment to and integration with communities across Victoria.

3. Overview of Victorian TAFEs

3.1 The shape of the Victorian TAFE sector

The Victorian Government has indicated that a prosperous future for the state requires an educated, highly skilled workforce, equipped to embrace new opportunities in a changing economy.² Victorian TAFEs assist in the development of skills for the needs of employers – helping to produce a productive workforce, now and into the future.³

Victorian TAFEs are established and governed under the *Education and Training Reform Act 2006* (ETRA), which defines the objectives of TAFEs, their functions and powers, and outlines the governance requirements.

Victoria is unique within Australia, in the number of stand-alone TAFEs (currently 12), and four dual sector universities which are operational across the state (**Table 1**). The Victorian TAFE system is diverse in terms of the size and scale of TAFEs, and the educational and training scope and focus of the institutions. The sector is more localised to regions within country and metropolitan Victoria – the spread aligns with large regional cities and hubs across the state.⁴

This report considers the contribution of the following TAFE institutes, and the TAFE component of the dual sector universities listed below, to the Victorian economy. Throughout this report, these providers of VET are referred to as 'TAFEs and dual sector universities'.

Table 1: Victorian TAFEs and dual sector universities (alternate name included in parentheses)

TAFE institutes	Melbourne Polytechnic	Federation Training
	Holmesglen Institute	South West Institute of TAFE
	Box Hill Institute	Bendigo Kangan Institute
	William Angliss Institute of TAFE	Goulburn Ovens Institute of TAFE (GOTAFE)
	Chisholm Institute	Wodonga Institute of TAFE
	Gordon Institute of TAFE (The Gordon)	Sunraysia Institute of TAFE (SuniTAFE)
Dual-sector universities	RMIT University	Victoria University Polytechnic
	Swinburne University of Technology	Federation University Australia

Source: Victorian Auditor General's Report, *Technical and Further Education Institutes: 2016 Audit Snapshot*, 2017

3.2 The unique role of the Victorian TAFE sector

Victorian TAFEs have a broader remit than the delivery of training and education alone, with a public service and engagement role to uphold.⁵ TAFEs are not-for-profit training providers, where revenue is reinvested back into the public VET system for the ongoing benefit of the community. The public charter that TAFEs need to fulfill is extensive and differentiates TAFEs and dual sector universities from other providers – commitments related to this role are wide-ranging, and include education and training offerings across the spectrum of the Australian Qualification Framework, and across a breadth of education fields which meet public demand, maintaining a range of courses even when there is low demand. TAFEs maintain campuses

² Skills and Jobs in the Education State, Victoria State Government, 2015

³ Atkinson, G, Stanwick J, 'Trends in VET: Policy and Participation', 2016, National Centre of Vocational Education Research

⁴ Goedegebuure, L and Schubert, R, Strengths and benefits of the Victorian TAFE Model, 2017, LH Martin Institute

⁵ Atkinson, G, Stanwick J, 'Trends in VET: Policy and Participation', 2016, National Centre of Vocational Education Research

across Victoria which are accessible to the public, providing counselling, library services, and student facilities at scale and often with access provided to the broader community.⁶ TAFEs and dual sector university campuses are spread across the state, providing access to education in regional and remote areas, and through the introduction of new campuses in areas of high population growth. TAFEs further demonstrate a commitment to public good through their undertaking to provide access and equity to training, enrolling students from diverse education and socio-economic backgrounds. In addition, TAFEs respond to industry need by providing specialist training in niche areas, as new trends emerge and business transformation occurs.

Victorian TAFEs have experienced continuous and rapid change over the past decade, as a result of both state and federal reforms – the most impactful being the move to a contestable training market, and associated substantial funding changes. This has had a major impact on the public VET providers, requiring them to continuously adapt and adjust their business models. In recognition of the broader contribution TAFEs make, the Victorian government recently reinstated some of the funding intended to provide support for the additional costs TAFEs face as public providers.⁷

3.3 Participation in the Victorian TAFE sector

TAFEs and dual sector university VET provision increased by 6.8 per cent in 2016, compared with 2015.⁸ Across this period, training by private providers declined by almost 30 per cent, accounting for most of the decline in delivery that occurred within Victoria.⁹ This change has led to the market share of enrolments in Victoria held by TAFEs and dual sector universities increasing to 43.6 per cent in 2016.

The most recent Victorian Training Market Report data indicates that TAFEs and dual sector universities accounted for 47 per cent of new enrolments in government-funded VET in Victoria, and 40 per cent of continuing enrolments in the period January – June 2017 (**Table 2**), continuing the upward trend in TAFE participation noted in 2016.¹⁰

Table 2: Government-funded VET delivery in Victoria

	Jan-Jun 2016	Jan-Jun 2017	Percentage Change
New enrolments (commencements)	131,966	118,349	-10.3
TAFE/Dual Sector delivery	53,298 (40.4%)	56,018 (47.3%)	+5.1%
Continuing enrolments	133,058	122,313	-8.1
TAFE/Dual Sector delivery	44,418 (33.4%)	49,972 (40.9%)	+12.5%
Total enrolments	265,024	240,662	-9.2
TAFE/Dual Sector delivery	97,716 (36.9%)	105,990 (44.0%)	+8.5%

Source: Victorian Training Market Report – Half Year 2017, Victoria State Government

⁶ Noonan P, Learning from Victoria's TAFE mistakes, 2014, The Conversation <https://theconversation.com/learning-from-victorias-tafe-mistakes-34646> (Accessed 14 February)

⁷ Skills and Jobs in the Education State, Victoria State Government, 2015

⁸ Victorian Training Market Report – Full Year 2016, Victoria State Government

⁹ Victorian Training Market Report – Full Year 2016, Victoria State Government

¹⁰ Victorian Training Market Report – Half Year 2017, Victoria State Government

4. Key themes: Social and Economic Impact Analysis

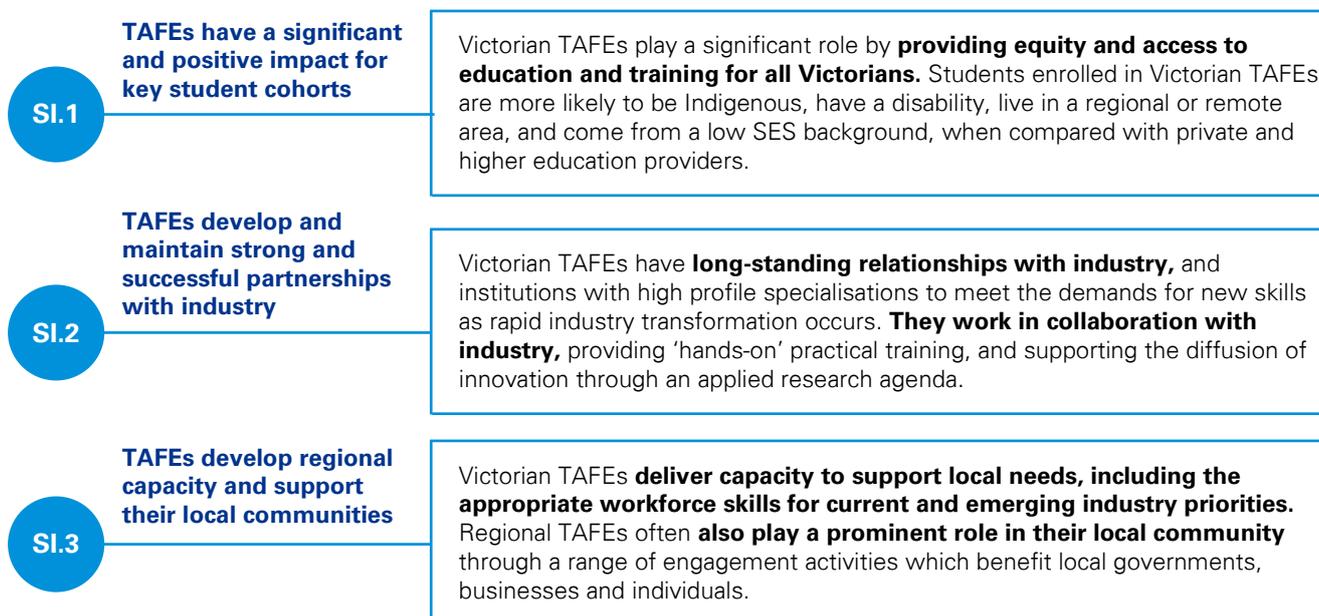
4.1 Key findings overview

KPMG's social impact analysis found that Victorian TAFEs confer a range of significant and positive impacts, which can be categorised as both those which directly impact the individual, and those which have wider effects on businesses and the community.

KPMG's economic impact analysis found that Victorian TAFEs make a vital contribution to the Victorian economy through a range of significant inputs and outputs.

Victorian TAFEs provide pathways for students to enter the labour force, up-skill, increase productivity, and achieve higher wages. Victorian businesses, and the Victorian economy as a whole, benefit from a more productive workforce. Victorian TAFEs provide strong employment opportunities for Victorians, and their operational expenditure supports local industries. Further, international TAFE students studying in Victoria deliver benefits to the Victorian economy via education fees and consumption spending that supports local business.

A snapshot of our key findings relating to our social and economic impact analysis is set out below, and is then discussed in further detail in the following pages.



<p>SI.4 TAFEs have a key role in providing graduates with educational pathways</p>	<p>TAFEs have a role in providing transition pathways to a range of educational opportunities. The emergence of the dual sector university in Victoria further supports this, providing opportunities for the educational and occupational aspirations of graduates, particularly individuals from key student cohorts who may have otherwise experienced barriers to participation.</p>
<p>SI.5 TAFEs play an active role in contributing to social cohesion</p>	<p>Social cohesion is supported through education and training, primarily through the significant role it plays in improving social equity within communities through increased workforce participation, and the relationship between educational attainments as a means of reducing social exclusion.</p>
<p>SI.6 TAFEs confer transferable skills to drive workforce participation</p>	<p>Critical to the role of Victorian TAFEs in delivering the future workforce, through education and training activities, students develop a range of transferable, 'hard' skills, including literacy, numeracy and information technology skills, and also 'soft' skills, such as creativity, interpersonal and cross-cultural communication, and teamwork skills.</p>

- EI.1** Victorian TAFEs provide training that results in **improved labour market outcomes, including higher participation rates, lower unemployment and higher full-time employment.**
- EI.2** Victorian TAFEs provide training that **allows students to up-skill and transition into higher paying industries and positions.** A more highly skilled workforce allows industries to fill labour shortages, providing growth for the Victorian economy.
- EI.3** Victorian TAFEs **provide education and training that lifts the overall productivity of the workforce.** **As the workforce** becomes increasingly more productive, Victoria benefits through higher output and higher wages.
- EI.4** Victorian TAFEs **provide substantial employment in local communities** for teaching and non-teaching staff, and **grow local communities through their operations and investments.**
- EI.5** Victorian TAFEs **attract international students to Victoria, which grows Victoria's economy** through increasing exports associated with international student fees, and local spending by international students in local businesses and Victorian industries.

4.1.1. Reading this section

This section is structured around each of the six social impact and five economic impact key findings themes outlined earlier in **Section 4.1**. While each key finding theme is important in its own right, many of the key themes are interrelated – the economic and social benefits of TAFEs do not occur in isolation of one another. That is, the economic benefits of Victorian TAFEs lead to social benefits, and vice versa.

To demonstrate the linkages between key finding themes, each section includes the symbol below (which is included here as an example). The symbol below indicates that the key finding theme discussed in the section has a linkage with Economic Impacts 1, 2, 3 and 4.

Links with economic impact analysis

El.1

El.2

El.3

El.4

4.2 Key findings – Social impact analysis

KPMG’s social impact analysis has found that Victorian TAFEs confer a range of important and positive impacts, which directly impact the individual and have wider effects on businesses and the community. Indicated under each key finding is reference to the specific economic impacts which cross over with the social benefits being described, highlighting the significant and interrelated contributions of Victorian TAFEs to individuals, businesses and the wider community.

4.2.1. Student benefits – key student cohorts

A critical and unique benefit attributable to TAFEs is the ability to improve economic prospects for some of Australia’s most disadvantaged persons, through providing training that leads to employment or a pathway to further education. In this way, TAFEs deliver demonstrable benefits to Victoria, and Victorians, which would otherwise not be realised.

TAFEs have a positive impact for participation in training and education by key student cohorts

SI.1

Victorian TAFEs play a significant role in providing equity and access to education for all Victorians. Compared to the Victorian private provider and higher education market, equity indicators for students in the Victorian TAFE market show that TAFE students are far more likely to be Indigenous, have a disability, live in a regional area, and come from a low SES background. Further, the large majority of Victorian higher education students live in a metropolitan region and do not reside in a low SES area. That is, Victorian higher education institutions tend to attract more ‘advantaged’ students.

One of the aims of the Victorian Skills First agenda is to ensure that the publically-funded VET system is equitable and addresses disadvantage¹¹, and it is Government’s intention that TAFEs and dual sector universities play a key role in achieving this objective. Indeed, there is an over-representation of students from low socio-economic areas in the Australian VET sector.¹² The most recent data indicates that the rise in enrolments in TAFE is driving increased enrolments among some vulnerable cohorts, including the unemployed, Indigenous, those without prior Certificate III qualifications, and those from culturally and linguistically diverse (CALD) backgrounds (**Table 3**).¹³

¹¹ Victoria State Government, 2017, Skills First <http://www.education.vic.gov.au/skillsfirst/Pages/vetfr.aspx> (Accessed 27 February)

¹² Foley, P, ‘The socio-economic status of vocational education and training students in Australia’, 2007, National Centre for Vocational Education Research

¹³ Victorian Training Market Report – Half Year 2017, Victoria State Government

Table 3: Total commencements in government-funded VET in key student cohorts

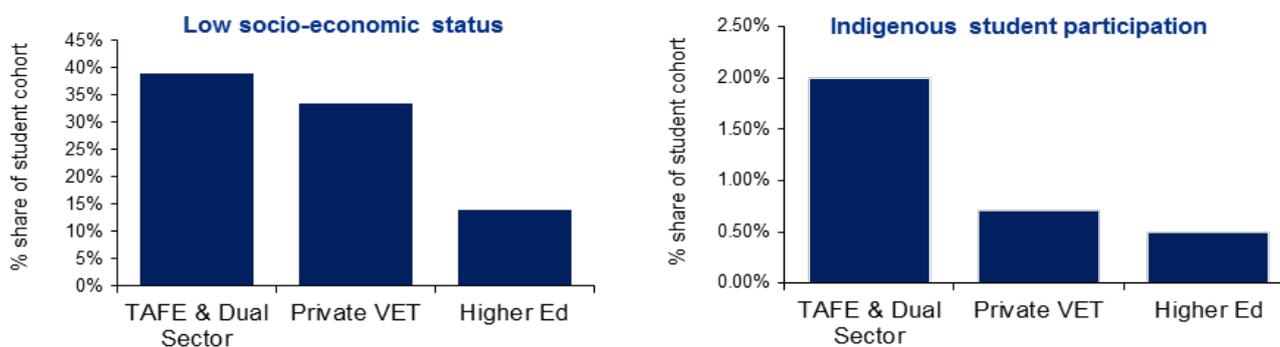
	Total Commencements (all providers)		Delivery by TAFEs/Dual sector universities	
	Number of commencements Jan-Jun 2017	Proportion of all commencements Jan-Jun 2017	% of total commencements in key cohort Jan-Jun 2017	% increase: Jan-Jun 2016 to Jan-Jun 2017
Early school leavers (aged 15-19)	7,049	6.0%	76.6%	-1.5↓
No prior Certificate III (aged 20-64)	45,773	38.7%	47.7%	+7.3↑
Indigenous	2,258	1.9%	45.6%	+8.0↑
People with a disability	18,293	15.5%	34.4%	+2.4↑
Women	62,998	53.2%	41.0%	+6.9↑
CALD	40,500	34.2%	37.1%	+14.5↑
Unemployed	35,556	30.0%	36.7%	+4.7↑

Source: Victorian Training Market Report – Half Year 2017, Victoria State Government

These findings align with research by Foley (2007)¹⁴ who found that there is an over-representation of students from low socio-economic areas in the Australian VET sector, and that these students complete qualifications at a better-than average rate.

A key characteristic of the Victorian TAFE sector is the role it plays in training low-SES and high needs students, particularly those in regional locations, as well as responding to changing demographics, including an ageing population and an increase in enrolments from CALD backgrounds, when compared with Victorian private providers and the higher education sector (**Figure 1**). South West Institute of TAFE and William Angliss Institute are highlighted through *Impact Snapshots*, and provide educational opportunities, financial assistance, and student support services, to remove disadvantage and increase participation rates amongst key student cohorts. These are important distinguishing features exemplifying the unique role of the Victorian TAFE sector, driving equity and access to education and training for all.

Figure 1: Participation in the Victorian TAFE sector by key student cohorts



¹⁴ Foley, P. (2007). The socio-economic status of vocational education and training students in Australia. https://www.ncver.edu.au/_data/assets/file/0013/3406/sp407.pdf

Impact Snapshots

Exemplar programs to provide equity and access

A unique benefit attributable to TAFEs is the ability to improve economic prospects through the provision of training that leads to employment or a pathway to further education.

South West Institute of TAFE continues to deliver its renowned disability programs across South West Victoria. Participants engage in a range of group and individual community focused activities, projects and classroom based learning. The Institute delivers a number of programs in partnership with disability services across the regions, providing relevant skills development for their clients.

South West Institute of TAFE is a registered DHHS and National Disability Insurance Scheme (NDIS) service provider – much activity is currently underway ensuring they are ready to continue to support people with disabilities under the new NDIS system.

Services and financial support to remove disadvantage

The *William Angliss Institute* provides educational opportunities and financial assistance to support disadvantaged students in achieving their career ambitions, including specific equity and Indigenous scholarships aimed at increasing participation rates amongst key student cohorts.

Further, through *William Angliss Institute's* Support Services, Disability Services, Counselling, and Personal Development and Learning, advisors are available for students to enhance their capacity to achieve success in an accessible and welcoming environment, including through in-class support, after-hours online tutoring services, and flexible learning spaces

EI.1

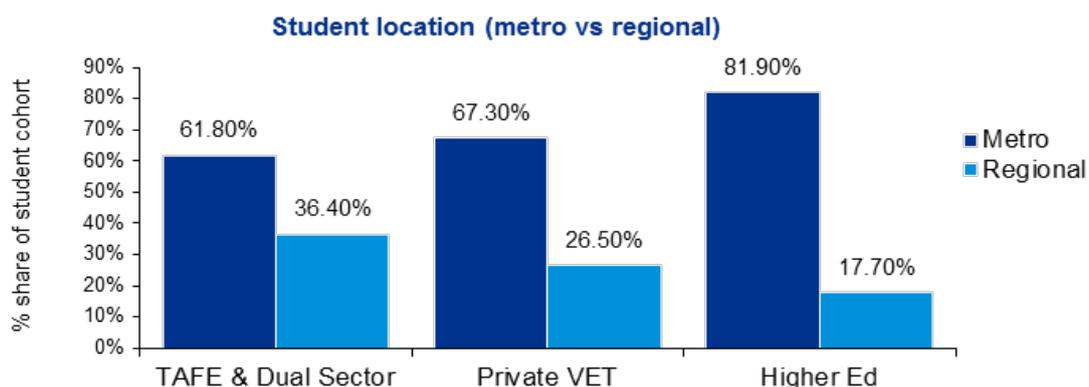
EI.2

EI.3

Interconnectedness between social and economic impacts

Victorian TAFEs provide opportunities for key student cohorts to access training and education that leads to **increased participation in the workforce, higher levels of employment, and higher full-time employment**. Graduates are able to **up-skill and transition into higher paying industries**, and contribute to a **lift in the overall productivity** of the workforce.





Source: NCVET Total VET Students and Course 2016

Importantly, in addition to TAFEs and dual sector universities providing access to training for key student cohorts, they also provide employment outcomes for their students in the form of participation in the labour force, higher employment and higher rates of full-time employment. As outlined in **Table 4**, before training, and when compared to private VET providers, the overall student cohort for Victorian TAFEs and dual sector universities is less likely to be participating in the workforce, less likely to be employed, and less likely to be employed in full-time work. However, after training, Victorian TAFEs and dual sector universities are closing these gaps, both in overall terms (by increasing participation, employment and full-time employment), and also **closing the gap across every measure when compared to students being trained by private VET providers**.

Table 4: Comparative student outcomes for Victorian TAFEs and dual sector universities and private VET providers

Labour Force Status	Victorian TAFEs and dual sector universities		Victorian private VET providers	
	Before training	After training	Before training	After training
Employed	62.2%	72.5%	73.2%	80.5%
Employed full-time	56.9%	60.8%	61.4%	60.0%
Employed part-time	43.0%	38.8%	38.6%	39.6%
Not employed	37.8%	27.5%	26.8%	19.5%
Not in labour force	22.3%	13.8%	17.7%	11.0%
Unemployed	20.0%	15.8%	11.2%	9.5%
Employment rate (employed/labour force)	80.0%	84.2%	88.8%	90.5%
Participation rate (% in the labour force)	77.7%	86.2%	82.3%	89.0%

Source: NCVET Student Outcomes 2017

4.2.2. Community benefits – Industry links

In addition, Victoria's public VET providers, with historic relationships with local communities and business, endeavour to assist the state to meet workforce development needs and broader equity challenges facing Victoria's economy, industry and communities.

Victorian TAFEs have a broad range of successful partnerships and linkages with industry, which support innovation and helps businesses transform and grow. These relationships are critical, particularly in aligning with training delivery in areas of emerging industry need, e.g. in sectors where job growth is occurring, or to assist in the offset of losses in other sectors experiencing transformation.¹⁵ The Holmesglen – Healthscope Case Study provides an example of an education and health precinct designed in partnership to meet future challenges through innovative co-location and collaboration. Within some regional and remote areas, TAFEs also play an important role in working with local government and businesses to help create and grow industries – in these locations, there is an ongoing expectation that TAFEs will provide for the 'difficult to service' markets, where student numbers are low, delivery resources scarce and costs high.¹⁶

SI.2

TAFEs develop and maintain strong and successful partnerships with industry

Victorian TAFEs have long-standing relationships with industry, and institutions with high profile specialisations, to be able to meet demands for new skills as rapid industry transformation occurs. They work in collaboration with industry, providing 'hands-on', practical training to equip graduates with workforce skills that are essential for entering the job market, including through the apprenticeship and traineeship schemes.

Victorian TAFEs also have a role in supporting the diffusion of innovation through an applied research agenda – through their links with industry, TAFEs help translate new knowledge into the workforce. Through their partnerships with TAFEs, businesses are able to access a range of services, including research capability and expertise and infrastructure, to explore their pressing challenges and drive their innovation agenda.

TAFEs provide a range of opportunities for 'hands-on', practical training to equip graduates with workforce skills that are essential for entering the job market, including through industry-linked apprenticeship and traineeship schemes. The core feature of the apprenticeship model, which integrates on- and off-the-job training and establishes a partnership between the employer, apprentice and training provider, has stood the test of time.^{17,18} The model provides a substantial proportion of the state's workforce pipeline, and since 2010, Victorian TAFEs have enrolled 25 per cent of Australia's apprentices.¹⁹ Further, evidence suggests that there is a strong level of support for these training schemes within Australia, particularly from industry bodies, with a 2017 employer survey demonstrating that over 77 per cent of businesses were satisfied that apprentices and trainees are obtaining the skills that they require from training.²⁰

As innovation becomes increasingly important to the prosperity of the nation, there is an opportunity for the TAFE sector to continue to contribute through an applied research agenda. Applied research refers to those activities with a focus on solving 'real-world problems', and through its ties with industry, TAFEs plays an important role in translating this knowledge into the workforce.²¹ For example, a partnership between SuniTAFE and Agromillora Australia demonstrates an innovative horticulture collaboration, driving industry outcomes and student training opportunities. Through their strong links with TAFEs, businesses are able to access a range of services, including research capability and expertise, infrastructure, community connections, and/or partnership with innovation hubs or enterprise incubators, to explore their pressing challenges and drive their innovation agenda.²²

¹⁵ VECCI Higher Education Taskforce Report, 'Reforming the Victorian Vocational Education and Training (VET) System', 2015

¹⁶ TAFE Directors Australia, 'The Role of TAFE in Regional and Remote Australia', 2004

¹⁷ Hargeaves J, Stanwick J, Skujins P, 'The changing nature of apprenticeships: 1996-2016, National Centre for Vocational Education Research, 2017

¹⁸ Atkinson, G, Stanwick J, 'Trends in VET: Policy and Participation', 2016, National Centre of Vocational Education Research

¹⁹ Victorian Training Market Report – 2016, Victorian State Government

²⁰ 'Employers' use and views of the VET system 2017', National Centre for Vocational Education Research, 2017

²¹ Beddie F, Simon L, 'VET applied research: driving VET's role in the innovation system', National Centre for Vocational Education Research, 2017

²² Beddie F, Simon L, 'VET applied research: driving VET's role in the innovation system', National Centre for Vocational Education Research, 2017

Impact Snapshot

Innovative horticulture partnership - driving industry outcomes and student training

A horticultural partnership was established between *SuniTAFE* and Agromillora Australia, who signed a five year memorandum of understanding in 2016 for the planting of super high-density olives and almonds at the *SuniTAFE* Training Farm.

Hedgerow planting of these crops is new to Australia, and the *SuniTAFE* farm will form an important trial plot to introduce and showcase the practice.

The trial will expose *SuniTAFE* students to the newest horticulture methods and technology, preparing them well for their future careers.



EI.1

EI.2

EI.3

Interconnectedness between social and economic impacts

Through their successful partnerships and linkages with industry, Victorian TAFEs help **drive increased participation** in the workforce, **higher levels of employment**, and **higher full-time employment**.

Industry partnerships both **help companies transform and grow**, and provide students with **opportunities to up-skill and transition into higher paying positions**, and **contribute to a lift in the overall productivity** of the workforce.

Case Study

A pivotal role in industry support, research and innovation

Kangan Institute's Textile and Fashion Hub is a best practice exemplar of integrated relationships between enterprise, government and education providers.

Initially created through a partnership with the Council of Textile and Fashion Industries of Australia (TFIA), the Hub supports micro-businesses and SMEs that make up more than 85 per cent of business in the textile, clothing and footwear industry.

Located in Cremorne in inner Melbourne, the Hub provides access to state of the art technology, underpinning innovative practice in a fast-moving arena. The Hub's infrastructure and technology suite enables small businesses to run samples of new products and prototype new designs before going to market. Operating on a fee-for-service model, the Hub provides access to technical expertise via consultancy – also on offer are a range of tailored training programs and workshops designed to enable skills transfer and workforce development, including practical business knowledge, to support product designers and developers.



Case Study

Holmesglen - Healthscope Education and Health Precinct

The collaboration between *Holmesglen Institute* and Healthscope is unique in that it moves beyond traditional boundaries in training and skills development in a TAFE environment, resulting in a hospital co-locating on the site of a TAFE institute for the first time.

The purpose of the partnership is to support a health and education precinct that leads to improved health and education outcomes for the community, aiming to provide a platform for:

- promoting best-practice through innovation and education to facilitate optimal graduate and patient health outcomes;
- providing access to high quality supported clinical placements for *Holmesglen* students, across a range of health disciplines and settings;
- providing *Holmesglen* students and teaching staff with access to a dynamic acute-care hospital on campus, and access for Healthscope clinical staff to world-class simulation facilities; and
- developing joint capability in applied research that has real-world impacts in education and health.

The *Holmesglen* – Healthscope partnership is actively working to meet future challenges through workforce innovative models of care.

The collaboration between *Holmesglen* and Healthscope has firmly embedded the Moorabbin Campus in the heart of the local community, creating a valuable 'asset' with which the community can engage across a range of areas, with high quality health and education services available in the one location.



4.2.3. Community benefits – Capacity building and community engagement

Training provided by Victorian TAFEs contributes to the development of the skills base in Australia. However, this training and education not only develops the individual, but also helps mature identity and social capital – driving not only skill development, but influencing behaviours within communities.²³

TAFEs actively develop regional capacity and support their local communities through ongoing engagement initiatives

SI.3

Victorian TAFEs deliver capacity to support local needs, including the appropriate workforce skills for current and emerging industry priorities – this is particularly important in regional areas, where the provision of industry focused training and graduates with the appropriate work-ready skills are essential for attracting industries to the region and in meeting the specific needs of business and individuals. TAFEs often also play a prominent role in their local community, demonstrating an explicit commitment to local engagement. These activities are driven through a range of engagement initiatives which deliver benefits for local governments, businesses and individuals.

Beyond the use of services and facilities, community engagement also encompasses a range of activities, such as social consultancy, contributions to regional governance and planning, and education outreach including hosting community forums, events and festivals, and student-led community initiatives.²⁴ Given the nature of these activities, the benefits they generate are predominantly accrued by the community, e.g. local governments and businesses, and individuals, who engage directly with a TAFE institute. The development of the Lilydale Campus as a Community Hub is highlighted as a *Case Study*, providing an exemplar of a purposefully planned campus with a breadth of service offerings and infrastructure available to facilitate community engagement.

Capacity building is particularly important in rural areas, where the development of the appropriate workforce skills and provision of industry focused training are essential for attracting industries to the region and meeting the specific needs of business and individuals.²⁵ Often regional TAFEs and their campuses play a prominent role in their local community, demonstrating an explicit commitment to local engagement. The Victorian Competition and Efficiency Commission described these benefits as “improving service delivery and expanding the scope of services, encouraging social connectedness within communities, facilitating access to and participation in activities, and improving efficiency and better use of assets, including land”.²⁶

²³ Griffin, T, ‘Costs and benefits of education and training for the economy, business and individuals’, 2016, National Centre for Vocational Education Research

²⁴ Deloitte Access Economics, ‘The importance of universities to Australia’s prosperity: A report prepared for Universities Australia’ 2015

²⁵ TAFE Directors Australia, ‘The role of TAFE in regional and remote Australia – A TDA position paper’, 2004

²⁶ The Victorian Competition and Efficiency Commission, ‘Getting it together: An inquiry into the sharing of government and community facilities’, 2009



TECTURA ARCHITECTS
ARCHITECTURE PLANNING INTERIOR DESIGN PROJECT MANAGEMENT



EI.1

EI.2

EI.3

EI.4

Interconnectedness between social and economic impacts

Victorian TAFEs deliver capacity to meet local needs, and demonstrate an explicit commitment to community engagement. Through these activities, TAFEs help drive **increased participation in the workforce, higher levels of employment, and higher full-time employment**, particularly in regional areas. A strong presence in the regions provide students with **opportunities to up-skill and transition into higher paying positions locally**, and contributes to a **lift in the overall productivity** of the workforce. TAFE operations also **provide employment for local communities**, that grow through their operations and investments in the region.

Case Study

Development of Lilydale campus as a 'Community Hub'

Box Hill Institute have purposefully planned and developed their Lilydale campus as an exemplar 'Community Hub', with the vision to create a comprehensive education precinct that truly encompasses lifelong learning – from early childhood to further education and beyond. This vision is becoming a reality, working in partnership with community, government, schools, industry and employers in the region to deliver an exceptional and sustainable education precinct.

Beyond the introduction of course offerings designed to meet industry needs, the Lilydale campus has a strong community focus designed to encourage and sustain local engagement. Services offered include a local library, café, facilities to support local mothers' groups and children's play groups, conference facilities, and accommodation amenities with enhanced training opportunities for students. In addition, a child care centre and maternal health care facility will open in 2018, providing additional community services.

Through the *Box Hill Institute*, the Lilydale campus also collaborates with a range of organisations, including *Deakin University* that have a cloud-based facility located on campus, *William Angliss Institute of TAFE*, and disability services provider Melba.

The campus hosts monthly 'community festivals' with dedicated topics to engage industry and local supporters in a networking opportunity with TAFE teachers around course offerings which are relevant to the region and priority business needs. The vision for the Lilydale Lakeside Education Precinct will be further complemented in the coming years with additional education services including the opening of Kidzmondo and a children's farm in 2019.



Impact Snapshots

Wodonga recognises community partners

A unique relationship developed in Wodonga has been providing local engagement and access to infrastructure to serve the local community.

Wodonga TAFE has been instrumental in allowing the Country Fire Authority (CFA) to utilise part of their facility as a Level 2 Incident Control Centre, and to conduct numerous training exercises including Phoenix Parsons, ensuring the CFA is able to better support North East communities and prepare them in the event of fire.

Change Our Brains Initiative

Chisholm Institute has led the development and piloting of the Change Our Brains program, to prevent suicide and raise awareness of mental health issues amongst young trades people.

The program was developed with the support of Headspace, Tomorrow Man, Wesley Mission and others, aiming to equip young men and women with tools to better communicate their emotions, reach out if they need help, and to know where to turn if feeling depressed.

Key elements of the pilot program included: establishment of a network of student and staff volunteers to provide an initial peer support referral system, facilitated workshops for several Chisholm trades groups, and a tradies 'Breakfast of Champions' to raise awareness and promote a help-seeking culture among tradies for alcohol, drugs, mental health and suicide issues.



4.2.4. Community benefits – Educational pathways

An additional benefit of the VET sector is its role as a pathway to a range of educational opportunities. These pathways have been supported by a unique operating model – the dual sector university – which originated in Victoria. These pathways both connect courses within TAFEs and across institutions, and provide training which allows students who may have otherwise experienced barriers to participation to gain admission to the higher education system.^{27, 28}

TAFEs have a key role in providing graduates with a range of educational pathways

SI.4

TAFEs have a role in providing transition pathways to a range of educational opportunities through the connection of courses within, and across, TAFEs, and as a pathway to higher education. The emergence of the unique dual sector university in Victoria further supports this, providing opportunities for the educational and occupational aspirations of graduates to transfer between sectors, particularly individuals from key student cohorts who may have otherwise experienced barriers to participation.

TAFEs and dual sector universities provide graduates with flexibility, allowing them to enroll, exit, and re-enter study as required. TAFEs and dual sector universities also provide ongoing lifelong learning and the opportunity to access education to specialise, re-skill, or change careers, with pathways that are designed for all types of students, at all ages, and at all points in their career. For example, of the 336,000 domestic students commencing higher education qualifications in 2010, around 30,000, or 9 per cent, had previously undertaken VET courses indicating an important alternate pathway to universities in Australia, particularly for graduates who have completed higher-level VET qualifications²⁹. Examples of these pathways are included as *Impact Snapshots*, which highlight a range of support services students can access as they navigate education and training offerings.



These qualifications further contribute to the socio-economic prosperity of individuals, including through higher levels of per capita income related to higher living standards and social prosperity.³⁰



²⁷ 'Tertiary education and training in Australia', National Centre for Vocational Education Research, 2012

²⁸ Griffin, T, 'Disadvantaged learners and VET to higher education transitions', National Centre for Vocational Education Research, 2014

²⁹ Griffin, T, 'Disadvantaged learners and VET to higher education transitions', National Centre for Vocational Education Research, 2014

³⁰ Deloitte Access Economics, 'The importance of universities to Australia's prosperity', 2015

Impact Snapshots

Pathways to opportunity

RMIT University provides a range of pathways to support students transitioning from vocational education to higher education.

RMIT assists students to reach and achieve their goals via pathways through VET – in addition to course advice, students are also provided with a range of services purposefully designed to encourage ongoing engagement with training opportunities, including Industry Mentoring Programs, and the Future Edge Program, a scheme that provides students with the chance to participate in voluntary activities in order to achieve extracurricular accreditation.

Mapping tertiary education options

GOTAFE offers a dedicated team in the Goulburn-Ovens region who provide career and study planning advice tailored to individual interests, options, and circumstances.

The service is designed to help young people navigate tertiary education and employment – matching career opportunities with education and training pathways that put those opportunities within reach.

Through the scheme, *GOTAFE* works with Year 10-12 students across north-east Victoria providing a distinctive model for career and study planning that empowers young people, and which is relevant and regionally contextualised.

Improving Indigenous participation

The Aboriginal and Torres Strait Islander 'Try Out Online' scholarship project led by *Swinburne University of Technology* enables students to commence or continue studying through Swinburne Online, and has successfully transitioned students from vocational to higher education.

Swinburne is committed to supporting the education and training of Aboriginal and Torres Strait Islander individuals and communities. The scholarships, which are funded by the Commonwealth Higher Education Participation Program, provide opportunities for Indigenous students to stay engaged with training and transition through to a range of undergraduate university programs.

EI.1

EI.2

EI.3

EI.5

Interconnectedness between social and economic impacts

Victorian TAFEs have a key role providing pathways to a range of educational opportunities. These opportunities provide domestic and international students with the prospect of engaging with further education and training to specialise, re-skill, or change careers, with pathways that are designed for all types of students, at all ages, and at all points in their career, and allowing students who may have otherwise experienced barriers to participation to gain admission to the higher education system. Through this role TAFEs help **drive increased participation in the workforce, higher levels of employment, and higher full-time employment**, contributing to **a lift in the overall productivity** of the workforce and **growth in international student numbers**.



4.2.5. Community benefits – Social cohesion

Victorian TAFEs support enhanced social cohesion, primarily through the important role they have in delivering education and training to provide increased access to workforce participation and social inclusion. This is particularly important in communities with higher proportions of socially vulnerable groups, including unemployed and disengaged youth, Indigenous Australians, and people with disability.

SI.5

TAFEs play an active role in contributing to social cohesion

Victorian TAFEs contribute to enhanced social cohesion, which is linked to education and training and the significant role it plays in improving social equity within communities. The relationship between educational attainment as a means of reducing social exclusion is also critical and has been shown to deliver broad benefits to society, including increased inclusion and tolerance, reduced crime rates, strengthened social capital, increased charitable giving and participation in community service, and an improved ability to adapt to and use technology.

The role of TAFEs in supporting social cohesion has been explored, primarily through the role VET plays in improving social equity within communities. This is supported by a 2012 Australian study, which looked at the relationship between education and social exclusion³¹, and found that improving even basic educational levels (which can be through VET) is a useful way of reducing social exclusion. Back to Work initiatives are featured as *Case Studies*, where a Career Pilot partnership between Holmesglen and Chisholm Institute aims at reaching disengaged youth, and Wodonga TAFE introduced tailored programs to showcase the skills of program participants to prospective employers through work placements and public activities.

Furthermore, other Australian reviews have looked at the effects of VET on various disadvantaged groups, including Indigenous Australians and people with disability³², who are often vulnerable to social exclusion. In partnership with the National VET Equity Advisory Council, Deloitte Access Economics provided an overview of the key benefits that education broadly can deliver to society, including increased social cohesion, inclusion and tolerance, reduced crime rates, strengthened social capital, increased charitable giving and participation in community service, and an improved ability to adapt to and use technology.



³¹ Buddelmeyer, H, Leung, F, and Scutella, R, 'Education oneself out of social exclusion, Promoting social inclusion for disadvantaged groups through education and training' 2012, National Centre for Vocational Education Research

³² Deloitte Access Economics, 'The economic and social benefit of increased participation by disadvantaged students in VET, 2011, National VET Equity Advisory Council

Impact Snapshot

Student testimony

'I choose *Victoria University Polytechnic* because of the good facilities and services that it offers to many immigrants and students from low income families. I was born in Burundi but fled in 2010 because of political unrest and the murder of both my parents. During my studies, I completed an internship with the African Population and Health Research Center, and was the winner of the 2015 United Nations Population award, working with the Tegla Laroupe Foundation to empower talented refugees. All my achievements are because of VU – they listened to me and transformed me into a better person who can serve other people, especially those who seek refuge in other countries.'

Innocent Karabagega

- Certificate I in Work Education
- Certificate III in EAL (Further Study)
- Certificate III in General Education for Adults
- Certificate IV in EAL (Access)
- Advanced Diploma of Legal Practice
- Bachelor of Laws

Case Study

Back to Work at Holmesglen and Chisholm Institute

Career Pilot is a Back to Work partnership between *Holmesglen* and *Chisholm Institute*. With bases at *Holmesglen's* Moorabbin campus and *Chisholm's* Frankston campus, Career Pilot is an industry-oriented, learner-centred, evidence-informed collaboration.

From the outset, *Holmesglen* and *Chisholm* wanted to involve young people who were not in employment, education or training, who had finished Year 11 or 12 but were now disengaged, and who had endeavored unsuccessfully to find employment.

Drawing on longstanding networks, the TAFE partners sought expertise and capability beyond their specialist understanding of training, industry engagement and applied research – with an aim to attract Career Pilot graduates into, or working towards, employment.

The successful program was informed by the Brotherhood of St Lawrence's Research and Policy Centre, with industry engagement a standing priority to ensure a role that was both workable for employers and meaningful for participants.

The collaboration between *Holmesglen* and *Chisholm Institute* demonstrates an intrinsic capacity of Victoria's TAFE providers and dual sector universities. They have the expertise to respond imaginatively and pragmatically to government policy objectives that rely on a combination of training, education, industry engagement and research capabilities.

EI.1

EI.2

EI.3

Interconnectedness between social and economic impacts

Victorian TAFEs support enhanced social cohesion, primarily through the role they play in delivering education and training to provide increased access to workforce participation and social inclusion. Through this role, TAFEs help **drive higher levels of employment**, and **higher full-time employment**, contributing to a **lift in the overall productivity of the workforce**, which is particularly important in communities with higher proportions of socially vulnerable groups.

Case Study

There is no single pathway to work.

Wodonga TAFE's Back to Work program has shaped a strategic approach that responds to differing individual circumstances and opportunities in local communities.

Serving socially diverse and geographically dispersed communities, *Wodonga TAFE* has galvanised community support for its Back to Work program by expanding existing partnerships with local employers and support services.

They have included specific projects for Indigenous and Nepali jobseekers, industry taster programs in rural operations and retailing, and a community landscaping project for jobseekers who have a disability. Employability skills training, industry visits, career counselling and industry guest speakers are scoped into project designs.

Wodonga TAFE's Back to Work program directly tackles impediments faced by new job seekers by introducing the skills of program participants to prospective employers through work placements and public activities that put their skills on visible display.

Work placements with local employers have significant benefits for jobseekers creating the opportunity for an employer to provide direct feedback about job ready skills.



4.2.6. Student benefits – Transferable skills

Victorian TAFEs have a key role in developing and delivering a range of services to support the development of transferable skills amongst student cohorts, and indeed often for the broader community. These initiatives are designed to complement student training, providing experiential opportunities to contextualise learning within an industry or global environment. In addition, TAFEs directly support the development of new skills, or re-skilling and/or up-skilling through a range of schemes, including Skills and Jobs Centres, Tech Schools, and bespoke initiatives implemented to meet a specific industry and/or regional need. For example, through the Chisholm Institute, the New Employment Exchange and Training (NEXT) Centre was established to manage and deliver ‘just in time’ training for the current and future workforce, including new skilling, re-skilling and up-skilling programs. Overall, these services help provide Victoria with appropriately trained graduates for the current, and future, workforce.

TAFEs confer transferable skills to drive workforce participation

SI.6

Critical to the role of Victorian TAFEs in delivering the future needs of employers, through education and training activities students develop a range of transferable ‘hard’ skills, including literacy, numeracy, problem-solving and information technology skills, and systems thinking. Students also develop their ‘soft’ skills, such as interpersonal and cross-cultural communication, team work and team-building skills, time management, reflective skills, and lateral thinking and creativity.

When considering the benefits of education, broader learning effects and skill development (beyond a student’s specific discipline expertise) is an important outcome.³³ For example, research has indicated that tertiary graduates are more likely to demonstrate attributes such as active thinking, processes reflective of more complex, and less automatic thought, and a broad range of transferable intellectual and academic skills.³⁴ These outcomes are important in the context of the role of Victorian TAFEs – to help equip the future workforce with skills applicable across a broad range of industry sectors, including creative industries, technology, health care, and professional services.



³³ Griffin, T, ‘Costs and benefits of education and training for the economy, business and individuals’, 2016, National Centre for Vocational Education Research

³⁴ Cunningham, A, ‘The broader societal benefits of higher education’, Solutions for our Future

Impact Snapshots

Student testimony

'The most valuable part of the exchange for me is how I've managed to step out of my comfort zone to converse and mingle in a society that I would otherwise not have been able to be a part of.

I've managed to share valuable information with amazing people such as the lecturers in the college. Learning accounting and seeing the differences between the USA and Australia will help me in my future career as I now have that global knowledge.'

Community Services Student *Box Hill Institute* describing their experience with the Global Education Network, a program designed to provide students with opportunities for unique international training experiences

Skills and Jobs Centre help lead students to employment

GOTAFE Skills and Jobs Centre assists students develop the necessary skills to confidently and successfully seek to join the workforce.

From career advice, support in writing resumes and cover letters, and interview tips, the services offered through the Centre on campus provide the necessary preparation required to begin a successful career.

The *GOTAFE* Skills and Jobs Centre are a free and accessible service for all students, located in Shepparton, Wangaratta, Benalla and Seymour, opening new doors for students and the broader community to explore career opportunities.

EI.1

EI.2

EI.3

EI.5

Interconnectedness between social and economic impacts

Victorian TAFEs have a key role in delivering a range of services to support the development of transferable skills in students, and the broader community. Through this role, TAFEs help **drive increased participation in the workforce, higher levels of employment, and higher full-time employment**, contributing to a **lift in the overall productivity of the workforce**. The development of complementary transferable skills allows students to **up-skill and transition into higher paying industries and roles**, and **supports the continued attraction and success of international students** to Victoria, which **grows the state's economy**.

Case Study

Access and re-skilling opportunities for transitioning workers.

Through the *Chisholm Institute*, the New Employment Exchange and Training (NEXT) Centre was established to manage and deliver 'just in time' training for the current and future workforce, including new skilling, re-skilling and up-skilling programs.

It offers vital opportunities to re-skill people from industries in decline such as retrenched automotive workers, as well as students from diverse and disadvantaged backgrounds.

With dedicated classrooms, a computer lab, practical training space and opportunities for accelerated learning and on-the-job training, NEXT is delivering an important skill base. It provides the template on how to address broad skill shortages, with training programs including youth and mature apprenticeships, providing access and re-skilling opportunities for workers seeking career changes.



4.3 Key findings – Economic impact analysis

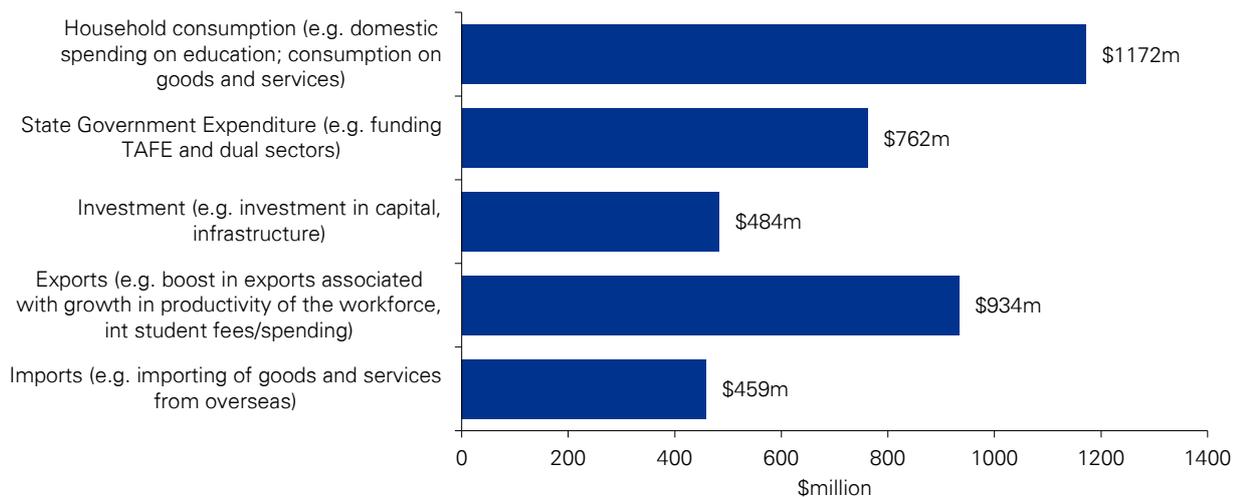
KPMG’s economic analysis has found that **Victorian TAFEs and dual sector universities make a vital contribution to the Victorian economy**, as outlined through the five key findings in this section.

Victorian TAFEs and dual sector universities provide pathways for students to enter the labour force, up-skill, increase productivity, and achieve higher wages. As a result, Victorian businesses, and the Victorian economy as a whole, benefit from a more productive workforce. Victorian TAFEs and dual sector universities provide strong employment opportunities for Victorians, and their operational expenditure supports local industries. Further, international TAFEs and dual sector university students studying in Victoria deliver benefits to the Victorian economy via education fees and consumption spending that supports local business.

The headline aggregate result of KPMG’s modelling of these economic impacts is that, **in 2016-17, Victorian TAFEs and dual sector universities contributed \$2.9 billion to Victoria’s Gross State Product (GSP) (refer to Figure 2).**

All Victorian businesses and individuals benefit from the operations of TAFEs and dual sector universities. In addition to expenditure in the local economy, TAFEs and dual sector universities deliver productivity benefits that enhance the productive capability of Victorian industries, and attract international students who benefit the state’s export figures. Expenditure by Victorian TAFEs was \$1.32 billion in 2016; but the total economic value realised by Victorians was \$2.89 billion. That is, every dollar spent by Victorian TAFEs and dual sector universities supported \$2.19 of value-added in the Victorian economy – demonstrating the substantial contribution of TAFEs and dual sector universities to the state’s economy.

Figure 2: Dollar change in components of real expenditure-side GSP (Victoria)



Source: KPMG-REG model

In technical terms, the increase in the size of the Victorian economy occurs as follows:

- The largest contributor to **higher GSP is household consumption of \$1.17 billion**. This relates to education spending and additional consumption due to higher household incomes as a result of a more productive workforce (i.e. higher participation, higher employment, and higher full-time employment) and higher household wages.
- The second largest contributor to higher GSP is international and inter-regional exports which **enables Victorian industries to export products of an additional \$934 million**. International students directly contribute to Victoria’s exports, whilst a more productive workforce lowers production costs for Victorian industries relative to other states and overseas competitors.
- The third largest contributor to higher GSP is **direct funding of TAFEs and dual sector universities by the Victorian Government of \$762 million**.

- The remaining contributors to GSP – higher investment and imports –cancel each other out (i.e. they have no net effect on Victorian GSP because the increase in imports is calculated as a reduction in the size of the Victorian economy).

Economic measures

Throughout this section, there are several key economic terms used to explain our modelling results. The analysis of the economic contribution of Victorian TAFEs and dual sector universities to Victoria is based on the components listed in the following figure.

Figure 3: Graphical representation of the difference between sales/output and value-added



Source: KPMG

- **Sales/Output** is a measure of the value of the goods and services produced by an industry or sector, where the value reflects the cost of inputs: labour, capital, and intermediate inputs of goods and services, including imports.
- **Value-added by industry** is equivalent to output less goods and services, sourced from other suppliers (including imports), and is the sector’s contribution to GSP. By excluding goods and service inputs from other domestic industries and from overseas, ‘value added’ avoids double counting as it does not include the value added from other industries.
- **Employment** refers to the total number of people employed (full time and part time).
- **GSP** is a measure of the total value added of industry in Victoria plus indirect tax income to government. GSP is a measure of productivity activity in the Victorian region, but does not account for the destination or nationality of those accruing income.

4.3.1. Labour Force Benefits

Education plays a key role in supporting Victorians to obtain employment, earn higher wages and drive economic growth. Labour market outcomes resulting from education and training provide an indication of the economic benefits of TAFEs and dual sector universities to individuals and the economy.

Participation, unemployment and full-time employment

Through quality training, in-demand courses and links to industry, TAFEs and dual sector universities provide improved employment prospects for students, trainees and apprentices. As outlined in **Table 5**, TAFEs and dual sector universities provide training and skills that lead to higher employment, more full-time employment, and higher participation in the workforce. The difference between the employment rates in the

below table before and after training reveals the beneficial employment impact attributable to TAFEs and dual sector education for the cohort of students completing study.^{35,36}

Table 5: Labour force outcomes, pre- and post-training in TAFEs and dual sector universities, 2016

Labour Force Status	Before training	After training	Before training	After training
Employed	53,651	62,596	62.2%	72.5%
Employed full-time	30,553	38,089	56.9%	60.8%
Employed part-time	23,052	24,283	43.0%	38.8%
Employed (hours not stated)	46	224	-	-
Not employed	32,639	23,694	37.8%	27.5%
Not in labour force	19,253	11,910	22.3%	13.8%
Unemployed	13,386	11,784	15.5%	13.7%
Total	86,290	86,290		

Source: NCVER Student Outcomes 2017

Note: Students who did not state their labour force status are counted as 'not in labour force'. Note that this table includes the same data as referred to earlier in the social impact section, but includes the number of students rather than the proportion of students given that it is referring to the overall impact of TAFEs and dual sector universities rather than the relative impact compared to private VET providers.

In practice, these benefits arise through both the quality training of TAFEs and dual sector universities, and through their activities which have a focus on making students employable. For example, Holmesglen and Chisholm Institute's Career Pilot program which leads to better employment outcomes for young people who endeavored unsuccessfully to find employment, and through Wodonga TAFE's Back to Work program which directly tackles impediments faced by new job seekers by introducing the skills of program participants to prospective employers through work placements and public activities that put their skills on display.

Victorian TAFEs and dual sector universities also provide quality training which is responsive and targeted to industry-specific and regional needs. For example, William Angliss has partnered with regional TAFEs to deliver the Regional Tourism Employability Project, which is an initiative to provide highly skilled staff for hotel, restaurants and other facilities in Victoria's regional destinations. GOTAFE also offers Skills and Jobs Centre assistance for students to develop the necessary skills to confidently and successfully seek to join the workforce, including career advice, support in writing resumes and cover letters, and interview tips. The services offered through the Centre on campus provide the necessary preparation required to begin a successful career.

EI.1

Victorian TAFEs provide training that results in improved labour market outcomes, including higher participation rates, lower unemployment, and higher full-time employment.

³⁵ NCVER, National Student Outcomes 2017 (VOCSTATS)

³⁶ Data has been filtered to only include TAFEs and dual-sector university students (subject completers & graduates), by Student State of Residence (Victoria). Data limitations restrict our ability to filter the data by State of Training Institution.

An additional **8,700 persons** became employed after completion of study, increasing those employed in the student cohort from **62.2 per cent prior to training** to **72.5 per cent after training**.

Completion of study assisted students of TAFEs and dual sector university in transitioning from part-time to full-time employment post-study. An additional **7,500** people were employed on a **full-time basis** after study (25 per cent growth), compared to an additional **1,200 people** employed on a **part-time basis** (5 per cent growth).

In addition, **the participation rate of the student cohort increased** (meaning that a greater proportion of the student cohort is choosing to participate in the labour force). The labour force participation rate of TAFE students increased to 86.2 per cent after completion of study (77.7 per cent prior); and the employment rate increased to 84.2 per cent after completion of study (80 per cent prior). At an aggregate level, KPMG estimates that a **reduction of 0.06 per cent in Victoria's 2017 unemployment rate is attributable to TAFEs and dual sector university training in 2017**.



Impact Snapshot

Regional Tourism Employability Project

The Regional Tourism Employability Project is an initiative to provide highly skilled staff for hotel, restaurants and other facilities in Victoria's regional destinations – providing an example of how TAFEs customise training solutions for industry clients, providing a variety of delivery models to suit their specific needs.

Through the initiative, *William Angliss Institute* partnered with regional TAFEs to deliver cost effective tourism, hospitality and events training – providing training to hundreds of students, meeting local employer needs and support the transition of graduates into the workforce.

Case Study

Back to Work at Federation Training

Federation Training's Paddock to Plate program is a unique illustration of a scheme designed to help Victorians secure a firmer labour market foothold, while also delivering positive outcomes for regional communities.

Operating across the Gippsland region, *Federation Training* designed Paddock to Plate – a program that caters for skills required by local employers by mirroring the agribusiness supply chain, from production to tourism related services.

Paddock to Plate has an ongoing emphasis on working with local industry to develop apprenticeships in cookery and traineeships in hospitality and horticulture. Many of the enrolled students are disadvantaged youth, or unemployed – so the initiative aims to set them on a journey to an apprenticeship, traineeship, or further education.

Paddock to Plate integrates industry relevant training with personal development and learning in literacy, numeracy and oracy, all of which are fundamental to the package a young person takes into the workforce.

The success of the program relies heavily on *Federation Training's* strong relationships with regional employers, large and small, and on the expertise within the institution to develop and implement training programs which integrate industry's current skill requirements, and respond to the learning needs and work aspirations of young people.

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Interconnectedness between social and economic impacts

Increased participation in the labour force, higher levels of employment and higher full-time employment are key components in **reinforcing social cohesion and providing equity and access to education for all students**. Jobs provide Victorians with purpose, a sense of belonging, broader contribution to society, and can also break down barriers.

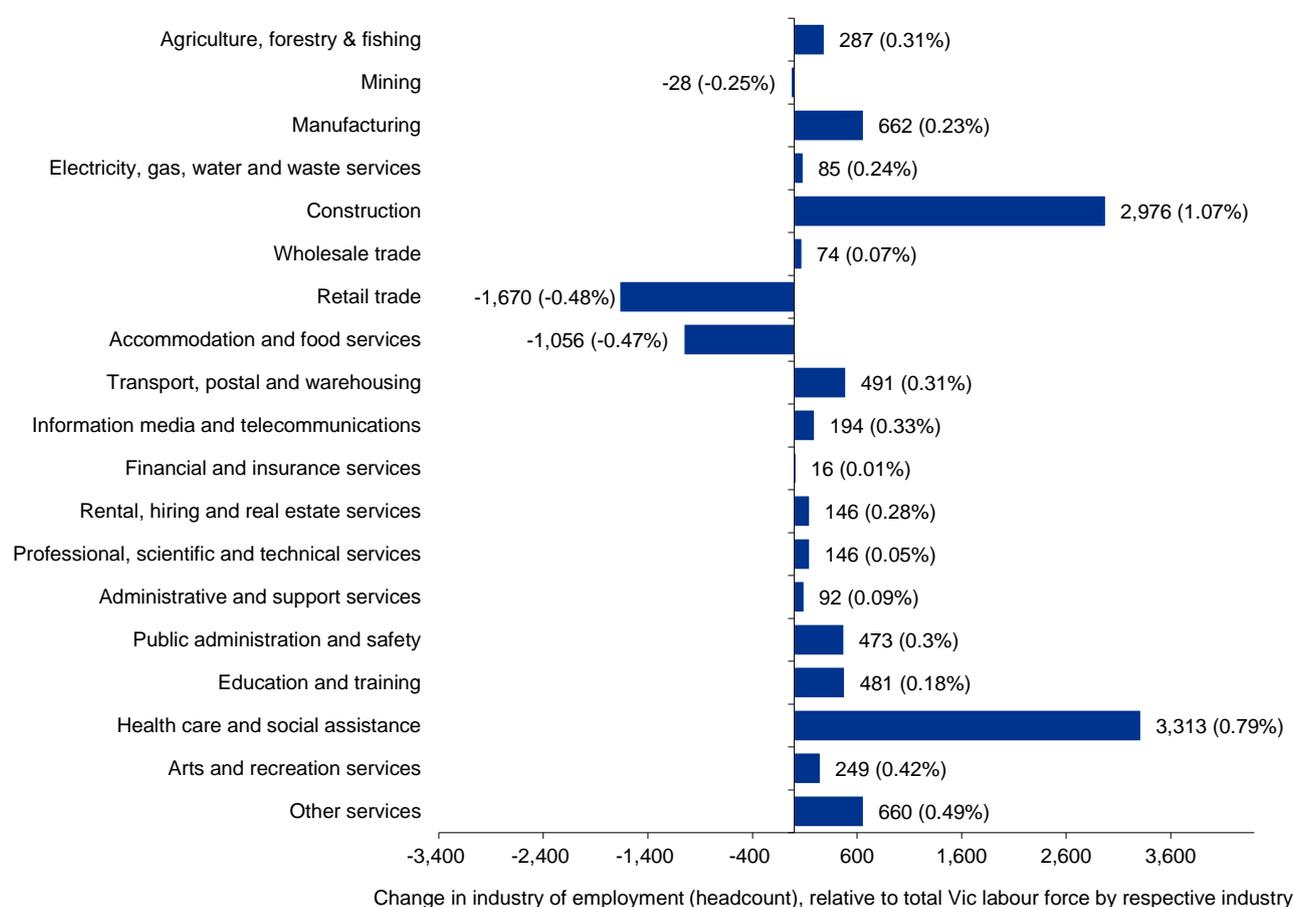
Labour force pathways

Victorian TAFEs and dual sector universities provide students with quality training and innovative courses which give them the technical knowledge and competency that allows them to gain more highly skilled roles in the workforce. Victorian TAFEs and dual sector universities also provide training that allows students to transition into higher paying industries and positions. This means benefits for students through higher pay, and for their employers through access to more productive workers and the ability to fill labour shortages. The overall result is that Victorian TAFEs and dual sector universities grow the Victorian economy.

Figure 4 shows the labour market outcomes associated with TAFEs and dual sector universities in Victoria for different industries. The figure shows that **TAFEs and dual sector universities provide training that enables students to move from traditionally lower skilled industries to higher skilled industries.**

TAFEs and dual sector universities train students who go on to become employed in higher skilled industries such as the Health Care and Social Services and Construction sectors, with completing students making up 0.79 per cent and 1.07 per cent of the total existing Victorian employees in these sectors each year.

Figure 4: Change in industry of employment for Victorian TAFEs and dual sector university students post-study (headcount), relative to Victorian labour market (%), 2016-17³⁷



Source: NCVER Student Outcomes 2017, ABS, KPMG. Labour outcomes include TAFEs and dual sector university outcomes

Note: Those who did not state industry of employment post-study are not included in this chart (n=2095). Each bar shows the estimated relative change in the size of the labour market for each industry in the Victorian economy before and after TAFEs and dual sector study, and the total number of students for each industry is also shown next to each bar.

³⁷ Note: Where an industry has a negative number, this indicates that the net students employed in the sector has decreased which is the aggregate result of some students moving into the sector, and others moving out. For example, in relation to the accommodation and food services sector, the net result is a decrease in the labour market for that sector, however, this net result represents some TAFE students moving into the sector as a result of high-skill hospitality training, while other TAFE students (who may have been studying part-time in the sector) moving out of the sector into other industries.

TAFEs and dual sector universities make this contribution through providing quality training and targeting growth sectors. There are many examples of these contributions across the state. Melbourne Polytechnic is leading a state-wide training consortium to ensure new minimum qualification requirements are met for residential care workers within the child and family sectors. The Holmesglen – Healthscope Case Study also provides an example of an education and health precinct designed in partnership to meet future challenges through innovative co-location and collaboration. The Gordon’s Advanced Manufacturing Technology Team also manages an Australia-first carbon fibre manufacturing course, which promotes and supports growth of the existing and emerging carbon fibre sector in the Geelong region through targeted skills development and training. The long-standing traineeship and apprenticeship model is also a key part of supporting students of Victorian TAFEs and dual sector universities to provide the skills that underpin the construction industry.

EI.2

Victorian TAFEs and dual sector universities provide training that **allows students to up-skill and transition into higher paying industries and positions**. A more highly skilled workforce allows industries to fill labour shortages; providing growth for the Victorian economy.

Students completing courses in Victorian TAFEs and dual sector universities move into the labour force with higher skill levels and better employment prospects than would otherwise be the case. The increased supply of skilled labour benefits particular Victorian industries consistent with the results presented in Figure 4. With increased access to skilled employees, industries expand production by employing more Victorians and purchasing additional goods and services.³⁸

It is estimated that **in 2016-17, benefits from a larger workforce** as a result of additional up-skilling students through the Victorian TAFEs and dual sector universities **supported an additional \$1.76 billion of industry output in the Victorian economy**.



38 Note: Overall, there was a net outflow of students employed in retail trade and the accommodation and food services sector, indicating that education attainment allowed these students to either up-skill or re-train, transitioning from casual entry-level jobs to skilled labour. The movement of students away from the mining sector is reflective of a broader trend, with employment opportunities in the sector falling in recent years across Australia. Nationally, 43,000 jobs have been lost in the mining sector over the past five years (ABS Labour Force Statistics 2017).

Impact Snapshots

TAFEs providing vital skills training to support vulnerable young people

Melbourne Polytechnic is leading a state-wide training consortium to ensure new minimum qualification requirements are met for residential care workers within the child and family sectors. In partnership with the Australian Childhood Foundation, training to achieve mandatory qualifications is being delivered by TAFEs across metropolitan, rural and regional areas, funded through the Victorian Government's \$8 million Resicare initiative to ensure the safety and support of young people recovering from the effects of trauma, abuse and neglect. Through the initiative, TAFEs are playing a major role in developing a productive workforce – ensuring the appropriate training of unskilled workers, and the necessary up-skilling of the existing workforce to develop specific skills in residential and trauma informed care.

Australia's first TAFE course putting Victorian workers on the world stage

A novel course in carbon fibre manufacturing is helping put Geelong workers on the world stage.

Developed with industry, and delivered by *The Gordon*, the course provides a pathway for workers to learn skills and techniques to gain employment in the growing sector.

The course produces graduates ready to step into advanced manufacturing industry roles making lightweight, high-performance composite components for the sports, aerospace and automotive sectors – through this offering, *The Gordon* contributes to a local supply of workforce-ready graduates to meet business need.

Managed by The Gordon's Advanced Manufacturing Technology Team, the program promotes and supports growth of the existing and emerging carbon fibre sector in the Geelong region through targeted skills development and training.

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Interconnectedness between social and economic impacts

Greater skills provide Victorians with the ability to **give back to their communities**, and to **move into industries which provide key services to Victoria**. The industry partnerships between TAFEs and dual sector universities and skilled industries also leads to **greater involvement in local communities**.

4.3.2. Productivity benefits

Productivity growth is one of the key pillars of long-term growth in the economy. Education and training has substantial benefits for individuals and the economy through providing them with the skills to improve their productivity.

Increases in the wages paid to students of TAFEs and dual sector universities provide an indication of the uplift in productivity that these training providers generate.³⁹ The results in **Table 6** show that qualifications provided by TAFEs and dual sector universities result in substantial increases in wage premiums for students. On average, **TAFEs and dual sector graduates with a Diploma or Advanced Diploma earn 17 per cent more in weekly earnings** relative to those with a Year 11 education, and for those dual sector graduates with a Certificate III/IV, this level is 14 per cent more in weekly earnings. These results also appear to be supported by ABS data which indicates that the average earnings of those employed increases substantially as the level of education and training qualification increases.⁴⁰

Table 6: Returns to educational attainment relative to Year 11 or below, 2012

Education Level	Wage premium (sex weighted average)
Certificate III/IV	14%
Diploma or Advanced Diploma	17%

Source: Wilkins amended estimates (2015)⁴¹.

The skills and technical abilities provided by students of TAFEs and dual sector universities contribute to more productive employees, which in turn results in a larger Victorian economy. Having more productive employees in one industry also results in flow-through benefits for indirectly related industries (i.e. if a builder can build faster, this can in turn result in benefits for other industries). An example of this contribution is Chisholm Institute’s New Employment Exchange and Training Centre, which was established to manage and deliver ‘just in time’ training for the current and future workforce, including new skilling, re-skilling and up-skilling programs.

TAFEs and dual sector universities also provide foundational and transferable skills and **pathways to further education which again contribute to higher productivity** in the Victorian economy. That is, as students of TAFEs and dual sector universities go on to pursue pathways to higher education, the increased wages they earn from those higher degrees are, in part, a result of their participation in TAFEs and dual sector training. For example, RMIT University and GOTAFE both provide advice services which help students to consider their next steps in gaining skills and starting or developing their career.

It is estimated that in 2016-17, **productivity benefits** as a result of up-skilling students through the Victorian TAFEs and dual sector universities **supported an additional \$1.24 billion of industry output in the Victorian economy.**

El.3

Victorian TAFEs **provide education and training that lifts the overall productivity of the workforce.** As the workforce becomes increasingly more productive, Victoria benefits through higher output and higher wages.

³⁹ It is difficult to assess the causal effect of education and training on wage earnings, given the numerous confounding variables such as an individual’s innate ability. That said, a conventional approach to understanding the link between education and productivity is to use increases in wages as an indication of the impact of training on productivity. This approach does not, however, represent a value judgement regarding the relative importance of different occupations, genders or industries. For example, many occupations are likely to generate very high social benefits but attract low wages, and further, there are well-documented issues associated with wage rates across genders.

⁴⁰ Australian Bureau of Statistics (2009), Education and Training Experience 2009, Cat. No. 6278.0, Canberra (adjusted to 2017 dollars). Note that the ABS results do not account for other factors that influence income, and therefore the results are referred to as ‘indicative’ rather than conclusive.

⁴¹ The earnings model is estimated by ordinary least squares regression and the estimates are the regression coefficients. The sample for the earnings model is full-time employees aged 25–59. All models contain controls for age, place of birth and Indigenous status, state of residence, population density of region of residence, disability and English proficiency – Wilkins (2015).

Case Study

Industry links increasing workforce capacity

A partnership between *Federation University Australia* and Nazareth House in Ballarat is delivering a recruitment and re-training service to meet industry needs and overcome the challenge of recruiting and re-training qualified staff. Working collaboratively, the team have developed tailored training proposals designed to help Nazareth House increase their workforce by at least 5 per cent annually, to meet growing demands as the facility increased capacity.

The success of the initial scheme led Nazareth House to repeat the process throughout 2018.



SI.1

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Interconnectedness between social and economic impacts

Increased productivity means that Victorians can **give back more** to their community **more efficiently and effectively**, and also **have more time** to spend doing the things they enjoy.

4.3.3. TAFE Operations

Victorian TAFE operations directly and significantly impact the state's economy by higher value added, employment, and aggregate expenditure – these effects highlight the importance of the education and training sector to the Victorian economy.

In practice, these benefits result from direct spending of TAFEs in local communities to support their operations (e.g. for supplies, maintenance, and capital purchases), and through the spending of employees in local businesses. An example of the contribution of TAFEs and dual sector universities through their operations is Box Hill Institute's Lilydale Campus, which has involved a significant investment in the local community, has created jobs throughout the development of the project and will continue to build the community through its ongoing activities.

In 2016, Victorian TAFEs:

- Earned aggregate income of \$1.35 billion, of which \$1.32 billion was spent in the Victorian economy in the form of wages and other operating expenses; and
- **Employed 5,055 full-time equivalent teaching staff and 3,654 full-time equivalent non-teaching staff.**

The modelling of these data inputs shows that there are strong flow-on benefits to the Victorian economy from revenue generation by Victorian TAFEs and dual sector universities. It is estimated that in 2016-17, the **operations of Victorian TAFEs and dual sector universities supported \$1.74 billion in industry output and \$1.22 billion of value-added in the Victorian economy.**

EI.4

Victorian TAFEs provide substantial employment in local communities for teaching and non-teaching staff, and grow local communities through their operations and investments.

SI.2

SI.3

Interconnectedness between social and economic impacts

The operations of TAFEs provide direct employment and investment within local communities, which is a key component of their ability to **develop regional capacity** and **support local communities**.

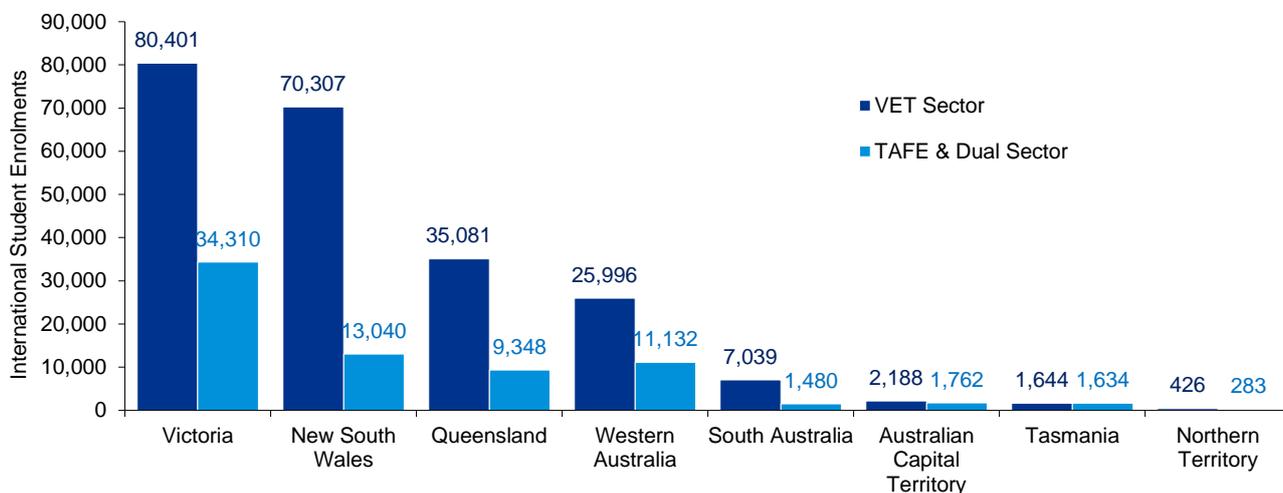
4.3.4. Exports (International Students)

International education is a major export industry in Victoria, and more generally, in Australia. International students contributed \$28 billion to the Australian economy in 2016-17, compared to \$16.9 billion in 2012-13.⁴² The importance of this sector is also growing, with an increase in education export earnings between 2015-16 and 2016-17 of 16.1 per cent.⁴³

TAFEs form one part of the international education market in Victoria, and contribute substantial benefits to the Victorian economy by attracting students to Victorian institutes (onshore and offshore). International students training at Victorian TAFEs and dual sector universities pay tuition fees in Victoria, with onshore students also purchasing goods and services from Victorian businesses.

As seen in **Figure 5**, Victorian VET institutions received the largest portion of international student enrolments in 2016. When isolating TAFEs and dual sector universities, Victoria vastly outperforms the rest of the country, attracting over double the number of similar enrolments in NSW institutions. This means that **Victoria’s TAFEs and dual sector universities attract more international student enrolments than any other state**. The international students attracted by TAFEs and dual sector universities generate **flow-through benefits through tuition payments and purchases of goods and services from Victorian businesses**.

Figure 5: International student enrolments in the VET sector by state of institution, 2016



Source: NCVER, Total VET students and courses 2016. Includes off-shore international students enrolled in Australian VET.

Victorian TAFEs and dual sector universities reported combined enrolments of 34,310 in 2016, with the balance predominantly being made up of private VET providers (46,008 in 2016).⁴⁴ In 2016, international TAFE and/or dual sector university students living in Victoria spent:⁴⁵

- An estimated **\$98 million on education fees**, directly contributing to state and national export figures.⁴⁶
- An estimated **\$171 million in the local economy**; directly contributing to local industries.

In practical terms, the impact of Victorian TAFEs and dual sector universities attracting international students is that the income earned by TAFEs and dual sector universities through tuition fees is reinvested in local

⁴² Department of Education and Training (2017). Export income to Australia from international education activity in 2016-17, access at <https://internationaleducation.gov.au/research/Research-Snapshots/Documents/Export%20Income%20FY2016-17.pdf>

⁴³ ibid

⁴⁴ NCVER, Total VET students and courses 2016

⁴⁵ This approach uses data for the headcount of students (rather than number of enrolments). Expenditure by the combined 10,060 international TAFEs and dual sector students living in Victoria in 2016 is then broken down into two broad export components – education course fees and expenditure on goods and services. Student data is sourced from NCVER, Total VET students and courses 2016.

⁴⁶ Data limitations prevent an estimated count of international VET students studying at Victorian owned institutions from being collected. Insufficient survey responses were received on international student headcount by Victorian TAFEs and dual sector universities. Note that this figure is likely to be conservative because it only considers students living in Victoria, rather than students studying at Victorian-owned institutions.

communities and businesses, and international students also purchase more goods and services from local businesses (such as groceries, furniture, cleaning services etc.).

Overall, there is a strong net benefit for the Victorian economy. International TAFEs and dual sector university students living in Victoria contribute \$115 million to Victoria's economy annually.⁴⁷

EI.5

Victorian TAFEs attract international students to Victoria, which grows Victoria's economy through increasing exports associated with international student fees, and local spending by international students in local businesses and Victorian industries.

SI.2

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Interconnectedness between social and economic impacts

International students attracted to study in Victorian TAFEs contribute to a **greater sense of multiculturalism** and **provide the broader student cohort with a global outlook**.

⁴⁷ In an economy facing resource constraints, increased exports and expenditure related to international students draws economic resources, i.e. capital and labour, away from other sectors. This implies lower exports to other Australian states by price-sensitive sectors; that is, those sectors most reliant on exports. This is the case for the mining sector. Other sectors, such as manufacturing, reduce exports to other Australian states in order to accommodate higher international exports. Thus, manufacturing value-added is expected to add \$31.6 million less than otherwise to Victoria's GSP due to higher student-related exports. While these results may seem counter-intuitive, this is an important component of the KPMG-REG model which aims to eliminate over-estimation of benefits by replicating feedback loops in the real economy.

5. The Future of Work

Across the past 25 years, Australia has experienced consecutive years of economic growth. However, the nation is now facing new and rapidly evolving changes in economic conditions, influenced by a number of factors including trade, technology, globalisation, and innovation.⁴⁸ More than ever before, the current and future workforce need to prepare for the changing requirements of jobs – both the jobs themselves, and the skill profiles within jobs – a situation that provides both challenge and opportunity for the TAFE system in responding to the rapidly changing needs of employers, as well as the job aspirations of students.

5.1 Economic and workforce changes

While Australia's workforce has had to continually adapt, the current period is characterised by a combination of greater, faster and different transition than previously experienced.⁴⁹ Over recent decades, there has been a significant decline in the share of people employed in manual jobs, including construction, mining, manufacturing and agriculture.⁵⁰ Conversely, non-routine jobs, including fields such as architecture, design, health care and social assistance, have steadily increased.

These ongoing structural changes are characteristic of the Victorian economy, which has experienced substantial job losses in traditional manufacturing, particularly through the decline of, and closures in, the automotive industry. Indeed, manufacturing has gone from being Victoria's largest employment sector to its third largest behind health care and social assistance, and retail trade.⁵¹

In an era of economic development in the post-mining investment boom, Australia is positioning itself for diversification in the services, knowledge and innovation sectors. This is being influenced by a changing global economy, affected by fluctuations in international and regional economic cycles, and fuelled as Australia's major trading partners in Asia transition from an industrialisation phase of development into advanced-service sector economies.⁵²

The digital revolution and automation are also accelerating changes in the workforce, and in employee skill requirements. Digital technology disruption affects every aspect of our everyday lives, driving technological, economic, social, environmental, and geopolitical trends.⁵³ While there is speculation about the scale of the change in both the number and function of jobs, there is general consensus that automation will affect all jobs to varying degrees, as the impact of computing power, device connectivity, data volumes, and artificial intelligence is felt within the labour market.⁵⁴

Riding the wave of rapid industry transformation, the Australian labour market reflects changes in the economy over recent decades. Employees entering the workforce today might have as many as five different careers, and make up to 17 changes in employer across their working lives.⁵⁵

Like other OECD economies, Australia is moving towards a knowledge-based economy, a trend which has been driven by a large increase in the number of high-skilled jobs influencing more people to gain higher-level qualifications, which has resulted in some reductions in the labour market (predominantly in areas of

⁴⁸ Payton, A, *Skilling for tomorrow*, 2017, National Centre for Vocational Education Research

⁴⁹ Hajkowicz S, Reeson A, Rudd L, Bratanova A, Hodggers L, Mason C, Boughen N, *Tomorrow's digitally enabled workforce: Megatrends and scenarios for jobs and employment in Australia over the coming twenty years*, 2016, CSIRO

⁵⁰ Health, A, *The changing nature of the Australian workforce*, 2016, Reserve Bank of Australia – CEDA: Future Skills Forum, <https://www.rba.gov.au/speeches/2016/sp-so-2016-09-21.html> (Accessed 14 February)

⁵¹ Victorian Budget 2014-15, *Strategy and Outlook Budget Paper No.2*, Victorian Government

⁵² Hajkowicz S, Reeson A, Rudd L, Bratanova A, Hodggers L, Mason C, Boughen N, *Tomorrow's digitally enabled workforce: Megatrends and scenarios for jobs and employment in Australia over the coming twenty years*, 2016, CSIRO

⁵³ Hajkowicz S, Reeson A, Rudd L, Bratanova A, Hodggers L, Mason C, Boughen N, *Tomorrow's digitally enabled workforce: Megatrends and scenarios for jobs and employment in Australia over the coming twenty years*, 2016, CSIRO

⁵⁴ Payton, A, *Skilling for tomorrow*, 2017, National Centre for Vocational Education Research

⁵⁵ McCrindle Research 2014, *Job mobility in Australia using HILDA and Department of Education data*, <http://mccrindle.com.au/the-mccrindle-blog/jobmobility-in-australia>

middle-skill jobs).⁵⁶ In addition, the ageing population, retirement pressures, and growing cultural diversification, along with the casualisation of the work and under-employment rates, are changing the demographic structure and participation rates of Australia's workforce.

5.2 Support for skill development and lifelong learning

In an environment of such fast change, employers are feeling the effects of rapid transformations, finding it difficult to attract appropriately skilled workers, and spending significant quantities of time and investment in re-training and up-skilling employees.⁵⁷ In a recent survey of OECD countries, more than one-quarter of adults reported a current misalignment between their existing skill sets and the qualifications required to do their job.⁵⁸ Further, it has been predicted that by 2020, across all types of occupations, on average, more than one-third of the core skills required to successfully perform most jobs will be made up of skills currently not yet considered critical for that role.⁵⁹

Unsurprisingly, the need to anticipate changes in the market and prepare for up-skilling are a critical priority to equip employees with the skills and capabilities needed for the future. In the workplace, employees seek to acquire contemporary and relevant skills to gain employment, and importantly, to build and retain transferable skills to maintain employment.

Globally, there has been vast change over the past decade, with technological advancements associated with the Fourth Industrial Revolution transforming the scope, scale, and potential of business. Within this context, data modelling conducted by the CSIRO determined which skills and abilities are becoming more and less important in the workplace. Their results indicate that technology design, mathematics and computer use represented the jobs with the greatest employment growth.⁶⁰ The convergence of technologies and cross-disciplinary skills is also becoming increasingly common, e.g. the combination of mechanics, electronics and computing in the design of an industrial robot or the combination of life sciences and computing resulting in bioinformatics, creating rapid growth in new global markets and novel application fields.⁶¹ However, in the future workplace, qualifications based on technical skills and technical knowledge alone are unlikely to be sufficient.⁶²

While digital interaction will continue to rise, jobs requiring strong social and non-routine analytical skills have grown markedly and in keeping with consistent wage growth since the 1980s.⁶³ Other skills not easily replicated by technology are as important as ever, including emotional intelligence, creativity, service orientation, negotiation, and complex manual dexterity.⁶⁴ Furthermore, learning how to absorb and develop problem solving skills will increase the ability for employees to keep technical skills current and to adapt to future changes that are likely to be a feature of working life.

Underpinning all of these priority skill areas is the notion that lifelong learning will be fundamental to future work environments. Related to this is the opportunity for individuals to be able to engage in learning through a variety of mechanisms and with flexibility, including through employer-focused delivery and on-the-job assessment.

⁵⁶ Payton, A, *Skilling for tomorrow*, 2017, National Centre for Vocational Education Research

⁵⁷ World Economic Forum in collaboration with The Boston Consulting Group, *Towards a Reskilling Revolution: A future of jobs for all*, 2018

⁵⁸ World Economic Forum in collaboration with The Boston Consulting Group, *Towards a Reskilling Revolution: A future of jobs for all*, 2018

⁵⁹ World Economic Forum, *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, 2016

⁶⁰ Reeson, A, Mason, C, Sanderson, T, Bratanova, A, Hajkovicz, S, *The VET era: equipping Australia's workforce for the future digital economy*, 2017, CSIRO

⁶¹ *The Future of Work: Jobs and Skills in 2030*, 2014, UK Commission for Employment and Skills

⁶² Business Council of Australia, *Future-proof: protecting Australians through education and skills*, 2017, <http://www.bca.com.au/publications/future-proof-protecting-australians-through-education-and-skills> (Accessed 14 February)

⁶³ Cunningham, W, Villasenor, O, *Employer voices, employer demands, and implications for public skills development policy*. Policy research working paper No. WPS 6853, 2015, World Bank Group

⁶⁴ Siekmann, G, Fowler, C, *Identifying work skills: international approaches*, 2017 National Centre for Vocational Education Research

5.3 Future opportunities for Victorian TAFEs

Within Victoria, rapid industry transformation, coupled with ongoing skills shortages in key growth sectors, and the growing need for workforce up-skilling, are creating new and emerging opportunities for TAFEs, including through excellence in high profile industry specialisations and innovative program offerings. Victorian TAFEs are already uniquely positioning themselves to take advantage of these changes, working collaboratively with industry to shape training and education to help equip the future workforce with skills applicable across a broad range of sectors, including advanced manufacturing, technology, health care, creative industries, and professional services. For example, the collaboration between Holmesglen Institute and Healthscope moves beyond traditional boundaries to support development of healthcare skills in a TAFE setting.

Lifelong learning has always been at the heart of the TAFE mission, supporting communities adjust and adapt as the economy changes. Given that TAFE providers supply education and training to a very significant proportion of the Australian workforce, the nation's competitiveness depends on the sector delivering training to a higher number of diverse populations, and often at higher skills levels. These changes will require a flexible TAFE system that facilitates the transition of employees between industries and meets the skills needs of growing sectors. Indeed, the service providers best able to respond quickly to emerging needs are those with existing infrastructure in place, including those already providing similar training or with existing operations in a specific region.⁶⁵ This will assist in attracting and supporting investment by industry within Victoria, who may not invest in new activities without confidence that their training needs can be met in a timely manner and to a high standard. For example, Box Hill Institute have purposefully planned and developed their Lilydale campus as an exemplar 'Community Hub', including through a strong community focus designed to encourage and sustain local engagement. The unique role Victorian TAFEs have within regional and remote Victoria is also central to their ability to be locally responsive to economic changes and industry needs, particularly in supporting the up-skilling and entry to the workforce for a section of the community who may not have otherwise been able to access the appropriate and relevant levels of education and training, with an emphasis on the ability for students and graduates to have ongoing and accessible opportunities to learn new and transferable skills, and for greater participation through those who are disadvantaged in the changing labour market.

In an environment of ongoing fiscal pressures, a focus on priority areas for the state and country which align with job transition opportunities for employees, particularly those facing declining job prospects, is critical. Clear alignment of limited and constrained resources with areas predicted to experience extraordinary job growth will create new opportunities – the Victorian Government has defined these priority areas as medical technology and pharmaceuticals, new energy technology, food and fibre, transport, defence and construction technology, and professional services.⁶⁶ These areas are fields where TAFEs already deliver training and education, providing scope to build on existing offerings, and develop new novel offerings informed by dual-professionals and cutting-edge practice to meet future industry demand. For example, the Chisholm Institute has established the NEXT Centre which manages and delivers 'just in time' training including vital opportunities to re-skill people from industries in decline as well as students from diverse and disadvantaged backgrounds.

The incorporation of technological and numeracy skills into a broader range of courses will benefit both students and employers.⁶⁷ Concurrently, adjustment of the training products available to students, in line with a lifelong learning model, might see the introduction of more modular training packages and accredited course offerings.⁶⁸ This evolution would support training being completed progressively and flexibly alongside work, and would underpin a more long-term and sustained engagement between students, employers and TAFE institutions.

Importantly, to ensure appropriate re-skilling, and successfully prepare for the ongoing and accelerated economic and labour market transformations, a wide range of stakeholders, including industry, government,

⁶⁵ The role of TAFE institutes in the Vocational Education and Training Market, PIRAC Economics Draft Report

⁶⁶ Skills and Jobs in the Education State, Victoria State Government, 2015

⁶⁷ Reeson, A, Mason, C, Sanderson, T, Bratanova, A, Hajkowicz, S, The VET era: equipping Australia's workforce for the future digital economy, 2017, CSIRO

⁶⁸ Payton, A, Skilling for tomorrow, 2017, National Centre for Vocational Education Research

and all tiers of educational institutions, will need to collaborate and share resources. Victorian TAFEs are already working collaboratively across these boundaries to deliver benefit to the state, and can take the lead in this area as the sector committed to ensuring the community has the skills and capabilities needed for the future workplace.

5.4 Conclusion

As discussed throughout this report, Victoria faces ongoing challenges to its prosperity, including rapid industry transformation, ongoing skills shortages in key growth sectors and the growing need for workforce up-skilling, and broader questions about inequality and the associated implications for social cohesion.

More than ever before, the current and future workforce need to prepare for the changing requirements of jobs, a situation that provides both challenge and opportunity for the Victorian TAFE system in responding to the rapidly changing needs of employers, as well as the job aspirations of students.

Through their support of equity and access to education for key student cohorts, close community engagement, industry partnerships, and industry-leading training, Victorian TAFEs have a vital and irreplaceable role in sustaining and growing Victoria's prosperity into the future. Continuing to work collaboratively across boundaries with industry, government and the community will deliver ongoing and significant economic and social benefits to the state, and the nation, ensuring the requisite training and skills needed for the future world of work.

Appendices

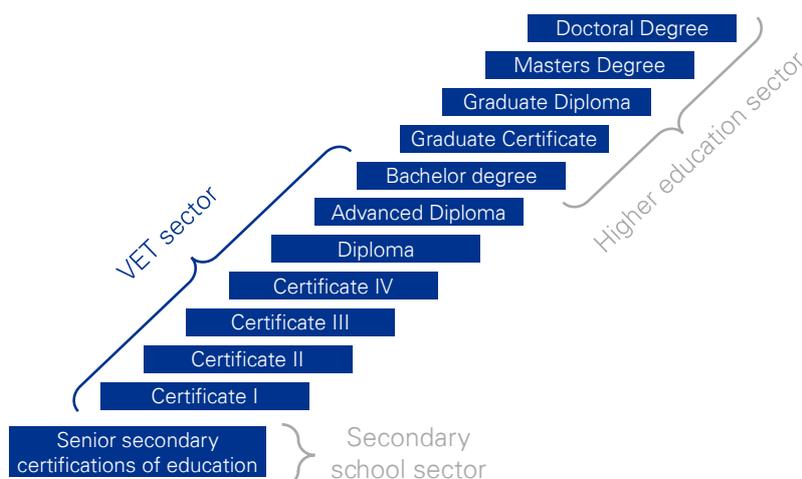
A.1 The VET sector in Australia

VET in Australia is provided in a range of ways, including via the public system, through technical and further education (TAFE) institutes, and by industry, community organisations, and private providers.⁶⁹ In addition, some universities and schools also provide VET.

The Australian VET sector is the largest education sector in Australia.⁷⁰ VET includes courses which lead to formal qualifications in a wide range of trade and professional fields, in addition to course offerings aimed at developing or refining specific work-related skills or workplace practices⁷¹, supporting business by providing a capable and highly skilled workforce, and giving employees the opportunity to gain higher-skill, higher-wage jobs.

The Australian Qualification Framework (AQF) was introduced in 1993, with the intention of providing a national consistent framework for all qualifications in post-school education and training. At a high level, the AQF includes 10 levels of qualifications (**Figure 6**) – within this framework, the VET sector provides education and training for Certificates I–IV, Diplomas, and Advanced Diplomas (in addition, VET Graduate Certificates, and VET Graduate Diplomas also fall within VET accreditation). There are some complexities with this structure, i.e. some VET providers are accredited to offer Degrees, while others offer senior secondary school qualifications. This is not a linear framework – people can and do move up and down the framework during their lifetime.

Figure 6: The Australian Qualifications Framework



Data provided through the National Centre for Vocational Education Research (NCVER) indicates that in 2016 in Australia there were:

- 4,279 VET training providers, a decrease of 1.2 per cent from 2015;
- approximately 4.2 million students undertaking some form of training, an increase of 4.9 per cent from 2015;
- 3.7 million program enrolments, an increase of 3.8 per cent from 2015;

⁶⁹ 'Australia's VET sector', Australian Skills Quality Authority website, <http://www.asqa.gov.au/about/australias-vet-sector> (accessed 20 February 2018)

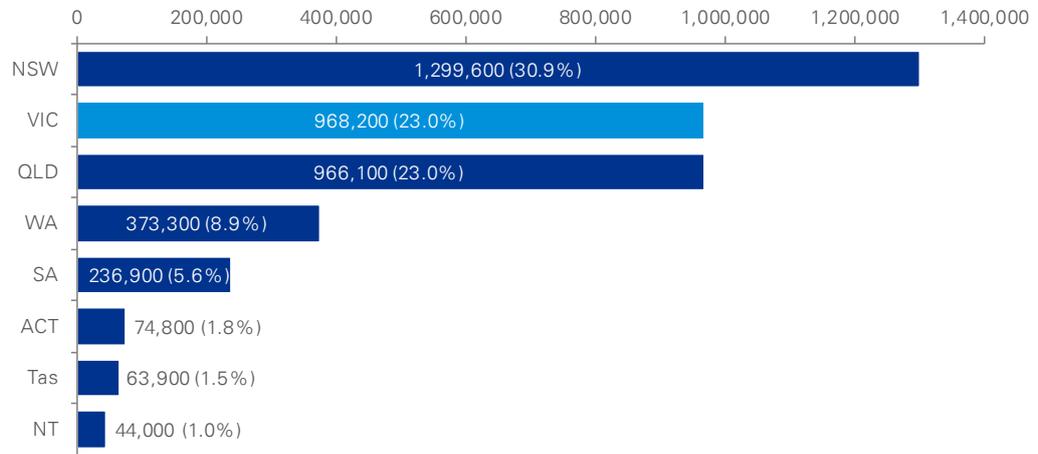
⁷⁰ Atkinson, G, Stanwick J, 'Trends in VET: Policy and Participation', 2016, National Centre of Vocational Education Research

⁷¹ Australian Bureau of Statistics, 'Year Book Australia', 2012 (Reference Number: 1301.0)

- 30.1 million subject enrolments, an increase of 1.7 per cent from 2015; and
- 815.9 million hours of VET delivered, a decrease of 1.2 per cent from 2015.⁷²

The proportion of the Australian population aged 15–64 years who participated in some form of VET was estimated at 24.2 per cent in 2016, with the top 50 training providers accounting for 37.8 per cent of the enrolments of all VET students. VET is provided nation-wide, with distribution largely aligned to the overall population distribution (**Figure 7**).⁷³

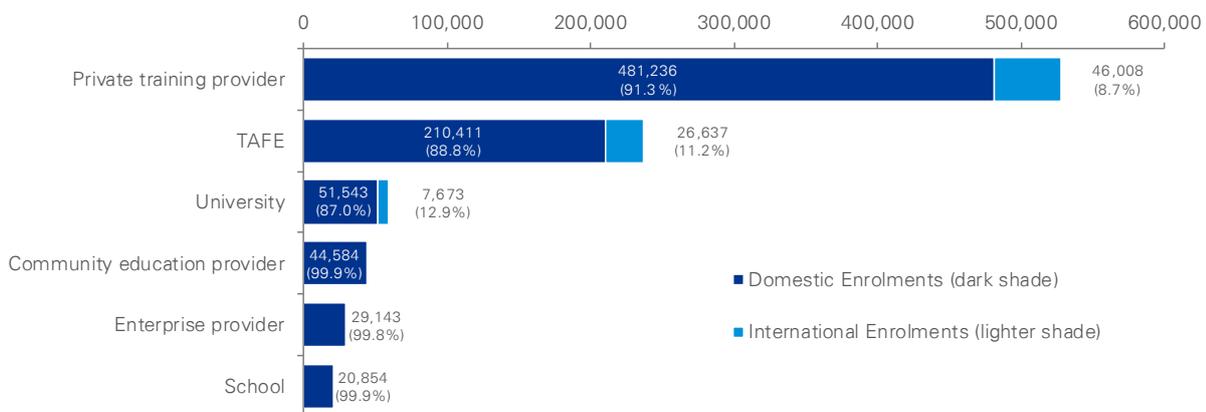
Figure 7: VET student enrolments by state and territory (2016)



Source: National Centre for Vocational Education Research (NCVER) 2016

Across Australia, private training providers deliver the highest proportion of VET, followed by TAFEs (**Figure 8**). Funding for these organisations comes via a variety of sources, including the Commonwealth and state governments, and domestic and international fee-paying students.

Figure 8: Victorian VET domestic and international enrolments by training provider type (2016)



Source: National Centre for Vocational Education Research (NCVER) 2016

The Australian VET sector has experienced significant change across the last two decades, driven in large part, from both State and Federal reforms. Across this time, the policy, funding and institutional environment in which VET operates has evolved considerably.

⁷² Total VET students and courses 2016, National Centre for Vocational Education Research (NCVER) <https://www.ncver.edu.au/data/data/infographics/total-vet-students-and-courses-2016-infographic> (Accessed 21 February)

⁷³ Total VET students and courses 2016, National Centre for Vocational Education Research (NCVER) <https://www.ncver.edu.au/data/data/infographics/total-vet-students-and-courses-2016-infographic> (Accessed 21 February)

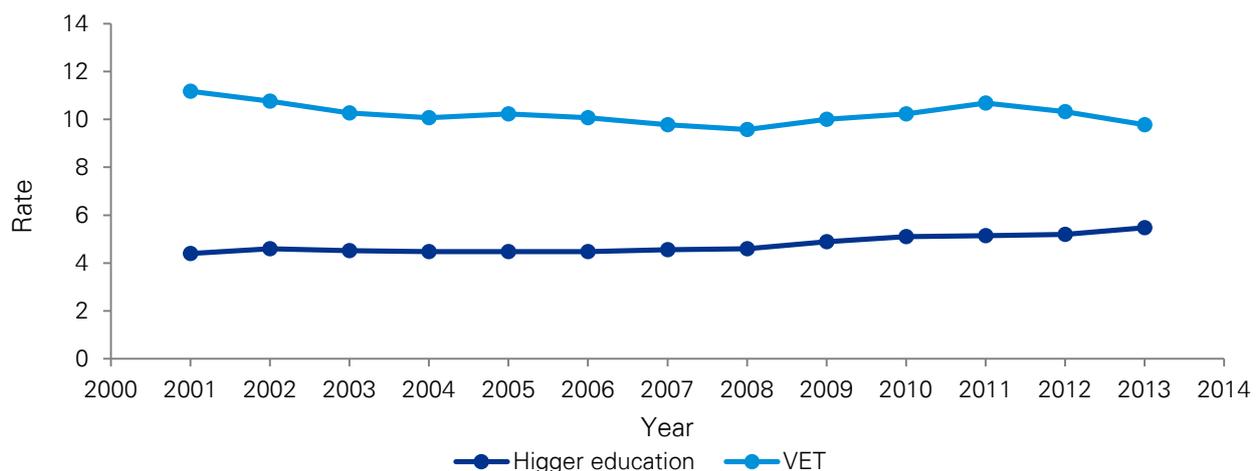
A.2 Policy and funding reform in VET

Traditionally, the states and territories have had responsibility for VET provision, a jurisdictional approach to funding and delivering VET which enables the system to respond to local and regional skills and labour market needs.⁷⁴ However, the Commonwealth Government has increasingly played a role in both the regulation and funding of vocational education and training.⁷⁵

In 2008, the Commonwealth and state and territory governments established a new Intergovernmental Agreement on Federal Financial Relations (IGAFRR). Under the IGAFRR, the Commonwealth and states entered into a National Agreement for Skills and Workforce Development (NASWD), marking a return to a collaborative and shared model for national VET policy and funding.⁷⁶ The NASWD indicated shared Commonwealth and state objectives for a renewed focus on VET improving national workforce skill levels. During the same period, the Commonwealth entered into separate, but complementary, National Partnership Agreements on Productivity Places Program (NPAPPP) with the states, which provided funding for industry-based training on a co-contribution basis between the Commonwealth (50 per cent), the states (40 per cent), and industry (10 per cent).⁷⁷

In 2009, the contestable VET system was introduced in Victoria, around the same time as the demand-driven system in higher education. Since this time, there has been a consistent increase in the rate of participation in both higher education and VET (**Figure 9**), until 2012 when participation rates in VET started to decrease, suggesting that while the demand-driven system has provided greater impetus for alternative education options, it has potentially drawn students away from VET offerings and alternatively, towards a higher education pathway. Also in 2009, alongside the introduction of introductory student entitlement funding models, VET FEE-HELP loans were introduced to higher-level VET students (diploma and above) at any registered training organisation (RTO) approved to deliver VET FEE-HELP eligible courses.⁷⁸

Figure 9: Participation in Higher Education and VET as a proportion of the 15-62 year-old population



Source: National Centre for Vocational Education Research (NCVER) 2016

In 2012, the NASWD was renewed, and at the same time, the Commonwealth and states also entered into a separate National Partnership Agreement on Skills Reform (NPASR). The NPASR sought to 'contribute to the reform of the VET system to deliver a productive and highly skilled workforce which contributes to Australia's economic future and enables all working age Australians to develop skills and qualifications needed to participate effectively in the labour market'.⁷⁹ The NPASR also introduced the National Training

⁷⁴ Atkinson, G and Stanwick, J, 'Trends in VET: policy and participation', 2016, National Centre for Vocational Education Research (NCVER)

⁷⁵ Education and Employment References Committee, 'Getting out money's worth: the operation, regulation and funding of private vocational education and training (VET) providers in Australia, 2015, The Senate

⁷⁶ Noonan, P, VET Funding in Australia: Background, trends and future directions, 2016, Mitchell Institute, Melbourne

⁷⁷Noonan, P, VET Funding in Australia: Background, trends and future directions, 2016, Mitchell Institute, Melbourne

⁷⁸Atkinson, G and Stanwick, J, 'Trends in VET: policy and participation', 2016, National Centre for Vocational Education Research (NCVER)

⁷⁹Council of Australian Governments, National Partnership for Skills Reform, 2012

Entitlement, which guarantees a subsidised place for all working-age Australians for at least a Certificate III qualification at a provider of their choosing.

Through the NPASR, \$1.7 billion of additional funding was committed to the states and territories across 2012-17, contingent on the states' agreement to, and implementation of, agreed skills reforms and meeting completion targets set by the states and agreed with the Commonwealth. Based on the 2017-18 forward estimates, the end of NPASR funding to the states would result in a \$500 million reduction to the VET sector, with ongoing VET funding provided only through the NASWD.

Alongside these policy reforms, a new scheme, VET FEE-HELP, was made available to students for whom study may not have otherwise been possible due to upfront training cost. Since the introduction of the loans, the number of students accessing VET FEE-HELP, and the number of eligible VET FEE-HELP providers, increased significantly (**Table 7**).

Table 7: VET FEE-HELP trends 2009 – 2013

	2009	2010	2011	2012	2013
No. students accessing VET FEE-HELP	5,262	26,112	39,124	55,115	100,035
VET FEE-HELP LOANS (\$ million)	26	118	205	325	699
Average loan per student (\$)	4,861	4,503	5,247	5,890	6,990
No. VET FEE-HELP providers	39	55	85	105	156

Source: Department of Education and Training

Analysis by NCVER indicated that students enrolled with private RTOs have accessed the loans the most, with almost 75 per cent (~\$2 billion) of the total loan contributions across five years going to private providers, compared with the 25 per cent (~\$800 million) provided to students training with public providers.⁸⁰ However, while the scheme has been very popular, there is some evidence it has been subject to some exploitation through opportunistic providers, aggressive marketing, and inappropriate targeting of vulnerable students, underpinned by inadequate regulatory control.⁸¹

Accordingly, throughout 2015, the Commonwealth Government introduced measures to review and refine VET FEE-HELP policy settings, with a raft of changes introduced from January 2016, including strengthening the assessment criteria for RTOs, increased protection for students, and the introduction of new entry requirements for RTOs. Further, from 2017, the Commonwealth Government introduced a cap on loan levels for providers at 2015 levels, along with a reduction in the number of course offerings eligible for VET FEE-HELP, resulting in an immediate \$1.5 billion funding increase to the VET sector.

The national VET system is informed by industry and has an overarching client-orientation focused on delivering flexible, relevant and responsive education and training to meet the needs of employers, particularly through apprenticeships and traineeships. Due to the nature of the extensive training offerings and variety of pathways to entry, the Australian VET sector also has a key role in supporting those experiencing all forms of disadvantage, and helping them take steps towards greater economic and social participation. The sector is complex with noteworthy differences in the size of registered providers, scope of registration, delivery models, ownership and governance models, and reliance on public funding.

⁸⁰ Atkinson, G and Stanwick, J, 'Trends in VET: policy and participation', 2016, National Centre for Vocational Education Research (NCVER)

⁸¹ Education and Employment References Committee, 'Getting out money's worth: the operation, regulation and funding of private vocational education and training (VET) providers in Australia, 2015, The Senate

A.3 Supporting themes

A.3.1 Student benefits – Health and happiness

Victorian TAFEs play a key role in providing educational pathways for a range of students, including a high proportion of individuals from disadvantaged backgrounds – in doing so, Victorian TAFEs are providing direct benefits to students, beyond enhanced employment and income potential. It is generally accepted that education enriches people’s lives, and the available evidence supports a positive link between education and health, happiness and wellbeing.

For example, a 2014 OECD publication reported that 90 per cent of Australian adults with a tertiary education were in good health, compared with 84 per cent of those with upper- or post-secondary non-tertiary education, and 76 per cent of those without any upper secondary education⁸², indicating a positive relationship between education levels and health. However, this report did not control for income effects.

While other studies, which have controlled for income effects or that of parents’ education, have demonstrated that improvements in health do follow education⁸³, the causal relationship between them is not well tested, particularly in the VET context. One study which has directly explored the link between VET and health for individuals indicated that graduates with diplomas and advanced diplomas as their highest qualification tended to be more likely to have better physical and mental health by comparison than those with education of Year 11 and below⁸⁴, although the size of this effect was not as large for people with degrees.

Studies suggest that the health benefits experience by graduates generally relate to the choices they make, when compared with individuals who did not attend tertiary education, including through more exercise, greater use of health services, or an increased likelihood of accessing preventative care.⁸⁵

A study conducted by Di Tella et al. reported that education contributed directly to happiness, even when controlling for the secondary effects of income, employment and health benefits that arise from education.⁸⁶ Further, this relationship is also relevant in the VET context, where undertaking vocational qualifications, including an apprenticeship or traineeship, has a positive impact on happiness during the training period, and beyond after completion.⁸⁷ In addition, there is evidence that the learning environment is an important consideration, helping students to develop networks and interact with others, which in turn have positive impacts on wellbeing.⁸⁸ As a parallel to the findings for VET, an analysis of Australian studies also indicated greater happiness and life satisfaction amongst university graduates.⁸⁹



⁸² OECD, 'Education at a Glance 2014: OECD Indicators', 2014, OECD Publishing

⁸³ McMahon WW, 'Higher learning, greater good: The private and social benefits of higher education', 2009, JHU Press

⁸⁴ Stanwick, J, Ong, K, Karmel, T, 'Vocational education and training, health and wellbeing' Is there a relationship?, 2010, National Centre for Vocational Education Research

⁸⁵ McMahon WW, 'Higher learning, greater good: The private and social benefits of higher education', 2009, JHU Press

⁸⁶ Di Tella, MacCulloch, RJ, Oswald, AJ, 'The Macroeconomics of happiness', 2003, The Review of Economics and Statistics, 85(4): 809-827

⁸⁷ Dockery, AM, 2010, 'Education and happiness in the school-to-work transition', National Centre for Vocational Education Research

⁸⁸ Stanwick, J, Ong, K, Karmel, T, 'Vocational education and training, health and wellbeing' Is there a relationship?, 2010, National Centre for Vocational Education Research

⁸⁹ Savage J, Norton, A, 2012, 'Non-financial benefits of Higher Education', Grattan Institute

A.4 KPMG-REG Model

A.4.1 Overview

KPMG-REG is one of KPMG's proprietary computable general equilibrium models of the Australian economy. It has been specifically designed for policy analysis. KPMG-REG is a well-established model that has been used to model a wide range of policies and scenarios. These include

- **Commonwealth Treasury Tax Review** – A major project undertaken during 2015-16 involving the provision of economic analysis and modelling of tax reform options for the Tax Review. This involved estimating marginal excess burdens for all major taxes and modelling a range of tax reform scenarios involving the GST, personal income tax and company income tax.
- **Financial Services Council (FSC)** – “The Economic Impact of a GST-funded Company Income Tax Cut” examining the impacts of a 22 per cent company tax rate, lower personal income taxes, and a higher GST on a broader base. The proposed tax reform formed the basis of the FSC's 2015 submission to the Tax White Paper.
- **NSW Business Chamber (NSWBC)** – A 2015 report to the NSWBC entitled “Economic Modelling of Property Tax Reform Options” that quantified the economic effects on NSW and Australia of four scenarios to replace conveyancing stamp duties on property with land taxes.
- **Australian Mines and Metals Association (AMMA)** – Analysis of workplace relations and the competitiveness of the Australian resources sector. This report was part of the AMMA's submission to the Productivity Commission 2015 inquiry into Australia's workplace relations framework. The report focussed on the competitiveness of the resources sector and economy-wide impacts associated with potential changes in the Australian workplace relations framework.
- **CPA Australia** – A study of the impacts of GST reform and tax simplification. This was a 2015 update of a similar 2011 study that analysed the potential impact on the Australian economy of CPA Australia's proposed GST-based tax reform agenda. Four GST reform scenarios were evaluated: (i) 10 per cent GST on a broader base; (ii) 15 per cent GST with current exemptions; (iii) 15 per cent GST and applied to health and education; (iv) 15 per cent GST on a broader base.

In basic form, KPMG-REG distinguishes 114 sectors and commodities, based on the 2013-14 input-output tables published by the Australian Bureau of Statistics (see ABS (2016) Australian National Accounts: Input-Output Tables (Product Details), 2013-14, Cat. No. 5215.0.55.001). Primary factors are distinguished by 114 types of capital (one type per industry), nine occupations, two types of land, and natural resource endowments (one per industry).

KPMG-REG models the economy as a system of simultaneous equations that represent interrelated economic agents operating in competitive markets. Economic theory specifies the behaviour and market interactions of economic agents, including consumers, investors, producers and governments. These agents operate in domestic and foreign goods markets and capital and labour markets. Defining features of the theoretical structure of KPMG-REG include:

- Optimising behaviour by households and businesses in the context of competitive markets with explicit resource constraints and budget constraints;
- The price mechanism operates to clear markets for goods and primary factors; and
- At the margin, costs are equal to revenues in all economic activities.

Producer behaviour

A representative firm in each sector produces a single commodity. Commodities are distinguished between those destined for export markets and those destined for domestic markets. Production technology is represented by nested CRESH functions (Hanoch, G. (1971), 'CRESH production functions', *Econometrica*, vol. 39, September, pp. 695–712.) allowing a high degree of flexibility in the parameterisation of substitution and technology parameters. Energy goods are treated separately to other intermediate goods and services in production, and are complementary to primary factors.

Labour market

The supply of labour is determined by a labour-leisure trade-off that allows workers in each occupation to respond to changes in after-tax wage rates, thus determining the hours of work they offer to the labour market. The overall supply of labour is normalised on working-age population.

Household behaviour

Household consumption decisions are determined by a linear expenditure system (Stone, R. (1954), 'Linear Expenditure Systems and demand analysis: an application to the pattern of British demand', *The Economic Journal*, vol. LXIV, pp. 511–27) that distinguishes between subsistence (necessity) and discretionary (luxury) consumption. The linear expenditure system in KPMG-REG is calibrated using income and expenditure elasticities that have been estimated using Australian time series data on household income and expenditure.

Households can also change their mix of imported and domestically-produced commodities depending on relative prices and tastes. In the short term, total household spending moves with household disposable income. In the long term, total household spending adjusts to ensure there is a constraint on the economy's accumulation of net foreign liabilities.

Investment behaviour

Investment behaviour is industry specific and is positively related to the expected rate of return on capital. This rate takes into account company taxation, a variety of capital allowances and the structure of the dividend imputation system.

Foreign sector

Foreign asset and liability accumulation is explicitly modelled, as are the cross-border income flows they generate and that contribute to the evolution of the current account. Along with other foreign income flows such as labour payments and unrequited transfers, KPMG-REG takes into account primary and secondary income flows in the current account. These are particularly important for Australia as they typically comprise a significant share of the balance on the current account.

Government sector

KPMG-REG's theoretical structure and database facilitates detailed modelling of state government (including local) and Commonwealth Government fiscal accounts and balance sheets, including the accumulation of public assets and liabilities. Detailed government revenue flows are modelled, including all major direct and indirect taxes, and income from government enterprises. Government spending includes public sector consumption, investment and the payment of various types of transfers (such as pensions and unemployment benefits).

Calibration

The key data inputs used by KPMG-REG are input-output tables. The tables quantify the flows of goods and services from producers to various uses: intermediate inputs to production, inputs to capital creation, household consumption, government consumption and exports. The input-output tables also quantify the flows associated with primary factor inputs: labour, capital, land and natural resources. In KPMG-REG, the data inputs are combined with the model's theoretical structure to quantify behavioural responses, including:

- price and wage adjustments driven by resource constraints;
- tax and government spending adjustments driven by budget constraints;
- input substitution possibilities in production; and
- responses by consumers, investors, foreigners and other agents to changes in prices, taxes, technical changes and taste changes.

Simulation design

KPMG-CGE has a flexible simulation design: it can be run in comparative-static or dynamic mode. In comparative-static form, the economy moves from the baseline equilibrium to a new equilibrium representing a long-term outcome, usually indicating the effects of a change 10 years after it has occurred. The long-term outcome is an equilibrium where adjustment is complete in all markets. Thus, industry investment and capital usage has fully responded to perturbations in rates of return. Similarly, the labour market has fully responded to perturbations in unemployment rates.

The dynamic mechanisms in KPMG-REG relate to the accumulation of physical capital, foreign liabilities and government debt. The dynamic properties of KPMG-REG provide for gradual adjustment of industry investment to perturbations in rates of return. Similarly, the labour market gradually returns to equilibrium after a perturbation to the unemployment rate.

In dynamic mode, KPMG-REG is run twice; first, to create a baseline (or business-as-usual) representation of the economy; second, to create a policy scenario that includes the economic shock of interest (e.g., a tax change). The baseline scenario is designed to be a plausible projection of how the economy will evolve in the short term. In the long term, the baseline scenario evolves to a balanced growth path consistent with the long-term properties of well-specified dynamic macroeconomic models (McCandless, G. (2008), *The ABCs of RBCs: An Introduction to Dynamic Macroeconomic Models*, Harvard University Press, Cambridge, Massachusetts.). The policy scenario comprises the baseline scenario in addition to the economic shock of interest. The difference between the value of a particular variable in the policy scenario and its value in the baseline scenario quantifies the impact of the economic shock of interest on that variable.

A.5 Modelling outputs

This section discusses the detailed modelling approach which supports the economic impact findings presented throughout the body of this report.

A.5.1 Labour force impacts

Education plays a key role in making individuals capable of obtaining employment, higher wages and driving economic growth. Analysing the labour market outcomes of education and training provides a good understanding of the benefits of education to individuals and the economy. An estimation of improvement in employment outcomes arising from Victorian TAFE and dual sector university education can be derived through analysis of completing students' employment prospects.

As shown in **Table 8**, the labour force participation rate of TAFE students increased to 86.2 per cent after completion of study (77.7 per cent prior); and the employment rate increased to 84.2 per cent after completion of study (80 per cent prior).

Table 8: Labour force participation and employment, pre- and post-training, 2017

	Before training	After training
Participation Rate	77.7%	86.2%
Employment rate	80.0%	84.2%

Source: NCVER Student Outcomes 2017

Given that this analysis considers impacts relative to the Victorian state economy, labour force improvements need to be expressed relative to the entire Victorian labour market. **Table 9** presents Victorian labour force data,⁹⁰ with and without the annual impact of Victorian TAFE and dual-sector university education in 2017. The table shows that TAFE education results in both more Victorians in the labour force, and fewer unemployed persons. Note that 'unemployment', by definition, is the group of people choosing to participate in the labour force who cannot find work – and the data shows that TAFE results in more people participating people in the labour force while also having fewer people unemployed.

⁹⁰ ABS cat. 6202.0 - Labour Force, Australia, Jan 2018

Table 9: Victorian labour force 2017 – Impact of TAFE and dual sector university VET provision

2017	Labour Force	Without TAFE addition	Unemployed Persons	Without TAFE reduction	Unemployment Rate	Without TAFE impact
Victoria	3,406,447	3,399,105	203,024	204,626	5.96%	6.02%

Source: NCVER Student Outcomes 2017, ABS, KPMG

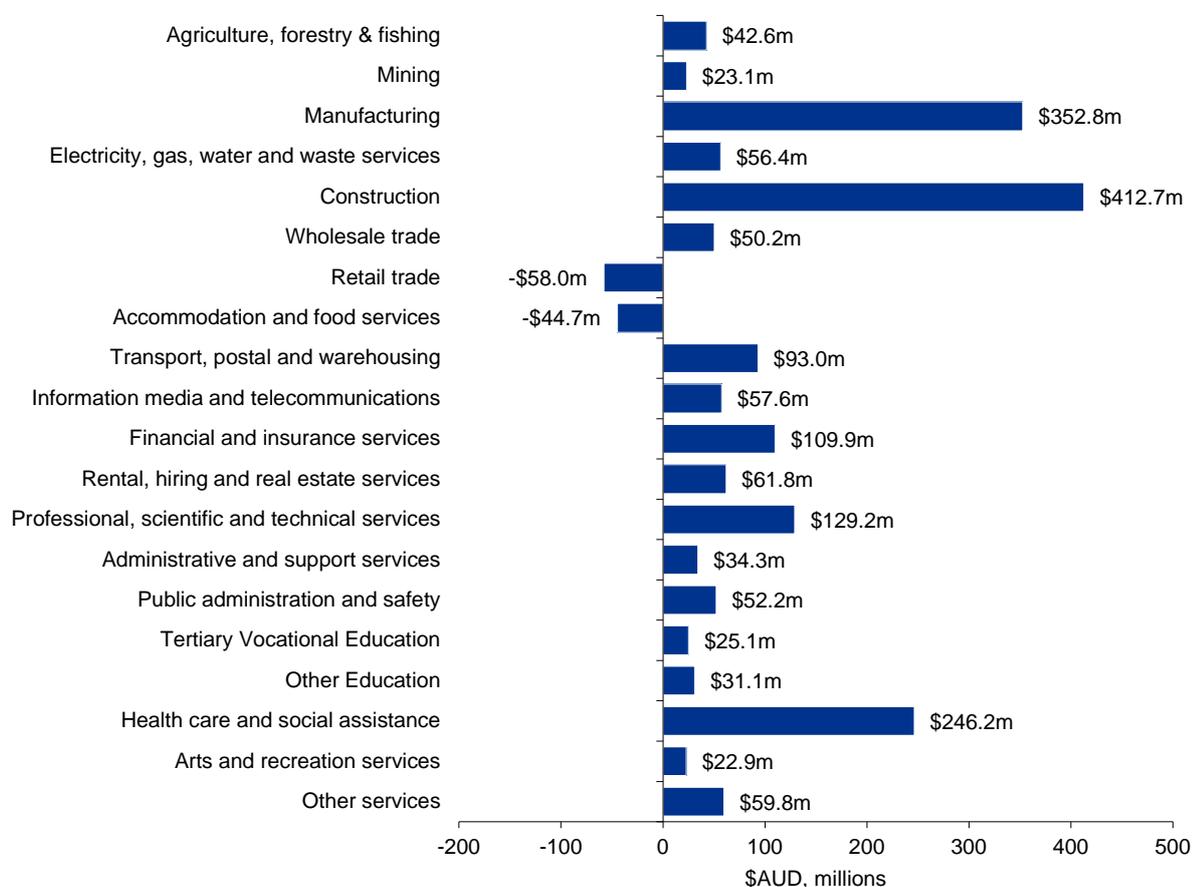
Results show that the annual labour force impact attributable to TAFE and dual sector university education outcomes is substantial at the state level. Whilst the stock and flow of the labour force is changing on a regular basis (that is, the total number of people in the labour force, and the number moving in and out of the labour force each year), **KPMG estimates there was a net positive difference of 0.06 per cent in Victoria’s 2017 unemployment rate attributable to TAFE education attainment in 2017.**

To model the economy-wide impacts of the changes in the labour force outlined previously in **Figure 4**, the labour force structure contained within the KPMG-REG model was modified to reflect these results. This method provides a more comprehensive analysis of the economic impacts arising from labour force outcomes, considering whole-of-economy feedback effects.

Students completing Victorian TAFE education move into the labour force with higher skill levels and better employment prospects than would otherwise be the case. The increased supply of skilled labour benefits particular Victorian industries, consistent with the results presented in **Figure 4**. With increased access to skilled employees, industries expand production by employing more Victorians and purchasing additional goods and services.

It is estimated that **in 2016-17, benefits from a larger workforce** as a result of additional up-skilling students through Victorian TAFEs and dual sector universities **supported an additional \$1.76 billion of industry output in the Victorian economy.**

Figure 10: Change in industry output (\$ million) as a result of labour market changes related to TAFE and dual sector university education in Victoria, 2016-17



Source: KPMG-REG

The *Construction* sector has the largest increase in industry output, followed by *Manufacturing* and *Healthcare & Social Assistance* sectors. The output increases are smaller for other industries. The size of the output increases reflect the combined effect of the relative increase in skilled labour for each industry and the absolute size of the workforce in an industry.

A.5.2 Productivity benefits

The analysis below estimates the productivity improvements arising from Victorian TAFE and dual sector university education through analysis of completing students’ employment outcomes and wage premiums. NCVER provides detailed student outcome data relevant to this analysis, and Victorian labour force statistics are available from the ABS.

Wilkins analysed HILDA⁹¹ data to derive wage premiums associated with educational outcomes, controlling for demographic factors and cognitive ability.⁹² Wilkins estimates wage premiums relative to a reference of Year 11 or below. Wilkins’ found a high wage return to Certificate III/IV attainment for males (20 per cent); whilst results for females were not significant. Weekly wage premiums were also estimated for diplomas

⁹¹ The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a household-based panel study that collects valuable information about economic and personal well-being, labour market dynamics and family life.

⁹² Wilkens (amended), 2015, http://melbourneinstitute.unimelb.edu.au/_data/assets/pdf_file/0006/2155506/hilda-statreport-2015.pdf

and advanced diplomas, with 28 per cent and 8 per cent higher wages than those who had only completed Year 11 for males and females respectively.

Wilkins' gender breakdown of education earning premiums are presented in **Table 10**.

Table 10: Returns to educational attainment relative to Year 11 or below, 2012.

Weekly wage premium relative to educational attainment of Year 11 or below		
Education Level	Males	Females
Certificate III/IV	20%	0%*
Diploma or Advanced Diploma	28%	8%

Source: Wilkins amended estimates (2015)⁹³. *Not significant at 10% confidence level.

Wilkins' estimated education wage premiums provide an indicative estimate of productivity improvements arising from education – that is, for education attainment to be rewarded by higher wages, this indicates that workers with education are more productive. For example, this productivity is likely to be demonstrated through a better understanding of how to address technical issues within a sector, and is also likely to reflect improvements in transferable skills, such as better problem solving and teamwork.

In order to model the impacts of the productivity impact, the KPMG-REG model uses the enhanced earnings capacity associated with educational attainment as a reflection of the improvement in the productivity of the individual completing study. Before applying a productivity shock to the Victorian labour force in the CGE model, we must first scale the wage premium such that it represents only those productivity improvements related to the 2017 TAFE and dual sector university students whom are employed after study (either re-trained, up-skilled or are entering the workforce for the first time).

Firstly, Wilkins' findings are normalised across sexes by taking a weighted average of the earnings premium associated with education attainment according to the proportions of the Victorian workforce who have attained such education and whom are male or female.⁹⁴ Data is derived from the 2016 Census, considering employed persons by sex and highest education attainment where place of work is Victoria.⁹⁵

Table 11: Employed persons (Victoria) highest educational attainment

Victorian employed persons by highest educational attainment, Earnings premium				
Education Level	Males	Females	Persons	Wage premium (sex weighted average)
Certificate III/IV	344,000	150,000	494,000	14%
Diploma or Advanced Diploma	142,000	171,000	313,000	17%

Source: 2016 Census, Wilkins (2015), KPMG

After weighting Wilkin's estimated weekly earnings premiums for gender (using Victorian labour force data):

- Certificate III/IV attainment attracts a 14 per cent wage premium, relative to those with a Year 11 education; and
- Diploma or Advanced Diploma attainment attracts a 17 per cent wage premium, relative to those with a Year 11 education.

The final productivity shock to the KPMG-REG model is an average of the productivity improvement associated with education attainment (Certificates, 14 per cent and Diplomas, 17 per cent), appropriately

⁹³ The earnings model is estimated by ordinary least squares regression and the estimates are the regression coefficients. The sample for the earnings model is full-time employees aged 25–59. All models contain controls for age, place of birth and Indigenous status, state of residence, population density of region of residence, disability and English proficiency – Wilkins (2015).

⁹⁴ KPMG-REG does not distinguish between sexes when computing productivity enhancements of the Victorian labour force

⁹⁵ 2016 Census – Counting Employed Persons, Place of Work (POW) (custom export from Table Builder Pro)

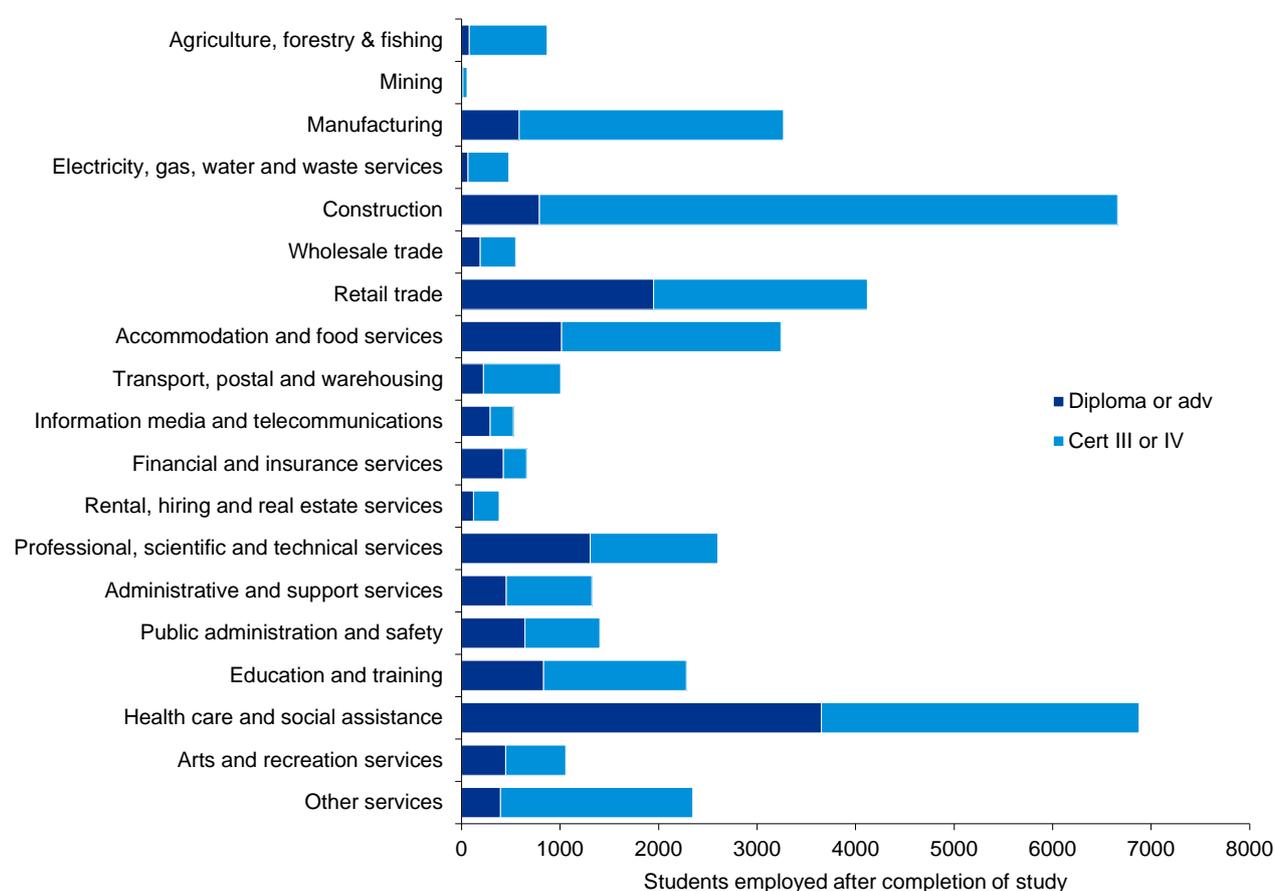
weighted for the portion of students graduating with certificates versus those with diplomas. Since labour productivity is industry-specific in KPMG-REG, we further weight the productivity improvement for the relative impact of those students entering the workforce on the existing stock of labour by industry.

This allows the productivity shock to represent an **annual** improvement related to Victorian TAFEs and dual sector outcomes that recognises two important effects – firstly, that each Victorian industry benefits from productivity improvements to varying magnitudes; and secondly, that the wider-economic flow on benefits of improved labour force productivity will differ according to industry labour force structures.

By considering productivity improvements across Victorian industries, the KPMG-REG model will better reflect the economic contribution of Victorian TAFEs and dual sector universities to the Victorian labour force.

To illustrate this methodology, **Figure 11** shows industry of employment post-study, by Victorian TAFE and dual sector university students completing study with either a Diploma/Advanced Diploma or a Certificate III/IV.

Figure 11: Victorian TAFEs and dual sector university students industry of employment post-study, by education attainment, 2016-17

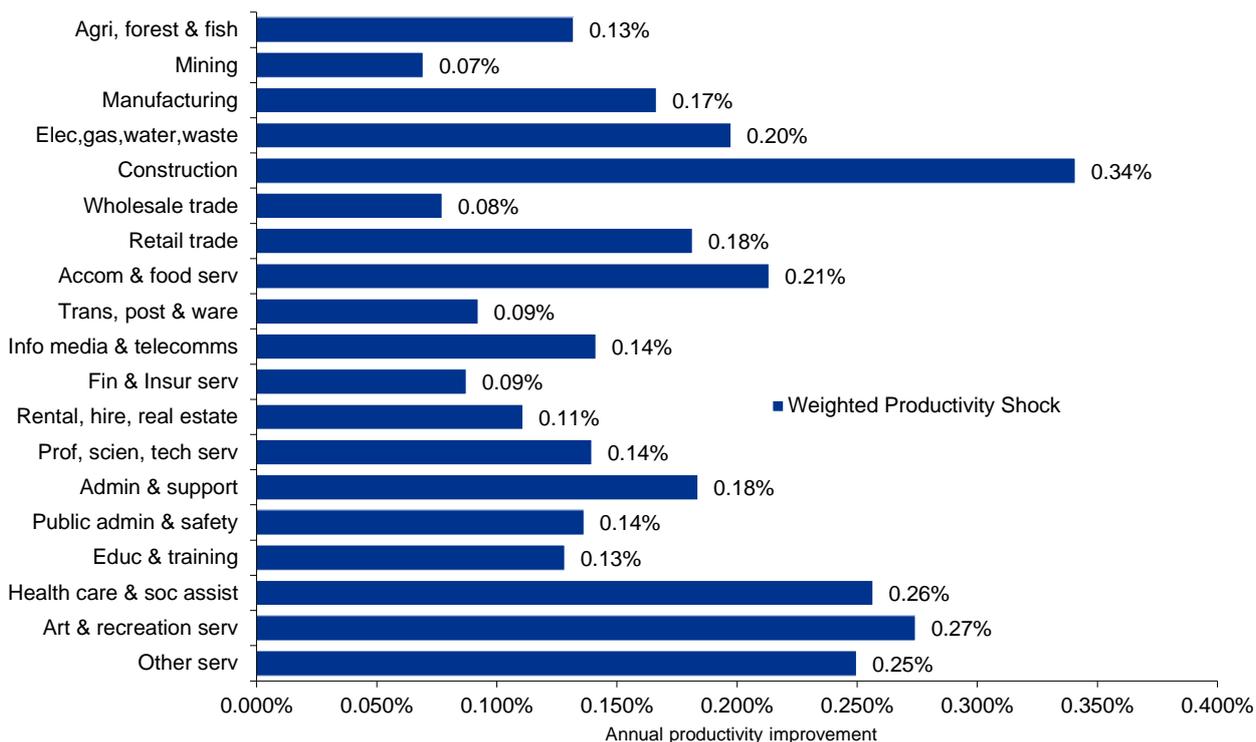


Source: KPMG analysis, NCVET Student Outcomes 2017.

Data from the NCVET Student Outcomes Survey highlights the differences in industry demand for education requirements. Ten per cent of graduates entering the construction industry hold a diploma or advanced diploma, whereas the remaining 90 per cent hold a Certificate III or IV. For the health care and social assistance industry, a near-equal portion of graduates hold either a diploma or certificate. The relative share of education attainment by industry has implications for our productivity shock, recalling that diplomas signal slightly greater productivity level than certificates.

Figure 12 depicts the final annual productivity improvement by industry, after considering the relative impact of students entering each industry with either diplomas or certificates.

Figure 12: Annual productivity improvement related to TAFE and DSU students entering the Victorian labour force, by industry, 2016-17



Source: NCVET Student Outcomes 2017, ABS, KPMG.

The productivity improvement is largest in the construction industry, mainly due to the volume of skilled workers entering this sector relative to the initial stock of workers. Productivity improvements are smaller in other industries because fewer students work in these sectors after completing study, and the impact of the flow of students entering the workforce is small relative to the existing labour force. These productivity improvements are imposed on the KPMG-REG model by industry.

Note: Rounding throughout example.

Example Productivity Shock

79 students graduated with a diploma and entered the Agriculture, Forestry & Fishing sector, representing 0.08% of the industry labour force; 0.08% multiplied by the diploma wage premium (17%) = $0.0008 * 0.17 = 0.014\%$

791 students graduated with a certificate and entered the Agriculture, Forestry & Fishing sector, representing 0.84% of the industry labour force; 0.84% multiplied by the certificate wage premium (14%) = $0.0084 * 0.14 = 0.12\%$

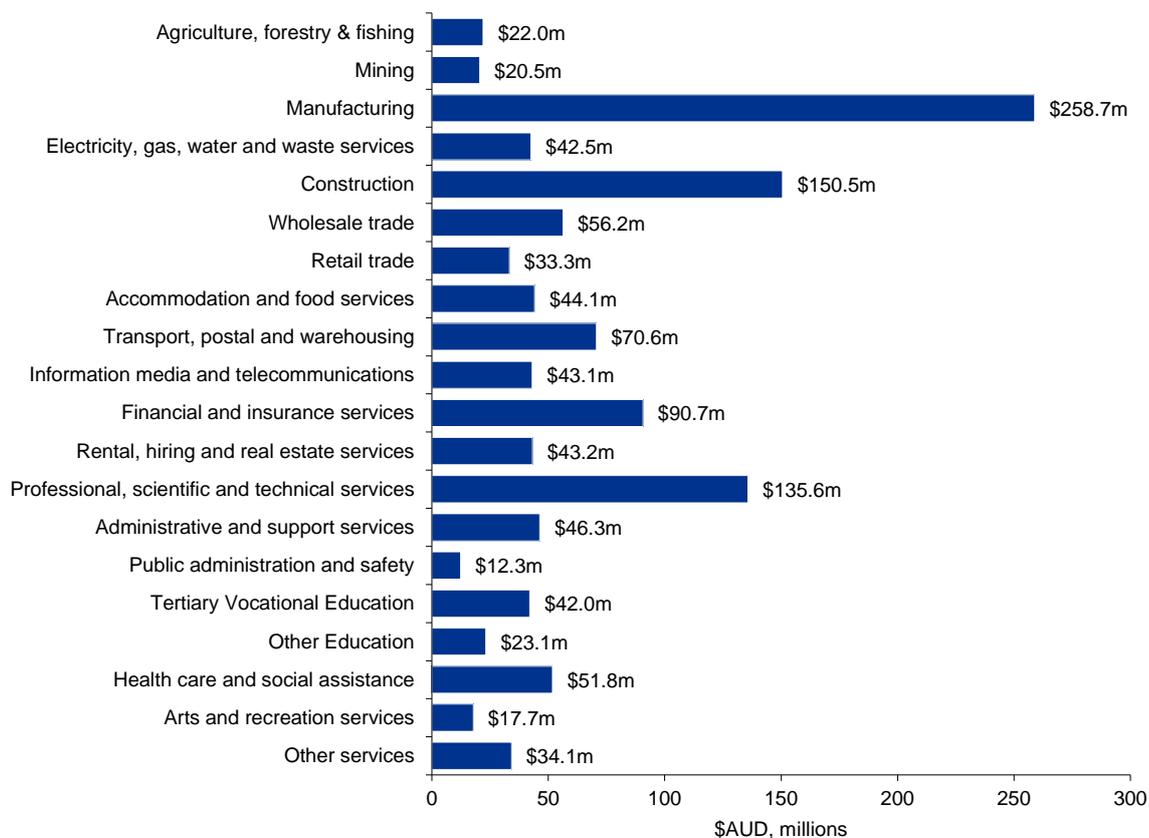
$0.014\% + 0.12\% = 0.13\%$ productivity improvement imposed on the Agriculture, Forestry & Fishing sector.

In order to model the impacts of the productivity impact, the KPMG-REG model uses the enhanced earnings capacity associated with educational attainment as a reflection of the improvement in the productivity of the individual completing study.

The industry-level impacts are provided in the following figure. The skills and technical abilities provided by TAFEs and dual sector students contribute to more productive employees, which in turn results in a larger Victorian economy. More productive employees in one industry also results in flow-through benefits for unrelated industries. **As can be seen in the following industry-level results, a more highly skilled and productive labour force is beneficial to all industries.** Industries employing higher skilled workers are able to produce more with a given amount of capital and labour. In technical terms, this is referred to as these workers having a higher marginal product of labour. Thus, output rises for all industries employing such workers. The KPMG-REG modelling outputs show that industries employing the largest number of

skilled TAFE and dual sector university students as workers experience the largest increase in output, i.e. manufacturing and construction.

Figure 13: Change in industry output (\$ million) due to productivity improvements signalled by TAFE and dual sector university related wage premiums, Victoria, 2016-17



Source: KPMG-REG.

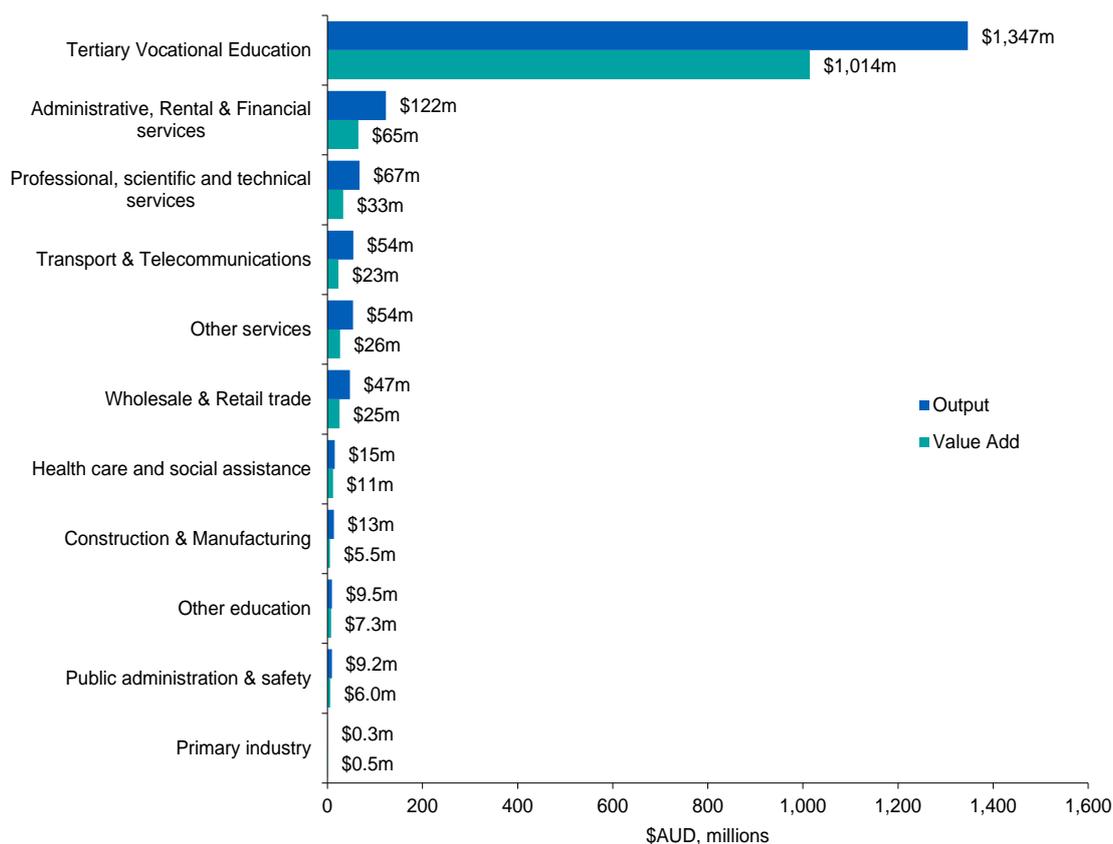
Benefits accrue predominantly to the Tertiary Vocational Education sector, given that the main impact is a change in the level of TAFE and dual sector university income. However, there are important ancillary benefits for local industries which benefit by supplying inputs to the Tertiary Vocational Education sector. In practice, these benefits result from direct spending of TAFEs in local communities to support their operations (e.g. for supplies, maintenance, and capital purchases), and through the spending of employees in local businesses.

A.5.3 TAFE operations

KPMG has relied on primary data collected via its data request from Victorian TAFEs and dual sector universities to determine the level of employment and expenditure by these organisations. Where data could not be collected first hand, information contained within publically available annual reports has been used.

Figures relating to operations of Victoria’s TAFEs and dual sector universities form ‘direct’ inputs into the KPMG-REG model. The indirect and wider-economic benefits associated with TAFEs and dual sector university operational spending and employment are then considered as part of the total economic contribution of the TAFEs and dual sector university sector.

Figure 14: Change in industry output and value-added (\$ million) as a result of TAFE and dual sector university income generation, by industry, Victoria, 2016-17



Source: KPMG-REG.

A.5.4 Exports (international students)

NCVER has estimated international student numbers for 2015 and 2016. Student numbers are useful when considering the economic footprint of these students. For example, international student expenditure on items such as accommodation, food and discretionary purchases all contributes to the local economy.

Table 12 shows estimated international student head count for 2015 and 2016, by provider type.

Table 12: Estimated international VET students in Victoria (student head count), by provider type

VET Students (estimated)	2015	2016
TAFE	8,170	6,780
Dual-sector university	3,180	3,280
Private training provider	25,915	32,255

Source: NCVER, Total VET students and courses 2016. There are also a small number of international student attributable to schools, community education providers and enterprise providers.

Expenditure by the combined 10,060 international TAFE and dual sector university students living in Victoria in 2016 can be broken down into two broad export components – education course fees and expenditure on goods and services.

In 2016, International TAFE and/or dual sector university students living in Victoria spent:

- An estimated **\$98 million on education fees**, directly contributing to state and national export figures.

This estimate is calculated by using available international VET student education fee data from the ABS⁹⁶ and VET student numbers from NCVER.⁹⁷

Table 13: Estimated total TAFEs and dual sector university student fees in Victoria

	2016
Total international VET student fees	\$1,341,000,000
Total international VET students in 2016	137,970
Estimated fee per international VET student	\$9,719
International TAFE & dual sector university students in Victoria	10,060
Estimated total TAFE & dual sector university student fees in Victoria	\$97,778,212

Source: ABS 2016, cat 5368.0.55.004 International Trade in Services by Country - Table 11. NCVER, Total VET students and courses 2016

Note that this figure is likely to be conservative due to the fact that it only considers students *living* in Victoria, rather than students studying at Victorian-owned institutions.⁹⁸

In 2016, International TAFE and/or dual sector university students living in Victoria spent:

- An estimated **\$171 million in the local economy**; directly contributing to local industries.

This estimate is calculated using available international VET student goods and services expenditure data from the ABS⁹⁹ and VET student numbers from NCVER.¹⁰⁰

Table 14: Estimated total TAFEs and dual sector student goods and services spend in Victoria

	2016
Total international VET student expenditure on goods and services	\$2,352,000,000
Total international VET students in 2016	137,970
Estimated spend per VET student	\$17,047.18
Total TAFE and dual sector university students in Victoria	10,060
Estimated total TAFE & dual sector university goods & service spend in Victoria	\$171,494,672.75

Source: NCVER, Total VET students and courses 2016. Tourism Research Australia, Total trip expenditure by item of expenditure for international visitors by purpose of visiting Australia, 2016.

In order to develop inputs for the KPMG-REG model, spending by industry has also been considered using survey data from Tourism Research Australia.¹⁰¹

⁹⁶ ABS 2016, cat 5368.0.55.004 International Trade in Services by Country - Table 11

⁹⁷ NCVER, Total VET students and courses 2016

⁹⁸ Data limitations prevent an estimated count of international VET students studying at Victorian owned institutions from being collected. Insufficient survey responses were received on international student headcount by Victorian TAFEs and dual sector institutions.

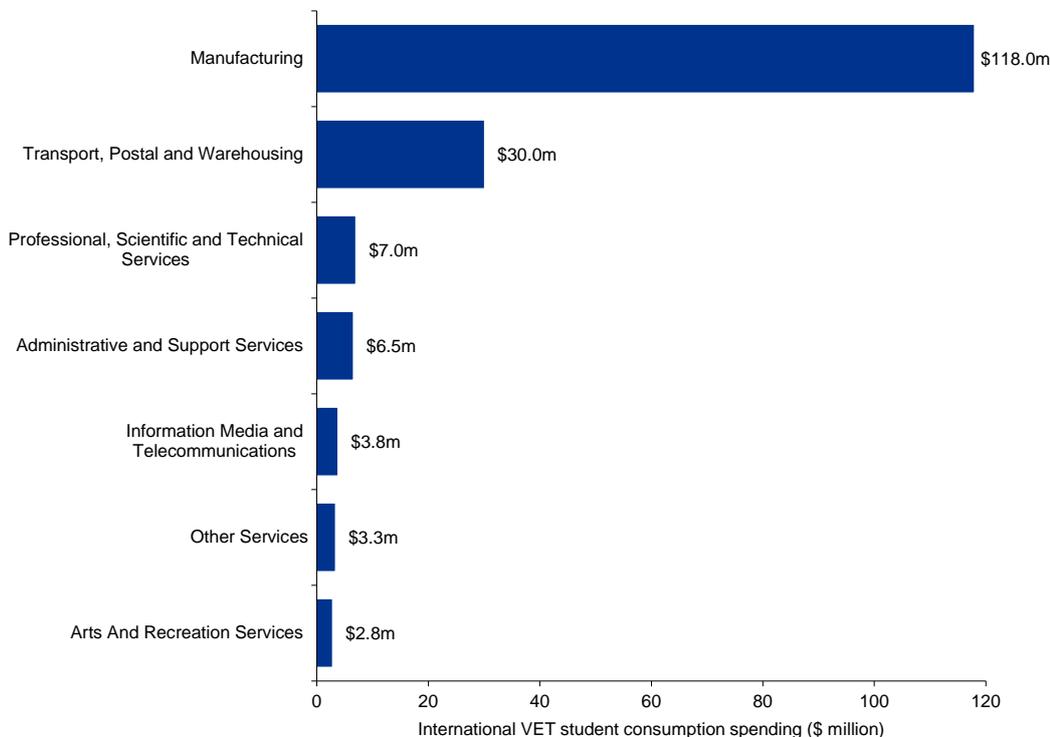
⁹⁹ ABS 2016, cat 5368.0.55.004 International Trade in Services by Country - Table 11

¹⁰⁰ NCVER, Total VET students and courses 2016

¹⁰¹ Tourism Research Australia. Total trip expenditure by item of expenditure for international visitors by purpose of visiting Australia. 2016.

Spending on education fees and goods and services by international TAFE and dual sector university students living in Victoria are considered *exports*. This spending predominately creates value-added in the Tertiary Vocational Education sector via education fees, with consumption supporting other Victorian industries.

Figure 15: Spending by international TAFEs and dual sector university students studying in Victoria, by industry, 2016 (\$m)



Source: KPMG estimates based on data from Tourism Research Australia

These international student export revenue figures (arising from international education and living expenses) form an input into the KPMG-REG model in order to estimate the economic benefits of such exports to the Victorian economy.

A.6 Background on the Victorian economy

This section presents a snapshot of the Victorian economy to provide some context of the state’s economic structure and recent trends – the structure of the Victorian economy is mirrored within the KPMG-REG model.

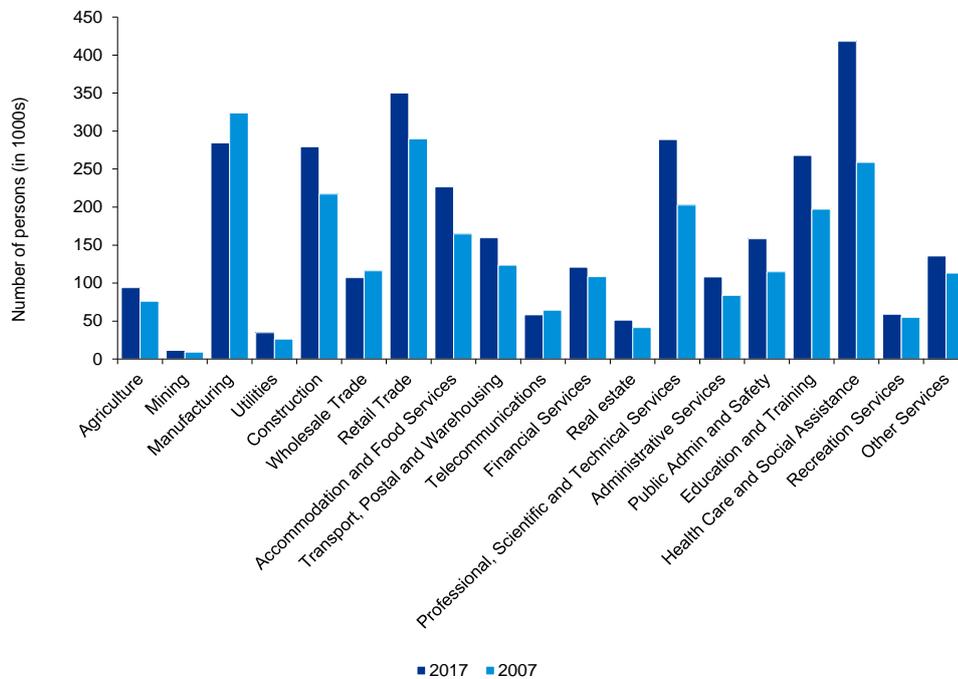
Victoria’s GSP was \$399 billion in 2016-17, which represents 23 per cent of Australia’s gross domestic product. Victoria’s population has increased by 10.7 per cent since 2011 to about six million people, recording the highest increase in population across all states and territories.

There are approximately 2.7 million people employed in Victoria, accounting for one-quarter of Australia’s employed labour force.

Figure 16 shows employment across industries in the last decade.

- The state’s manufacturing sector has moved from being the largest employing sector to the fourth largest, following closely behind the Professional, Scientific and Technical services industry.
- Healthcare and social assistance, and Retail trade have been the top two industries in terms of employment in Victoria for the most part of the decade, employing around 400,000 and 330,000 people respectively. This reflects a broader structural change within the economy of a growing service sector.

Figure 16: Employment across industries in Victoria ('000 persons)



Source: ABS Labour force survey 2016



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