

**TAFE Queensland
Submission to the House of
Representatives Standing
Committee on Education and
Employment Inquiry into
innovation and creativity:
workforce for the new
economy**



**MAKE
GREAT
HAPPEN**



TAFE Queensland Submission to the House of Representatives Standing Committee on Education and Employment Inquiry into innovation and creativity: workforce for the new economy

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Executive summary

The National Innovation and Science Agenda (NISA) demonstrates the Federal Government's commitment to fostering innovation as an essential component of driving Australia's economy. The Vocational Education and Training (VET) sector presents many opportunities for nurturing innovation, however this is currently under acknowledged through NISA where funding under this initiative is largely aimed at the university sector.

The Innovation Roundtable held on 3 March 2016 in Canberra demonstrated the significant opportunity to leverage the VET sector's strong industry links and practical workforce outcomes, as a means to drive innovation and creativity in the economy.

TQ already utilises established links with industry to support small and medium enterprises (SMEs) and startups with lean innovation that may otherwise not be possible due to limitations such as time and funding. These close industry links also assist TQ in ensuring training provided is industry relevant and will continue to equip students with skills required for the future workforce, including skills to commercialise innovation.

Despite the work already being done there is further opportunity for TQ, and the VET sector in general, to enhance innovation and appropriately skill Australia's future workforce. International examples of such work includes that undertaken by SAIT Polytechnic in Canada which facilitates collaborations between learners, educators and commercial partners via its Applied Research and Innovation Services (ARIS). The Trade Adjustment Assistance Community College Career Training (TAACCCT) program in the United States is another example whereby community colleges rapidly create new curricula and pedagogies for fast growth industries. Both of these initiatives receive significant amounts government funding.

TQ is recommending funding of \$50 million over four years be made available to the VET sector, through a competitive process. This funding would enable the VET sector to emulate work being done by SAIT and promptly develop curricula to match skills required by industry, similar to the TAACCCT program. Funding would also enable incubation opportunities, such as future foundation and employability skills and citizen makerspaces.

TQ continue to advocate for ensuring that the VET sector is supported by a regulatory framework, which both safeguards quality and provides a framework for the sector to innovate and support the national economy. The ongoing balance between national consistency and localised flexibility remains an issue along with the market design of the VET sector. Additionally, the key role that the VET sector can play in higher education remains and should continue to be explored.

Purpose

The National Innovation and Science Agenda (NISA) clearly signals the Federal Government's policy and investment commitment to utilising innovation and creativity to drive Australia's future economy. TAFE Queensland (TQ) welcomes Senator the Honourable Simon Birmingham, Minister for Education and Training, request for the Standing Committee on Education and Employment to inquire into and report on matters that ensure Australia's tertiary system can meet the needs of a future labour force focused on innovation and creativity. This submission seeks to provide TQ's views on the specific points raised within the Terms of Reference.

It is hoped that the ideas and recommendations identified in this submission are considered and utilised in the development of strategies to ensure Australia's tertiary system can meet the needs of a future labour force focused on innovation and creativity.

TAFE Queensland Overview

TQ is the largest provider of education and training in Queensland and in 2014-15 delivered training to more than 125,294 students across more than 600 programs. TQ is a statutory body with a commercially focused board and has state-wide reach with 56 service delivery locations throughout Queensland. TQ prides itself on being a high quality provider of education and training, within an increasingly diverse and competitive market.

This quality is exhibited by the outcomes TQ achieves for its students and clients, including industry and employers. These outcomes include:

- Competency completion rates of more than 89 per cent;
- Transition rates to employment or further education at more than 87 per cent;
- Student satisfaction at nearly 88 per cent; and
- Employer satisfaction at nearly 90 per cent

TQ offers training through a variety of modes including traditional classroom delivery, distance learning, online tuition, workplace training and a blended delivery method combining two or more delivery modes.

TAFE Queensland recommends -

1. The committee note the examples provided of how the VET sector and TAFE are fostering innovation and delivering solutions for employers and industry that improve productivity and growth.
2. Expand the VET sector's capacity to deliver innovation with industry through the establishment of an Australian Government initiative of \$50 million over four years for applied research and innovation services to be allocated through a contestable process to the VET sector.
3. Introduce initiatives to retrain the current workforce with future skills to optimise the economic benefit of NISA, by minimising offshoring of jobs.
4. Implement measures to accelerate the industry and regulatory accreditation process while still maintaining quality rigour, for newly developed training packages designed to keep Australia's workforce adequately skilled for the future
5. That the key role of TQ and the VET sector more generally in ensuring Australia's workforce is equipped with the necessary skills to drive the national innovation agenda is acknowledged in any future innovation program planning and funding allocation.
6. The development of an education and training fund to support targeted investment within the VET sector in areas of future skilling demand.
7. Increase consistency of policy and funding settings to improve the operation of the sector for the benefit of students, national and multinational employers and large training providers.
8. That the Australian Government continues to place student outcomes and quality at the centre of its market design and regulation approach within the tertiary education sector.
9. That any future higher education reform incorporate the extension of Commonwealth Supported Places to trusted, high-quality, non-university providers.

Response to Inquiry Terms of Reference

3. Factors that discourage closer partnerships between industry; in particular small and medium enterprises, the research sector and education providers; including but not limited to: intellectual property; technology transfer; and rapid commercialisation.

4. Relationships between tertiary education entrepreneurship programs and private incubator and accelerators.

This section addresses both questions three and four of the inquiry's Terms of Reference as the issues are closely related from a TQ perspective. It will examine the current strategies that TQ is employing in partnership with key stakeholders and the opportunities that exist for expanding on these partnerships through targeted investment by the Australian Government.

TQ's Small Business Focus

Commerciality is an integral educator capability across TQ programs, in addition to running formal entrepreneurship programs; our ethos of applied research and project based learning programs with industry, including small and medium enterprises (SMEs) and startups illustrates this.

SMEs employ 70 per cent of the Australian workforce (SMEA 2016). The small business sector is characterised by high turnover and a large number of business failures. Key challenges for small business and startups are time and funding, and so with regards to innovation, they tend to focus on bootstrapping or lean innovation. Studies of the causes of small business failure have suggested that lack of *business skills* is a key determinant of the high rate of failure and that entrepreneurial and compliance training has a direct impact on the performance of small business (Gray 2006).

The award-winning TQ [Small Business Solutions](#) program offers immediate, practical assistance to small business across Queensland. The program is financially and regionally accessible; includes clients from culturally diverse or disadvantaged backgrounds; and upon program completion, confers high level VET qualifications that are important in a competitive global economy. It is believed that Small Business Solutions is the only service in Australia that provides this combination of features.

Furthermore, TQ has low barriers to entry for SMEs and startups due to:

- locality and staff participation within local communities statewide;
- perception that TQ is approachable by individuals seeking ad-hoc support on the journey from idea to business;
- no requirement for TQ to fit applied research activities around rigid funding frameworks, rather it is part of usual business and project based learning can be tailored within learner curricula or via the Small Business Solutions program; and
- existing relationships with graduates that establish small businesses.

Peter Newbold, Certificate Three in Automotive Mechanic Technology

The support and time that TAFE Queensland have put into me has been overwhelming. The relationships I've built with my teachers have been long lasting and I still call many of my teachers today to help me out with problems in my day-to-day life running a small business. Thanks to the skills I learned at TAFE Queensland Gold Coast as an apprentice I was able to maintain and build two BMW racing cars and travel around the country as the team manager, and now I'm managing a small business here on the Gold Coast. Studying automotive at a fundamental level at TAFE is a great way to start your career in this field.
(<https://youtu.be/wUTTIqRp1k>)

Intellectual Property, Technology Transfer and Commercialisation

With regards to intellectual property (IP), technology transfer and commercialisation, TQ acknowledges the crucial role of the CSIRO and universities and works in partnership with them on innovative projects, for example a partnership with Griffith University to undertake a program of critical participatory action research.

TQ observe the complexity, cost and lack of understanding about IP management, especially in relation to projects with students and commercial entities. This complexity make it too time consuming and costly for startup and SME engagement, unless TQ provide services to them. Furthermore, streamlining the requirements for small business research and development grant applications would help resolve this challenge, and is aligned with NISA.

SAIT Polytechnic – A Successful Case Study in Applied Research

Of note, SAIT Polytechnic in South Alberta, Canada are highly successful at facilitating applied research projects involving collaboration between learners, educators and commercial partners (that finance the project), in an Applied Research and Innovation Services (ARIS) offering. Noting the strong focus on agile prototyping at ARIS, Dr Alex Zahavich, head of ARIS, commented “Industry shows up at the door and want it now,” and ARIS successfully responds to their needs. The section below describes ARIS as a global exemplar of Applied Research and notes the similarities with the TQ position.

SAIT Polytechnic (Alberta, Canada - <http://www.sait.ca/>)

SAIT Polytechnic offers career programs and part-time courses in technology, trades and business. SAIT separately offers Applied Research and Innovation Services (ARIS). SAIT President and CEO Dr David Ross, says "collaboration and partnerships are cornerstones of applied research at SAIT." As an innovation gateway for SMEs, large companies and a wide variety of non-profit and government-based organisations, SAIT Polytechnic opens up a world of innovation to its partners: innovation in applied research and development around new technologies and leading edge processes; and innovation in local and global employee training.

ARIS delivers operations and support services to industry and internal partners including:

- Advice on intellectual property and patenting
- Rapid prototype design/fabrication
- New product testing
- Market analysis

ARIS has key partnerships with 12 businesses and four research divisions with major onsite facilities:

- Environmental Technologies
- Sports and Wellness Engineering Technologies
- the RFID Application Development Lab
- Green Building Technologies.

There are key differences in the SAIT ARIS approach and TQ aspirations:

- TQ educators are already providing many of the services that SAIT provides. TQ have demonstrated capability of service delivery to employers, however it is not formally recognised and so remains unacknowledged.
- SAIT ARIS chooses not to work with startups, rather it accelerates the growth of established SMEs. TQ acknowledges that approach minimises financial risk, however maintains its commitment of nurturing startups.

Canadian Government Funding Support

Another key point of difference is that the Canadian government recognises the critical role of the VET sector in the innovation ecosystem and has funded the establishment of large scale ARIS facilities in conjunction with industry. In 2014 ARIS received CA\$7.2 million in funding for the year (Habib 2016).

ARIS has guaranteed cost recovery and is run profitably. It offers:

- An applied Research Fund - for SAIT staff to use on applied-research projects that enhance the experience of students at SAIT. The project must have some of its funding from an external source (e.g. industry partner).
- Student Innovation Project Fund – to enable students to acquire the resources required for their innovative projects.
- Innovation vouchers - \$15,000 to \$50,000 to small technology and knowledge-driven businesses to accelerate their ideas and products to market.

TQ aspires to replicate to some extent the ARIS model, in collaboration with international peers. However, ARIS is financially supported by the Canadian Government and industry partners and while TQ has established long-term industry partners, it lacks the seed funding to operate on the scale of SAIT.

Operating on the principles of lean innovation will not bring about change on the scale required to position Australia's workforce for the future. The Australian Government currently provides, \$1.6 billion per annum for university research via the Australian Research Council (\$800 million) and National Health and Medical Research Fund (\$850 million). It is difficult for TQ to access these funds however, and tends to compete for them via collaboration with a university. Consequently, this funding is highly targeted at the higher education sector and is therefore missing opportunities that are offered by the VET sector, similar to those identified in the SAIT case study.

An Opportunity to Fund Innovative Research in the VET Sector

TQ therefore recommends the development of a new Australian Government investment of \$50 million over four years, which is specifically targeted at the VET sector. This funding would be allocated through a competitive grants process and would enable TQ and other members of the sector to accelerate applied research activities with industry, on the scale seen in Canada and elsewhere. Doing so will support the Australian Government's drive to support the Australian workforce to compete in the global economy.

TQ have taken steps towards this with the creation of RedSpace: Centre for Applied Research and Innovation. RedSpace will identify, support and amplify the work of educators, experts and students as they continue to tackle complex problems of industry and community partners that are not currently on the radar of the more established research bodies. RedSpace will work with TQ staff to support workforce capability building and enhance student learning outcomes through the cultivation of commercial skills as they engage in projects with employers. Student participation in applied research is core to developing critical future workforce skills such as design thinking, resilience, commerce and ethics.

Reskilling Critical to future Economic Growth

With regards to commercialisation, the missing piece of NISA is a re-skilled and flexible current workforce. Without a skilled workforce the economic benefit from investment in innovation and productivity improvements will not be optimised. Rather it will go offshore because employers are unable to find workers with the skills they require. A key role TAFE offers is re-skilling the current

workforce with new skills and approaches that are needed to commercialise innovations. It already collaborates with employers in transitioning industries to reskill and upskill their workforce. However, some major employers in declining industries may lack the incentive to reskill their workforce and high growth insurgent employers may lack the time and funds to train staff, in which case government support may be required to prepare the future workforce. TQ is concerned by forecasts that by 2025, Australia could be 2.8 million short of the number of higher-skilled qualifications that industry needs (AWPA 2013, 9) and already 12 per cent of local startups want to relocate overseas (Mao 2015):

“That's terrifying that 12 per cent, skimming the top of everything that's possible in Australia and losing all of it,” Murray Hurps, Manager of startup incubator Fishburners (in Mao 2015).

“all those companies are headquartered in California, so all the profit's going to go there. All jobs are going to go there. All the best people around the world are going to be attracted to work there. And so we can either choose to be a producer of technology or a consumer of technology. And I worry if we don't invest in our education system, we will end up being a consumer.” Scott Farquhar, Founder of Atlassian (Lateline 2015).

TQ is able to rapidly develop new training programs, given suitable investment in new technologies and facilities for learners to use. A key element of many training programs is industry and regulatory accreditation, so measures to accelerate the process of accreditation whilst maintaining quality rigour is recommended.

Appendix Three details how the United States (US) was able to rapidly upskill its workforce for future STEM industries and resulting economic benefit. The Trade Adjustment Assistance Community College Career Training (TAACCCT) program provided funding of US\$2 billion to community colleges to rapidly create new curricula and pedagogies for approximately sixty emerging fast growth (STEM) industries. All resources created with the funding are openly licensed and available for the Australian TAFE sector to reuse at no cost. The US experience could be a catalyst to retrain the *current* workforce in future skills, rather than *displaced* workforces. The US STEM materials available may represent a potential headstart and collaboration opportunity, especially between US Community Colleges and TAFEs.

Incubators and Accelerators

With regards to incubation and entrepreneurial skills development, if TQ had access to funding for a ‘Student Innovation Fund’ similar to ARIS (as outlined above), it may amplify TQ’s ongoing practical support for startups. TQ notes the exciting proliferation of new incubators across Queensland, especially in the digital and startup space. As part of the TQ curriculum, educators and students may work with startups to gain work experience through provision of services such as website design, physical design concepts, and business advice. As previously mentioned, the Small Business Solutions program has successfully coached and nurtured startups and small businesses for several years. TQ continues to

In the Swim

The City of Gold Coast aims to build the local swim fashion industry into a national hub, by supporting entrepreneurship, innovation and small and medium sized enterprises (SMEs). The Gold Coast Swim Fashion Festival promotes emerging beachwear designers in the Gold Coast region, an initiative aligned with the cities’ Cultural Strategy. The designers come from diverse backgrounds and skillsets, and need support and new skills to transition their passion for design from hobby to business. TAFE Queensland Gold Coast (TQGC) sought to nurture the emerging designers - cultivating their business skills, industry contacts and experiences relevant to the fashion industry - to start or grow their business. TQGC identified that formal training programs may initially seem too onerous and workplace training programs are highly targeted at specific needs, so a non-accredited program in Business Skills for Emerging Designers was created. The training was delivered by two faculty members to fifteen designers in November 2015. Seven or eight industry representatives will participate in a final fashion show to take place in June 2016.

aspire to embed innovative approaches across all curricula, with an initial focus on Diploma and Apprenticeship level qualifications.

TQ highlights two opportunities for incubation that could be enabled with federal government applied research funding –

- future foundation/employability skills; and
- citizen makerspaces.

There is a compelling opportunity for incubation of innovative delivery for ‘Future Foundation and Employability Skills’ that every current worker shall need. That is, the ‘language, literacy and numeracy’ of the future, including design thinking, entrepreneurship and resilience, agile development, collaboration and remote teamwork, social intelligence, digital literacy and sensemaking. This may be what others describe as the ‘A’ part of STEM, or STEAM.

"Science and technology aspire to clean, clear answers to problems (as elusive as those answers may be). The humanities address ambiguity, doubt, and skepticism - essential underpinnings in a complex, diverse and turbulent world." Dr. Alan Brinkley USA (STEAM not STEM).

A potential application for Future Foundation and Employability Skills incubation may be in collaboration with the Queensland Government’s ‘Skilling Queenslanders for Work’ program that provides training to people who are under-utilised or under-employed in the labour market, as well as building the skills of young people, Aboriginal and Torres Strait Islander people, people with disability, mature-age job seekers, women re-entering the workforce, and people from culturally and linguistically diverse backgrounds.

A second potential incubation opportunity leverages the major physical facilities, infrastructure, expertise, community networks and interest in TAFE across Queensland, by offering itself as a ‘makerspace’. TQ currently offer services to help citizens, startups and SMEs to experiment and support their journey from idea to market – especially through the pain-point of scaling growth - and acts as an ‘innovation intermediary’ between established and emerging businesses, learners and educators, through provision of spaces, facilities, equipment, expertise and professional and community networks.

To address the ‘makerspace’ opportunity, the challenges of health and safety and public liability insurance must firstly be resolved. With funding and compliance solutions for makerspaces and new facilities, educators and students may undertake applied research with industry/employer clients and makerspace participants. To fund this potential opportunity, TQ will investigate industry funding and the Federal Government \$8 million Incubator Support Programme within NISA, as it may also enable

From idea to launch: incubating digital startups at TAFE Queensland Gold Coast

Karen Whitting had an idea for an online car-swapping marketplace but was unsure about how to implement it. TAFE Queensland Gold Coast Diploma of Graphic Design students were briefed to research and prepare ideas for a promotion campaign including branding, advertising and marketing.

All students developed and pitched ideas to the client and one was chosen by the client for use. Phase two of the project has now begun, with Film and TV students tasked with preparing two films for the startup. This is in the lead up to launch of the business in July 2016, as part of the support TAFE Queensland Gold Coast is providing to support Karen on her journey towards creation of a new business.

"I was really impressed with the professionalism of the students and the array of great designs to choose from. TAFE has helped me develop the VehicleXChanges brand and I look forward to working with the TAFE team again on future projects."

Karen Whitting, Founder VehicleXChanges.com

access to international expertise on makerspaces. However, as previously mentioned, this federal funding is aimed at universities and TQ will either need to collaborate or compete with universities, potentially leading to missed opportunities offered by the VET sector.

Recommendations:

1. *That the committee note the examples provided of how the VET sector and TAFE are fostering innovation and delivering solutions for employers and industry that improve productivity and growth.*
2. *Expand the VET sector's capacity to deliver innovation with industry through the establishment of an Australian Government initiative of \$50 million over four years for applied research and innovation services to be allocated through a contestable process to the VET sector.*
3. *Introduce initiatives to retrain the current workforce with future skills to optimise the economic benefit of NISA, by minimising offshoring of jobs.*
4. *Implement measures to accelerate the industry and regulatory accreditation process while still maintaining quality rigour, for newly developed training packages designed to keep Australia's workforce adequately skilled for the future.*

1. The extent to which students are graduating with the skills needed for the jobs of today and of the future

Identifying the skills needed to both drive and support the future Australian economy is a critical requirement of the VET sector. Central to this is ensuring that the product that the sector offers is aligned to these current and future needs and importantly is able to flexibly adjust and realign when these change.

There are now new governance arrangements in place for the development of national training packages. These recent reforms have included the replacement of the Industry Skills Councils with Skills Services Organisations, with the successful organisations being recently announced following a contestable process. This new approach to training package development is aimed at improving industry involvement and input in training package development and ensuring responsiveness to skills demand.

While it is clearly too early to assess the success or otherwise of this approach, TQ note the importance that these groups must place on ensuring that training packages are, as much as possible, future proofed and providing students with the skills necessary to partake and drive the future economy. As mentioned below TQ, through its Learning and Teaching Principles, is ensuring that its students are equipped with flexible and responsive skills, including digital literacy, cultural literacy, social and emotional intelligence, communication, critical thinking and creative problem solving. Many of these skills have been identified within recent research as being vital in the future workforce and therefore it is critical that the sector responds and ensures that its product offering is reflective of these and future trends as and when they emerge.

TQ and the VET sector more generally have a key role in providing these skills. TQ is already delivering on this responsibility and is strongly focused on student outcomes and the role it plays in driving future economic growth.

The 2015 NCVER Student Outcomes Survey revealed that **87 per cent of TQ graduates are in either jobs or further study within three months of graduation**. This represents a 19 per cent higher success rate when compared with University Bachelor Degree graduates (Graduate Careers Australia 2014). This illustrates that TQ graduates have the skills needed for the jobs of today and are highly employable following graduation.

Importantly, TQ works closely with local employers throughout the state and embedded workplace learning is a key element of many programs – enabling employers to work with potential future employees while they are still undertaking training. TQ also closely aligns the timing of new skills programs with industry need.

TQ note that 44 per cent of jobs are at risk from digital disruption alone, and just a one per cent growth in STEM roles will add \$57.4 billion to GDP (21C minds 2016). With specific reference to digital opportunities, TQ has created a ‘Digital Learning Futures’ Group to strategise opportunities for improving the learner experience, such as supporting mobility, flexible delivery and connectedness. TQ have considered many other societal trends that will impact future workforce needs and is aware of the vast amount of research and activity on this topic. TQ will focus on three main drivers underpinning future technologies for learning in TQ:

- agility;
- personalisation; and
- relevance to current and future employment markets.

TAFE Queensland’s Digital Learning Futures Group is within the Chief Academic portfolio and will be closely supported by the Regional Digital Product Services team, who deliver innovative eLearning tools and services across Queensland. Also within the Chief Academic portfolio is the Centre for Learning and Teaching and Product Agency.

The TQ product strategy is managed through Product Governance entities, such as the Product Management Authority and the Lifecycle Management Authorities (LMA). LMA Chairs are responsible for the life cycle of various product suites. Industry Sector Panels consisting of key stakeholders convene regularly to develop a product strategy for individual products. The timeliness at which they convene is influenced by the important different nuances of sectors, skills and regions.

Different sectors have different touchpoints with students, such as apprenticeships which involve constant informal engagement between educators and employers. For example, with electrical apprenticeships, there will be new training relating to the ‘internet of things’ innovations. The TQ Product Agency advises and uses a systematic process to align the timing of program changes to the emerging jobs of the future, using government, industry and employer input, business intelligence and importantly in conjunction with internal learner analytics and enrolment data. This is part of a continuous improvement process within the product lifecycle. The Product Agency is influenced by the

TAFE Queensland SkillsTech and local employers partner to seed and incubate skills for innovation

TAFE Queensland SkillsTech works closely with the electronic contracting industry to ensure future workers have the required skills as technology continues to advance in the industry. Electrical contractors have adapted and become more agile as new technologies have resulted in residential solar power and other renewable energy and the ‘internet of things’ looms near.

TAFE Queensland SkillsTech has worked in partnership with the electrical contracting industry to develop certified apprentices as it innovates. For example in the field of telecoms cabling, historically apprentices undertook ‘CAT5’ network cabling certification, which evolved to CAT5E (enhanced cabling) and was then replaced by CAT6 (ethernet cabling) training. As equipment improves, so too has the role of electrical contractor diversified. The curriculum for accreditation now has more options available to choose from. Seven years ago a typical electrician would have a Certificate III in electrical wiring, and now a typical electrical contractor may have a Certificate III in telecommunications and a Certificate IV in engineering (HVAC – air conditioning). Outcomes for TAFE Queensland include high completion rates and nearly 100 per cent employment rates after graduation.

Queensland Government Future Workforce initiatives that include: advanced manufacturing, renewable energy technologies, robotics, unmanned aerial vehicles, nanotech and biotech, software development, and more.

These proactive approaches by TQ could be further enhanced and supported by Commonwealth and State Government prioritisation of funding for future skilling demand. It is acknowledged that this is currently done in the Queensland context through the VET Investment Plan, which allocates state funding to priority skilling areas, however a national funding source, which is highly targeted to areas of key future demand would greatly assist. This funding could be allocated in a competitive way and be targeted to achieve identified skilling demand within both a geographical and program context.

TQ Centre for Learning and Teaching (CLT)

The TQ Centre for Learning and Teaching (CLT) Educator Capability Framework (Appendix One) and Learning and Teaching Principles and Practices (Appendix Two) have been designed for agility and responsiveness. The following skills and approaches are included in the suite:

- (a) Personal skills in addition to language, literacy and numeracy (LLN): digital literacy, cultural literacy, social and emotional intelligence, communication, critical thinking and creative problem solving;
- (b) Emerging innovative pedagogies and tools for learning, including learner centred experiences, applied research, active, collaborative and socialised learning, accelerated and/or self-directed learning, remote teamwork, authentic work scenarios (e.g. simulators, virtual reality, artificial intelligence) and embedded workplace learning (e.g. apprenticeships, project based learning), sustainable approaches, agile and iterative development of programs, use of learner analytics, scaffolding, industry review of programs, multi-disciplinary digital skills portfolios (for freelancing) and more.

Recommendations:

5. *That the key role of TQ and the VET sector more generally in ensuring Australia's workforce is equipped with the necessary skills to drive the national innovation agenda is acknowledged in any future innovation program planning and funding allocation.*
6. *The development of an education and training fund to support targeted investment within the VET sector in areas of future skilling demand.*

2. Matters relating to laws and regulations that may act as a barrier to education providers being able to offer qualifications that meet the needs of the new economy and fastest growing sectors.

TQ acknowledge the complexity of the VET sector and the fact that there has been a series of reforms in recent years, which have changed the very nature of the sector. These reforms have produced a number of questions/tensions that need to be addressed in the short term. TQ has provided a submission to the ongoing evaluation of the National Partnership Agreement on Skills Reform and a Pre-Budget submission to the Australian Government, both of which outline some of these issues. The below highlights some of these issues within the context of this inquiry.

Eight Different Systems

Recent research conducted by the NCVER examined the balance between the need to create a national VET system and the need to provide flexibility to states and territories to address localised skills shortages. The research notes that the National Partnership Agreement on Skills Reform (NPA) has driven the development of eight different student entitlement models. The variances between jurisdictions has seen differing student eligibility, available courses, subsidy levels, concessions and student fees. These variances would appear to be in contrast to the concept of a national student entitlement. Further, recent reforms appear to be a departure from the two decades prior, which saw an increasing move toward a national model from what was previously a state based approach to VET delivery.

The current 'eight system model' no doubt has impacts at a national level and the ability for national skills shortages to be addressed within what is now a national/international economy and labour market. There is a view that instead of efficiently evolving to address skills shortages the model has become fragmented and that this has the potential to disadvantage students and industry. TQ's above recommendation to develop a national fund to target skills shortages would go some way to addressing issues the current model present to future skilling demand.

Operationally, the current eight system approach can also result in inconsistencies which impact on students and industry. For example, TQ is unable to deliver government funded training in New South Wales (NSW), however NSW providers including TAFE NSW are able to deliver government funded services in Queensland, which results in unnecessary and imbalanced competition between public providers and also denies TQ of potential revenue source.

Increasing consistency and moving toward a national approach provides the benefit of aligning the VET sector with higher education. This alignment is critical as there is an obvious intersect between the two sectors, which has the potential to increase into the future, pending the outcome of any future higher education reform processes.

Market Design & Regulation

The VET sector is critical in ensuring that the workforce is adequately equipped with the skills that can meet the future needs of the economy. For the VET sector to be successful in its role it must maintain high standards of quality, which are focused on student outcomes and provide a return on any government investment that is made to support the delivery of education and training. TQ acknowledges the current fiscal environment and the need for public funding to be targeted and to achieve identified outcomes. This makes market design and regulation critical in all areas of government intervention in markets, and this is particularly the case within the VET sector.

The VET sector has experienced rapid expansion and diversification following state and territory implementation of contestable funding frameworks. This expansion has also been supplemented by the dramatic growth of the VET FEE-HELP program. Data released by the Australian Government indicates that the three year (2012 to 2014) completion rate was at 22 per cent. These results are particularly poor when compared with the completion rates of students undertaking the same qualifications, without VET FEE-HELP assistance, whose three year completion rate was 33 per cent.

These low completion rates are in addition to the wide array of reports of unscrupulous activity within the sector, specifically relating to the targeting of vulnerable members of the community to enrol in courses that they were not equipped to undertake. This market response, while unacceptable, could

be linked to the poor design of the VET FEE-HELP program and a lack of regulatory and compliance measures to prevent poor student outcomes.

The great concern, aside from declining sector quality and poor student outcomes is the extraordinary growth in expenditure under the scheme with the total value of VET FEE-HELP loans accessed in 2014 (\$1,757 million) more than doubled the amount accessed in 2013 (\$699 million). This increase follows an upward trend in expenditure, which has seen VET FEE-HELP expenditure increase by almost 7,000 per cent since 2009. When coupled with poor student outcomes a component of this money could undoubtedly have been invested within the sector and achieved better outcomes.

It is acknowledged that the Australian Government has responded to issues in the program with legislative measures that commenced from 1 January 2016 and have committed to a program redesign. However, these measures would not have been necessary if the regulatory foundations to the program had of been more effective.

TQ continue to advocate for the use of trusted public providers as the cornerstone in the ongoing development of an accessible, high quality VET system, similar to the current higher education model. Additionally, the Australian Skills Quality Authority as regulator needs to be adequately empowered to enforce that regulatory framework.

Sound market design and regulation are critical elements to ensuring that the VET sector and the education sector more generally is well positioned to ensure the delivery of the skills that will drive innovation within the future Australian economy.

Higher Education Reform

TQ continues to support the Australian Government's proposal to extend access to Commonwealth student subsidies to high quality non-university higher education providers.

TQ acknowledge and advocate for a considered and measured approach to higher education reform, including the necessary regulatory framework to ensure that quality and student outcomes are the key principles supporting any market design. This would include only extending access to Commonwealth Supported Places to non-university higher education providers that have a sound record in delivering high quality education and training, along with other barriers to entry.

Benchmarking and the establishment of clear thresholds that providers must meet prior to accessing Commonwealth supported places is critical to the long term success of such a program. It will ensure both the long term sustainability of funding and safeguard the quality of the higher education system in Australia into the future.

This measured extension of access will have clear benefits to students, in that it will greatly increase their choice and also provide the opportunity to access a subsidy while undertaking an alternate study experience with a non-university provider.

Certificate IV – New Small Business

This year TQ has introduced a new Certificate IV in 'New Small Business' program. It develops entrepreneurial skills that are industry endorsed and nationally accredited, and is delivered online in recognition that many students are running their own businesses and need flexible delivery. It also provides a pathway to the Bachelor of Entrepreneurship and Innovation, a degree that is delivered in partnership with the University of Canberra. This current pathway illustrates the alternate approach to higher education that TQ offers.

Additionally, TQ and other similar providers will be able to provide students with a number of advantages, such as strong links to industry/employers, increasing access for the educational disadvantaged (including regional and low SES students) and providing a supportive and flexible learning environment. This change will equate to increased participation and accessibility to higher education for a range of individuals, who may currently not be undertaking further education and therefore reducing their long term participation in the labour market. This point is particularly critical within the context of a range of recent research publications identifying an increasing need for individuals to hold higher level qualifications within the new economy.

Recommendations:

- 7. Increase consistency of policy and funding settings to improve the operation of the sector for the benefit of students, national and multinational employers and large training providers.*
- 8. That the Australian Government continues to place student outcomes and quality at the centre of its market design and regulation approach within the tertiary education sector.*
- 9. That any future higher education reform incorporate the extension of Commonwealth Supported Places to trusted, high-quality, non-university providers.*

TAFE Queensland Educator Capability Framework

THE FRAMEWORK IDENTIFIES EIGHT DOMAINS OF PROFESSIONAL PRACTICE THAT ARE ESSENTIAL WITHIN OUR ORGANISATION



Professionalism and core values

- Teamwork
- Accountability
- Commerciality
- Innovation
- Applied research and inquiry
- Working effectively with priority learners
- Inclusive practice

Learning and teaching

- Adult learning theory and principles
- Learning design
- Facilitation of learning
- Evaluation and reflection

Assessment

- Assessment principles
- Assessment design
- Evidence gathering processes
- Continuous improvement
- Recognition of prior learning
- Technology-based assessment

Innovative product and practices

- Learning and assessment resources
- Copyright and intellectual property
- Validation of resources
- Delivery models

Technology for learning

- Digital foundation skills
- Connect and Resourcebank
- Engagement and facilitation through technology

Learner, industry and community engagement

- Industry and vocational networks
- Training needs analysis
- Enterprise learning
- Engagement

Quality and compliance

- Quality framework and standards
- Quality processes
- Quality products
- VET and Higher Education environment
- Vocational and industry currency

Educational leadership

- Team leadership
- Program leadership
- Mentoring
- Knowledge management



Learning and Teaching Principles and Practices

TAFE Queensland's Learning and Teaching Principles and Practices reflect its core values and strategic objectives. They acknowledge that the goal of teaching is to enable effective learning, and that high quality learning environments, physical and virtual, real and simulated, need to be carefully constructed and student-focused, to ensure outcomes meet the needs of both the learner and industry.



Appendix Three

The United States experience: TAACCCT (Trade Adjustment Assistance Community College and Career Training)

In 2008 lowered trade barriers allowed mass imports of cheaper manufactured goods to the United States, this was followed by the Global Financial Crisis – these two hits to the economy led to company closures and mass unemployment. At the same time, rapid growth innovative STEM businesses were manufacturing offshore because they could not find staff with the skills they needed locally. At one point 800,000 jobs were being lost per month (Perez 2013). The displaced workers were typically from manufacturing factories with low level job skills and minimal workplace readiness. The skills they held were in traditional roles that had been replaced by automation or in industries that had collapsed. The situation could be typified by one loyal employee who had been doing the same low-wage role at the only major local employer on a factory production line for her entire twenty year career. She wore a factory-supplied uniform and rarely interacted with others as part of her work nor was required to read, write or use math. When the factory closed she needed to rapidly gain new skills to re-enter the local workforce because she had no financial safety net.

The United States government responded by funding US\$2bn across Community Colleges nationwide to rapidly create and offer STEM courses, to retrain the displaced workforce and get them back into work quickly. It aimed to prepare displaced low-wage workers for middle-class jobs. Courses were tailored to local employers who were hiring staff, including in partnership with rapid growth, high potential SME employers and major employers who were innovating, and Workforce Investment Boards. The financial hardship of students necessitated new innovative pedagogies including: compressed delivery and accelerated learning strategies to reduce the time to complete a course; technology-enhanced training to learn from home and minimise travel costs; mobile labs and 3D printing of materials; stackable credentialing for course agility to student choices; active outreach services to 'at-risk' students; zero cost resources; and new ways to measure program success. The government encouraged programs that involved collaboration and sharing between colleges to develop the course foundations – to enable colleges to spend more time tailoring their courses to local employer needs.

As a result the U.S. now has a mass STEM trained workforce, a sturdy skills infrastructure that is underpinning economic recovery and capacity growth. 10 million new jobs were created over 4.5 years to 2014. In 2014 \$450m in grants were awarded to nearly 270 Community Colleges partnering with more than 400 employers (US Dept. Labor 2013). The government continues to build on the success of this program with funding to 2019.

The government mandated that all teaching materials and resources created under this program be openly licensed to facilitate sharing. It means anyone anywhere in the world can reuse the resources at zero financial cost. TAFE Queensland Regions can access (Skills Commons <<https://www.skillscommons.org/>>) and reuse the course resources. Courses include: Industrial Robotics, Digital Gaming, Digital Manufacturing, Advanced Manufacturing, Entrepreneurship, Clean Energy, Biotech, Agri-Biotech, Mechatronics, GPS systems, Cybersecurity, Digital forensics, new Aviation maintenance.

See also: <<https://www.gatesnotes.com/Education/Kentucky-Student-Profile>>

References

21st Century Minds (website). Viewed 1 March 2016 <<http://www.21stcenturyminds.com.au/>>.

Advancing Education: An Action Plan for Education in Queensland. State of Queensland Department of Education and Training, Brisbane, 2016. Viewed 1 March 2016 <<http://advancingeducation.qld.gov.au/Pages/default.aspx>> ; see also <<http://advancingeducation.qld.gov.au/SiteCollectionDocuments/Advancing-education-booklet.pdf>> ; <<http://advancingeducation.qld.gov.au/SiteCollectionDocuments/Coding-and-robotics-booklet.pdf>>.

Advance Queensland Future Jobs Strategy. State of Queensland Department of Science, Information Technology and Innovation), Brisbane, 2016. Viewed 1 March 2016 <<http://advanceqld.initiatives.qld.gov.au/funding/future-jobs-strategy.aspx>>.

Australian Research Council. 2016. *Welcome to the Australian Research Council Website*. Accessed 11 March 16: <http://www.arc.gov.au/welcome-australian-research-council-website>.

Australian Workforce and Productivity Agency (AWPA) 2013, *Future Focus. National Workforce Development Strategy*. Commonwealth of Australia, Canberra. Accessed 12 January 2016 <<https://docs.education.gov.au/system/files/doc/other/futurefocus2013nwds-2013.pdf>>.

Department of Education and Training 2015, *VET FEE-HELP Statistics*. Commonwealth Department of Education and Training, Canberra.

Department of Education and Training 2015, *Skilling Queenslanders for Work*. State of Queensland, Brisbane. Viewed 1 March 2016 <http://www.training.qld.gov.au/resources/community-orgs/pdf/sqw-fact-sheet.pdf>.

Department of the Prime Minister and Cabinet 2015, *National Innovation and Science Agenda*. Commonwealth of Australia, Canberra. Viewed 1 March 2016 <<http://innovation.gov.au/system/files/case-study/National%20Innovation%20and%20Science%20Agenda%20-%20Report.pdf>>.

Gray, J. 2006 *Small business strategy - capability development: Stakeholder analysis report*. Queensland Government Department of Employment and Training, Brisbane.

Habib, M. 2016 'Light-up purses and smart lamps evolve from research projects' in *The Globe and Mail*, November 11. Viewed 11 March 2016 <<http://www.theglobeandmail.com/news/national/education/light-up-purses-and-smart-lamps-evolve-from-research-projects/article27193895/>>.

'Interview: Scott Farquhar, co-founder and co-CEO of Atlassian which is one of Australia's largest software companies' Emma Alberici. Lateline. ABC1 Melbourne. 22 September 2015. Accessed 12 January 2016 <<http://www.abc.net.au/lateline/content/2015/s4317805.htm>>.

Jobs Now, Jobs for the Future. Queensland Government Employment Plan. State of Queensland (Treasurer) Budget 2015-16. Viewed 1 March 2016 <<http://www.budget.qld.gov.au/budget-papers/documents/jobs-qld-government-employment-plan.pdf>>.

Mao, F. 2015 'Atlassian snubs Aust for US Listing'. The Australian, Sydney, September 28. Accessed 12 January 2016 <<http://www.theaustralian.com.au/news/latest-news/atlassian-eyes-us-stock-market-listing/news-story/fbfb11e11fea09948b601e9b87ff4a30>>.

National Health and Medical Research Council. 2016. *\$129.4 million in grants to support medical research*. Accessed 11 March 16 <<http://www.nhmrc.gov.au/media/releases/2016/129-4-million-grants-support-medical-research-1>>.

NCVER 2016, *Balancing Consistency and flexibility in student training entitlements: research overview*, NCVER, Canberra.

Office of the Queensland Chief Scientist 2015, *Strategy and Research Priorities*. Queensland Government, Brisbane. Viewed 1 March 2016 <<http://www.chiefscientist.qld.gov.au/images/documents/chiefscientist/qld-science-n-research-priorities-2015-2016.pdf>>.

STEAM not STEM (Website). Viewed 1 March 2016 < <http://steam-notstem.com/>>.

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