



# New models of tertiary education



# **New models of tertiary education**

**Issues paper – February 2016**

## The New Zealand Productivity Commission

Te Kōmihana Whai Hua o Aotearoa<sup>1</sup>

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# The issues paper

This issues paper aims to assist individuals and organisations to participate in the inquiry. It outlines the background to the inquiry, the Commission's intended approach, and the matters about which the Commission is seeking comment and information.

This paper contains specific questions to which responses are invited. These questions are not intended to limit comment. Participants should choose which (if any) questions are relevant to them. The Commission welcomes information and comment on all issues that participants consider relevant to the inquiry's terms of reference.

## Key inquiry dates

Receipt of terms of reference:	3 November 2015
Due date for initial submissions:	4 May 2016
Release of draft report:	September 2016
Draft report submissions due:	November 2016
Final report to Government:	28 February 2017

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## Why you should make a submission

The Commission aims to provide insightful, well-informed and accessible advice that leads to the best possible improvement in the wellbeing of New Zealanders. Submissions help the

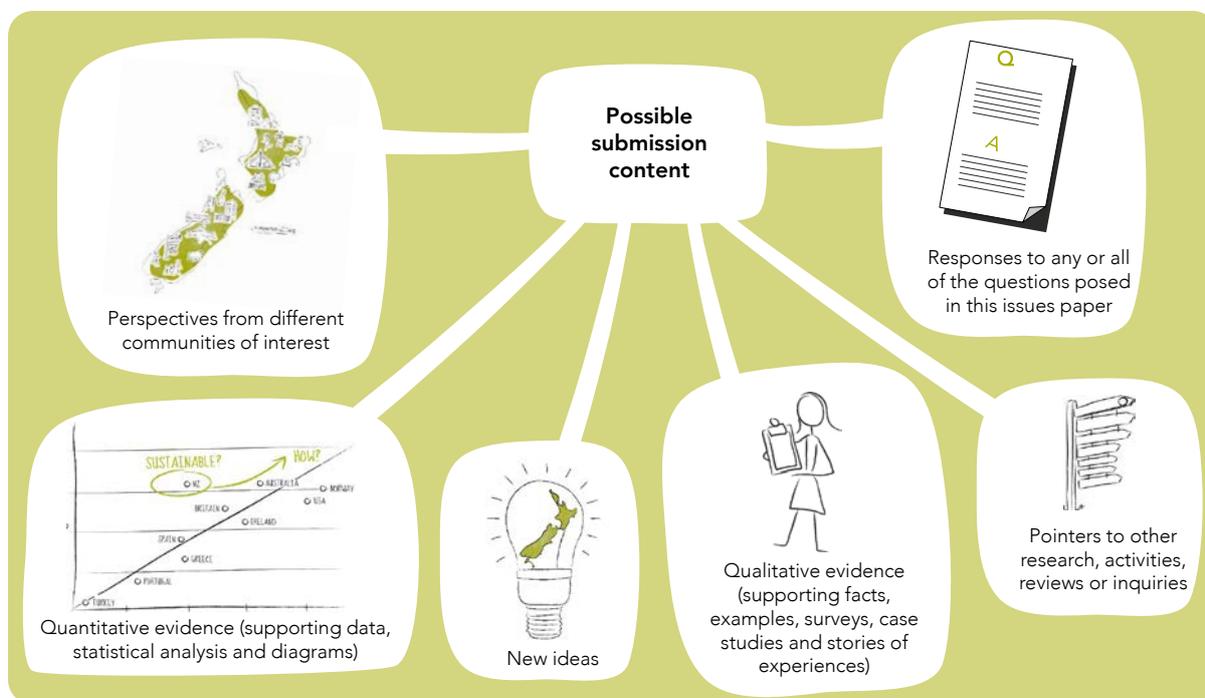
Commission to gather ideas, opinions and information to ensure that inquiries are well-informed and relevant, and that its advice is relevant, credible and workable.

Submissions will help shape the nature and focus of this inquiry. Inquiry reports may cite or directly incorporate relevant information from submissions. There will be an opportunity to make further submissions in response to the draft report.

## How to make a submission

Anyone can make a submission. It may be in written, electronic or audio format. A submission can range from a short letter on a single issue to a more substantial document covering many issues. Please provide supporting facts, figures, data, examples and documentation where possible. Every submission is welcome; however, identical submissions will not carry any more weight than the merits of the arguments presented. Submissions may incorporate relevant material provided to other reviews or inquiries.

**Figure 1 Suggestions for submission content**



Submissions may be lodged at [www.productivity.govt.nz](http://www.productivity.govt.nz) or emailed to [info@productivity.govt.nz](mailto:info@productivity.govt.nz). Word or searchable PDF format is preferred. Submissions may also be posted. Please email an electronic copy as well, if possible. Submitters can download a Word document from the Commission’s website listing all the questions from this Issues Paper, and use it as the basis of their submission if they wish.

Submissions should include the submitter’s name and contact details, and the details of any organisation represented. The Commission will not accept submissions that, in its opinion, contain inappropriate or defamatory content.

## What the Commission will do with submissions

The Commission seeks to have as much information as possible on the public record. Submissions will become publicly available documents on the Commission's website shortly after receipt unless accompanied by a request to delay release for a short period.

The Commission is subject to the Official Information Act 1982, and can accept material in confidence only under special circumstances. Please contact the Commission before submitting such material.

## Other ways to participate

The Commission welcomes engagement on its inquiries. Please telephone or send an email, or get in touch to arrange a meeting with inquiry staff.

# Commonly used terms

Term	Description <sup>1</sup>
Adult and Community Education (ACE)	Enables adults to engage in education with few barriers to participation and in a context relevant to the learner. It usually does not lead to a qualification and is often focused on personal development and skill enhancement with associated social, civic and community benefits, including literacy and numeracy skills.
assessment	A process to determine a student's achievement of identified learning outcomes. It may include written or oral presentations, or demonstrations.
business model	A business model specifies – at a high level – how an organisation carries out its business. A typical business model articulates how an organisation creates, delivers, and captures value.
certification	Formal procedure by which an accredited or authorised organisation assesses and verifies a qualification.
credential	A verification of an individual's qualification or competence issued by an education provider or third party with the relevant authority to issue such credential. Credential encompasses educational certificates, degrees, and diplomas and their component credits, as well as newer forms such as badges.
CUAP	Committee on University Academic Programmes. A committee established by Universities New Zealand to carry out its statutory role in quality-assuring academic programmes at universities.
delivery model	The interface between a tertiary education organisation and a student for the purpose of learning.
EFTS	Equivalent full-time student. It is the main unit of measurement of the consumption of education. 1.0 EFTS corresponds to one student enrolled full time for one year (1 200 learning hours over 34 weeks) in a standard programme of study.
export education	Educating students from a different country. This might involve student travel, provider travel, a branch operation in another country, or course delivery across international boundaries (eg, online courses).
foundation education	One of three broad levels of tertiary education, along with vocational and higher education. Foundation education covers levels 1–3 of the New Zealand Qualifications Framework and aims to provide students with the skills and knowledge that form the foundations for further learning, including literacy, numeracy, and self-management and study skills.
Gateway	A programme that provides senior high school students (year 11 and above) with opportunities to access structured workplace learning that has a formalised learning arrangement set in the workplace, specified knowledge and skills that a student will attain, and specified assessment methods (workplace learning).

Term	Description <sup>1</sup>
higher education	One of three broad levels of tertiary education, along with foundation and vocational education. Higher education is tertiary education at degree level or above (levels 7–10 of the New Zealand Qualifications Framework), and aims to develop abstract and theoretical knowledge of a discipline alongside advanced cognitive and non-cognitive skills.
ICT	Information and communication technology. This includes digital networks, telecommunications and broadcast media.
industry training	Training for people in the workforce that leads to a formal qualification (eg, apprenticeships). Industry training can be delivered in the workplace or offsite at a training provider, or a mix of both.
industry training organisation (ITO)	Organisations that facilitate workplace learning for trainees in employment by setting national skill standards for their industry, developing appropriate training, and monitoring the quality and assessment of trainees. Note: ITOs are TEOs but not providers.
innovation	The process of translating an idea or invention into a good or service that has value.
institute of technology or polytechnic (ITP)	A tertiary education institution that offers a wide diversity of continuing education, including vocational training, and that conducts research, particularly applied and technological research.
internationalisation	The influence on the tertiary education system (including in terms of the attributes, expectations, and options of its graduates and staff) of cross-border trade, knowledge transfers and the movement of people and ideas.
labour productivity	Average output per unit of labour input (usually taken to be an hour of work).
MOOC	Massive open online course. It is a model for delivering learning content online to any person who wants to take a course, with no limit on attendance, and usually at no cost (though there may be costs for additional goods or services, such as certificates of completion).
multi-factor productivity (MFP)	Change in output that cannot be attributed to changes in the level of labour or capital input. It captures factors such as advances in knowledge, and improvements in management and production techniques.
nanodegree	An online course of study that can be completed in less than 12 months.
new model	A model is a way of organising the production of tertiary education or the relations between system participants to achieve a defined goal or goals. A “new model” means one not currently in common use.
operating model	See business model.
pedagogy	The theory, method and practice of teaching.
priority group	A group of learners whose participation and success in the tertiary education system is a priority for the Government. The current Tertiary Education Strategy identifies four priority groups: Māori, Pasifika, young people at risk, and adults with low levels of literacy and numeracy.

Term	Description <sup>1</sup>
providers	TEOs that deliver educational services to students. This includes TELs and PTEs but excludes ITOs.
PTE	Private training establishment. A provider of post-school education or vocational training that is not a Crown entity.
SAC	Student achievement component. The largest of the Government’s tertiary education funds, used to purchase provider-based tertiary education.
second chance learning	Education for people (including adults) who did not complete mainstream secondary school and want a “second chance” at gaining the skills they need to continue on to further learning.
sector	Sometimes used as a shorthand for the “tertiary education sector” (ie, all tertiary education organisations).
skills	Subject-specific knowledge, such as literacy and numeracy, and non-subject specific abilities, such as critical and creative thinking. Technical and vocational skills are a mixture of knowledge and abilities used to perform specific jobs with clearly defined tasks.
STEM	Science, technology, engineering and mathematics.
student allowance	A weekly payment to help students cover living expenses while they study. It is money that the student does not have to pay back. Entitlement to student allowance is based on criteria set out by Studylink such as parental income or over the age of 24.
student loan	Money borrowed from the Government to help students finance study. It is made up of three parts: course fees, course-related costs and living costs. The money borrowed must be paid back, but the loan is interest free for New Zealand based borrowers.
subsector	One of universities, ITPs, wānanga, PTEs or ITOs.
system	A combination of interrelated, inter-dependent, or interacting elements forming a collective entity.
TEC	Tertiary Education Commission. The TEC is a Crown entity responsible for funding most tertiary education in New Zealand.
TEI	Tertiary education institution. A university, ITP or wānanga, all of which are Crown entities established under the Education Act 1989.
TEO	Tertiary education organisation. TEO is a catch-all term for organisations that provide tertiary education-related services. It includes universities, ITPs, wānanga, PTEs, Rural Education Activity Programmes, community education providers, TEC-funded schools (eg, those who provide Gateway or Adult and Community Education), ITOs, and a small number of employers in receipt of TEC funding.
Tertiary Education Strategy (TES)	A statutory document that describes the Government’s strategic direction for tertiary education over the next 5 to 10 years. The current TES covers the period from 2014 to 2019.

Term	Description <sup>1</sup>
tertiary education system	The various participants who fund, specify, regulate, influence, provide and consume tertiary educational services; and the formal and informal relationships between those participants.
tertiary provider	Tertiary education organisations that deliver courses. These courses range from transition (school to work) programmes, through to postgraduate study and research. Note that this term excludes ITOs, which arrange but do not deliver courses.
trend	A general direction in which something is developing or changing.
tuition costs	Can refer to many different things, including the price paid by students (either gross or net of student loans), the costs incurred by providers, or the costs incurred by government (including or excluding the effective cost of student loans).
vocational education	One of three broad levels of tertiary education, along with foundation and higher education. Vocational education aims to provide students with practical skills for application in a particular occupational field, such as a trade. Most vocational education is at levels 4–6 of the New Zealand Qualifications Framework.
wānanga	A tertiary education institution that provides programmes in a Māori cultural context, with an application of knowledge regarding āhuatanga Māori (Māori traditions) according to tikanga Māori (Māori custom).

*Notes:*

1. This table reflects the Commission's proposed interpretation of terms used in the inquiry's terms of reference. The Commission seeks feedback on these interpretations.





# 1 The inquiry

Some aspects of tertiary education in New Zealand have transformed nearly beyond recognition in just the last few decades – for example, the ability of nearly every student to access almost unlimited content in real time via the internet. Other aspects, such as a university lecture, would be readily recognisable to medieval scholars.

The big social, technological, economic and demographic trends that drove these transformations are ongoing, and could gain momentum. These trends present challenges and opportunities to the tertiary education system and its participants.<sup>2</sup>

Public and private expenditure on tertiary education in New Zealand is about 2.1% of Gross Domestic Product (GDP), compared to an OECD average of 1.6% (OECD, 2015).<sup>3</sup> This is a significant level of expenditure and New Zealanders should expect that our tertiary education system is capable of fuelling a highly successful and inclusive economy and society.

## The Government has asked the Commission to carry out an inquiry into “new models of tertiary education”

This inquiry will explore the big trends affecting the tertiary education system, consider how innovative “new models” can help the system respond positively to them, and consider system and institutional settings that encourage or inhibit new models.

“New models” are new and improved ways of achieving an end. In this inquiry new models could be improved ways of facilitating learning or better ways of delivering tertiary education. New models could potentially include different policy, regulatory, funding and quality assurance arrangements. The inquiry will consider models that already exist or are emerging in New Zealand, as well as things happening in other countries that could be adapted to local conditions.

The terms of reference for the inquiry suggest that there is currently “considerable inertia” in the New Zealand system, and an unwillingness to try new things. This inquiry will consider why that might be, if it is so; why some parts of the system innovate more than others; and how the system overall could become more innovative.

Reflecting the terms of reference, the inquiry will concentrate on educational outcomes generated by the system. This will require the Commission to consider what a good tertiary education system looks like, and how that can be measured.

Figure 2 outlines some questions the inquiry will consider over the next 12 months, grouped into five major trends outlined in the terms of reference. This issues paper does not attempt to answer these questions. Instead, it describes some information about the system and trends

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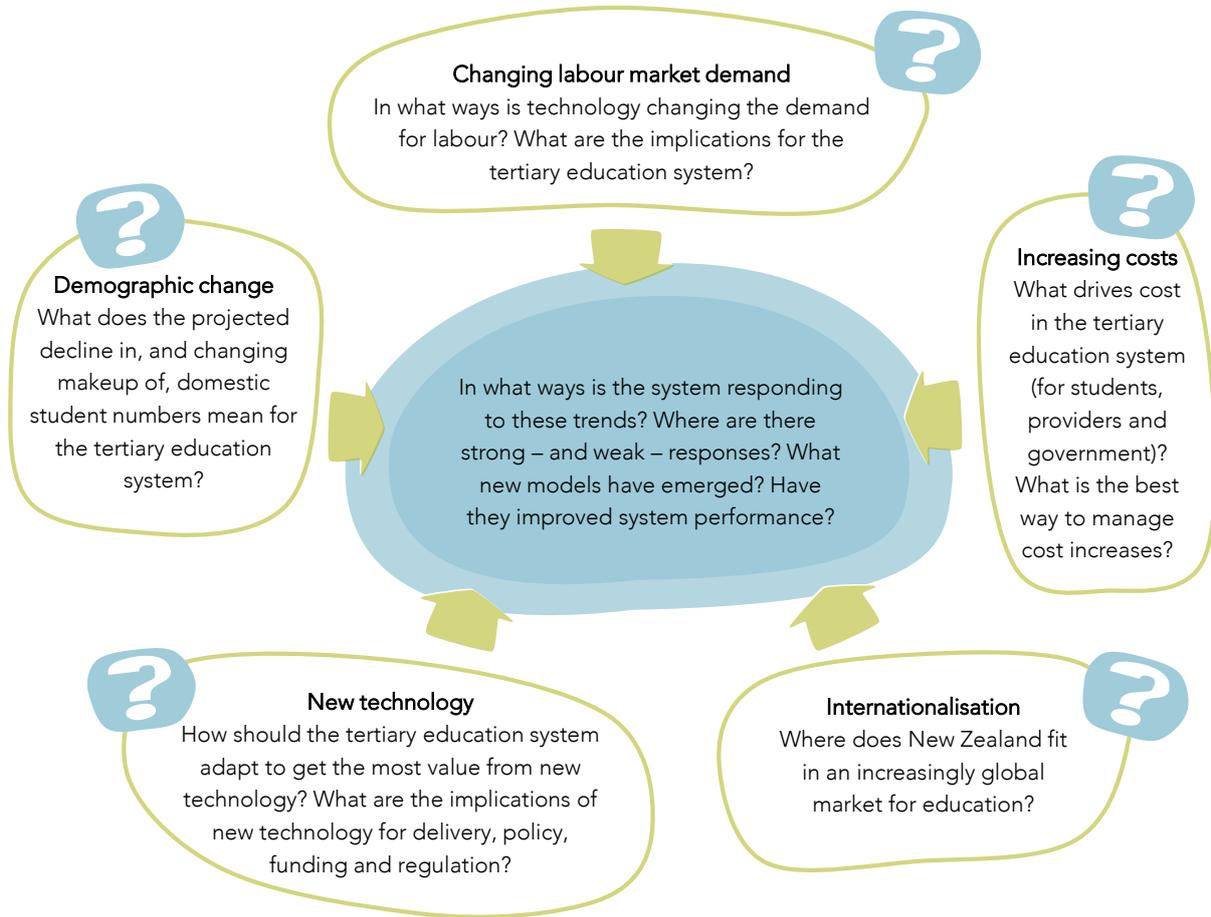
<sup>2</sup> The terms of reference for the inquiry refer to an OECD (2008a) document describing the main challenges and concerns facing tertiary education systems around the world. See Appendix A.

<sup>3</sup> This includes public and private sources of funds for “all tertiary” and “post-secondary non-tertiary” in 2012.

influencing it, and seeks submissions to help the Commission develop its advice and recommendations.

The inquiry's terms of reference can be found at the end of this paper.

**Figure 2** Some questions this inquiry will consider, relating to five major trends identified in the terms of reference



## 2 The tertiary education system

### New Zealand has a comprehensive definition of tertiary education...

In contrast to most other countries, the New Zealand Government defines tertiary education to include all post-compulsory education services, comprising:

- higher education;
- vocational education and training (both in workplaces and provider-based);
- foundation education and second-chance learning;
- English language learning for refugees, migrants and foreign students;
- adult and community education; and
- “secondary–tertiary” programmes that combine elements of tertiary education with senior secondary schooling, and can be led by schools, tertiary providers, or both in partnership.

These tertiary education services all share, to a greater or lesser extent, a common policy, funding and regulatory framework administered by the government.

Q1

**What are the advantages and disadvantages of administering multiple types of post-compulsory education as a single system?**

### ...and its outcomes are determined by lots of autonomous actors

New Zealand’s tertiary education system is comprised of many smaller subsystems with individual autonomous or semi-autonomous actors (eg, government agencies, students, employers, providers, faculties). These all respond dynamically to one another and to their external environment in a complex “ecosystem”.

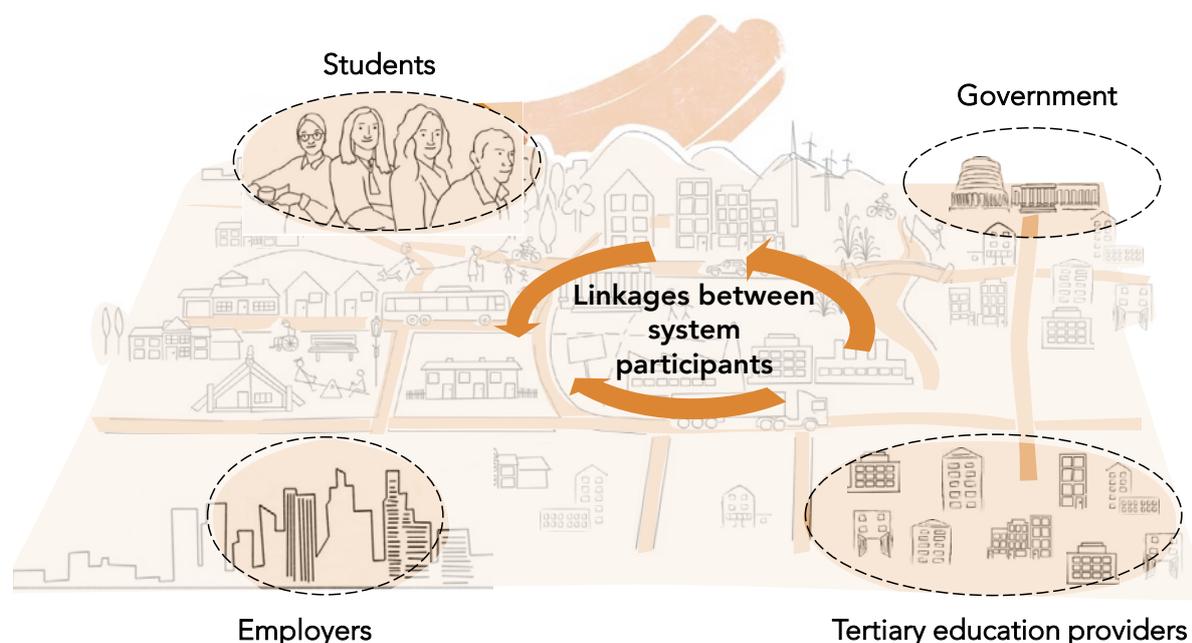
The system is influenced by its participants, and especially by the government via funding and regulation. However, government influence is moderated by the individual choices of the many autonomous agents, each driven by factors that lie outside the control of any one system participant. The parts the government can directly control interact with the parts it cannot, and overall outcomes depends on those interactions.

For example, if the government considers that the New Zealand tertiary education system needs to produce more work-ready engineering graduates at diploma level, then it can increase the tuition subsidy it pays to providers for students in diploma-level engineering study with a

workplace-based component. This action by the government will create incentives for tertiary providers to enrol such students in such courses. However, it will not, in and of itself, increase the appetite or capability of school-leavers to study engineering at diploma level, or the willingness of employers to offer internships or workplace learning. Those participants are subject to different incentives, some of which (eg, secondary school students' enthusiasm for calculus) may be hard for government or tertiary providers to influence.

Figure 3 groups the main participants in the system into four broad categories.

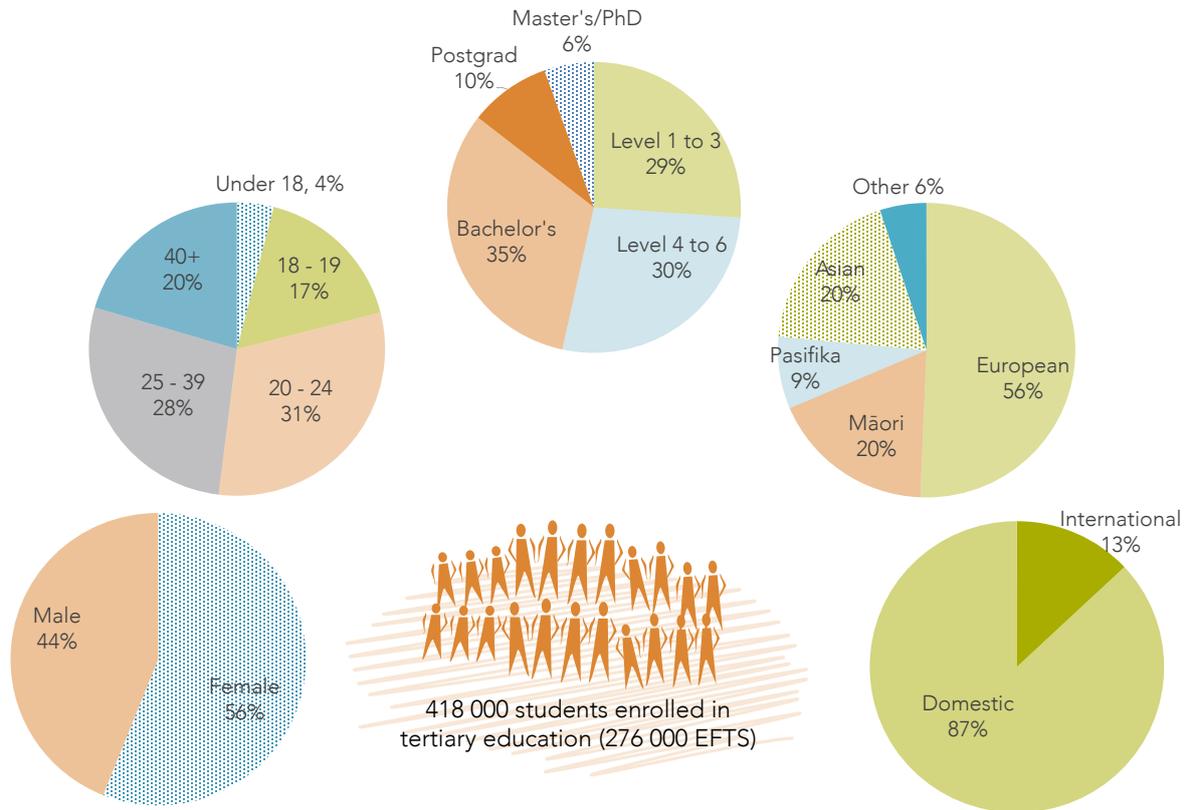
**Figure 3 Main participants of the tertiary education system**



## Students

Some 418 000 students (276 000 equivalent full-time students (EFTS)) were enrolled in formal tertiary education with providers in 2014. Around 60% of students enrolled in 2014 were studying full time, while the remaining 40% were part time. Figure 4 sets out some other characteristics of the 2014 student population.

The majority of students (77%) who enrolled at a tertiary provider for the first time in 2011 did so directly from secondary school (MoE, 2012). Secondary schools provide much of the prior learning that students obtain before entering the tertiary education system, and help to shape the aspirations and expectations of students when they make the transition to tertiary education. Achievement at secondary school has a significant impact on individuals' decisions regarding tertiary education. For example, 65% of 18 year olds who left school with National Certificate of Educational Achievement (NCEA) level 3 in 2011 transitioned into study towards a bachelor's degree. By contrast, 71% of 18 year olds who left school in 2011 without any form of secondary qualification did not enter tertiary education in the following two years (MoE, 2012).

**Figure 4 Characteristics of the New Zealand student population, 2014**

Source: MoE, 2015d.

*Notes:*

1. The pie charts are based on student numbers, not EFTS. The shares in some of these charts would change if they measured EFTS. For example, students studying at bachelor's level account for 32% of students, but because those students are more likely to be studying full time, they account for 43% of EFTS.
2. The sum of some figures adds to more than 100%, because students can associate with more than one ethnicity, and can be enrolled at different levels of study simultaneously.
3. Categories for ethnic groups in this figure, and all subsequent figures in this report, are those used in Ministry of Education statistics (MoE, 2015d).

Student decisions are affected by many factors and sources of information (Box 1). In New Zealand, there is a range of information sources for prospective students; for example, the Careers New Zealand website. The choices that students make about tertiary education play an important role in the system. Yet, the Ministry of Education (MoE) suggested that anecdote and unreliable data often influence student expectations regarding employment and career prospects (MoE, 2015a).

### Box 1 Student decision making

The student decision-making process can be broken into three stages (Leach & Zepke, 2005):

- The *predisposition* stage is affected by a person's family background, parental disposition to tertiary education, degree of self-belief and the school they attended.

Numerous studies find that family, peer and societal influences are important in shaping individuals' predisposition towards tertiary education (Diamond et al., 2014).

- The *search* stage occurs when the person is searching out post-school options based on their career aspirations, interest in a field of study, prior academic achievements, and access to information and contact with tertiary institutions.
- At the third stage, students make *choices* to pursue specific tertiary programmes at chosen providers. Student choices are constrained by a variety of factors, including admission requirements, the availability of preferred courses, geographic proximity to tertiary providers, and affordability concerns (Leach & Zepke, 2005).

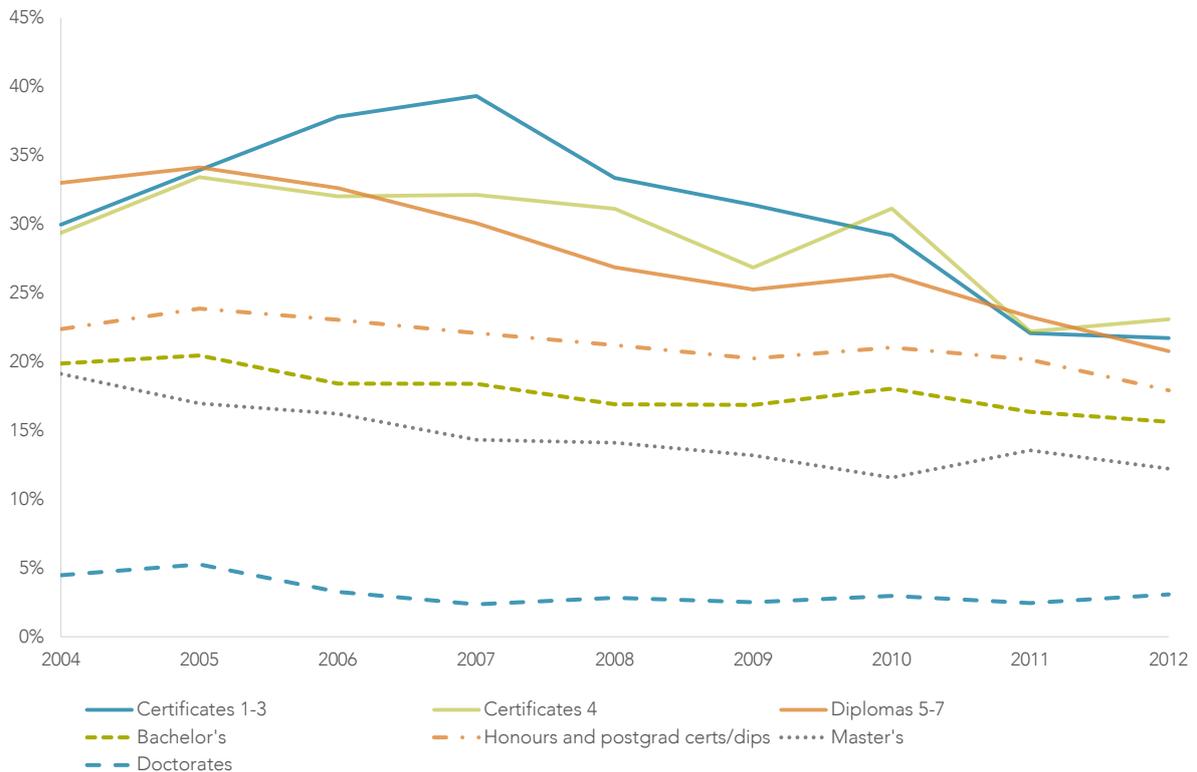
Tertiary education is sometimes described as a “one-shot investment” in economic models.

People investing in human capital through a purchase of higher education don't know what they're buying – and won't and can't know what they have bought until it is far too late to do anything about it. Education is a typically one-shot investment expenditure, a unique rather than a repetitive purchase, more like buying a cancer cure than groceries... (Winston, 1999, p. 15)

Yet, students *do* pick up information as they study. They learn about their own abilities and preferences, and about the quality of their tertiary provider (Lee, Shin & Lee, 2015). Students can and do use information to change courses of study or to switch tertiary providers. For example, research that tracked New Zealand students between 1997 and 2006 found that changing qualification and changing provider is relatively common:

- 22% of students changed qualifications before completion;
- 5% of students completed a higher-level qualification instead of the one they started, while between 5% and 10% completed a lower-level qualification;
- 19% of students transferred to a different provider before they completed a qualification; and
- 52% of students who progressed to higher-level study after completing a qualification, changed providers (Scott, 2008).

Students also opt to exit tertiary education. Figure 5 shows the attrition rate one year after enrolment, for students starting a qualification in 2004 and 2012 (the attrition rate measures the proportion of students that are no longer enrolled, and that have not completed a qualification).

**Figure 5 One-year attrition rates by level of study, 2004–2012**

Source: MoE, 2014a.

*Notes:*

1. The one-year attrition rate is the proportion of students that, one year after enrolment, are no longer enrolled, and that have not completed a qualification.
2. Attrition rates for graduate certificates and diplomas are not shown.
3. Includes domestic and international students.

Attrition rates have declined across all levels of study between 2004 and 2012. This indicates higher levels of retention in tertiary education in 2013 (from students who commenced study in 2012) compared to retention rates in 2005. This may be influenced by many factors including students' experience of tertiary education, their personal circumstances, and the relative attractiveness of alternatives to study. Students who do not re-enrol without completing a qualification may re-enter tertiary education at a later date, or in a different country.

Governments and tertiary providers both have an interest in informing and influencing student decisions. Box 2 outlines a project to inform the enrolment decisions of prospective tertiary students, as well as provide tertiary education organisations and the Tertiary Education Commission (TEC) with performance management information. It is used in Career New Zealand's "Compare Study Options" tool (Careers New Zealand, n.d.), as well as the Ministry of Business, Innovation and Employment (MBIE)'s "Occupation Outlook" reports and mobile app (MBIE, 2016).

## Box 2 **Measuring the employment outcomes of New Zealand graduates, and providing the information to prospective students**

MoE's Employment Outcomes of Tertiary Education project has published selected national-level data about graduates' employment outcomes since 2013, comparing outcomes by level of study and by field of study. From 2017, the data will also compare outcomes by individual tertiary education organisation.

The project focuses on young graduates (rather than older adult students) to reduce the impact on the data of prior work experience. However, it does not take into account differences in the student intake across levels, fields, providers, faculties or modes of delivery – so it is not a “value-added” measure.

The project found that the main determinant of post-study outcomes is the level that the graduate has studied to, rather than their field of study or the type of provider in which they enrolled. However, it also revealed large differences in post-study earnings by field of study.

*Source:* Park et al., 2014.

Q2

**Do prospective students have good enough information to enable them to make informed choices about providers and courses? What additional information should be provided? Who should provide it?**

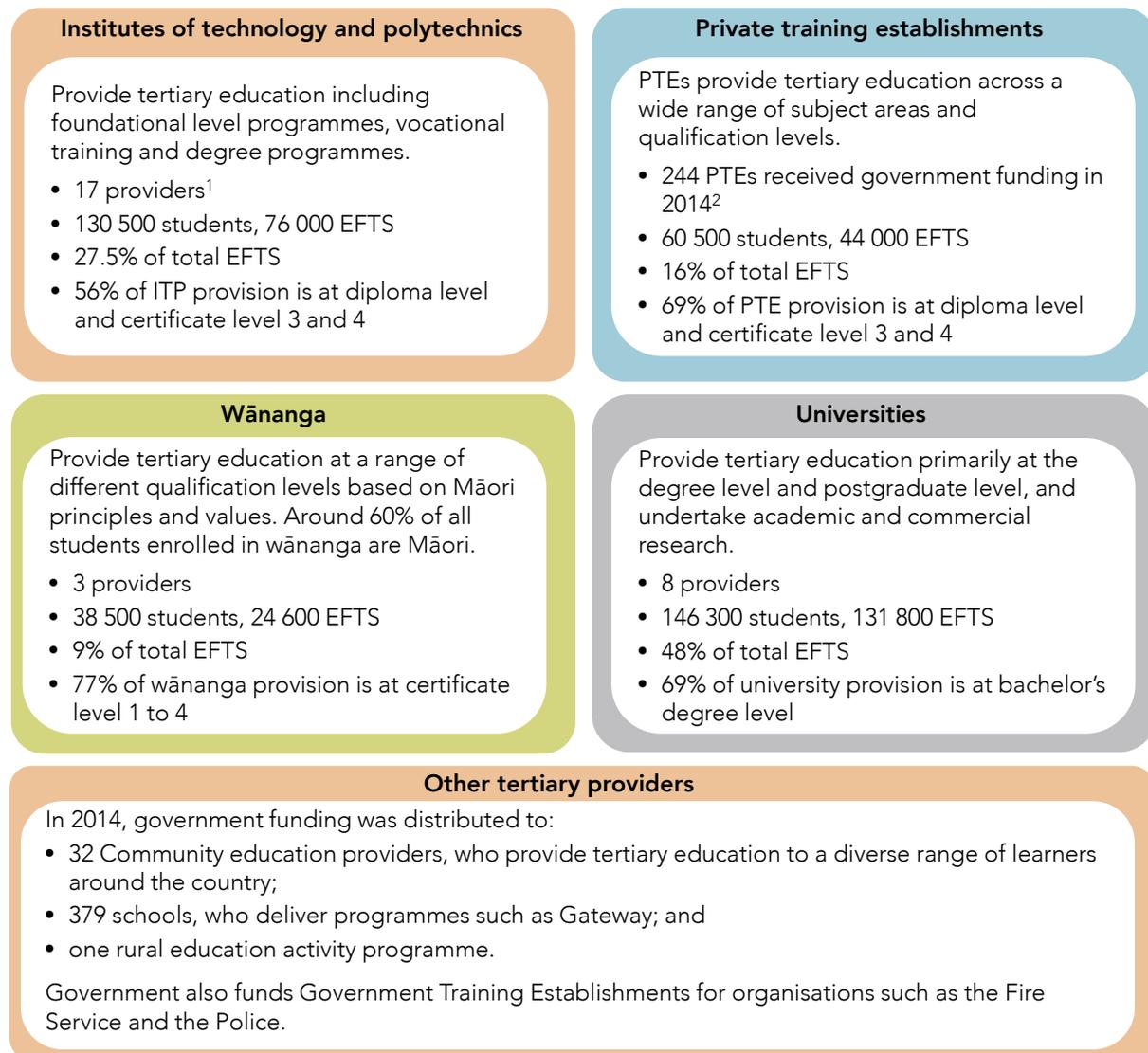
## Tertiary education providers

A diverse range of government-funded providers deliver tertiary education in New Zealand (Figure 6). There are also around 240 fully private providers registered with the New Zealand Qualifications Authority (NZQA) that do not receive any government funding, including English language schools aimed at international students and new migrants, and providers of professional development aimed at firms. In addition, Crown Research Institutes play an important role in supervising postgraduate student research in partnership with TEOs.

Industry Training Organisations (ITOs) are also an important player in the tertiary education system. Their role as a broker between employers and tertiary providers is discussed later in this chapter.

All types of tertiary provider and ITOs are included within the scope of this inquiry.



**Figure 6 Characteristics of New Zealand's tertiary providers****Notes:**

1. As at 11 February 2016 there were 17 ITPs. This accounts for the recent merger of Christchurch Polytechnic and Institute of Technology and Aoraki Polytechnic, but does not include the merger of Bay of Plenty Polytechnic and Waiariki Institute of Technology, scheduled for 1 May 2016.
2. The summary figures for PTEs include only those PTEs receiving funding from government in 2014. Data are not available for the approximately 240 PTEs not receiving government funding.

Universities, institutes of technology and polytechnics (ITPs) and wānanga are Crown entity "tertiary education institutions" (TEIs), as described by s 162 of the Education Act 1989. They are governed by councils, whose composition is set out in the legislation and includes up to 50% of members appointed by the responsible minister. TEIs must provide annual reports to the government, and are subject to various constraints on their financial management and activities that do not apply to Private Training Establishments (PTEs).

## Business models

A business model is how an organisation carries out its business:

- the activities the organisation undertakes, and the scale at which it undertakes them;
- who the organisation creates value for (its *customers*), and how it captures some of that value (forming its *revenue*); and
- from whom the organisation sources its inputs (its *suppliers* and *investors*), and the prices it expects to pay for those inputs.

A viable business model is one where revenues will cover or exceed its costs over the longer term. Perhaps most importantly a business model articulates the purpose of the business or, to put it another way, *what* business the organisation thinks it is in.

Tertiary providers are diverse, and vary greatly in terms of their size, the level of provision, the characteristics of their students, and the type of teaching and learning that they deliver.

Universities New Zealand (2014) described the business model that operates in New Zealand universities. This suggests some level of similarity within that subsector, at least at a high level. Briefly, an improving university reputation, as reflected in international rankings, drives an increase in international student numbers on which it makes a significant profit margin. Increased income allows a university to attract and retain high-quality academic staff, who drive teaching and research performance. Improved performance – particularly research performance – lifts a university's reputation and international rankings (Figure 7).

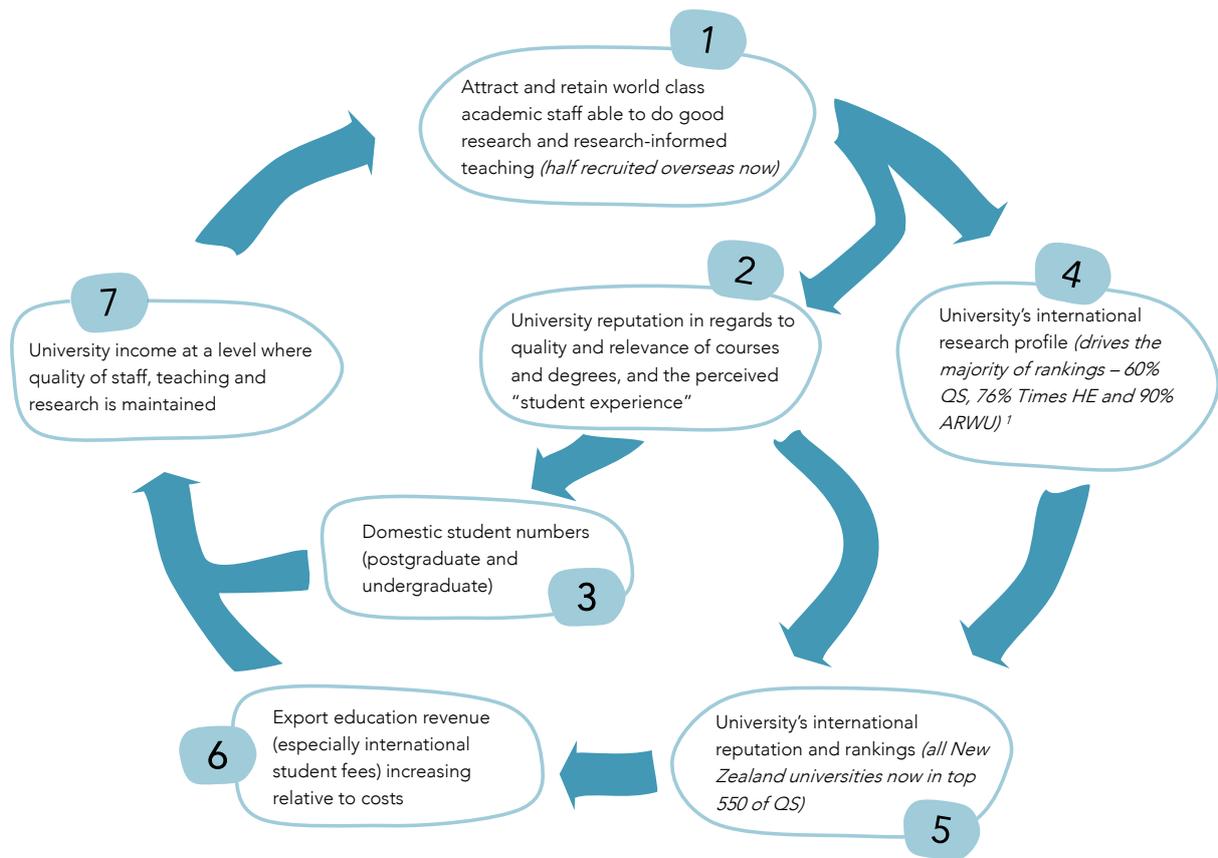
University selection of students is a further feature of this model. Higher rankings support higher entry standards, allowing selection of higher-performing students. Higher-performing students can be educated at lower cost, and are more likely to boost the reputation of the university after graduation (Steindl, 1990).

The model suggests that domestic student numbers are driven by a university's reputation for providing quality, relevance, and a good student experience. However, an MoE report found clear regional effects on university enrolments (Ussher, 2006); and funding is allocated centrally by the TEC rather than following student demand.<sup>4</sup>

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<sup>4</sup> Table 7 suggests that TEC makes allocations based largely on historical patterns.

**Figure 7 The business model of New Zealand universities**



Source: Universities New Zealand, 2014.

Notes:

1. QS, Times HE and ARWU are yearly publications of university rankings by Quacquarelli Symonds, *Times Higher Education* magazine and the Shanghai Ranking Consultancy (which publishes the Academic Ranking of World Universities).
2. Continuous growth in domestic [3] and international [6] student numbers are required to fund [7] ongoing increases in the costs of recruiting and retaining high-quality academic staff [1], maintaining and improving each university's reputation and positioning in international rankings [4, 5], and in delivering a quality student experience on and off campus [2].

Q3

**Is the business model of universities published by Universities New Zealand a good characterisation? Are there aspects of the business model of universities that it does not explain?**

ITPs have a different business model to universities, because they are in a different business (ie, vocational education and training, rather than higher education). While universities may be more similar than different, the Commission is also interested in whether the business models of ITPs vary significantly within the subsector. Is there, for example, a common model for metropolitan ITPs and another for regional ITPs?

**Q4****What is the business model of ITPs? Do the business models of ITPs vary significantly? In what ways?**

The three wānanga vary significantly in terms of their scale and nature of provision. Te Wānanga o Aotearoa operates from over 80 locations throughout the country and enrolled 32 000 students in 2014, with the vast majority studying at levels 1 to 4. By contrast, Te Whare Wānanga o Awanuiāraangi enrolled 4 500 students and offers courses ranging from level one certificates to doctorates, while Te Wānanga o Raukawa enrolled 2 500 students in courses ranging from level 3 certificates to a master's degree. The Commission is interested in receiving further information about the business model of each wānanga.

**Q5****What are the business models of the three wānanga?**

The business models for PTEs are likely to be highly variable depending on what the PTE delivers and to whom. A PTE specialising in diploma- or degree-level education in a niche industry is likely to have a different business model to one specialising in delivery of foundation education to young people who have disengaged from the schooling system.

**Q6****Do the business models of PTEs have common characteristics?**

A substantial body of research supports the existence of economies of scale in undergraduate teaching (eg, see Daraio, Bonaccorsi & Simar, 2015). This means that the cost of teaching an additional (marginal) student is significantly less than the average cost of teaching a student. This is a cost-based reason for business models that maximise the number of students enrolled. The New Zealand funding system reinforces this business model, as the government pays providers the same amount for every student.

**Q7****What are the implications of economies of scale in teaching (and the government funding of student numbers) for the delivery of tertiary education in different types of providers and for different types of courses and subjects?****Q8****How does competition for student enrolments influence provider behaviour? Over what attributes do providers compete? Do New Zealand providers compete with one another more or less than in other countries?**

Crown-owned providers (universities, ITPs and wānanga) tend to have high fixed costs as a result of significant investments in property and buildings. For example, the University of Auckland owns property, plant and equipment valued at \$1.8 billion (University of Auckland, 2014a). By contrast, PTEs tend to invest less in fixed assets and usually lease their premises.

Q9

**What are the implications of fixed capital costs for the business of tertiary education? Do differences in the capital structure of different tertiary institutions have important implications for the delivery of tertiary education?**

At nearly all providers, teaching is “bundled” with other educational services like assessment and credentialing. Teaching is often also bundled with ancillary services such as libraries, and student pastoral care and accommodation (Staton, 2012) – and, as discussed below, with research, especially at universities.

Q10

**What are the implications of the multiple activities of tertiary education for its delivery? What outputs are best produced together? What outputs are best produced separately?**

## Bundling of teaching and research in universities

In New Zealand, as in Australia and some US states (eg, Massachusetts), universities are required to undertake research alongside teaching. For example:

- In characterising universities, New Zealand’s Education Act states that “their research and teaching are closely interdependent and most of their teaching is done by people who are active in advancing knowledge” (s 162).
- Australia’s Higher Education Threshold Standards state that a university must offer research degrees at masters and doctoral level, and undertake “research that leads to the creation of new knowledge and original creative endeavour”, in at least three fields of study (Australian Government, 2011).

Research-led teaching is deeply embedded in the culture of New Zealand universities and is a defining feature of their business model. The Tertiary Education Union (TEU) has commented that research “has become so ingrained in New Zealand’s universities that for many institutions it would be teaching, not research, they would cut” (2014).

## Teaching universities

In much of Africa, Asia, and Latin America, as well as British Columbia, the United Kingdom and some US states (eg, California), unlike in New Zealand and Australia, there is no requirement that universities undertake research (Moodie, 2014). These jurisdictions do have research universities, but these can exist alongside “teaching universities” focused on undergraduate education. In the United Kingdom and British Columbia, these have generally evolved from polytechnics.

The value of teaching universities in higher education is contested. Proponents argue that:

- excellence in undergraduate teaching does not depend on being active in research;
- being a great teacher takes very different skills than being a great researcher, so it is inefficient to try to achieve both with the same workforce; and
- teaching-only universities are a cost-effective way to teach large numbers of undergraduate students to a high standard of quality (Wyness, 2011; Chapnick, 2012).

A meta-analysis by Hattie and Marsh (1996) of 58 studies found no relationship between the quality of academics' teaching and the quality of their research.

Critics of teaching-only higher education institutions argue that degree-level teaching must, by its very nature, be delivered by academics who are active in research; and that undergraduate education is better when it takes place in the same institution as postgraduate education, because of the cultural atmosphere engendered by a research programme (Education Review, 2014; Hattie & Marsh, 1996).

Some institutions use a mixed model, hiring teaching-only staff (usually fixed-term) to teach undergraduate classes, and providing research-led teaching at postgraduate level (Association of University Teachers, 2005; Probert, 2014).

**Q11**

**What are the benefits and disadvantages, in terms of students' learning outcomes, of bundling together research and teaching at universities in New Zealand?**

### **The relative valuing by universities of teaching and research**

There is a widely held perception that academics' research performance is valued above their teaching performance in terms of reputation, recruitment, and promotion. The TEU has stated that "research remains king in terms of academic prestige" (2014); and an Australian commentator has written that, in Australian universities, "[t]eaching is still widely talked about as a kind of punishment for not being a competitive researcher" (Probert, 2014).

A recent UK study of university engineering faculties (Graham, 2015) found that, while university senior managers believed that their institutions rewarded quality teaching, "the vast majority of engineering academics and researchers reported that teaching was afforded little or no value in academic promotion procedures" (p. 3).

**Q12**

**What value is attached to excellence in teaching compared to excellence in research when universities recruit or promote staff?**

### **Cross-subsidisation of teaching and research**

Norton (2013; 2015), writing of the Australian university system, found evidence that research activity is cross-subsidised with teaching income (with universities earning up to A\$3.2 billion more from students than they spend on teaching). Norton argued that international rankings encourage this, as well as encouraging employment practices that prioritise research outcomes with little regard for teaching skills.

The funding of research in New Zealand is different to Australia, so the Commission is keen to understand whether the Australian finding applies here.

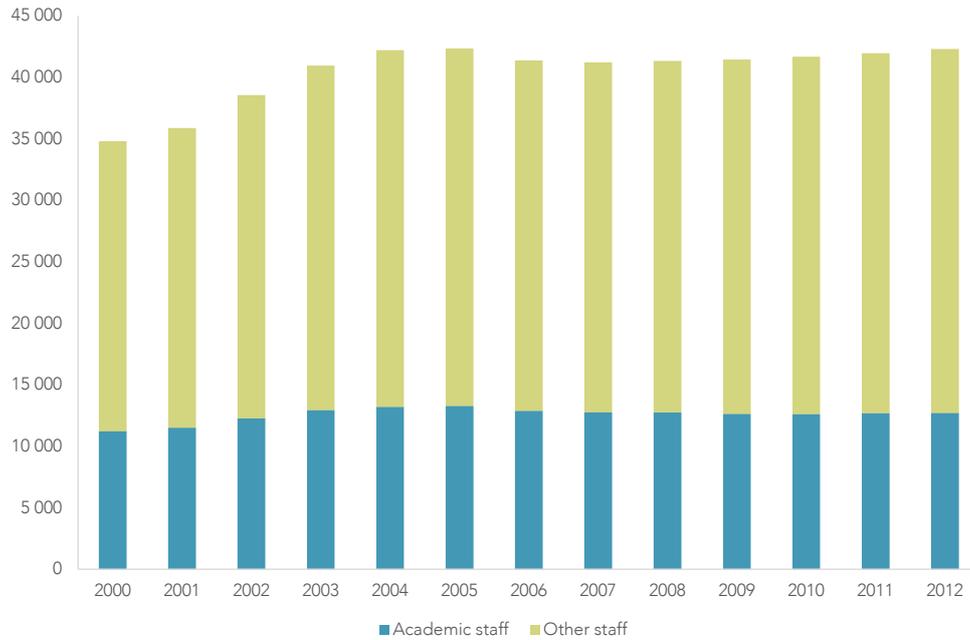
**Q13**

**Do New Zealand TEIs cross-subsidise research with teaching income?**

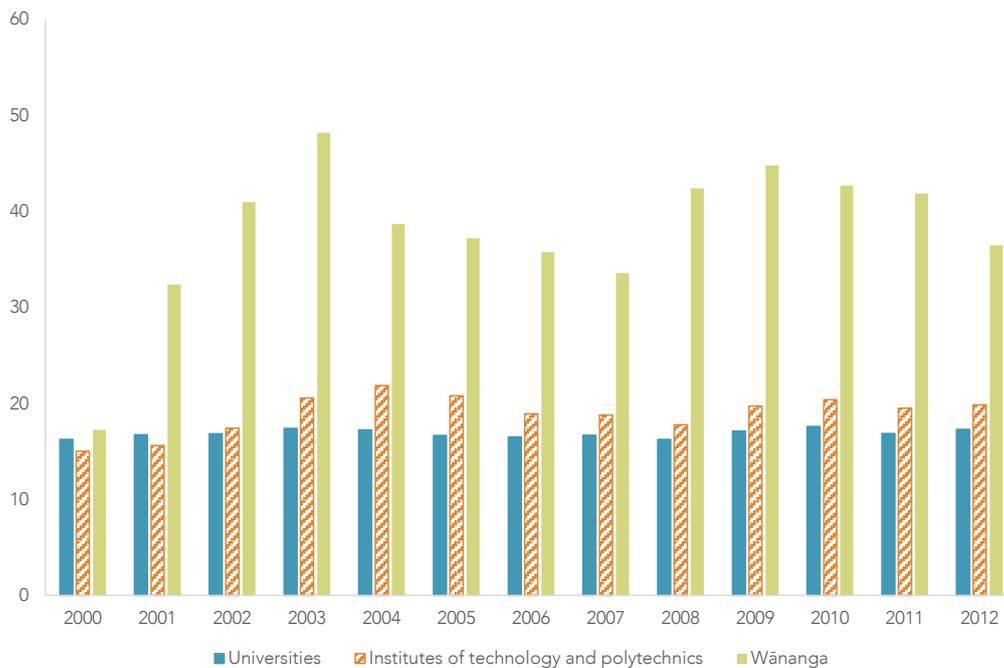
### Characteristics of the tertiary education workforce

The number of full-time equivalent academic staff employed in public TEIs has been relatively stable over the period for which figures are available, although there appears to have been more fluctuation in the number of non-academic staff (Figure 8). Staffing levels compared to student numbers vary by institution type (Figure 9).

**Figure 8 Full-time equivalent staff in TEIs, 2000–2012**



**Figure 9 Number of students per academic staff member in TEIs, 2000–2012**



Source: MoE, 2014c.

*Notes (as in the original source):*

1. Data relates to staff employees for years ended December.
2. These ratios were calculated using the equivalent full-time student measure and the full-time equivalent academic staff count. Caution needs to be exercised in interpreting these ratios, as the allocation of staff to categories may not be consistently reported in the annual reports from year to year.
3. The ratio at the wānanga is significantly higher than at other types of TEI because of the delivery of distance programmes.
4. To allow comparisons over time, the colleges of education data, and data from ITPs who have merged with universities, has been included with the universities data.
5. The four mergers of the colleges of education with the universities took place over the years 2004 to 2007.

A 2013 MoE report describes changes in tertiary institutions' workforces over the period from 2001 to 2011 (Wensvoort, 2013):

- In universities, there was an increase in the share of academic staff designated as professors and associate professors, an increase in research-only staff, and a decrease in those designated as lecturers or senior lecturers. In addition, the report noted a rising trend in part-time academic work.
- The structure of academic staff in ITPs was relatively stable, although there was an increase in the proportion of principal lecturers due to a "drag effect" from an ageing workforce.
- Academic staffing levels in wānanga fluctuated significantly in line with changes in enrolments (which in turn were driven by changes in funding policy).

### **Effective teaching**

There is a range of academic research about what effective teaching and learning in a tertiary context looks like, often drawing a distinction between "surface" and "deep" approaches to learning (Marton & Säljö, 1976). What effective teaching is will vary from context to context.

Importantly, learning, is co-produced by students and teachers; it is not a service that a student passively consumes.

Biggs says that some students more easily demonstrate self-efficacy, engage in deep learning, ask questions, reflect on lessons, and draw connections between information. In a more selective era, most university students may have had these characteristics, but in today's mass tertiary education system this is no longer the case, and so "[g]ood teaching is getting most students to use the higher cognitive level processes that the more academic students use spontaneously" (2012, p. 41).

A Welsh literature review on effective teaching and learning in vocational education found that teaching and learning is highly complex, and effective practice results from a complex interaction of factors. There was little evidence that vocational teaching and learning was fundamentally different from other types of teaching and learning, except with respect to context: knowledge needs to be presented in an authentic context with reference to the setting in which the knowledge would actually be applied (Faraday, Overton & Cooper, 2011).

Hénard and Roseveare (2012) note that support for quality teaching must occur at three inter-dependent levels:

- Institution-wide level: including projects such as policy design, organisational support to departments, internal quality assurance systems.



- Programme level: comprising actions to measure and enhance the design, content and delivery of the programmes within a department or a school.
- Individual level: including initiatives that help teachers achieve their mission, encouraging them to innovate and to support improvements to student learning and adopt a student-oriented focus.

**Q14**

**What other evidence is there about what makes for effective teaching in a tertiary environment? Is it different for different types of learning or student? How can teaching effectiveness be best measured and improved?**

### Teacher education, training and development

A 2009 survey of literature relating to tertiary teacher development and qualifications in New Zealand notes that tertiary teachers are usually appointed on the basis of the knowledge, qualifications and experience in their subject area, and (in contrast to teachers in schools) lack pre-service teacher education.

A number of studies have suggested that many tertiary teachers do not receive a substantial education for their teaching role, and that their teaching-related continuing professional development is also not extensive. Some factors identified as contributing to that situation include the perceived low status of teaching in some institutions, compared with people's expertise in their research, discipline or profession. Other factors include varying levels of commitment to teacher education and development found in some institutional cultures. Those factors can be seen both overseas and in New Zealand. Yet good teaching is critical to promoting student success and meeting the government's strategic priorities. (Viskovic, 2009, pp. 8–9)

There are some differences between provider types though. One survey of providers (Ako Aotearoa, 2010) found that:

- 10 out of 12 ITPs and around half of 131 PTEs required a teaching qualification to be gained within 2 or 3 years of full-time appointment, but that no university had such a requirement.
- 40% of PTEs required a teaching qualification for appointment to a full-time teaching role, but no ITP or university had such a requirement.

Ako Aotearoa, the National Centre for Tertiary Teaching Excellence, hosts the yearly Tertiary Teaching Excellence Awards. These awards aim to recognise and encourage excellence in tertiary teaching, while allowing teachers to develop their careers and share their good practice with others. Teachers are nominated for awards for a variety of reasons (Table 1).

**Table 1 Teaching qualities commonly mentioned in citations for Tertiary Teaching Excellence Awards, 2011–2015**

Teaching quality	How often mentioned	Examples
Enthusiasm for teaching and subject	One in four citations	“Shares knowledge with enthusiasm, clarity and great intuition for how her learners learn” “Balances innovative teaching and infectious enthusiasm”
Notable teaching style	One in four	“Warm, innovative and positive teaching style” “Captivates his classes with knowledge and humour”
Focus on learner experience	One in six	“A passionate, unwavering dedication to improving student experience” “Drive to provide great student learning experiences, especially for Māori”
Student achievement	One in six	“Breeds a culture of learning success” “Strong belief in learners’ abilities and success”
Student empowerment	One in six	“Empowers students in their own learning” “Transformative, radical and supportive of learner empowerment and success”
Innovation	One in six	“Innovative and enquiring” “Highly collaborative and innovative”
Commitment to diversity	One in ten	“Celebrates learner diversity” “Inspires us all to live and thrive in the midst of diversity”
Connection to community and wider society	One in ten	“Enthusiasm for and involvement in the broader community” “Passionate about connecting learners to community and urban development”
Focus on learning and career pathways	One in ten	“Creates pathways for Māori and Pacific learners to succeed in science” “Challenges learners to extend their academic pathways and careers”
Focus on lifelong learning	One in ten	“Inspires a life-long curiosity for learning”

*Source:* Productivity Commission analysis of citations for Tertiary Teaching Excellence Awards from 2011 to 2015 (Ako Aotearoa, 2015). The analysis focused on the one-line summaries of citations rather than the full citations.

**Q15**

**How do tertiary providers assess, recognise and reward teaching quality in recruitment and career progression? To what extent do tertiary providers support the professional learning of teachers?**

### Students' assessment of teacher quality

Assessing teacher quality in tertiary education can be difficult.<sup>5</sup> Many providers rely on student evaluations to inform reward and progression decisions, but there are a number of potential problems with such approaches. For example:

- Classes and courses may vary in terms of the composition, outlook and motivation of their students, undermining the comparability of student evaluations.
- Student evaluations can be influenced by factors unrelated to teaching, including personal characteristics (such as the teacher's gender, ethnicity, age and perceived attractiveness), and how and when the evaluation is carried out (which is susceptible to gaming).
- Student evaluations create a risk that teachers will prioritise their students' experiential enjoyment and entertainment over their learning.<sup>6</sup> There can be a delay of years between when a student has a learning experience, and their final assessment of its value – but student assessments are nearly always done before or at the point of graduation, so teachers face strong incentives (in terms of student evaluations) to maximise students' immediate benefits rather than their long-term benefits. Where teachers seek to improve evaluations by making assessment easier, this can lead to grade inflation (where today's A is last decade's B, in terms of the level of knowledge or competence demonstrated by the holder of the grade). Over time, this can lead to qualification inflation (where today's honours degree is last decade's bachelor's degree).

The relationship between student evaluations and teaching quality is unclear. A recent literature review found that, although many studies show no correlation (or even inverse correlations) between student evaluations and student learning, many others do show a correlation (Barre, 2015). The variability in how and when evaluations are undertaken may account for these apparently contrasting findings.

**Q16**

**How do New Zealand tertiary providers use student evaluations? How does this influence provider behaviour?**

<sup>5</sup> Holmstrom and Milgrom (1991) refer to a "principle of unity of responsibility" in measuring task performance. This principle states that, if someone is accountable for both easy-to-measure and hard-to-measure functions, then they will prioritise the easy-to-measure ones at the expense of the hard-to-measure, as they can more reliably get a good result that way than by giving them equal attention. This has implications for tertiary education because it is relatively easy to measure how well teachers are imparting subject-matter knowledge (and teachers are often assessed on this, ie on how well their students fare in passing courses), but relatively hard to measure how well they are developing students' soft skills. This would suggest, if the principle applies, that teachers have incentives to focus on teaching content knowledge rather than soft skills, at least while the latter remain largely outside of assessment frameworks.

<sup>6</sup> Learning and experiential enjoyment are not mutually exclusive. However, a challenging process of learning often includes periods of discomfort; and tertiary study often involves learning about a wide range of things, even if they are not all personally of interest to the learner, so as to achieve mastery of a discipline.

## Employers

Employers rely on the tertiary education system (along with immigration) to supply them with a skilled workforce. As well as employing tertiary education graduates, employers are also a “consumer” of research. Employers can participate in the tertiary education system by:

- providing advice to government agencies or tertiary providers about industry skill needs (including via submissions to Immigration New Zealand to recognise skills as being in shortage);
- advising the NZQA and Universities New Zealand on the quality or relevance of new or existing qualifications or programmes;
- providing their employees with industry training, either through an ITO (outlined below) or by applying for direct funding from the TEC; and
- participating in formal government-funded initiatives such as ICT Graduate Schools, Engineering E2E, or Māori and Pasifika Trades Training, which involve tertiary providers and businesses (among others) partnering to deliver education or training.

Employers can also work individually or collectively with tertiary providers to (for example):

- influence and advise on the design of courses and qualifications;
- share staff, that is, have industry experts teaching at tertiary providers, or academics spending time in firms; and
- provide students with internships, work experience, or project-based learning experiences.

The current Tertiary Education Strategy (TES) identified a need for stronger links between tertiary providers and employers:

We also need more explicit co-operation between industry and TEOs about the types of skills that are most needed, and how best to develop them. TEOs need to create opportunities for industry involvement in planning and delivering education, including re-skilling opportunities for the existing workforce, while industry will need to clearly identify its medium and long term needs, and attract and retain the talent it requires. (MoE, 2014b)

Calls for greater employer involvement in the tertiary education system are longstanding in New Zealand and in other countries. A skilled workforce is crucial to the current and future prosperity of most employers. Despite this, most individual employers can face weak incentives to work directly with TEOs or to contribute more widely.<sup>7</sup> Reasons include:

- Time lags – it takes some years for students to work their way through the tertiary education system. Employers may be unsure of their future skills requirements.
- Bureaucracy – it can take a lot of effort and months to years to implement a course change.
- Free riding – working closely with TEOs is costly, but a firm’s competitors will likely share any benefits. The employer may anticipate a negative return on their investment.

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<sup>7</sup> An exception might be large employers with very specific skills needs (eg, New Zealand Police).

- Recruitment realities – new graduates, while important, are a smaller source of skilled recruits than are immigrants and current workers.

Collective action by employers can overcome some of these reasons. But collective action has its own costs. Further, the basis of employer organisations varies. Some organisations reflect the need for labour relations management and are therefore likely to have skills requirements in common. But those organised around product markets or other shared attributes (eg, exporting) may have disparate skills needs.

**Q17**

**In what ways and to what extent do employers interact with tertiary providers in New Zealand? Are there practical ways to encourage employers to have greater or more productive involvement in the tertiary education system?**

## Industry training

ITOs do not provide training themselves, but act as a broker between employers and training providers. ITOs set national skill standards, lead qualifications development, arrange workplace training, and work with tertiary education providers (primarily ITPs and PTEs) to develop and deliver the skills required by trainees and industry.

There are currently 11 ITOs. They range in size from an ITO that covers a single industry to large ITOs covering multiple industries. Some 130 000 trainees (around 42 000 EFTS) participated in industry training in 2014.

Government subsidies for industry training are lower than for provider-based educational delivery, as employers are expected to contribute financially to meeting the costs of training.

**Q18**

**What are the similarities and differences among ITOs, or between ITOs and other tertiary subsectors, in how they operate?**

**Q19**

**What makes for a successful ITO in terms of meeting the needs of firms for skilled staff?**

**Q20**

**How effective is the ITO model in meeting the needs of learners and firms?**

**Q21**

**What arrangements for arranging workplace training and apprenticeships in other countries could New Zealand usefully learn from?**

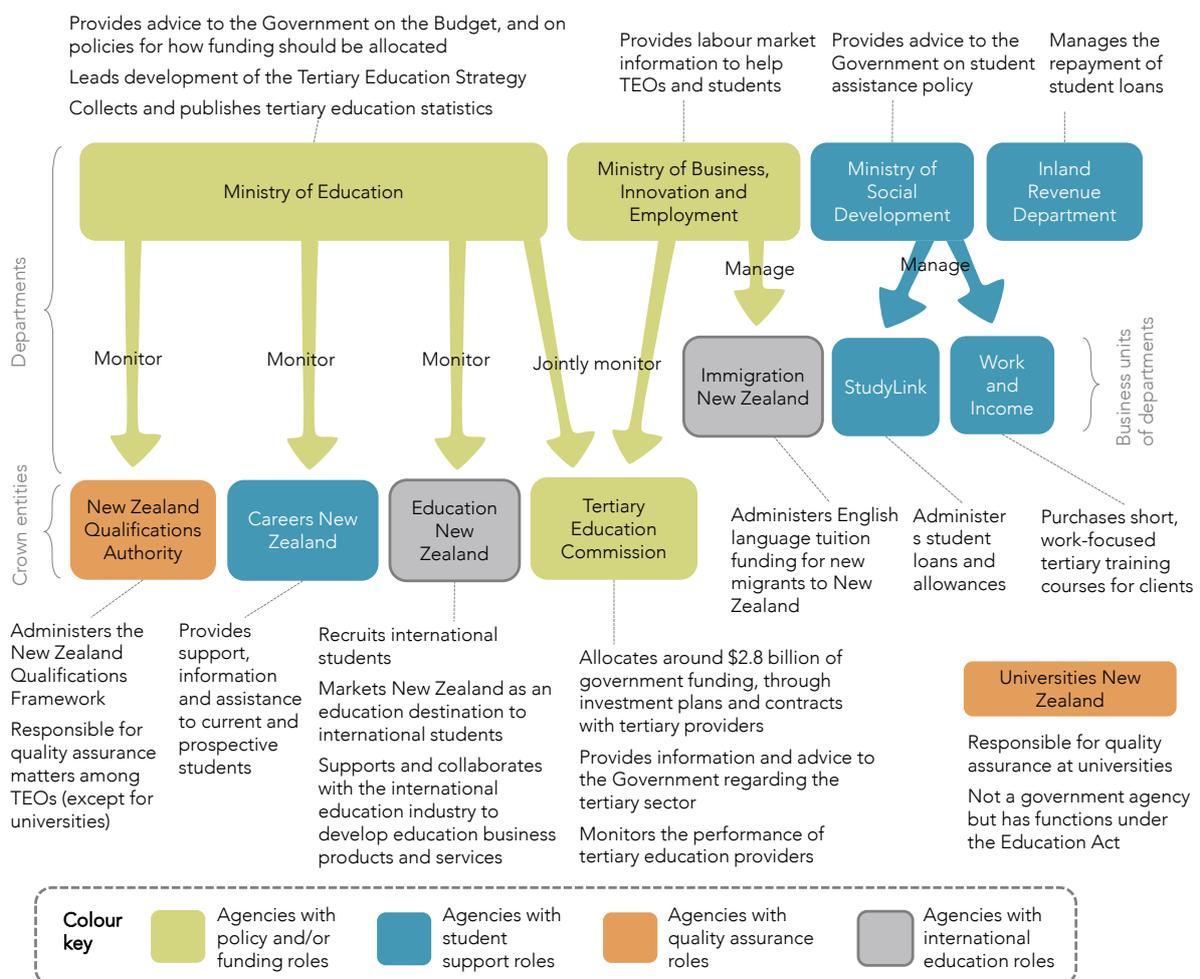
## Government

Government plays a substantial role in the tertiary education system. Multiple distinct agencies are responsible for functions including policy, funding, monitoring and oversight, quality control, student support, and marketing New Zealand as an education destination for international students. As Figure 10 shows, the agencies include:

- four departments reporting directly to ministers;
- four Crown agents<sup>8</sup> reporting to boards (whose members the responsible minister appoints); and
- one statutory body with specific functions relating to universities.

Core funding for the departments and Crown agents comes from a variety of Votes, principally Education and Tertiary Education but also Labour Market, Social Development and Revenue. Universities New Zealand is funded by New Zealand’s eight universities.

**Figure 10 Government agencies involved in the tertiary education system**



<sup>8</sup> A Crown agent is a type of Crown entity that must give effect to government policy when directed by the responsible minister. TEOs are their own type of Crown entity and are statutorily independent and autonomous.

## Policy, funding and governance

The Education Act sets out the framework for tertiary policy, funding and governance. It identifies the MoE as the minister's principal policy advisor on tertiary education matters. It gives the TEC statutory responsibility for funding and monitoring TEOs, and NZQA responsibility for quality assurance matters (except for universities, where responsibility sits with Universities New Zealand). It also establishes TEIs as autonomous entities with particular characteristics, freedoms and responsibilities.

The government can shape the tertiary education system through a variety of policy, funding and governance levers.

Some levers apply to government education agencies (both departments and Crown agents):

- the TES (see next subsection);
- "letters of expectation" from the responsible minister;
- formal ministerial directions;
- feedback on draft Statements of Intent; and
- for the TEC, funding mechanisms issued under s 159L of the Education Act.

Other levers apply directly to TEIs:

- powers to determine the constitution of, and appoint members to, TEI councils;
- powers to intervene in a TEI that is at risk – ranging from the power to seek information, to the power to dissolve the TEI's council and replace it with a Crown commissioner; and
- monitoring powers, reporting requirements, and constraints on behaviour as set out in the Education Act, the Public Finance Act 1989 and the Crown Entity Act 2004.

### The role of the Tertiary Education Strategy

The Education Act requires that the Minister periodically releases a TES setting out the government's long-term strategic direction for tertiary education, and the short- and medium-term priorities for the system.

The TEC, NZQA and Careers New Zealand must all take account of the TES when exercising their respective roles. In the TEC's case, its first statutory function is to give effect to the TES through its funding decisions. The legislation appears to envisage that the TES, by indicating the government's short- and medium-term priorities in the context of its long-term strategic direction, will provide a basis for education agencies to prioritise resources and make appropriate trade-offs in carrying out their work.

A TES is an instrument within a larger system architecture with strong elements of top-down control. In a top-down architecture, primary decision-making power sits with the responsible minister or government agency head. Top-down architectures have significant strengths and weaknesses.

Top-down control is common in New Zealand in some social services areas. To control risks, hold others accountable and maximise options to respond, governments often favour prescriptive service specifications and close, top-down control.

- This approach is a good match to some services, particularly when standardisation and scale efficiencies are important...
- Top-down control tends to dampen innovation, reduce coordination between agencies and limit flexible adaptation to client needs and local circumstances. (NZPC, 2015, p. 9)

**Q22**

**Is the current architecture a good fit for a tertiary education system? What are its advantages and disadvantages? Are there good alternatives?**

### The current Tertiary Education Strategy

The MoE and MBIE jointly developed the most recent TES. Issued in March 2014, it lists six priorities for improving the contribution of tertiary education in New Zealand:

- delivering skills for industry;
- getting at-risk young people into a career;
- boosting achievement of Māori and Pasifika;
- improving adult literacy and numeracy;
- strengthening research-based institutions; and
- growing international links (MoE, 2014b).

It also discusses the need to focus the system more on the outcomes of tertiary education, and on Māori educational success and related strategies. The TES gives no clear indication of the relative importance of these priorities.

Each priority includes “indicators of success” relating to system inputs, processes, outputs and outcomes. Some of these have clear measures associated with them (eg, achievement of Better Public Services targets), while others are not currently measured (eg, industry involvement in tertiary education). The strategy states:

All government agencies contributing to the outcomes of this strategy will develop performance measures, including in relation to quality and timeliness, and report on these through their existing accountability mechanisms. These performance measures will be further developed and reported against when monitoring the progress of this strategy. (MoE, 2014b)

The MoE is responsible for monitoring the progress of the TES.

**Q23**

**How effective is the TES instrument at giving government education agencies direction about prioritising resources and making trade-offs in carrying out their roles? What are the benefits and risks, in terms of fostering an innovative system, of a more or less directive TES?**

**Q24**

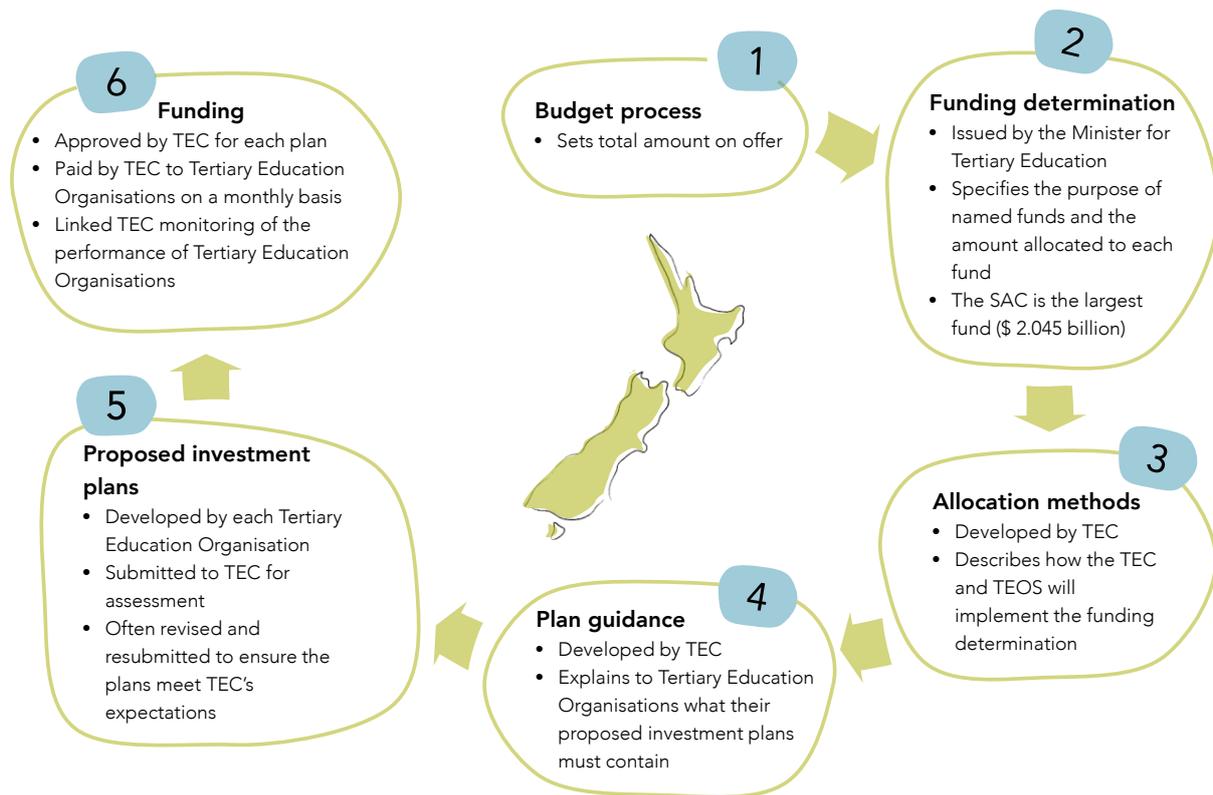
**How do other instruments (eg, funding mechanisms, letters of expectation, budget initiatives) influence government agencies’ behaviour? How do these align with the TES instrument?**



## Funding arrangements

The TEC is a Crown agent governed by a Board with statutorily independent functions, including funding decisions. The TEC's main funding process is via the plan-based funding system, outlined in Figure 11. Through this process, the TEC will allocate around \$2 850 million for tuition and training subsidies in the 2015/16 financial year (New Zealand Treasury, 2015). TEC is also responsible for administering the Performance-Based Research Fund (PBRF).

**Figure 11** The plan-based funding system



Source: Adapted from TEC, 2014.

The TEC also performs a monitoring role (responsibility for which sits with its chief executive, rather than its Board). It is required to report to the responsible minister on performance issues at universities, ITPs and wānanga. This reflects the fact that the minister (on behalf of the Crown) has an ownership interest in these Crown entities. The TEC collects educational and financial performance information, along with qualitative information (such as staff and student morale) and uses this information to assess the performance of each provider. The TEC recently began monitoring and advising on the financial performance of ITOs and the larger PTEs (TEC, 2014).

**Q25**

**When do the TEC's independent funding role and its Crown monitoring role align, and when are they in tension?**

## Quality assurance

NZQA is responsible for ensuring that qualifications awarded by tertiary providers are credible and robust. NZQA manages the New Zealand Qualifications Framework, which provides a way to

classify and compare the different qualifications in New Zealand’s tertiary education system. The framework has 10 levels that range in complexity from a level one certificate, to a level 10 doctoral degree (Figure 12).

**Figure 12 The New Zealand Qualifications Framework**

Qualification	NZQF level	Knowledge, skills and application at different levels
Doctoral degree	10	All qualifications on the NZQF are assigned one of ten levels and each level has its own learning outcomes – the level of knowledge the graduate has acquired, the skills gained, and the situations in which the knowledge and skills could be expected to be applied.  For example, <b>at level 1</b> graduates will have: <ul style="list-style-type: none"> <li>• Knowledge – basic general and/or foundation knowledge.</li> <li>• Skills – basic skills required to carry out simple tasks and apply basic solutions to simple problems</li> <li>• Application – be able to apply knowledge and skills in highly structured contexts, take some responsibility for their own learning and be able to interact with others.</li> </ul>
Master’s degree	9	
Postgraduate diplomas and certificates, bachelor’s honours degree	8	
Bachelor’s degree, graduate diplomas and certificates	7	
Diplomas	6	
	5	
Certificates	4	
	3	
	2	
NCEA	1	

Source: Adapted from NZQA, n.d.

NZQA also provides independent quality assurance of non-university tertiary education providers. This includes registration of PTEs; approval of qualifications and training schemes; assessment of the consistency of graduate outcomes; moderation of assessment standards; monitoring of degree programmes; and conducting external evaluation and review (NZQA, 2015b).

Universities New Zealand undertakes quality assurance for universities. Universities New Zealand’s Committee on University Academic Programmes (CUAP) approves qualifications and undertakes moderation processes across universities. Universities New Zealand established the Academic Quality Agency for New Zealand Universities (AQA) as an independent body that supports universities through regular institutional audits and the promotion of quality enhancement practices (Universities New Zealand, 2013).

**Q26**

**What are the pros and cons of different quality assurance arrangements for universities to those for ITPs, wānanga, and PTEs?**

## Student support

There are systems in place to support students financially, and also to provide students with information to inform decisions about their course of study and career (Box 2).

Major government-run financial support systems include:

- *Student loans* – most domestic students are able to access the student loan scheme to cover course fees, some course-related costs, and to help with living costs.<sup>9</sup> Student loans are currently interest-free while the borrower lives in New Zealand. The Inland Revenue Department collects repayments. Repayment is mandatory once the borrower earns over a certain threshold, which has been set at \$19 084 since 2009. Some 186 500 students borrowed from the student loan scheme in 2014, with total lending of \$1 600 million.
- *Student allowance* – the student allowance is a weekly non-repayable grant to help students cover their living costs. Access to the student allowance varies depending on students' income, age, living situation, relationship status, and whether the student has children. The number of students receiving a student allowance nearly doubled between 2005 (56 800) and 2011 (100 500), before falling to 85 100 in 2013 (MoE, 2013a; 2013b).
- *Scholarships* – government allocated over \$30 million to fund scholarships in 2015/16 (New Zealand Treasury, 2015).

In addition to the government support system, students also benefit from a wide range of informal support structures such as family support (eg, living at home while studying) and private scholarships.

## International marketing and business development

The Education Act and Crown Entities Act were amended in 2011 to facilitate the establishment of Education New Zealand as a Crown agent. Education New Zealand is funded principally via Vote Tertiary Education. It is governed by a Board whose members are appointed by the Minister for Tertiary Education, Skills and Employment.

Education New Zealand seeks to increase the value of the international education industry, strengthen the capabilities of the industry and to ensure that the export education providers deliver high-quality and high-value education. Its main areas of activity are marketing, student recruitment and business development. The Government set Education New Zealand the goal of doubling New Zealand's international education services to \$5 billion over 15 years (New Zealand Government, 2011).

**Q27**

**How do New Zealand's government institutional arrangements for tertiary education compare to those in other jurisdictions?**

<sup>9</sup> There are some restrictions. For example, borrowers must be under the age of 55 when their course starts to be eligible for course-related costs and living costs borrowing.

# 3 Purpose, performance and outcomes of the system

## Tertiary education serves multiple purposes

The Education Act does not directly specify the purposes of tertiary education. However, the Act provides some indication by defining the objective of law relating to tertiary education; that is, to:

foster and develop a tertiary education system that—

- (a) fosters, in ways that are consistent with the efficient use of national resources, high quality learning and research outcomes, equity of access, and innovation; and
- (b) contributes to the development of cultural and intellectual life in New Zealand; and
- (c) responds to the needs of learners, stakeholders, and the nation, in order to foster a skilled and knowledgeable population over time; and
- (d) contributes to the sustainable economic and social development of the nation; and
- (e) strengthens New Zealand’s knowledge base and enhances the contribution of New Zealand’s research capabilities to national economic development, innovation, international competitiveness, and the attainment of social and environmental goals; and
- (f) provides for a diversity of teaching and research that fosters, throughout the system, the achievement of international standards of learning and, as relevant, scholarship. (s 159AAA)

Policymakers and participants in the system each describe the purpose of tertiary education differently (Box 3).

### Box 3 Perspectives on the purposes of tertiary education

#### New Zealand Treasury

Treasury advice to the incoming government in 1987, which informed development of the current Education Act, identified five main functions of tertiary education:

- a *fulfilment function* that helps individuals gain personal fulfilment from higher study;
- an *integration function* that provides an individual with the norms and values that allow individuals to successfully access various subgroups within wider society;
- an *economic function* that delivers vocational or economic skills required for particular jobs;

- an *entrepot function* where the tertiary institution is a repository of knowledge and culture that might otherwise be lost; and
- a *research function* that develops and extends the knowledge that is possessed by society as a whole.

The Treasury drew attention to the wider importance of skills in 2008.

In a knowledge-based and globalising economy, distinctions between the skills needed for economic productivity and the broader benefits of education are largely false distinctions. The attributes of highly skilled and productive workers are essentially the same as those of confident, creative, culturally enriched good citizens. (MacCormick, 2008)

### Tertiary Education Union

Tertiary education has the capacity, if well-funded, to provide much needed skills and knowledge that can contribute to a strong and sustainable economy and vibrant, positive communities. ... Tertiary education provides individuals with the opportunity to continue to develop their human and social potential through the advancement of knowledge and the acquisition of skills. The purpose of a tertiary education extends beyond acquiring skills for employment, by providing individuals with the knowledge and skills to contribute to the wellbeing of their communities and our society. (2011)

### Te Wānanga o Raukawa

From time to time the question is asked “why?” and “what is our role as a wānanga?” Some of the answers to these fundamental questions have included:

- to contribute to the development and well-being of Māori in order to promote Māori survival and prosperity,
- to teach, maintain and create mātauranga Māori to ensure our uniqueness as a people and guide us in our decision-making as a people now and in the future,
- to establish and maintain a tikanga Māori institution that is viable and robust and attractive option for Māori. (Te Wānanga o Raukawa, n.d.)

In addition, universities have a statutory role as a critic and conscience of society, and as a repository of knowledge and expertise (s 162 of the Education Act). This is supported by statutory declarations preserving and enhancing the academic freedom of staff and students, and the autonomy of institutions (s 161).

### There is broad agreement about some of the benefits of tertiary education

Each perspective in Box 3 reflects some level of agreement that tertiary education provides:

- *Economic benefits to individuals.* In general, an individual who undertakes tertiary education will receive a return in future earnings across their lifetime. This includes increased earnings as well as a lower likelihood of being unemployed.
- *Economic benefits to wider society.* There are also public financial returns to tertiary education, through increased tax revenue from higher-educated individuals (and lower social welfare payments). The education system can help meet the labour market needs of firms, and contribute to the production of economically valuable research.
- *Social benefits to individuals.* Individuals with higher qualifications are likely to have lower levels of smoking and obesity, and report higher levels of health and life satisfaction.
- *Social benefits for the community.* Education is associated with higher levels of civic and community participation. Individuals are more likely to report that they have an influence on government, that they volunteer at least once a month, and higher levels of interpersonal trust. Education is positively associated with voting, and negatively associated with crime.

Across the OECD the private economic returns exceed the private costs of higher education, and the public economic returns exceed the public costs of higher education. For New Zealand, the net present value of both private and public benefits is among the lowest in the OECD (OECD, 2012).

Despite the clear associations between educational attainment and positive social outcomes, there is some uncertainty about the causal effects (eg, the extent to which good health contributes to educational attainment as much as the reverse). Many of these effects also reduce, and some disappear, once other factors such as age and gender are accounted for (OECD, 2013).

Because of the benefits that come from education in enabling social mobility and improving individual and community wellbeing, there also seems to be general agreement in New Zealand (among successive governments, tertiary education providers, students and their families, and the community at large) that tertiary education should be accessible to a wide range of students.

### **There is disagreement about the relative priority of these benefits**

Despite some agreement that the system provides economic and social benefits to both individuals and the community, there is disagreement about the relative importance of these benefits. Such disagreements have implications for public policy. For example, disagreements about the relative share of private and public benefits underpinned debates about the appropriate level of private contribution to tertiary education in New Zealand (Crawford, 2016).

Although there is wide agreement that one purpose of New Zealand's tertiary education system is to supply skills to the labour market, there is certainly disagreement about the relative value of this function compared to other purposes of the system, especially at higher levels of study. For example, TEU (2013) stated "tertiary education should support business and innovation through relevant skills and research", but objected that it would transform universities into "'knowledge factories' tightly aligned with industry, producing workers and research for industry".

There is also some disagreement about how important it is for graduates to attain qualifications (which act as labour market signals) in addition to acquiring knowledge, skills and experiences.

## Export education

Export education is an important activity for tertiary providers. It provides an important source of additional income to providers. It is also important to the wider economy; Infometrics (2013) reported that it was worth \$2.6 billion each year, of which around 85% was generated by students in the tertiary education sector.

There may be complementarities between export education and the delivery of education to domestic students. This includes promoting cultural awareness among domestic students, promoting racial tolerance, and broadening students' personal and professional networks. Competition between providers for international students may also generate quality or efficiency improvements that benefit domestic students (Banks, 2015).

But it is also possible that a focus on export revenue may be in tension, with a focus on education for domestic students, or research. Writing of Australia, Marginson notes that universities have become

very good at the standardised production of high volume medium quality low unit cost programmes in areas such as business education. However, the very success of the model created a path dependent approach designed keep the money flowing. When the good times were rolling, the opportunity should have been taken to innovate and improve the product. But the production model was stuck. (2011b, pp. 25–26)

There may be disagreement about whether the TEIs' international activity should lead, complement or be subservient to their domestic mission.

**Q28**

**In what ways does a focus on educating international students complement or undermine the other goals of tertiary education providers?**

Export education is further discussed in Chapter 4.

## Education and economic productivity

Tertiary education is a large investment for a student – in financial costs, personal energy and time. They quite reasonably expect a private return in terms of greater earning potential, improved life satisfaction and other outcomes they value.

Taxpayers – via the government – are also making a large investment in tertiary education. They too expect a return. This return, in the form of increased productivity, supports a larger economy with higher incomes, increased tax receipts and the potential to fund an expanding tertiary education system to benefit the economy and society.

This section considers the link between the education system and productivity.

### **In theory the education system should contribute to productivity improvements**

Human capital and knowledge play a crucial role in theoretical models of the economy (Lucas, 1988; Romer, 1990). The Treasury (MacCormick, 2008) noted four key stages in the process through which skills policy can drive productivity:

- skills development – the overall domestic supply of skills;
- skills supply – the skills made available to the economy;
- skills demand and utilisation – how firms behave in recruiting and deploying skills; and
- skills matching – the links between these three domains (including processes by which skills are re-deployed to activities of higher value through the labour market, and how information about the skills needs of firms feeds back into skill development and supply).

The education system is only one contributor to each of these. In terms of skills development, immigration is a bigger source of new skills to the New Zealand labour market than is tertiary education.<sup>10</sup> However, the education system – including tertiary education – is still very important to the labour market, both through producing new graduates, and through upskilling existing workers.

Hanushek and Woessmann (2008) found a robust relationship between the cognitive skills of a country's population (measured by comparable international tests of maths, science and reading), and individual earnings and economic growth. But formal education is not the only route to the development of such skills.

### **But the evidence of actual productivity gains from education is weak**

Despite the theoretical links, researchers have generally struggled to find strong empirical links between education and economic development (Woessmann, 2016).<sup>11</sup> While the correlation between education and training, human capital development and economic growth is strong, causal mechanisms are more difficult to establish (Wilson & Briscoe, 2004).

Many researchers studying the relationship between education and economic performance use a quantity measure of education, for example, the average number of years of education. But the quality of education varies across countries, so the quantity of education produced may be a poor proxy for having an educated population (Hanushek et al., 2015).

In New Zealand, comparatively high levels of tertiary attainment in the working-age population have not translated into high levels of productivity (MacCormick, 2008; Conway & Meehan, 2013). For example, New Zealand's labour productivity is much lower than that of Australia and the United Kingdom. Differences in skill levels do not explain much of this variation (Box 4).

#### **Box 4 Skills and labour productivity: comparing New Zealand, Australia and the United Kingdom**

The Productivity Commission found in its inquiry *Boosting productivity in the services sector* that labour productivity in New Zealand is significantly lower than in Australia and the United Kingdom (NZPC, 2014). However, the Commission found that skills did not seem to be the "smoking gun" in explaining these inter-country differences.

<sup>10</sup> Among new entrants to New Zealand's working-age population for the year to June 2014, new migrants outnumbered young New Zealanders turning 15 by three to two. Young New Zealanders turning 15 made up 41% (60 370) of new entrants to the working-age population, the remaining 59% (86 713) being new migrants. About 52 000 working-age New Zealanders emigrated during the same period (TEC, 2014).

<sup>11</sup> Cohen and Soto (2007) is a possible exception.



Mason (2013) estimated New Zealand's level of labour productivity in all market industries and in service industries as a group to be about 62% of Australia's level in 2009. He estimated average labour quality (skills) in each industry in each country, based on educational qualifications and mean wage levels. Across industries, New Zealand's labour quality was similar to or slightly lower than Australia's labour quality. Lower multi-factor productivity (MFP) explained the majority (57%) of New Zealand's negative labour-productivity gap with Australia in 2009, while lower capital intensity and labour quality explained 39% and 3% respectively.<sup>12</sup>

Mason and Osborne (2007) performed a similar analysis comparing New Zealand and the United Kingdom. New Zealand's labour productivity was 75% of the United Kingdom's in 2004. Relative labour quality explained only a small proportion of that gap.

### What might explain this discrepancy?

The direct translation of increasing levels of tertiary attainment into higher productivity relies on some assumptions. A breakdown in one or more of these assumptions could explain the lack of an observed relationship. These assumptions include:

- those who previously missed out on tertiary education have similar qualities to those who undertook it;
- tertiary qualifications are stable over time; ie, they reflect the same assessed standards of knowledge and skills (ie, no grade inflation);
- the skills and knowledge assessed for tertiary qualifications are the important ones for productivity (or non-assessed skills and knowledge are being improved in tandem);
- the education system is producing the distribution of skills required by employers; and
- the labour market does a good job of matching people's skills (gained through education) to the requirements of jobs.

The following subsections provide more detail on these assumptions.

### The task of the tertiary education system changes with massification

In a tertiary education system that serves only a small "elite" proportion of the population, a graduate would be comparatively likely to come from an advantaged background and therefore bring social and human capital to the labour market independent of their tertiary education. This includes non-cognitive skills such as self-confidence and well-developed social networks.

In a mass system, however, participants will probably have lower average levels of these qualities at the outset. A mass system implies teaching at a larger scale. This may not be compatible with developing the required qualities. Should it fail to do so, and these qualities are important for productivity, then economic outcomes would not rise in direct relation to the quantity of education produced.

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<sup>12</sup> Standard definitions of MFP include the effects of labour quality. The studies described in this Box isolate labour quality, with a corresponding reduction in MFP.

### Grade inflation can undermine the economic contribution of qualifications

The use of course completion rates and student evaluations as performance metrics could result in academic staff facing increased pressure to “pass” marginal students. Over time, successive shifts at the margins would create grade inflation, meaning that an “A” student in the past met higher standards than does an “A” student of today.<sup>13</sup>

### A well-educated population may be poorly matched to employer demand

Another explanation might be compositional – New Zealand might have a well-educated population, but its education system has not produced the distribution of skills required by employers, or the labour market has done a poor job of matching people’s skills (gained through education) to the requirements of jobs. Such compositional problems could appear as:

- unemployment;
- under-employment (workers are over-qualified for their current role);
- over-employment (workers are under-qualified for their current role); or
- mis-employment (workers are employed in occupations that do not use their qualifications).

Under these conditions, much education is “wasted” – at least in terms of its effects on the measured economy.

**Q29**

**What factors best explain the discrepancy between growing levels of tertiary education attainment without a significant productivity dividend?**

## There is little agreement on how performance should be measured

Governments worldwide are increasingly questioning the cost and efficiency of tertiary education provision and asking how quality and performance can be measured. Many other jurisdictions are also asking questions about the purposes of tertiary education and the relevance and responsiveness of tertiary education to changing labour markets and the demand for skills (OECD, 2008a).

Because people’s views differ about the relative value of the different purposes of tertiary education, they also differ about what makes for a good-quality tertiary education or a high-performing tertiary education system.

Box 5 describes how New Zealand governments have thought about tertiary education system performance.

<sup>13</sup> The release of data in June 2016 from New Zealand’s participation in the OECD’s Programme of International Assessment of Adult Competencies (PIAAC) will enable comparison of the literacy, numeracy, and problem-solving skills of adults with various levels of qualifications as at 1996, 2006 and 2014. Examination of this data for recent graduates in each dataset may enable some conclusions to be drawn about the stability of the skill levels associated with qualification levels over time.

## Box 5 **Changing government approaches to tertiary education system performance**

### **In the 1990s, performance improvement focused on participation and access while maintaining basic quality**

The late 1980s and early 1990s saw significant government reforms designed to make the tertiary education system more responsive to the economy's needs. The reforms aimed to raise the overall skill levels of the population by expanding access to tertiary education (including uncapping of the system in 1999), and making it easier for students to move between different parts of the system. Higher tuition fees were introduced to control costs to government, and student loans were introduced along with targeted student allowances to enable access by students from low-income families.

Responsibility for ensuring the quality of educational delivery was split between the New Zealand Vice Chancellors' Committee (now Universities New Zealand) for universities, and NZQA for the rest of the system. The main focus of the quality assurance system was on ensuring compliance with minimum standards of pedagogical robustness and organisational capability.

### **In the early 2000s, the Government's focus expanded to include completions**

As access expanded during the 1990s and early 2000s and fiscal costs increased, pressure grew to make better use of resources, and in particular to ensure that participation resulted in qualification completion. Funding had become entirely demand-driven in 1999, but was capped again in 2006 in response to a blowout of enrolments in zero-fee subdegree courses of questionable value to students or the economy.

In 2009, the Government began to publish data on each tertiary education organisation's performance against four educational performance indicators – all focused on the efficiency of the system in producing graduates: course completion, qualification completion, retention and progression. These four measures also formed the basis of the Performance-Linked Funding policy, and of some funding decisions by the TEC.

NZQA's quality assurance focus shifted away from maintaining minimum standards, toward encouraging continuous improvement through self-assessment. From 2009, the Authority implemented an ongoing programme of external evaluation and review, in which all non-university tertiary education organisations were periodically and independently assessed for their educational performance and their capability in self-assessment. This included consideration of the relevance of the education to the labour market, as well as its pedagogical quality.

### **The Government's focus now is on improving post-study outcomes and relevance**

Since the mid-2000s, and especially over the last five years, there has been a growing focus in the policy discourse on improving the system's "relevance" (to the economy in particular) and the post-study outcomes of its graduates. The latest TES

signals a shift in focus for the Government. While we will continue to have high expectations of TEOs' performance in terms of outputs, efficiency and student

achievement, a stronger focus on the outcomes of tertiary education is needed. (MoE, 2014b, p. 7)

The Strategy identifies economic outcomes as of particular importance – in terms of graduate employment, and in terms of the wider economic impact of tertiary education (including research and knowledge transfer). The TEC’s intends to actively reduce funding from 2017 to providers with poor graduate outcomes as measured by national-level graduate outcome data (TEC, 2015b).

Source: Crawford, 2016; TEC, 2015b.

**Q30**

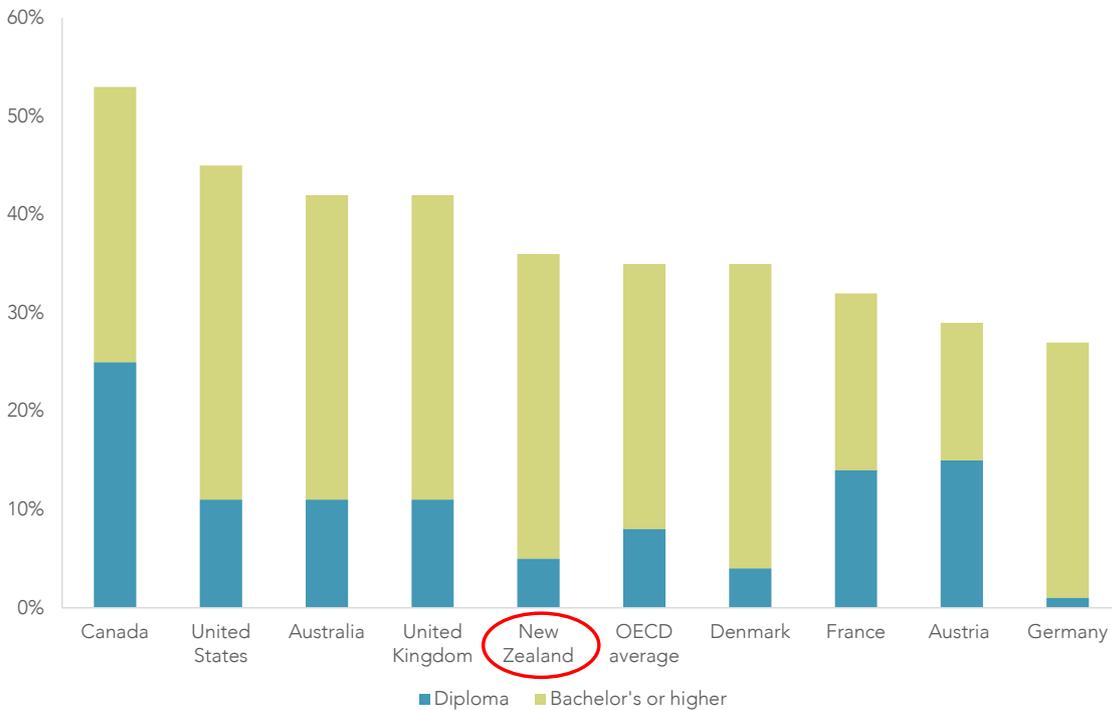
**What are the best measures to determine whether the tertiary education system is working well?**

**What is known, and not known, about system performance**

**Participation in tertiary education and the attainment of qualifications**

New Zealand rates near the OECD average for qualifications in the adult population (Figure 13).

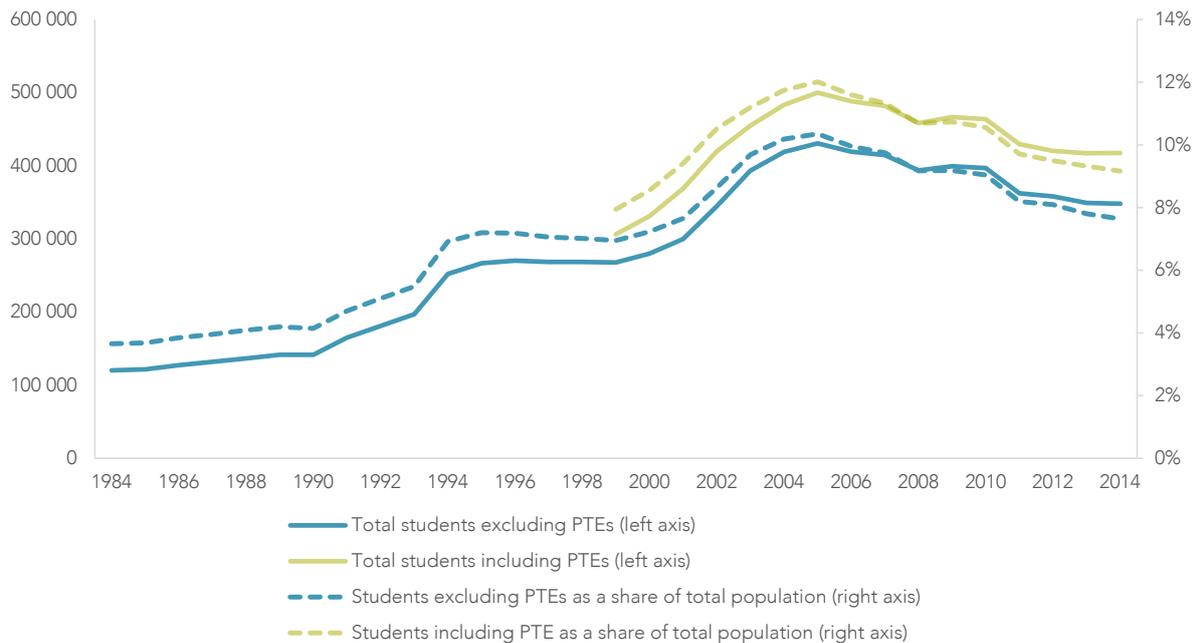
**Figure 13 Share of the population aged 25 to 64 with a diploma or bachelor's/postgraduate degree, selected OECD countries, 2014**



Source: MoE, 2015e.

There are strong flows of skills into the workforce due to more skilled and qualified school leavers and high rates of participation in tertiary education (including industry training).<sup>14</sup> Overall participation levels have fallen since 2005, but remain high compared to pre-1990 levels (Figure 14). The total number of EFTS enrolled in tertiary education remained relatively unchanged between 2007 and 2014, though the number of enrolments declined as more students studied full time. There was a substantial increase in the share of EFTS at bachelor's level (from 38.5% of EFTS in 2007 to 44% of EFTS in 2014), and a reduction in EFTS enrolled at lower levels (MoE, 2015d).

**Figure 14 Tertiary enrolments as a share of the adult population, 1984–2014**



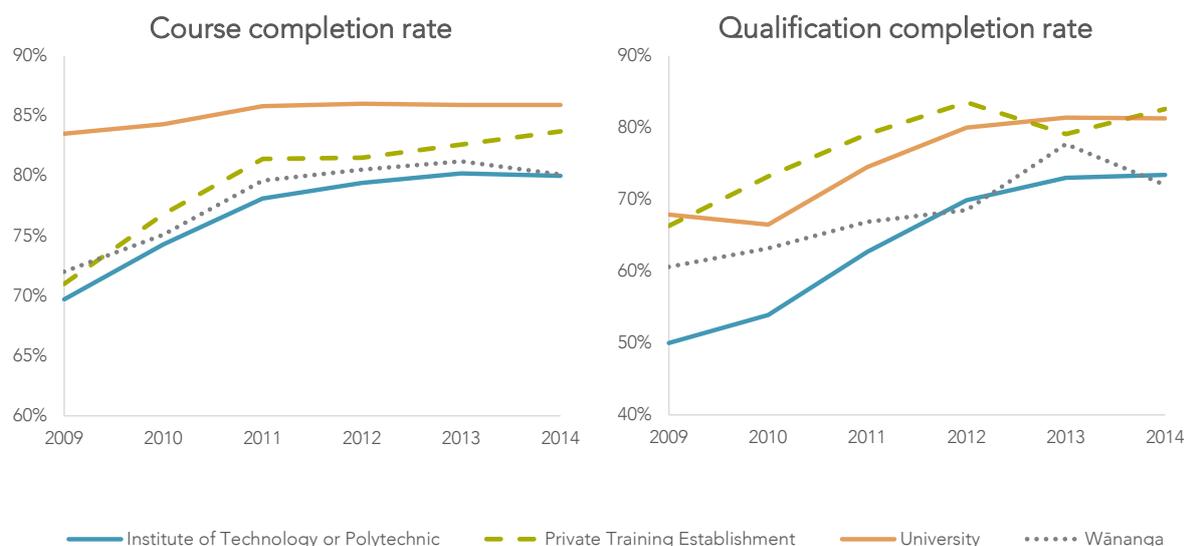
Source: MoE, 2015d.

*Notes:*

1. Figure shows student enrolments, not EFTS.
2. Data for PTEs are only available from 1999.
3. The figure includes international students.
4. Prior to 1995, participation was recorded at one specific date during the year. From 1995, participation data captured enrolments at any time during the year. This likely contributes to the sharp increase in enrolments between 1994 and 1995.

Completion rates have increased in each of the subsectors since 2009 (Figure 15).

<sup>14</sup> The New Zealand workforce also contains skilled migrants.

**Figure 15 Completion rates by subsector, 2009–2014**

Source: Data provided by Tertiary Education Commission.

Notes:

1. The qualification completion rate in this data is measured against an artificially constructed cohort and is affected by changes in student volumes: for example, in 2014, 26 tertiary providers had apparent qualification completion rates of over 100%. The MoE and TEC are currently developing a more meaningful indicator for qualification completions.

## Outcomes for individual graduates

Measuring graduate outcomes is challenging, both in making international comparisons and in comparing different providers or fields of study within New Zealand. However, there is good evidence that, in New Zealand as overseas, tertiary graduates do better overall than their unqualified counterparts, both in terms of income and in terms of a range of other life outcomes that deliver public or private benefits, including physical health, civic behaviours such as voting and volunteering, and parenting practices (eg, Park et al., 2014; Scott, 2010; Earle, 2010).

### Income premia are low compared to most OECD countries, but it is not clear how much this has to do with system performance

Research by the Treasury found that, while tertiary graduates in New Zealand earn significantly more than their unqualified peers, the income premia are lower than in most OECD countries (Zuccollo et al., 2013). The research suggests that this is partly a measurement effect, partly a result of New Zealand's mix of tertiary qualifications (with a comparatively high proportion of subdegree qualifications), and partly a result of New Zealand's generally poor economic performance.

Q31

**What other evidence is there about the influence of tertiary education system performance on graduate income premia in New Zealand?**

### **It is hard to isolate the effect of tertiary education on individual graduate outcomes**

Just as New Zealand's overall economic performance is affected by many things, so are the outcomes of individual graduates. It is hard to know the extent to which variation in outcomes is caused by variation in performance among providers, faculties, or modes of tertiary delivery. For example:

- Students bring widely different personal characteristics to tertiary education, in terms of prior work or study experiences, family resources and networks, and personal skills or traits such as study habits, perseverance, or resilience. These personal characteristics are likely to influence both how effectively a student engages in the co-production of their tertiary education, and how well they do in the labour market and other aspects of life after graduation. But the personal characteristics are often hard to measure, and therefore hard to control for when attempting to determine the "value-add" of tertiary education.
- Tertiary providers with established reputations endow graduates with prestige as well as with a qualification. To give a US example, a graduate from an Ivy League university is likely to do better in the labour market than a graduate from a little-known university, even if the graduates have similar personal characteristics and skill levels. It is hard to separate this effect in the labour market from effects arising from the actual learning experience. Reputational effects and "branding" are strongest where there is poor information about the quality of delivery.
- Most providers in New Zealand have a largely regional, rather than national, catchment of students. While some graduates will move away after graduating, others will stay close to family and friends. This means that regional differences in labour markets, wage pressures, housing markets, and health and social services may drive regional differences in graduates' work and life outcomes, regardless of the value-add of their tertiary education.

There are various attempts in New Zealand and overseas to overcome or minimise these measurement difficulties and to find workable measures of graduate outcomes, including value-added measures. Most focus on graduate employment outcomes (employment rates and wages) (described in Box 2).

### **Measuring learning outcomes separately from other outcomes**

Another way to assess the effectiveness of tertiary education is to directly measure what graduates have learned, as distinct from what qualifications they have attained. This allows the quality of teaching to be assessed and compared without the influence of labour market dynamics, regional variation or institutional prestige. However, direct measures cannot isolate the influence of an individual's personal characteristics and the extent to which they engage in co-producing their education.

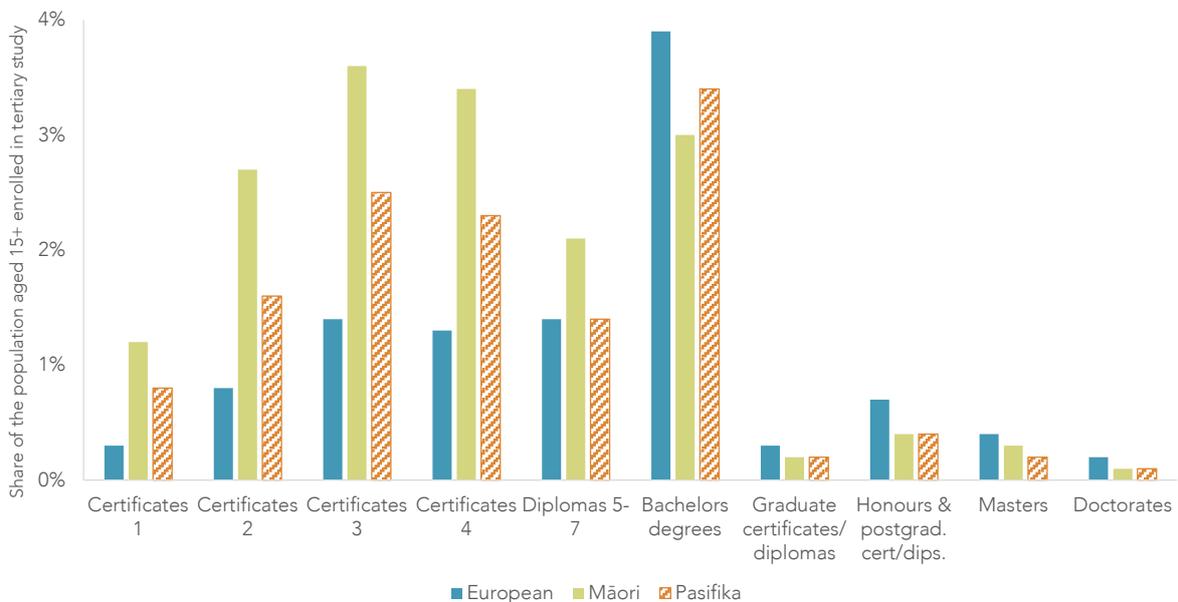
New Zealand recently participated in the OECD's Programme of International Assessment of Adult Competencies (PIAAC), which assesses adults' skill levels directly across multiple countries. New Zealand's PIAAC data will be available in June 2016, and will provide an important insight into the cognitive skill levels in the adult population, and the extent to which these skill levels correlate with qualification attainment, albeit in an aggregated way. For New Zealand, this will be the first such data since the Adult Literacy and Life Skills Survey of 2006.

## Performance for Māori and Pasifika

### Participation

Māori and Pasifika have relatively high levels of participation in tertiary education. In 2014, 17.6% of Māori aged 15 and over were enrolled in tertiary education, while the corresponding figure for Europeans was 9.1%. The participation rate for Pasifika was also much higher than Europeans at 15.2%. Higher rates of participation in tertiary education for Māori and Pasifika can partly be explained by demographic factors – both groups have a relatively young population, meaning that a greater share of their population is in the age category where tertiary enrolments are highest (18 to 24 years). The age standardised participation rate eliminates the effect of different age distributions, by adjusting the age distribution of each ethnic group to match that of New Zealand’s total population. The 2014 age standardised participation rates for European, Māori and Pasifika were 9.9%, 14.7% and 11.4% respectively. As shown in Figure 16, the higher participation rate for Māori and Pasifika occurs entirely in subdegree level study.

**Figure 16 Age standardised participation rates by ethnicity and level of study, 2014**



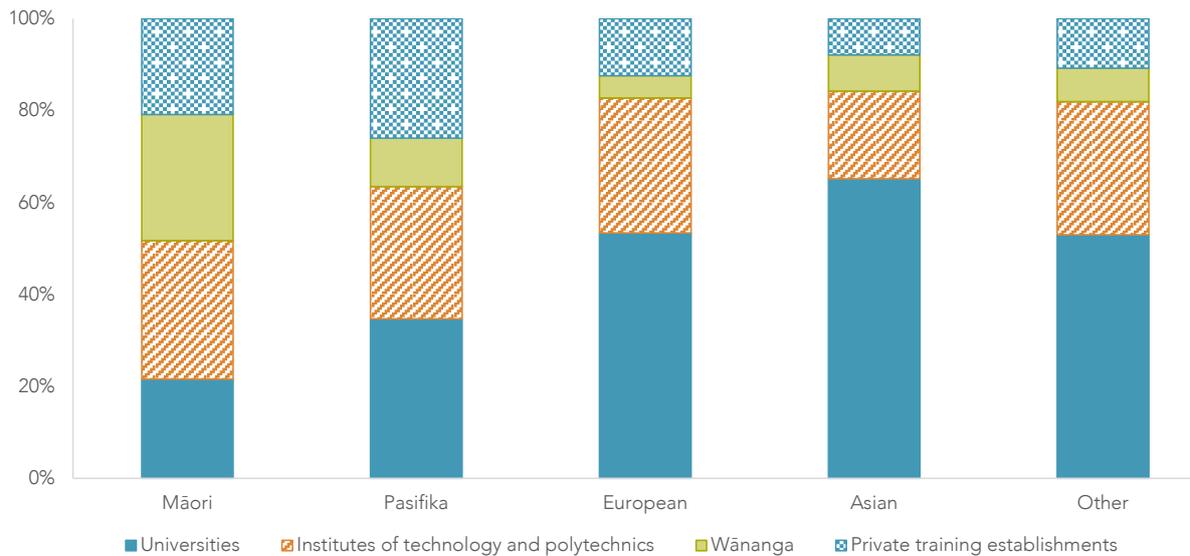
Source: MoE, 2015d.

*Notes:*

1. Shows the percentage of the population aged 15 and over who were enrolled in tertiary education at any time during 2014.
2. Does not include international students.

Figure 17 shows the type of provider where students (measured by EFTS) of different ethnic groups enrolled in 2014.



**Figure 17 Where students of different ethnicities are studying, 2014**

Source: MoE, 2015d.

*Notes:*

1. Figure is based on EFTS, not individual student enrolments.
2. Students are counted in each ethnic group they identify with.
3. Data relate to domestic students only.

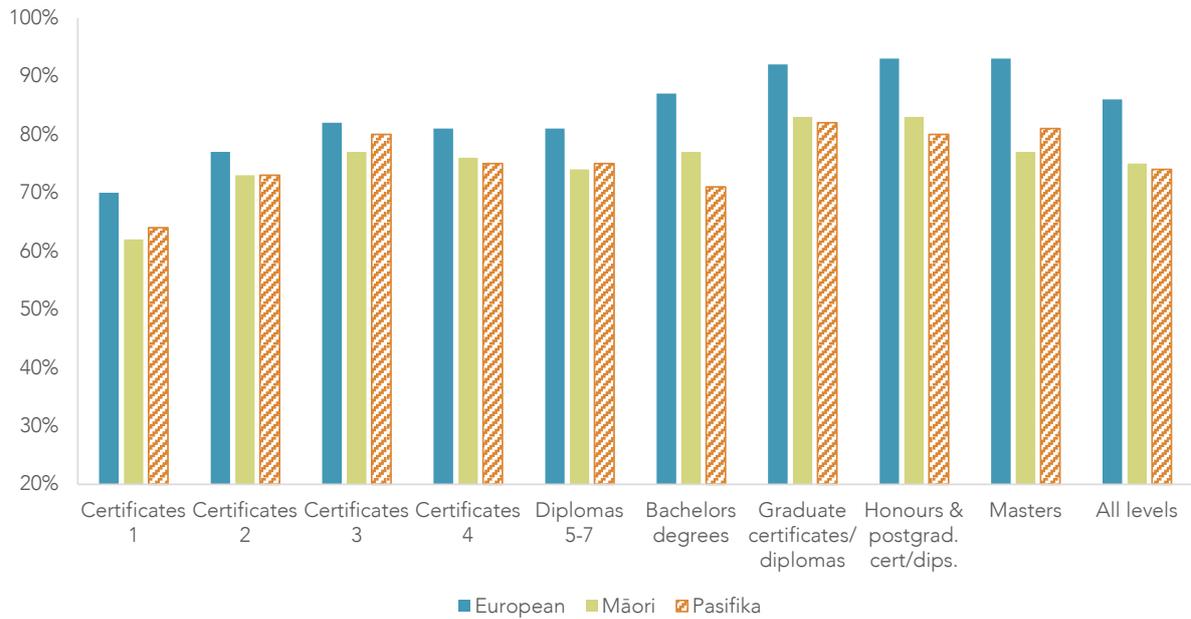
European and “Other” ethnicities share a similar profile with around 55% of students enrolled at universities, 30% at ITPs, and the remainder split between PTEs and wānanga. The enrolment profile of Asian students is also similar, except with a greater share at universities and a smaller share at ITPs. By contrast, a much larger share of Māori students were enrolled at wānanga (27%), with a relatively smaller share enrolled at universities (22%). Pasifika students also had a lower share of their student population enrolled at universities (35%), and had a relatively large share enrolled at PTEs (26%).

### Achievement

Course completion rates are lower across all levels of study for Māori and Pasifika students than for European students, particularly at higher levels of study (Figure 18).

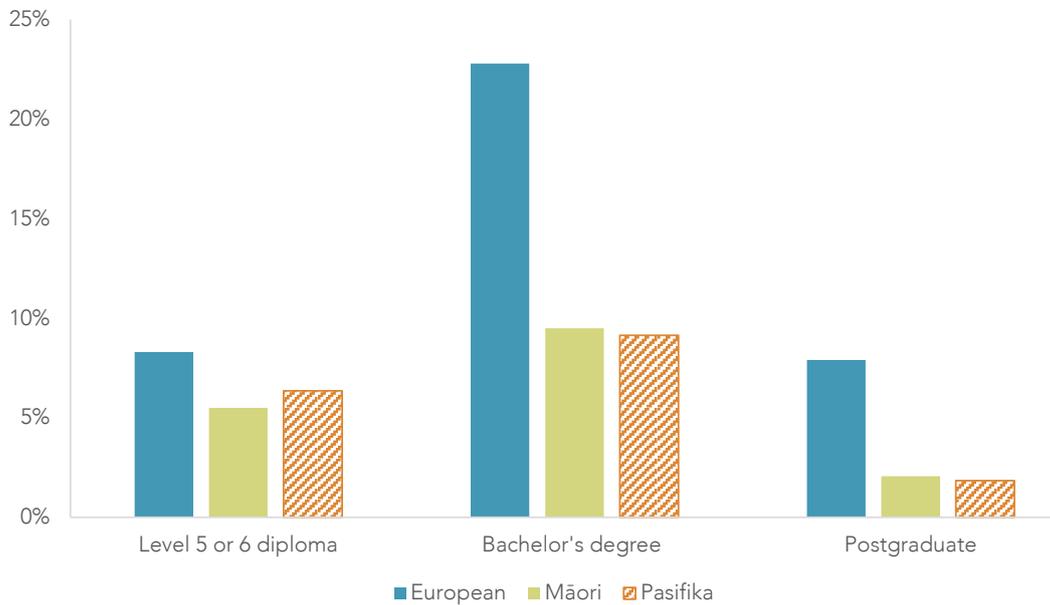
Figure 19 shows the share of 25 to 29 year olds with a diploma, bachelor’s degree or postgraduate qualification as their highest qualification. The share of Māori and Pasifika in this age group that hold a bachelor’s degree or postgraduate qualification is significantly lower than that for the European group.

**Figure 18 Course completion rates by ethnicity and level of study, 2014**



Source: MoE, 2015g.

**Figure 19 Share of 25 to 29 year olds holding different tertiary qualifications, 2013**



Source: Statistics New Zealand, 2013.

In the case of Māori participation and achievement at bachelor’s degree level, Earle (2007) found that achievement at secondary school has a significant bearing.

In order to make a step change in the number of Māori attaining degrees, the most important change would be to increase the number of Māori secondary school students achieving university entrance or better. This remains the major constraint on success. It

limits the number of younger Māori who can enter degree studies. It is also an important factor for success where Māori students have entered degree studies later in life. (p. 3)

Earle (2007) also noted that many variables influence the success of Māori students:

...success during the first year of study is only partially explained by the kinds of variables captured in enrolment data – that is, demographics, school background and area of enrolment. This reinforces a general theme throughout the international literature that there is a complex set of factors, institutional, personal and external, which influence student success. These include readiness for degree study, goal commitment, ability of the student to fit into the institution and ability of the institution to adapt to the student. (p. 3)

### **Employment outcomes**

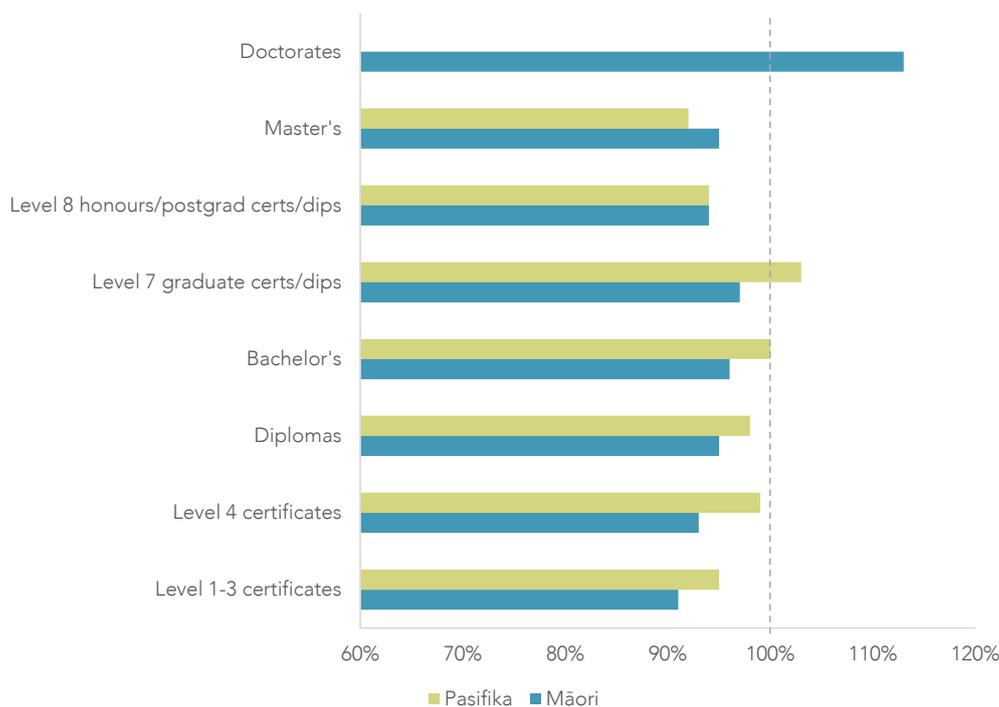
Mahoney (2014a; 2014b) has examined the destinations for young tertiary graduates one year after completing a qualification (employment, further study, overseas, benefit, or other). In most situations destinations were similar between ethnic groups. The main exceptions were:

- young Pasifika diploma 5 to 7 and certificate level 1 to 3 graduates were less likely to be in employment than non-Pasifika, and were more likely to be in further study, on a benefit or out of the labour market; and
- Māori graduates of level 1 to 4 certificates were less likely to be in employment than non-Māori and over twice as likely to be on a benefit as non-Māori.

The same author also examined the earnings of young Māori and Pasifika graduates five years after completing a qualification (Figure 20). Across most qualification levels Māori and Pasifika earned around 95% of non-Māori and non-Pasifika. The exceptions are:

- Pasifika holding a bachelor's degree earn the same amount as non-Pasifika;
- Pasifika with a level 7 graduate certificate or diploma earn 103% of non-Pasifika; and
- earnings for Māori with a doctorate are 113% of non-Māori.

**Figure 20 Earnings of Māori and Pasifika five years after graduation as a percentage of non-Māori and non-Pasifika earnings**



Source: Mahoney, 2014a; 2014b.

*Notes:*

1. Data were not available for earnings of Pasifika with doctorates.
2. Based on median earnings.
3. Data are for "young graduates" (as defined in Mahoney 2014a), but is not further adjusted for age and gender within each type of qualification.

## Meeting the needs of the labour market

New Zealand's labour market is very open, flexible and dynamic (MBIE, 2014). It is characterised by high levels of mobility across regions and national borders, between jobs and between industries, and in and out of training. It is also characterised by low levels of alignment between occupations and qualifications. That is, the people doing a given occupation will tend to have many different types of qualification (except in regulated professions such as medicine or law, where a specific qualification is an entry requirement); and people with a given qualification will tend to end up in lots of different occupations.

The openness and dynamism of the labour market makes it hard to match the domestic supply of skills to labour market demand, especially for occupation- or industry-specific skills, or for skills with high global demand. However, it also means that, at least where there is an alternative source of supply, close matching of domestic tertiary supply to demand is less critical. Immigration is a larger supplier of skills to the labour market than tertiary education (TEC, 2014), and offers a faster response to fast-changing skill needs.

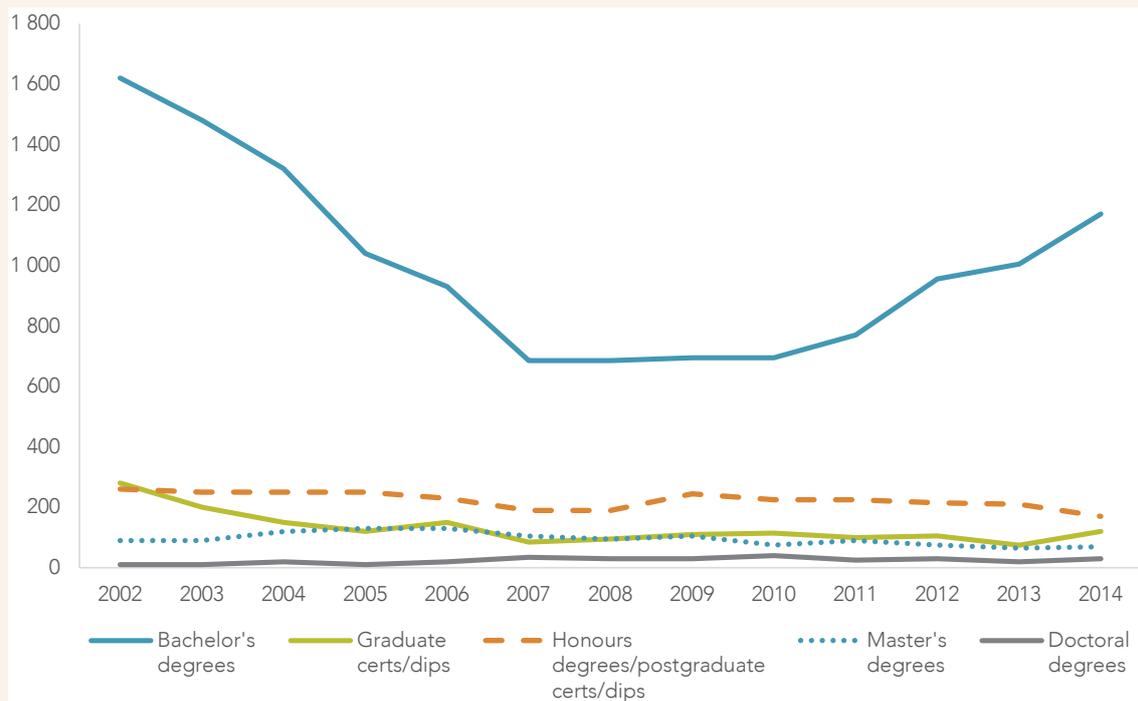
Sometimes changes in the labour market demand warrant a change in domestic tertiary education supply, especially where there has been rapid technological change or high rates of

growth in demand that are likely to be sustained. ICT is an example as it is shifting from being a skillset associated with a narrow range of specific occupations, to a revolutionary general-purpose technology that is transforming the production of services across multiple industries. Its popularity as a field of graduate-level study has been highly variable (Box 6).

### Box 6 Meeting demand for ICT graduates in New Zealand

In the mid-1980s and particularly the late 1990s, enthusiasm for careers in IT (as it was then known) saw ever more students study IT and graduate with IT qualifications. A sudden loss of confidence in both periods caused a sharp decline in graduations. The most recent decline lasted from three years after the peak of the dotcom boom in 2000 until about 2008 in the United States and a little later in New Zealand.<sup>15</sup> Some countries saw enrolments and subsequent graduations fall steeply by between a third and a half from their peak (see Panko (2008) for the United States, HECSU (2007) for the United Kingdom, Nordicity & Ticoll (2012) for Canada, and Figure 21 for New Zealand).

**Figure 21 Trends in IT degree completions for New Zealand domestic students, 2002–2014**



Source: MoE, 2015f.

While falling sharply in absolute terms, the number of domestic students graduating with an IT degree also fell sharply as a proportion of all degrees. IT departments in universities faced difficult choices to adjust staffing levels.

<sup>15</sup> A speculative rise in stock prices of internet-based companies drove the dotcom boom. Business models assumed rapid expansion to gain market share while not "turning a profit". Changing economic conditions led to a rapid drop in stock prices from a peak in March 2000, with many companies going bust and others finding it very difficult to raise capital.

Sharply falling and then stagnant degree completions were accompanied by only a short pause in the long-term rise in ICT jobs. Rising employment in ICT-using industries absorbed many who lost work in the dotcom bust. This led to a boost in productivity growth in those industries (Tambe, 2012). Employment in ICT jobs in New Zealand rose much faster than overall employment in the 10 years to 2013.

Despite fast increases in employer demand, new enrolments stagnated during the mid-2000s because students lacked confidence in ICT as a career (Panko, 2008). Tertiary education enrolments also tend to fall in a buoyant economy, as many countries experienced between 2000 and 2005. The start of the global financial crisis in 2008 saw a rise in tertiary enrolments. The follow-on effect was that the number of New Zealand ICT graduates began to rise from 2011. The growth in the number getting jobs in ICT was filled partly by a continuing (though reduced) stream of new graduates and partly by inward migration of ICT professionals.

*Source:* NZPC, 2014.

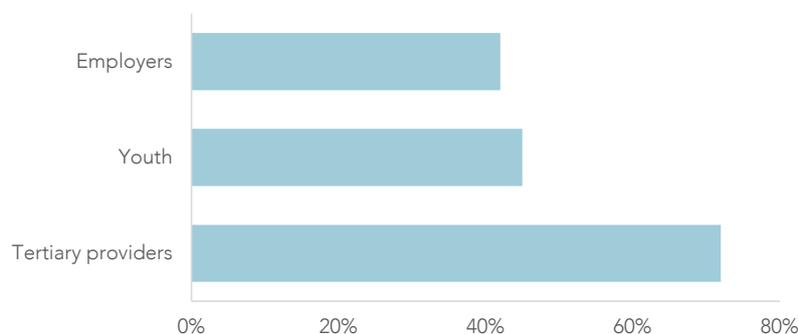
### Qualifications can only tell us so much about the supply of skills

Because qualifications are imperfect proxies for skills, data on alignment between qualifications and occupations can only tell us so much about the actual skills being supplied to the labour market.<sup>16</sup> Assessment in tertiary education tends to focus on content knowledge and cognitive rather than non-cognitive skills, so qualifications tend to be a better indicator of the former than the latter. However, there may be a trend toward the development and assessment of non-cognitive skills (Box 7).

### Tertiary providers, graduates, and employers can have different views of graduates' work-relevant skills

One large survey of young students and workers (aged 15 to 29), employers and tertiary providers from across nine different countries identified contrasting views about how well tertiary graduates are prepared for the workforce (Figure 22).

**Figure 22** Share of survey respondents who agree that graduates are adequately prepared for work



*Source:* Mourshed, Farrell & Barton, 2012.

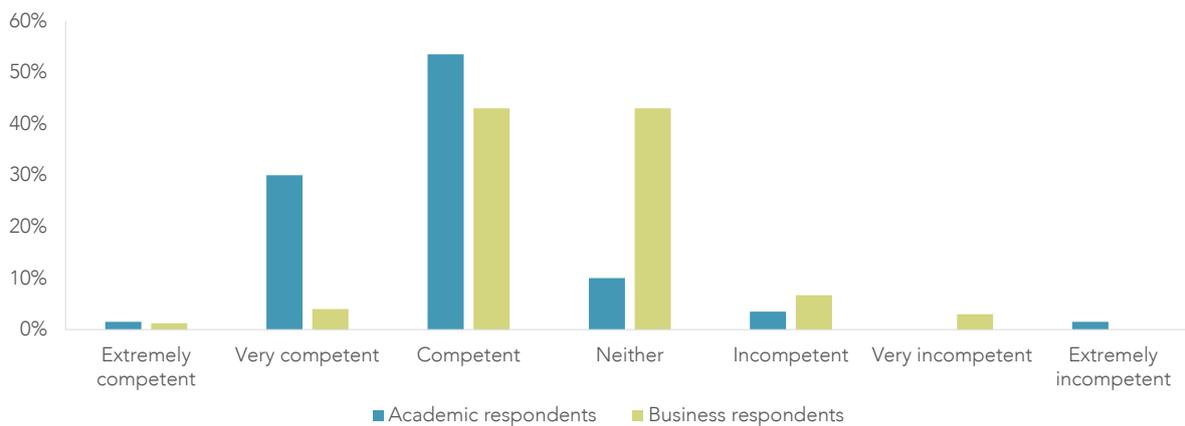
<sup>16</sup> More evidence of the link between qualifications and actual skill levels will be available when New Zealand's PIAAC data are released in June 2016.

A 2013 New Zealand survey of 700 business-school academics and employers found:

On the whole New Zealand business schools do appear to be producing students who have the appropriate level of business and technical skills, although the strength of opinion on this varied greatly between academia and business respondents. (Burt, Smith & Young, 2013, p. 10)

Figure 23 demonstrates this discrepancy in opinion.

**Figure 23 Perceived ability of business schools to produce well-trained and prepared graduates**



Source: Burt, Smith & Young, 2013.

One survey of graduates found that employers were much more satisfied with graduates' verbal and communication skills (80% satisfied) than with their intellectual autonomy and independent thinking (55%), or their ability to set and achieve personal and professional goals (55%) (Victoria University of Wellington, 2015).

A 2013 survey of businesses reported 41% with difficult-to-fill vacancies. Half of those businesses identified applicants lacking the necessary "qualifications or skills" as a reason. Other common explanations included applicants lacking the desired attitude, motivation or personality; that they lacked work experience; and that there were not enough applicants (Statistics New Zealand, 2013).

**Q32**

**To what extent are graduates meeting employers' expectations with respect to hard or technical skills? What about soft skills and capabilities?**

## 4 Trends

This chapter discusses the trends identified in the terms of reference, and asks about other trends that may be important.

### Trends in employer demand – and consequently in student demand for tertiary education

The last 200 years have seen big shifts the nature of advanced economies worldwide (Acemoglu, 2009). The skills required and rewarded by employers have changed accordingly. Students (or prospective students) make choices that anticipate their participation in the labour market, demanding courses from tertiary providers that will increase their future rewards.<sup>17</sup> It is this “induced demand” that faces providers of tertiary education.

Similarly, governments make choices about funding and regulation based on their own perception of future labour market conditions. This recognises that a good match between supply and demand helps to minimise unemployment and boost productivity.

### Tertiary education has changed from a small and selective to a mass education system

The Industrial Revolution, rapid urbanisation and changes in roles and expectations of women shifted ideas of what constituted a “suitable education for the masses” in modern Western economies. This has changed from “next to nothing” at the beginning of the 19th century, to basic literacy and numeracy, to thorough basic schooling, to secondary schooling, and now to some form of tertiary education. The OECD comments that

[t]he expansion of tertiary education has been remarkable in recent decades. Globally, in 2004, 132 million students enrolled in tertiary education, up from 68 million in 1991. Average annual growth in tertiary enrolment over the period 1991-2004 stood at 5.1% worldwide. (2008b, p. 14)

### More New Zealanders are tertiary educated

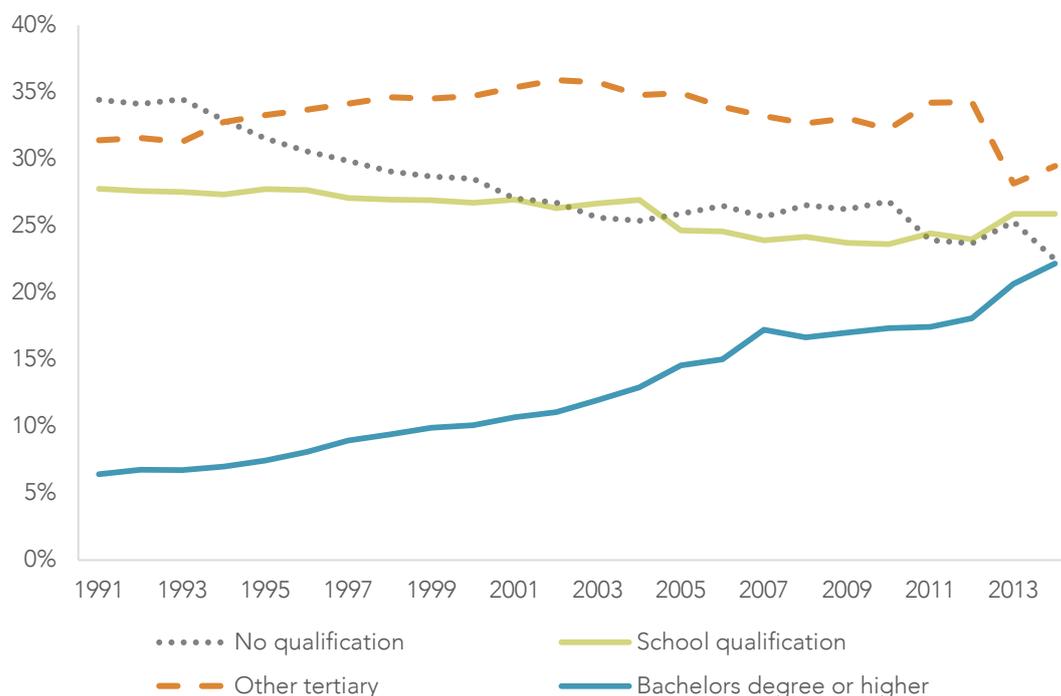
In New Zealand, university enrolments multiplied almost fivefold from 16 524 in 1960 to 78 919 in 1990 (Pollock, 2012). The share of adults with a bachelor’s degree or higher has risen significantly since that time, and the share of the population over 15 years of age with no qualification at all has fallen (Figure 24).

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<sup>17</sup> Such rewards might be financial (eg, salary) and non-financial (eg, flexibility, job security). Prospective workers have varying preferences over rewards types, creating a further challenge for labour market matching.



**Figure 24 Percentage of New Zealanders aged 15 and over by highest qualification, 1991–2014**



Source: MoE, 2016.

### Higher and vocational education increasingly overlap

There remained a sharp distinction in the early to mid-20th century between two types of tertiary education:

- Higher education, which took place at university. It was for the academically-oriented and gifted minority and was generally not focused on preparing students for a career, other than academia or a limited (but growing) number of professions such as medicine or law.
- Vocational or “technical” education and training, which took place at high schools, technical colleges (later institutes of technology and polytechnics, ITPs), teacher’s colleges, and via apprenticeships. It focused on supplying the labour market with appropriately skilled workers, and on providing students with training that would start them on a career.

This distinction became increasingly fragile during the second half of the 20th century as the skill needs of employers, and consequently of the workforce, continued to increase. The list of professions for which it was possible or necessary to get a university degree, rather than a vocational qualification, expanded to include many previously considered straightforwardly vocational (eg, accountancy, teaching or nursing). Tertiary qualifications increasingly became a common entry requirement for industries previously accessible to those with only a school qualification (eg, journalism or banking).

This shift toward higher entry qualifications was not unique to New Zealand. It is not clear whether it was led by supply or demand. That is, whether it was instigated by providers and students over-supplying a labour market that consequently became more selective; or whether students and providers responded to a labour market under-supplied with skills. However, the rising income premia of graduates over the same period are consistent with a shortage of

suitably qualified employees, which supports the demand-led explanation (Murphy & Welch, 1989; Goldin & Katz, 2007).

### Increasing specialisation

Alongside an increase in the quantity of tertiary education was an explosion in the variety of courses offered. This reflected the high (and increasing) returns to specialisation across the national (and global) economy. While labour specialisation has its benefits, it can also be risky for workers (if they cannot find a suitable job) and for employers (if they cannot find a suitable employee). A rational response for both is to locate themselves in larger population centres and, indeed, this is a major driver behind increased urbanisation (Bertaud, 2014).

Q33

**What are the significant trends in employer demand for tertiary-educated employees, and in student demand for tertiary education? How is the system responding?**

### When most people are qualified, employers need something more to separate desirable candidates from the crowd

The greater the proportion of job candidates holding a suitable qualification, the less the qualification helps a prospective employer to distinguish between those candidates. Figure 24 shows that, in 1991, someone with a bachelor's degree was in the top 7% of most qualified New Zealanders; by 2013, they were in the top 20%. The signalling power of a bachelor's degree has weakened.

The Commission has been told that this weakening of the signalling power of qualifications has already led to students being advised to study for conjoint degrees (eg, a Bachelor of Arts and of Commerce) rather than for a single degree. In the future, it could potentially lead high-skilled graduates to seek new ways of marking themselves out to prospective employers, through certification of specific non-cognitive skills like teamwork, presentation skills, or creativity that are not always well-signalled by a degree (Box 7).

#### Box 7 Graduate profiles and graduate attributes

All qualifications registered on the New Zealand Qualifications Framework must include a "graduate profile" – a statement of what the graduates of a given qualification will know and be able to do as a result of completing their programme of study.

A graduate profile covers content knowledge relevant to the field of study, as well as both cognitive skills and non-cognitive skills and attributes. For example, the graduate profile for a Bachelor of Science at the University of Auckland states that a graduate will have (among other things):

- an understanding of concepts, theories and empirical results in their chosen major(s);
- an ability to find information, and evaluate it critically; and
- enthusiasm for ideas, discovery and learning (University of Auckland, 2013).

However, assessment and teaching practices in tertiary education have historically focused on the cognitive elements of a graduate profile. This means that qualifications have tended to be a better indicator of these than of a graduate's non-cognitive skills or personal qualities.

Research has repeatedly emphasised the importance of non-cognitive skills and capabilities in a graduate's employability and early career success (eg, Scott, 2012; Victoria University of Wellington, 2015). Employers tend to look for evidence of these skills not (or not only) in a candidate's qualification attainment, but in their extra-curricular activities, or via interviews or tailored assessments at the time of recruitment. Employers also often provide professional development for staff in non-cognitive skills such as communication or leadership.

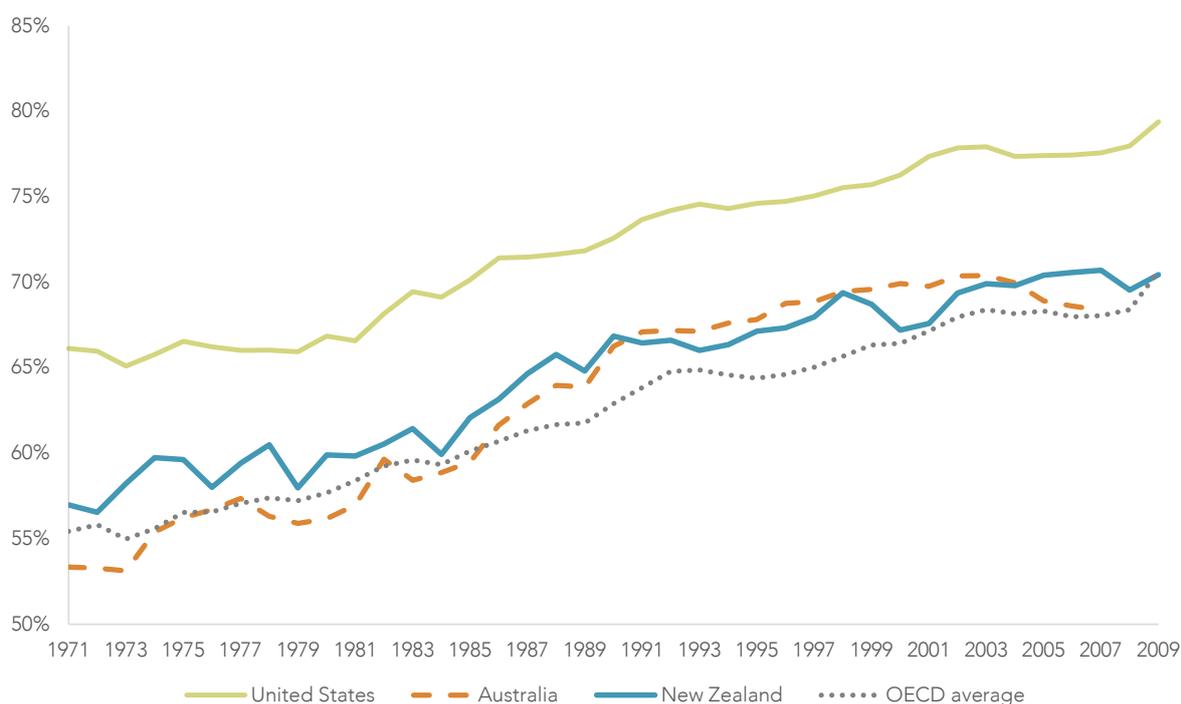
The Commission has heard that tertiary providers internationally and in New Zealand are increasingly focused on developing and assessing a student's non-cognitive skills alongside their cognitive skills and content knowledge, in recognition that this matters to the student's employability. Several overseas jurisdictions are working on measurement frameworks for non-cognitive learning (eg, Lumina Foundation, 2014; Rich, 2015).

**Q34**

**What is being done to develop, assess and certify non-cognitive skills in tertiary education in New Zealand? Do approaches vary across provider types, or between higher, vocational, and foundation education?**

## **Skills are increasingly important as New Zealand becomes a service economy**

New Zealand's economy has a growing services sector and shrinking goods-producing and primary sectors. This follows the pattern of similarly advanced economies worldwide (Figure 25). But relatively weak productivity performance in the services sector has contributed significantly to New Zealand's lack of progress towards closing its aggregate productivity gap with Australia and other leading OECD countries (NZPC, 2014).

**Figure 25 Services sector share of GDP compared internationally, 1971–2009**

Source: NZPC, 2014.

*Notes:*

1. OECD data are only available to 2009. Since 2009, the services share of New Zealand's GDP has risen from 70.9% to 72.4%.

New Zealand's growing services sector increases the importance of skills development, their availability in the labour market, and their effective use by employers. This is because performance improvement in the services sector relies on the acquisition, manipulation and application of information – and this is strongly influenced by worker skills (Uppenberg & Strauss, 2010). By contrast, in the primary and goods-producing industries, while skills matter, performance can also be lifted by improving the quality or availability of inputs.

### **New technologies may make existing skills obsolete, which could lead to more working adults seeking additional tertiary education**

Technological advances could make a large proportion of existing jobs obsolescent in the coming decades. A frequently quoted example is driverless cars, which could make taxi drivers redundant. This would continue a long-running trend: Many occupations have disappeared due to changing technology within living memory – ranging from low-skilled roles such as lift operators, to highly skilled roles associated with industries that no longer exist at scale, such as developers or colourists of camera film.

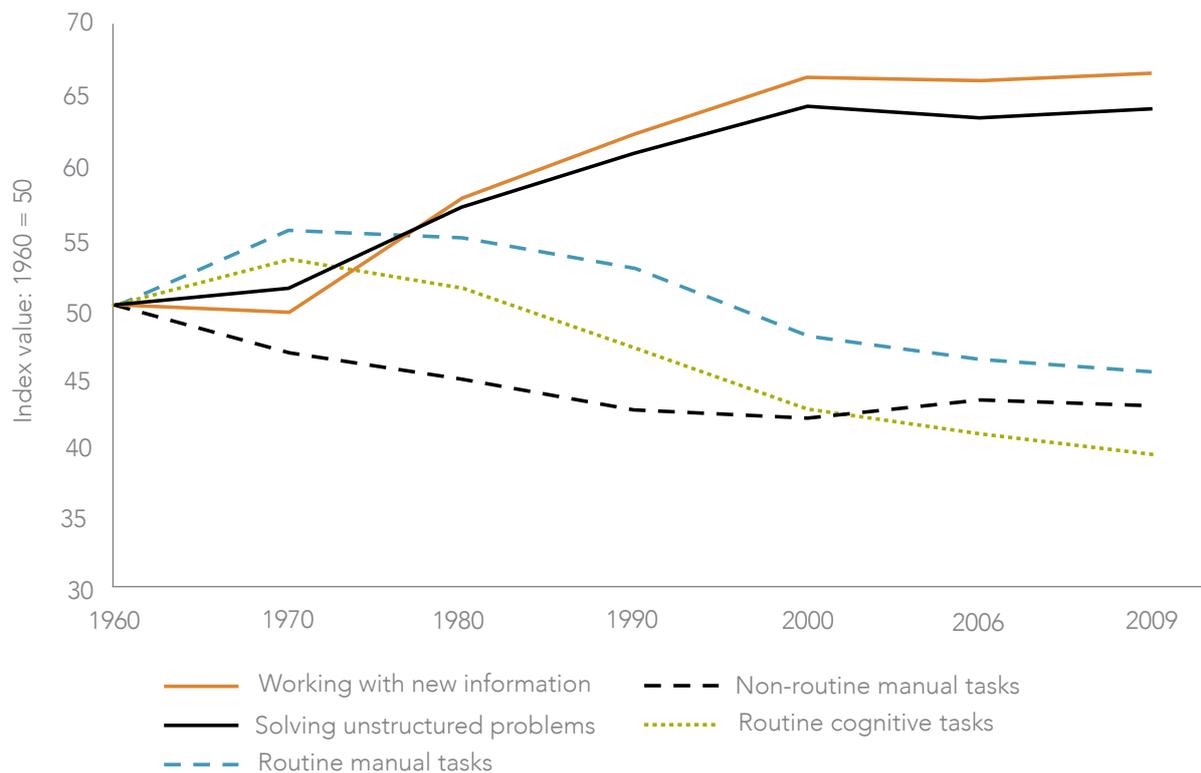
The tendency of technology to influence the relative demand for skilled versus unskilled labour in favour of skilled labour is known as "skills-biased technological change".

Frey and Osborne (2013) reported that, given current expectations of technological trends, the jobs most at risk are those with lower wages and requiring low levels of educational attainment. Kubiak et al. (2015) extended their analysis to New Zealand and suggested that 46% of

New Zealand's workforce faces a high risk of computerisation, which is similar to Frey and Osborne's estimations for the United States.

Figure 26 shows how a similar pattern has obtained historically, with routine and manual jobs (which tend to be low-wage and low-skilled, and which a computer can more readily undertake) declining compared to non-routine or interpersonal roles that require the kind of contextual judgement and emotional input currently beyond the ability of computers.

**Figure 26** Index of changing work tasks in the United States, 1960–2009



Source: Levy & Murnane, 2013.

*Notes:*

1. In keeping with the original source, the x-axis scale is non-linear. This has the effect of flattening some of the trend lines after 2000.

Skills-biased technological change may mean that a large proportion of working adults will need to upskill and, in some cases, re-credential to stay employed – including those who already hold qualifications. This proportion of students re-entering tertiary education could therefore be much larger in the future.

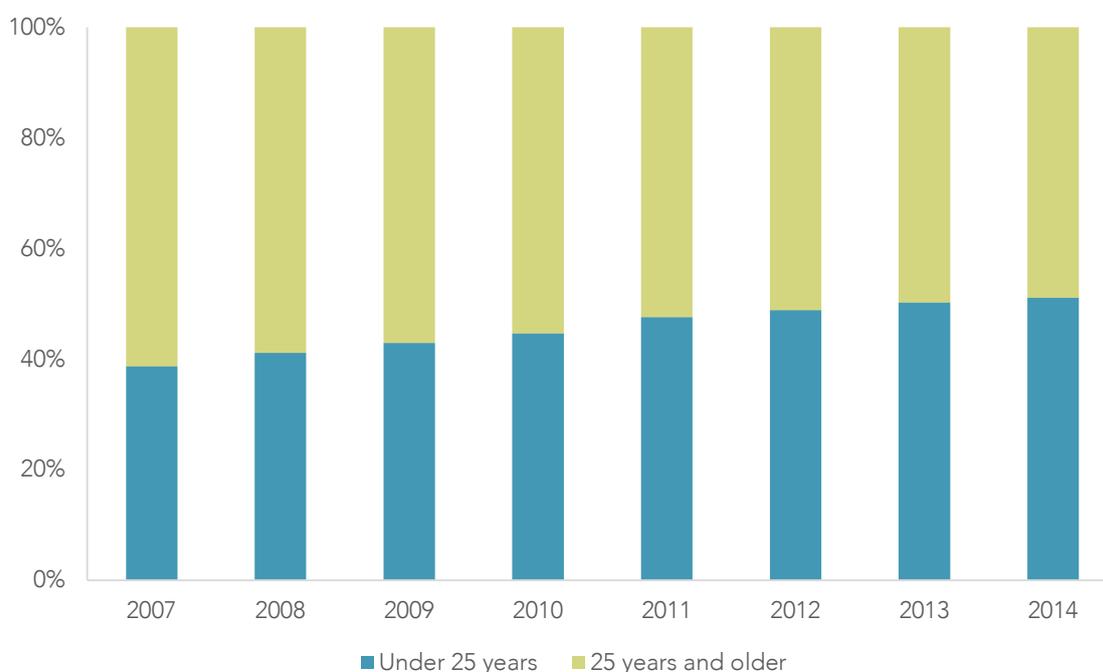
**Q35**

**What are the implications of new technologies that are predicted to make many currently valuable skills obsolete? Will this change the role of the tertiary education system?**

## Demographic changes also influence domestic student demand

Compared to other OECD countries, New Zealand has a high proportion of older students in tertiary education (Scott, 2014). However, the proportion of enrolments of students aged over 25 fell each year from 2007 to 2014 (Figure 27).

**Figure 27 Domestic students by age, 2007–2014**



Source: MoE, 2015d.

Notes:

1. Figure is based on student numbers (not EFTS).

Recent modelling by the MoE found that the two biggest drivers of short-term student demand for tertiary education are the number of people aged 18 to 25, and the unemployment rate (MoE, 2015c).<sup>18</sup>

Student demand in the last half-decade has been strong, due in part to a “baby blip” around 1990, and in part to the global financial crisis of 2008, which caused an increase in unemployment that disproportionately affected young people. Now that the baby blip has moved through the system and the economy is again growing, the Ministry’s demand forecast predicts that student demand for provider-based training at levels 3+ will fall by around 7 800 full-time student places between 2014 and 2018 before starting to rise again from 2019. The decline to 2018 is predicted to have the biggest impact on universities (losing about 5 000 EFTS) and ITPs (losing around 3 750 EFTS).

<sup>18</sup> The model relates to student demand for provider-based tertiary education at level 3+, which accounts for the majority of provision. Student demand here measures the number of students likely to enrol given currently policy settings, rather than an assessment of national “need”.

Changes in student demand raise issues for tertiary providers about economies of scale and management of capital assets – especially for TEs, which tend to own, rather than lease, their land and buildings.

**Table 2 Forecast EFTS at Level 3 and above, by subsector**

Institution type	2014	2015	2016	2017	2018	2019
Universities	115 587	116 230	113 780	111 580	110 620	111 380
ITPs	54 749	54 610	52 980	51 720	51 000	51 430
Wānanga	18 280	18 370	19 170	19 670	19 880	19 760
PTEs	24 993	23 380	23 440	24 050	24 300	24 150
<b>Total</b>	<b>213 609</b>	<b>212 590</b>	<b>209 370</b>	<b>207 020</b>	<b>205 800</b>	<b>206 720</b>

Source: MoE, 2015c.

Despite the reduction in the overall population aged 18 to 25, the Māori and Pasifika populations have a younger age structure overall, and their youth populations are forecast to grow slightly to 2019. Possibly reflecting this, in contrast to the overall trend, wānanga – whose student population contains a much higher proportion of Māori students than other subsectors – are forecast to see growth from 2014 to 2018 of around 1 600 EFTS.<sup>19</sup>

The scope for increased educational attainment in the Māori and Pasifika youth populations is large. This represents an opportunity for tertiary education providers and also for the New Zealand economy, given that Māori and Pasifika will make up an increasing share of the working-age population.<sup>20</sup>

Q36

**What challenges and opportunities do demographic changes present for the tertiary education system?**

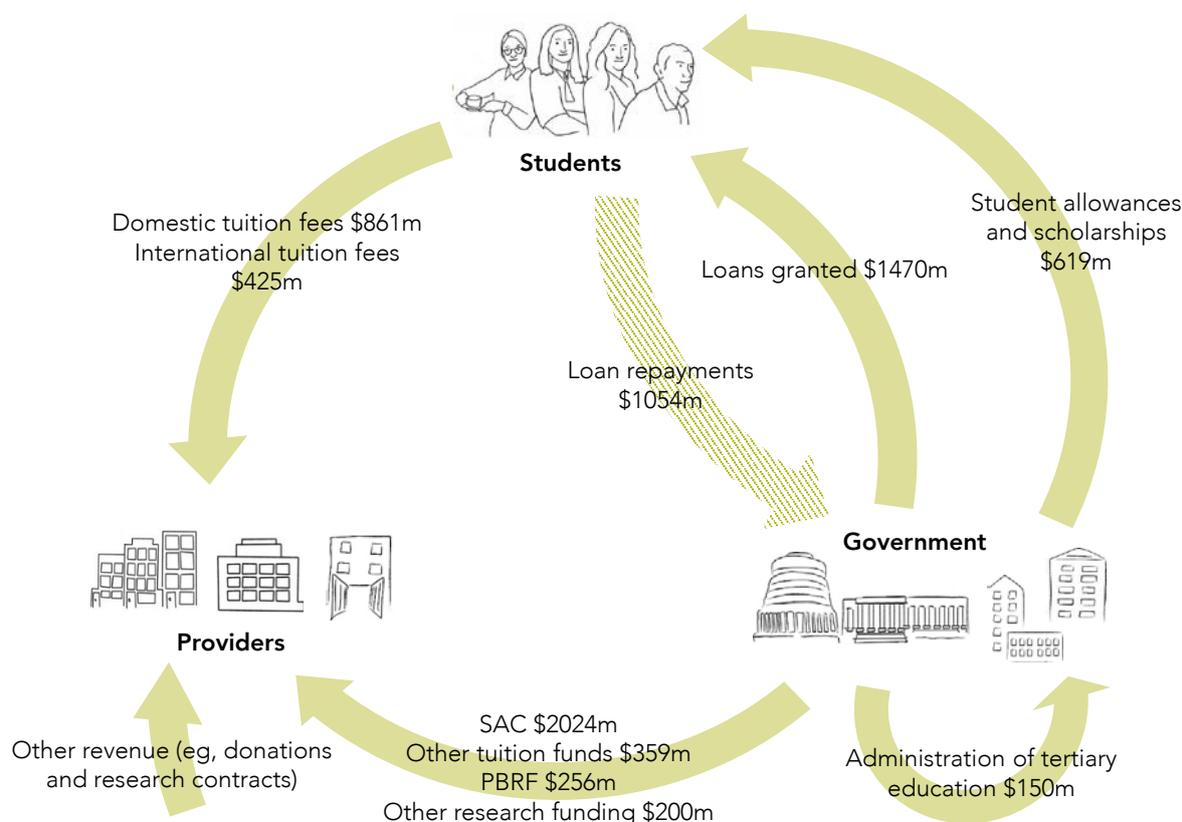
## Trends in fees and costs

The arrangements for funding tertiary education are relatively complex and include student support, tuition fees paid by students, and tuition subsidies (Figure 28). Particular trends vary across different types of fees and costs, as discussed below; but the overall pattern is one of increasing (and interrelated) cost pressures for governments, providers and students. This pattern is common in advanced economies worldwide, and has led to significant work by the OECD on policy approaches to manage public costs in a fast-growing system while maintaining access for disadvantaged students (OECD, 2008b).

<sup>19</sup> 61% of enrolments at level 3+ at wānanga in 2014 were Māori, compared to 11% of university enrolments, 21% of polytechnic enrolments, and 27% of PTE enrolments (MoE, 2015e).

<sup>20</sup> Statistics NZ predicts that between 2014 and 2024 the proportion of the working-age population that is Māori will grow from 14.7% to 16.4%, and the proportion that is Pasifika will grow from 7.2% to 8.5% (Statistics New Zealand, n.d.). Note that ethnicities are not mutually exclusive in this data.

**Figure 28 Student fees and government funding in the tertiary education system, 2013**



Source: MoE, 2014c; 2014d.

*Notes:*

1. Other tuition funds include Youth Guarantee, Industry Training, Gateway, Intensive Literacy and Numeracy, Workplace Literacy, Community Education, and Foundation-Focused Training Opportunities.
2. Other research funding includes Centres of Research Excellence, Building Research Capability in the Social Sciences, Building Research Capability in Strategically Relevant Areas, the Marsden Fund, and funding from the Health Research Council and MBIE.
3. For TEIs, other income (which includes research contracts and interest) amounted to \$1087m in 2013 (data on other income are not available for PTEs).

Costs faced by one party may be revenue to another. Further, the government regulates both prices and quantities of tertiary education for domestic students. Consequently, observable trends are likely the result of policy rather than the interaction of supply and demand.

Government-led tertiary reforms of the 1990s resulted in a rapid growth in student numbers and fiscal pressure for the government. In response, the government took a number of steps during the 1990s to control the fiscal pressures, and to shift more of the costs of provision onto students and their families. Student fees were introduced, along with the Student Loan Scheme to ensure low-income students could still access tertiary study. Student allowances were increasingly tightly targeted on the basis of parental income.

Further changes in the late 1990s and 2000s shifted some costs back toward the Crown, especially the removal of interest from student loans in 1999. Student fees were frozen in the early 2000s, and then allowed to rise again within government-set limits. Smaller changes to



student support in recent years have tied student eligibility to their achievement in passing courses, and introduced stricter lifetime borrowing limits. The ratio of public to private funding for tertiary study is now about 82:18, but in the late 1990s, it fell below 70:30 (Crawford, 2016).

## Costs to students

Students pay fees to receive tertiary education. The average tuition fee for a student (one EFTS) studying at TEIs in 2013 was \$4 736. In recent years, average tuition fees have risen faster than the CPI, however this followed a period of without any increase in the early 2000s when student fees were frozen.

The student loan scheme reduces the effective cost to students. Contingent repayment and a zero nominal interest rate mean that students face a negative real interest rate and strong incentives to repay loans as slowly as possible.<sup>21</sup> The combination of these features means that the Treasury writes off a significant share of the total amount loaned each year. In the 2014/15 financial year, borrowers took up \$1 529 million in loans and \$602 million was written off, an average of 39.35 cents for each dollar lent (MoE, 2015). Since 2007, the amount written off each year has ranged between 36.19 and 47.39 cents for each dollar lent (MoE, 2015). This is a reasonable estimate of the average fee discount offered by the student loan scheme.

Domestic student fees are supplemented by direct payments from the government to the provider on behalf of the student. Figure 29 shows the average tuition fees (per EFTS) at TEIs, and the average government funding contribution per EFTS between 2005 and 2013 (figures are shown in constant 2005 dollars). The average tuition subsidy paid by the government increased in the first two years of this series, and has remained relatively stable over the remainder. By contrast, average tuition fees have increased steadily in real terms. However, as noted earlier, this time series follows a period in the early 2000s when student fees were frozen.

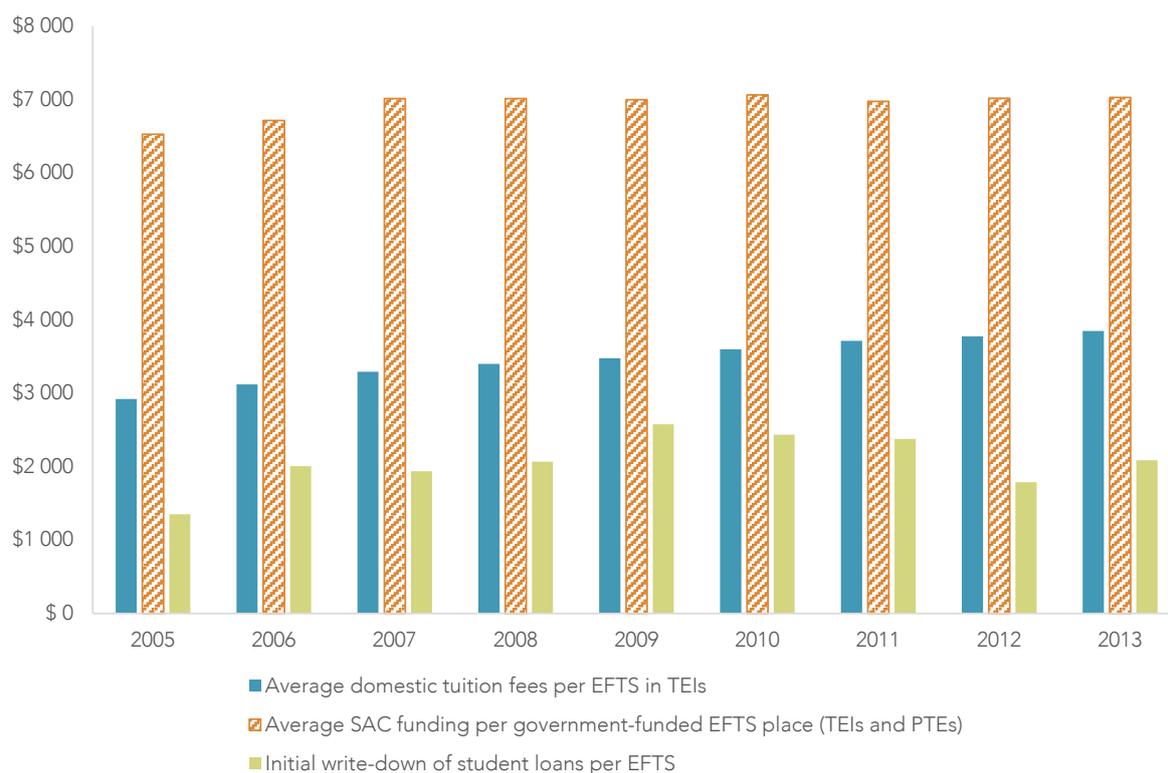
Also included in Figure 29 is the average amount of student loan debt written down per EFTS. This increased significantly in 2006 following the introduction of interest-free student loans (previously student loans were only interest-free while students were studying), and has fluctuated around \$2 000/EFTS in subsequent years.

Tertiary education offers both private and external (wider social) benefits, the latter offering the economic justification for a government subsidy. The economic evidence for private benefits is strong (Zuccollo et al., 2013) but for external benefits is weak (Lange & Topel, 2006) or ambiguous (Psacharopoulos & Patrinos, 2004).

Johnson (2004) notes that research examining the wider benefits of education has found that increased education, as measured by the time people spend in formal education or the qualifications they attain, may be linked to a reduction in cigarette smoking, anxiety disorders, anti-social disorders, suicide, crime, teenage pregnancies, unemployment and reliance on welfare benefits. However these benefits are difficult to quantify and subject to considerable uncertainty.

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<sup>21</sup> Students who move overseas are required to pay interest.

**Figure 29 Public and private contributions to tertiary education, 2005–2013**

Source: MoE, 2014c; 2015h.

Notes:

1. Figures are shown in 2005 dollars.

### Box 8 How do fees affect student demand and access?

In 2004, the maximum domestic tuition fee chargeable by UK universities (set in law) tripled, from £1 000 to £3 000 a year. It tripled again in 2013 to £9 000. Nearly all universities raised their fees to the maximum level; some also introduced rebates or additional scholarships for low-income students (Blake, 2010; Bolton, 2016).

Concerns were expressed at the time that the fee increases might restrict access to university by low-income students. For example, a 2013 study found that, after controlling for aptitude and ability (using prior school attainment as a proxy), disadvantaged young people were more likely than their peers to consider not applying for university on the grounds of cost. The same study found that, of all students (from all backgrounds) who considered not applying for university because of cost, 36% then did not apply, compared to only 16% of those who were not concerned about the costs (Ross & Lloyd, 2013).

However, university application data seem to suggest that higher tuition fees have not restricted access to UK universities by disadvantaged students. For example, Robbins (2016) quotes UCAS data showing that:

- in 2015, 18 year olds living in disadvantaged areas of the United Kingdom were more likely to apply for university than ever before; and
- the difference in probability of applying for university between an “advantaged” UK 18 year old and a “disadvantaged” one fell from 3.7 in 2006 to 2.4 in 2014.

Caution is required in concluding from this data that tuition fees have had no negative impact on low-income students. Other research has found that fees can influence a student’s choices about where to study (for example, it can make them less willing to travel away from home, which might result in the student not attending the best university they could get into), as well as the number of hours they spend in paid work during term time, which could affect learning (Atherton, Jones & Hall, 2015). These sorts of effects would not be visible in aggregated data on university application rates.

### **What is the situation in New Zealand?**

The Commission has heard that student demand for tertiary education, in New Zealand and overseas, is relatively “price inelastic”. That is, changes in the prices charged to students do not seem to have much impact on a student deciding to enrol (though it may change behaviour at the margins, or lead to a student to make different choices about what, where, or how intensively to study).

This may be because price signalling in New Zealand is constrained by government fee regulation, which initially froze fees in the early 2000s and then allowed them to rise again within set limits.

Signalling could also be affected by the fact that a student is often unaware of the size of the tuition subsidies paid directly to the provider for their education (Baxter, 2012), which tend to vary more between fields of study than do the tuition fees paid by the student. The size of tuition subsidies in some fields (eg, degree-level engineering) have increased much more sharply than have student fees, but this is not generally visible to a student.

One New Zealand study (Baxter, 2012) found that 26% of university domestic students said that they would stop studying if their fees were to double. The corresponding figure for international students was over 45%, suggesting that international students are more price-sensitive than domestic students.

### **Could higher fees actually *increase* student demand?**

It is possible that, in the absence of other reliable signals of quality, a student may take price to be a signal of quality, and be *more* willing to pay a higher price for tertiary education than a lower price – on the assumption that a higher-cost product is more valuable (McPherson & Winston, 1991; Rothschild & White, 1995). If a student takes price to be a signal of value not just when comparing tertiary offerings, but in considering whether or not to “purchase” a tertiary education at all, then this could help to explain why higher tuition fees across the board could actually increase student demand, as the UK example may suggest.

**Q37****What evidence is there on the effect of tuition fees on student access to, or the demand for, tertiary education in New Zealand?****Q38****What are the likely impacts of domestic student fees increasing faster than inflation?**

The fees paid by international students are significantly higher than those paid by domestic students.<sup>22</sup> For example, the average tuition fees per domestic EFTS in 2013 were \$6 040 at Universities and \$4 073 at ITPs. For international students, the average fee per EFTS was \$17 460 and \$12 940 respectively (Education Counts, 2013; 2014). These should reflect true market prices, as tertiary providers face no regulatory constraints on the price or volume of international students.

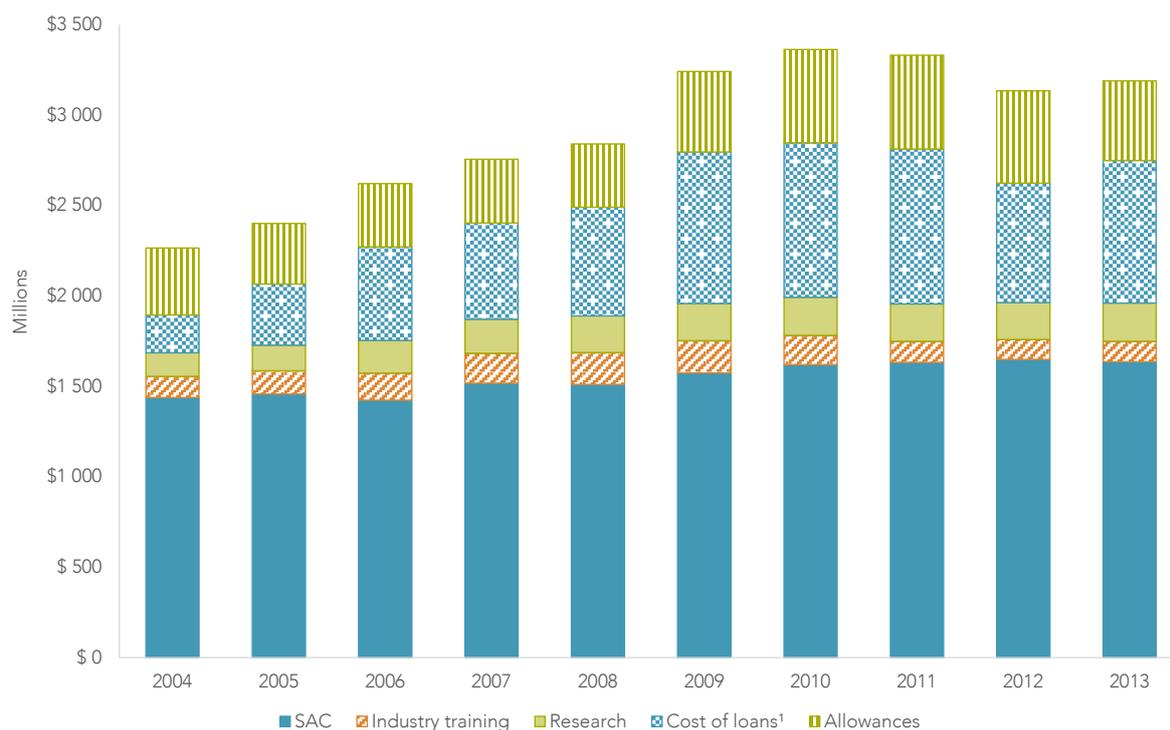
### **Costs to government**

Government makes a significant financial contribution to the tertiary education system. Figure 30 shows the main sources of government spending on tertiary education, including expenditure on student loans and allowances.

In real terms (adjusted for inflation) government spending across most categories increased gradually in the late 2000s, before levelling off from 2010. The cost of student loans (as measured by the yearly government write-down on lending) increased steadily following the introduction of interest-free loans in 2006 before levelling off from 2009. Spending on student allowances jumped in 2009 as a result of policy changes that increased access to allowances (the age limit for parental income testing to establish eligibility for an allowance was reduced from 25 to 24 years, and the parental income threshold for those under the age of 24 was increased by 10%).

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<sup>22</sup> Under a reciprocal arrangement, Australian students pay domestic fees in New Zealand.

**Figure 30 Government spending on tertiary education, 2004–2013**

Source: MoE, 2015b; 2015h.

*Notes:*

1. Cost of loans amount shows the initial government write-down for lending in a given financial year (starting at 2004/05). Other figures are for the given calendar year.
2. Amounts are constant 2004 dollars.

Other sources of government expenditure in 2013 (not included in Figure 30) include administration of the tertiary education system (\$150 million), student funding other than industry training and SAC (\$228 million), scholarships (\$22 million) and other spending (\$28 million).

**Q39**

**What impact has the pattern of government spending on tertiary education had on the tertiary education provided?**

### Costs to tertiary education providers

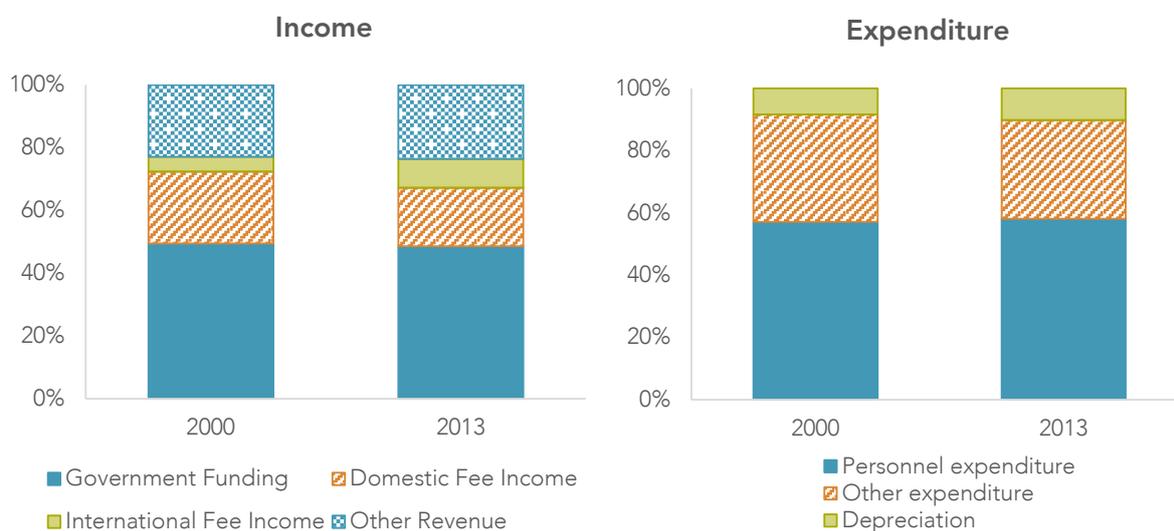
Tertiary education providers get income from multiple sources, including government, research grants, consultancy fees, student fees, philanthropic donations and sponsorship. No matter whether a provider is for-profit or not-for-profit, in the long run the provider's revenue needs to match or exceed its costs. So the trend in the relationship between revenue and costs is more important than the trend in costs alone.

Operating revenue and operating expenses at TEIs both rose sharply in the years between 2000 and 2013. However, the composition of income and expenditure has changed very little (Figure 31). These aggregate figures may hide some important changes in the nature of specific sources of income and expenditure for specific providers.

Q40

**How have providers' input costs and revenue changed over time? What are the implications of these changes?**

**Figure 31 Share of income and expenditure at TEIs, 2000–2013**



Source: MoE, 2014d.

## Trends in technology

Technological change is improving quality and reducing costs in tertiary education in many countries, and has further potential to do so. However, there are differing opinions about whether technological change will revolutionise or disrupt existing models of tertiary education.

In much of the services sector, new ICT is helping spur productivity improvements on the scale of those experienced by other sectors in previous decades.

ICT has unlocked economies of scale in many existing services and created new services similar to the way in which GPT [general purpose technologies], such as steam and electricity, transformed manufacturing and agriculture. Extending this analogy, ICT is the “steam engine of services”. (NZPC, 2014, p. 154)

ICT is highly disruptive, with dramatically shorter diffusion rates than previous technological advances. Shifts in ICT are hard to predict. This gives rise to “creative destruction” within a competitive market where the intensity of competition in a market is an important driver of productivity improvement (NZPC, 2014).

It has been argued that because the delivery of services such as education is labour-intensive, over time its productivity will suffer and costs will increase relative to other sectors of the economy (“Baumol’s cost disease”, Box 9). However, the potential for new technology to improve productivity is a challenge to this cost theory.

## Box 9 Two cost theories in higher education: Baumol's cost disease and Bowen's law

### Baumol's cost disease

Baumol's cost disease is the idea, first set forward by Baumol and William Bowen (1966), that the inability of some labour-intensive activities to substitute labour with technology (capital) would over time cause costs in such activities to rise relative to other activities. Baumol (1993) further argued that productivity growth is elusive in service industries because services are poorly suited to standardisation and (by implication) to substitution by technology; and because their quality depends (or is thought to depend) on the amount of human labour they involve.

Technological advancements are increasingly undermining Baumol's argument that services are not readily substitutable by technology, or that a service's quality depends on how much labour is involved in delivering it. For example, computer programs are increasingly able to personalise content or customise learning based on individualised assessments (such as e-asTTle in schools); and some argue that massive online open courses (MOOCs) offer the potential to radically increase the output of education without compromising quality (Box 10).

### Bowen's law

An alternative explanation for stagnant productivity in higher education was offered by Harold Bowen in 1980. "Bowen's law", or the revenue theory of costs, is comprised of a number of "laws":

1. The dominant goals of institutions are educational excellence, prestige, and influence.
2. In quest of excellence, prestige, and influence, there is virtually no limit to the amount of money an institution could spend for seemingly fruitful educational needs.
3. Each institution raises all the money it can.
4. Each institution spends all it raises.
5. The cumulative effect of the preceding four laws is toward ever-increasing expenditure.

...at any given time, the unit cost of education is determined by the amount of revenues currently available for education relative to enrolment. The statement is more than a tautology, as it expresses the fundamental fact that unit cost [i.e., the cost of education] is determined by hard dollars of revenue and only indirectly and distantly by considerations of need, technology, efficiency, and market wages and prices. (1980, p. 19)

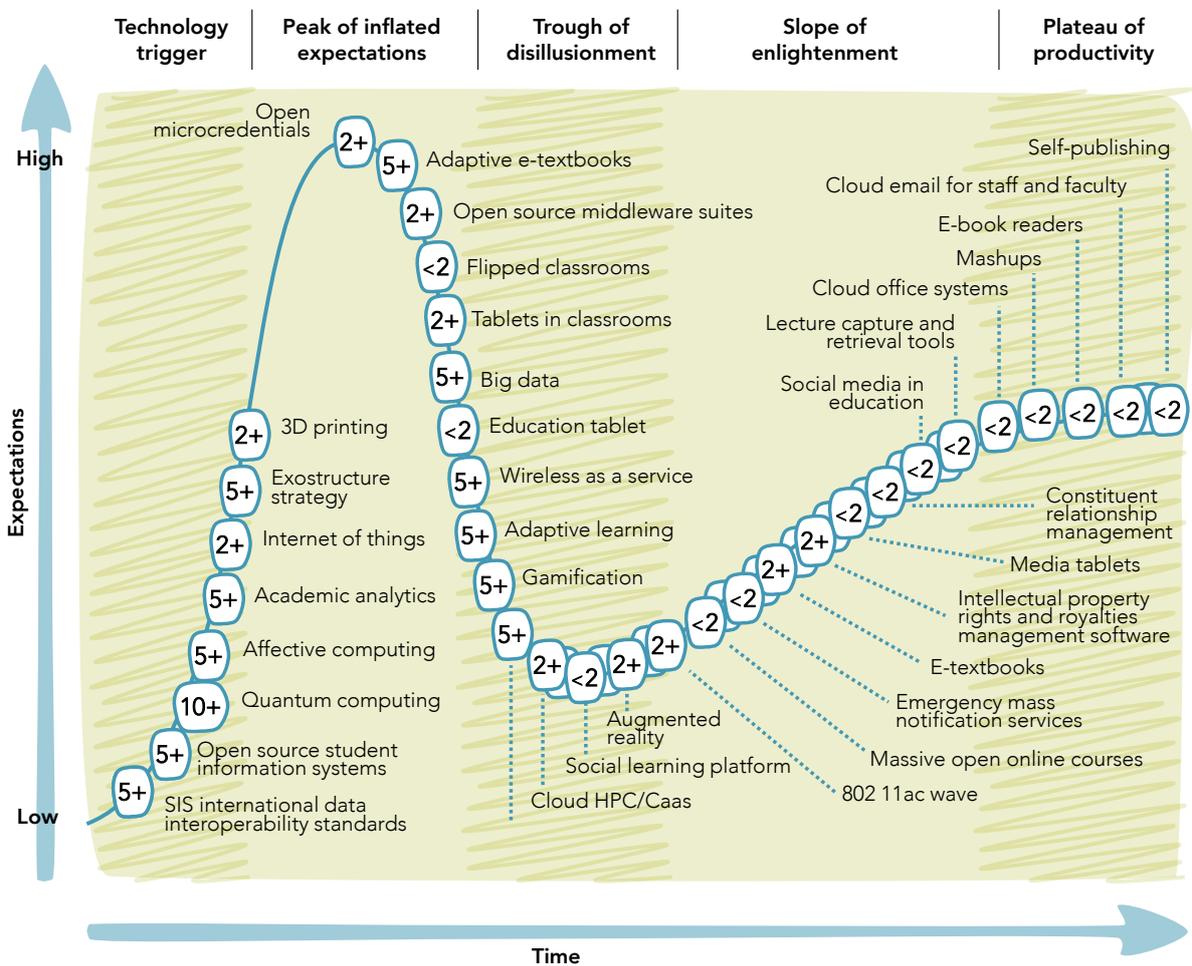
Bowen provided evidence that per-student costs varied between universities of otherwise similar size, reputation and offering, with the difference being the ability of schools to fundraise.

**Q41** How might Baumol’s cost disease or Bowen’s law (discussion of which tends to focus on providers like universities) apply in other parts of the tertiary education system?

### The hype cycle

The Gartner Group describe a “hype cycle” where new technologies move through five named phases. Figure 32 shows a mapping of education technologies onto the cycle. Education providers face the challenge of deciding which (if any) technologies deserve further attention. Notably, they will receive the most political pressure for a response when technologies are in the “peak of inflated expectations”, while any consequent benefits are most likely delayed until later phases.

**Figure 32 The hype cycle for education technologies**



Source: Adapted from University of Minnesota, 2016.

*Notes:*

1. The numbers (eg, “5+”) are an estimate of the number of years before the technology is widely adopted.



This hype cycle illustrates a number of points to do with the application of technology to tertiary education:

- The number of innovations in tertiary education is significant. Internationally, institutions are considering or adopting a wide range of technological innovations with the potential to deliver more effective or efficient education.
- There are many perspectives on the prospect for technological change to revolutionise, disrupt, or even complement existing models of tertiary education delivery. Many innovations have fervent advocates. Other sceptics point to similar historical claims that education would be revolutionised by cinema, radio, television, etc. and argue that contemporary claims for technology are similarly overstated.
- Many of the technological innovations that appear to be most widely adopted are in back-office functions – library services, student management systems, enterprise software, etc. – rather than in the delivery of learning to students.

The recent high profile of MOOCs provides a case study of an innovation to the delivery of education (Box 10).

### Box 10 **MOOCs**

Available technology has long supported distance education in the tertiary sector. In 2008 academics at the University of Manitoba offered a class that was free to join and open to anyone, and that combined the use of blogs, wikis, online discussion forums, on-demand audio and video, RSS, Moodle, Second Life, Facebook and other technologies. It was dubbed a Massive Open Online Course or MOOC.

MOOCs came to wider attention in 2012. That year saw a Stanford course offered for free online, with a reported 160 000 students from 190 countries participating. Over 2012 a number of private and not-for-profit MOOC providers were established, frequently in conjunction with established universities.

In 2013 one of these providers, Udacity, offered credits from San Jose State University for a MOOC, and announced an entirely MOOC-based master's degree from the Georgia Institute of Technology. The founder of Udacity predicted that within 50 years there might only be 10 institutions of higher learning in the world (Oremus, 2013).

By the end of 2013, however, enthusiasm for MOOCs was waning. Critics pointed to completion rates between 2% and 10%, the media asked if MOOCs were "already over" and the founder of Udacity then declared that they had a "lousy product" (Schuman, 2013). A number of studies suggested that most participants in MOOCs were already well educated and employed.

A 2015 report from Harvard and MIT on the first two years of their joint MOOC model, edX, noted that learner intentions are an important contextual factor in evaluating MOOCs. Completion rates were higher (20%) among learners who intended to earn a certificate, compared to those who were unsure or just browsing. It also found that payment of a small fee increased completion rates to those approximating traditional university delivery:

All it takes is a small financial commitment to bring open online course certification rates to percentages that seem more familiar in magnitude. Should payment be mandatory? Such a policy would conflict with the commitment to open access that has been the hallmark of MOOCs and their providers. The tradeoff between maximizing access and maximizing commitment to certification (and presumably, thereby, learning) can be informed by further research. (Ho et al., 2015, p. 31)

Subsequently, evolutions of the MOOC model (eg, NOOCs, GROOCs and HARVARDs) have proliferated.

The MoE and TEC (2014) consider that there are a number of implications of MOOCs in New Zealand:

- the potential to unbundle learning and accreditation; for example, allowing students to undertake courses for free, while paying for assessment and accreditation;
- the potential for New Zealand institutions to extend their brand and reach a large international audience, including through offering MOOCs as a “taster” to attract paying students, or offering courses that would otherwise be too niche to be viable;
- an opportunity to experiment with innovative pedagogical approaches;
- the opportunity for institutions to reduce costs;
- the ability for students to easily access learning in an area of their choosing;
- opportunities to better support continuing education and professional education for employers and employees.

It also noted a number of issues to be overcome, if MOOCs were to deliver on their potential benefits, including:

- questions around accreditation, regulation, and quality assurance, and the appropriate level of regulatory oversight from the government;
- issues around securing student data, and other legal and ethical obligations to students;
- establishing the financial viability of MOOCs; and
- other legal hurdles, including copyright and licensing issues.

A particular challenge for online delivery of education is that while it has the potential to improve productivity and improve access for students, there is also good evidence that establishing positive peer and student-teacher relationships are important elements of success for some population groups who experience worse tertiary education outcomes than other groups (eg, Chauvel & Rean, 2012; Chu, Abella & Paurini, 2013). This will be a key challenge for providers exploring new models in a New Zealand context, given consistent government priorities to increase participation and achievement in tertiary education for these groups.

**Q42****What specific technologies should the inquiry investigate? Why?****Q43****What parts of the tertiary education system are challenged by ongoing technological change? What parts can exploit the opportunities created?**

## Trends in internationalisation

Staff, students, teaching materials, qualifications and research can all move across borders and these factors have become more mobile over time. Their mobility creates pressure for standardisation; so, for example, a bachelor's degree conferred in one country means something equivalent in other countries. Standardisation further enables and encourages factor mobility.

Factor mobility has increased the competitive pressure on tertiary providers. They now compete in an international market for both staff and students.

In the past the tertiary education system in New Zealand has been described as ill-equipped to respond to or capitalise on increasing trends in global mobility.

Without a culture of internationalisation and without integrated approaches to internationalisation, New Zealand tertiary education institutions generally lack an institutional base for internationalisation. (MoE, 1998, p. 20)

Tertiary education providers in New Zealand have always had international connections. For example, Victoria University of Wellington "imported" its founding professors from Britain in 1899 (Barrowman, 1999).

More recently, it has become technologically possible to deliver teaching across borders. Similarly, free trade agreements have enabled the creation of multinational educational institutions.

## Trade in tertiary education services

The General Agreement on Trade in Services classifies international services trade into four different modes. These apply to both the import and export of educational services, creating eight combinations (Table 3).

**Table 3 Cross-border trade in education**

Mode		Import example		Export example
1: Direct trade		A New Zealand student accesses a US-based MOOC		A New Zealand provider sells course materials to an overseas educational institution
2: Consumer travel		A New Zealander travels to study at an Australian university		An Indian student travels to study at a New Zealand polytechnic
3: Commercial presence		A foreign provider opens a campus in New Zealand		A New Zealand provider opens a campus in Vietnam
4: Supplier travel		A British consultant travels to New Zealand to assess a provider's performance towards an international accreditation.		A New Zealander travels to Hong Kong to deliver a paid lecture

Mode 2: export education, where international students travel to New Zealand for study, is a significant industry for New Zealand. It receives the majority of public and policy attention. However, all combinations are potentially influential in shaping the tertiary education system. The sections that follow discuss this and some other specific combinations.

Tertiary education has become an international industry. It is a significant export industry for New Zealand, and generates much revenue for providers. In common with other trade-exposed industries, it is subject to variability in demand, driven by changing preferences, competition from foreign suppliers, trade barriers and varying exchange rates. While never comfortable, other trade-exposed industries have generally adapted to such volatility, adopting various mechanisms that reduce and share supplier risks. Building a reputable brand based on customer service and consistent quality is such a mechanism.

This demand variability can sit uncomfortably with a conception of purpose centred on tertiary education for domestic students (Chapter 3). Within such a conception, export education might be a risky "add-on" that threatens the system's ability to meet its purpose.

### **Inbound international students**

International education is one of New Zealand's largest exports. In 2014, more than 54 000 international students were enrolled at tertiary providers. International education also has indirect benefits, including strengthening New Zealand's economic, social and cultural links with the rest of the world.

The number of international students enrolled in New Zealand tertiary providers has been a strong feature of recent years (Table 4).

**Table 4 International students in New Zealand TEIs**

Institution type	Number of international students, 2014	Change in number of international students, 2005-14	Revenue from international students, 2014	Average revenue per international student, 2014	Change in revenue from international students, 2005-14
Universities	24 956	-12%	\$343.4m	\$13 760	-1%
ITPs	14 151	24%	\$117.8m	\$8 325	37%
PTEs	15 364	20%	\$124.1m	\$8 077	105%
<b>Total</b>	<b>54 471</b>	<b>4%</b>	<b>\$585.3m</b>	<b>\$10 745</b>	<b>18%</b>

Source: MoE, n.d.a; n.d.b; n.d.c.

*Notes:*

1. Revenues are per student. The average revenue per EFTS would be larger.

For universities, the number of fee-paying international students peaked in 2004, declined between 2005 and 2008, but has since been relatively stable. There has been an increase in international doctoral students over the last decade. These doctoral students pay the same fees as domestic students (because of New Zealand Government subsidies), which likely has contributed to this increase.

Commentators have identified a number of risks that New Zealand providers face in serving the international student market.

- The rapid rise in the availability and quality of education in the home countries of international students could make domestic study more attractive. Marginson (2011a) argued that “[o]n present trends the level of education and research infrastructure across the whole of East Asia ... will reach that of Western Europe within a generation” (p. 609).
- The size of younger age cohorts across East Asia is declining. China’s college-aged cohort will decline from 137 million in 2010 to 109 million in 2020. However, the size of this age cohort will continue to grow in South Asia (Sharma, 2012).
- There is a risk of decline in the international ranking of New Zealand universities. An MoE (2014) report analysing trends in international university rankings found a mixed picture, concluding that “the rise in rankings of universities from Asia appears to be having a displacement effect on the Australasian universities” (p. 37).
- Successful online distance education models may reduce the desirability of travelling for education (Chapter 5).
- Competition from providers in other countries could erode the market share of New Zealand providers. Australia, Canada, the United Kingdom and the United States are all English-speaking countries, with developed education systems catering to international students. Other countries such as Ireland and the Netherlands aspire to increase the number of incoming international students.

Even given these risks, there are also significant benefits from the revenue and other contributions that international students bring to New Zealand (Chapter 3).

The issues are different for those PTEs that largely or wholly serve the international student market.

### **Outbound domestic students**

A trend of increasing student mobility also affects domestic students. Those with sufficient resources have the option of pursuing tertiary education in other countries. This has long been a feature of postgraduate education in New Zealand, and may be increasing at the undergraduate level. It is most likely to apply to very capable of students. Australia is the most common destination – possibly influenced by reciprocal arrangements that mean students pay domestic fees in the other country.

### **Educational services and products**

Education New Zealand (n.d.) reported that the 2012/13 export value of education services and products was \$103.9 million. (It defines “education services and products” as “any activity that derives export revenue from educational services and products consumed outside New Zealand, including publications, consulting, software and distance education”.)

### **Offshore course delivery by New Zealand providers**

Many of New Zealand’s tertiary providers sell tertiary education products and services overseas, with about 3% of international students studying offshore (Education New Zealand, 2015). Such delivery is presently a small part of New Zealand’s educational exports. But concerns about the future demand for onshore international education has caused providers to increasingly focus on the potential expansion of offshore delivery.<sup>23</sup>

The offshore delivery of education can be by any of mode 1 (distance education, including MOOCs), mode 3 (through the establishment of a commercial presence in another country), and mode 4 (through New Zealand staff delivering the education service in the foreign country). In recent years, trade agreements have expanded the access of New Zealand institutions to overseas education markets.

Data on programmes offered by New Zealand institutions offshore are sketchy, and there appears to be considerable “churn” in ventures. MoE (n.d.a, n.d.b, n.d.c) reported that in 2014 six out of eight universities were “involved in offshore delivery”, which included bilateral credit recognition. The number of offshore enrolments was only 1 222 students, though universities reported plans to expand offshore delivery. There were increased offshore enrolments in ITPs, and a small yet growing number of offshore enrolments in PTEs. There are around 3 000 offshore enrolments in total across TEIs.

Offshore provision constitutes a relatively small share of export education compared to Australia and the United Kingdom.

### **Competition for staff**

New Zealand tertiary education providers compete in an international market for staff, particularly for professional staff. For example, half of the academic staff of universities are

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<sup>23</sup> There is uncertainty about the degree to which inbound international students and offshore delivery can be considered substitutes, or distinct markets (Tsiligiris, 2014).

recruited from other countries (Universities New Zealand, 2014). This can put pressure on provider costs and has implications for staff quality (eg, see Boyle, 2008).

**Q44**

**How has internationalisation affected New Zealand’s tertiary education system? What are the ongoing challenges and opportunities from internationalisation of the tertiary education system?**

## A New Zealand education brand

Ultimately, individual providers deliver tertiary education so each must tend to its own reputation. However, they share parts of that reputation:

- Regulatory settings such as immigration are set at a national level. Visa conditions and access to work are particularly important for staff and students moving to New Zealand. Similarly, the “New Zealand experience” of life in this country is largely independent of specific tertiary institutions.
- Tertiary education providers share a “New Zealand” brand to the extent that exemplary (or bad) performance by one provider indirectly affects the reputation of others.
- Students tend to choose a course, then country, before choosing a provider. The national or collective educational reputation influences this choice of country, along with other national characteristics such as lifestyle, climate, proximity, cost of living, and language.

Providers therefore share an interest in managing the collective brand, and have an interest in each other’s performance.

**Q45**

**Is the “New Zealand” brand an important part of international competition for students, staff, and education products and services? What should providers and government do to manage or enhance this brand?**

## Other trends

This survey of trends is preliminary and the Commission seeks to widen its understanding of these and other trends and their current and future implications for the tertiary education system.

**Q46**

**What other trends provide challenges and opportunities for the tertiary education system?**

Not all trends will be equally important. The Commission also seeks information about their relative influence.

**Q47**

**What trends are likely to be most influential for the tertiary education system over the next 20 years?**

# 5 New models

## New models in the tertiary education system: A typology

Chapter 4 outlined past and forecast trends in the tertiary education system, in society and the economy, and discussed the risks, challenges and opportunities they create for the tertiary education system and its participants.

“New models” describes the range of feasible responses to these changes. Just as different types of participants in the system face different types of change, the responses available to them are similarly varied.

This chapter presents illustrative examples of new models from New Zealand and overseas.

### What is a “model”?

In the context of this inquiry, a “model” is a way of organising the production of tertiary education or the relations between system participants to achieve a defined goal or goals. This description is deliberately wide, as the Commission does not want to constrain unnecessarily the types of models considered by the inquiry.

### What is “new”?

“New” means not in currently in common use. New does not mean newly invented, or dependent on new technology. A “new model” might be new to the world, new to a country, new to an industry or new to a specific organisation. It could even be a resurrection of an old or previously abandoned model, made relevant by a change in circumstances.

Inherent in newness is uncertainty and therefore the likely necessity of experimentation, testing and adaption to local, and current, conditions.

### Types of new models

The new models relevant to this inquiry can be split into several categories (Table 5).

**Table 5 A categorisation of new models**

Category <sup>1</sup>	Description	Examples
production technologies	improved ways of delivering education	flipped classroom, MOOC
consumption technologies	improved ways of consuming education	viewing a lecture from home
pedagogies	improved methods of teaching and learning	software that individualises its responses to each student’s learning strengths and weaknesses



Category <sup>1</sup>	Description	Examples
new products	introducing a product not currently available in the market	nanodegrees; training in and assessment of non-cognitive skills
new markets	attracting unserved or under-served customers	African students
bundling of production	producing multiple products using shared resources	an organisation produces research, teaching, assessment and credentials using non-specialised staff and real estate
bundling of consumption	offering a package of related services to the customer	a package of teaching and student accommodation
unbundling of production	producing products independently	separate research and teaching institutions
unbundling of consumption	allowing customers to separately purchase previously bundled products	a degree consisting of courses from multiple providers
service model <sup>2</sup>	changes to who specifies service parameters, who produces the service and how market share is allocated	a “managed market” in which the government specifies the quantity produced by each provider <sup>3</sup>
system architecture	types of participants and formal and informal relationships between participants	wānanga
funding arrangements	changing who gets rewarded for doing what	funding rates that vary based on assessed performance
contracting arrangements	changes to contracting for inputs, including labour	tenure arrangements
business model	the activities undertaken by an organisation and basis for its financial sustainability	an online course provider that charges for assessment and credentials, but not for teaching
institutional governance	changing who makes decisions about what	composition rules for ITP councils
measurement systems	refinement of performance proxies to better match desired outcomes	international university rankings
matching processes	a closer match between what is produced and what is desired	employer involvement in course design

*Notes:*

1. This categorisation is preliminary and not comprehensive.
2. See NZPC (2015) for the service models applicable to social services.
3. Market shares can change over time, in response to the government’s assessment of provider performance.

The adoption of a new model in one category may create consequent changes that encourage or discourage new models in other categories. For example, the successful introduction of an unbundled product can sometimes undermine the business model of providers offering that product only as part of a bundle (Armstrong, 2014a).

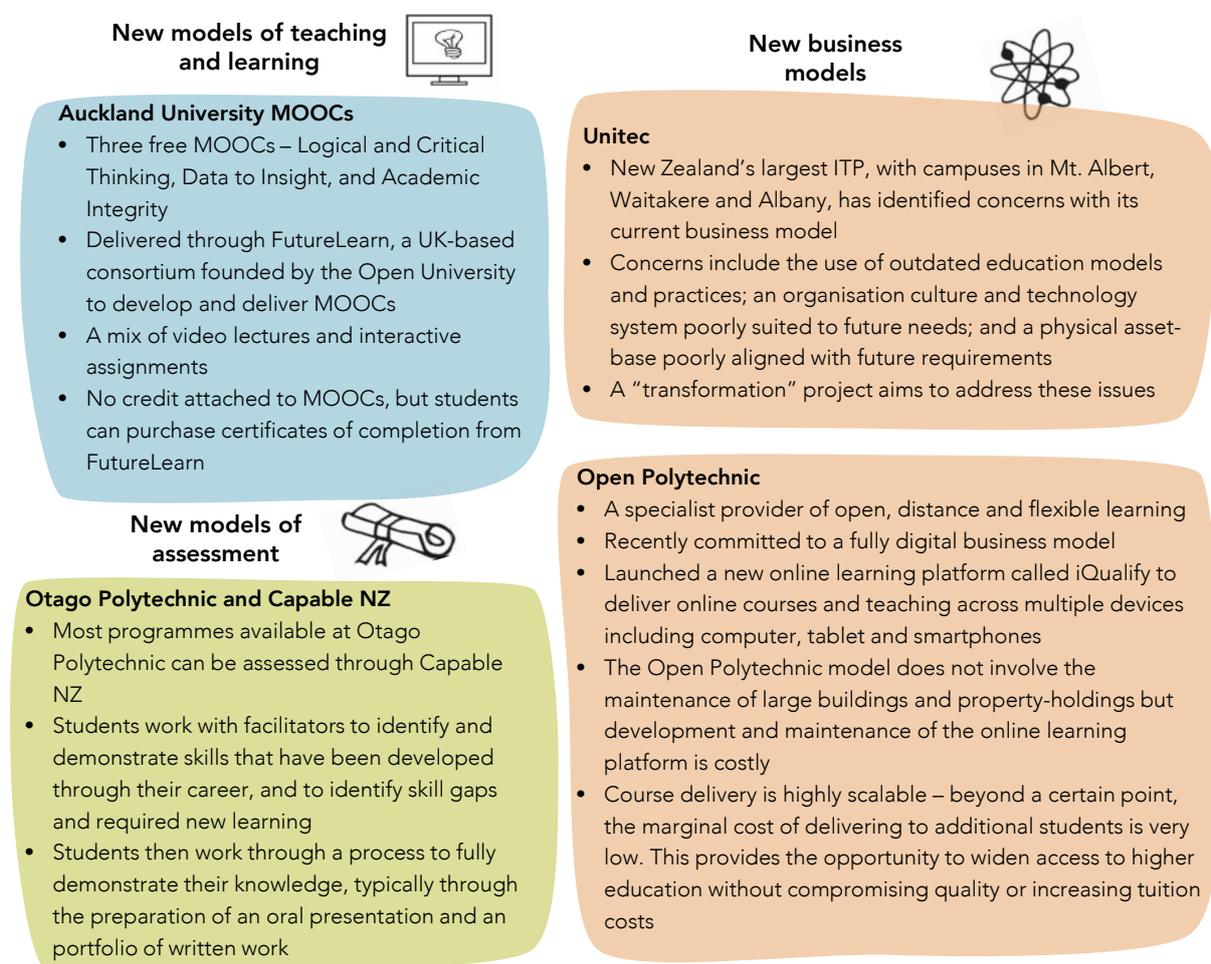
Q48

**Are there other important types of new model that should be included within the scope of this inquiry?**

## Some examples of new models

Figure 33 lists a small selection of new models being trialled or adopted by New Zealand tertiary providers.

**Figure 33 Selected new models at New Zealand tertiary providers**



Source: University of Auckland, 2014b; Capable NZ, 2016; Unitec, 2015; Open Polytechnic, 2016.

Q49

**What new models of tertiary education are being implemented in universities, ITPs, PTEs and wānanga? How successful have they been?**

Q50

**Are current quality assurance and accountability arrangements robust enough to support a wide range of new models?**

Q51

**How might new models of tertiary education affect the New Zealand brand in the international market for tertiary educations, students, education products and services?**

The Commission is also interested in new models being trialled or adopted by tertiary education providers in other jurisdictions (Box 11).

### Box 11 **Selected new models at overseas tertiary providers**

#### **Improving student outcomes with data-driven advising and intervention**

Georgia State University (GSU) is a public research university with a total enrolment of 33 000 undergraduate students. GSU's six-year graduation rate has increased from 32% in 2003 to 54% in 2014, while at the same time significantly increasing the share of students from lower socio-economic backgrounds. Much of this improvement has been attributed to GSU's innovative use of student data, which are used to identify barriers to student progression and graduation.

GSU has developed a database based on more than 10 years' worth of academic data. The database displays real-time information about the academic progress of each student. The system includes over 800 alerts "signalling everything from registering for a class that does not count towards a designated major to receiving a low grade in a pre-requisite class for that major". This allows student advisors to proactively contact students and intervene to help resolve issues before they become acute. Another example of a data-driven intervention was the establishment of "retention grants". These grants provide relatively small-scale financial assistance to students who were at risk of dropping out for financial reasons, despite being very close to graduating (Kurzweil & Wu, 2015).

#### **Nanodegrees and job guarantees, Udacity**

In 2013 and 2014, three of America's largest MOOC providers (Udacity, edX and Coursera) all switched from issuing single course certificates, to issuing credentials that require students to complete a sequence of courses. The aim of these credentials is to provide a signal of competence for skills that are in demand in the workplace (Class Central, 2015).

For example, Udacity offers 12 information technology related programmes called nanodegrees. Each nanodegree costs \$199 a month, and takes between 6 and 12 months to complete. Students who complete the programme receive a refund of 50% of their tuition fee. The individual courses that make up a nanodegree are free; however, only students enrolled in a paid programme earn the credential.

In January 2016, Udacity launched "Nanodegree Plus", which costs \$299 a month and includes a Career Advisor programme and "Career Concierge" services (Udacity, 2016).

The programme includes a “job guarantee” – course fees are refunded if students have not gained employment within six months of completing the programme.<sup>24</sup>

### **New pedagogical models, University of Adelaide**

The University of Adelaide’s strategic plan noted that the landscape for tertiary education will become more challenging over the next decade – as a result of changes including technological progress, globalisation, increased competition for students, and less stability of government funding for universities. As part of their response to these challenges, the University of Adelaide has committed to “small-group discovery experience” as a central part of their students’ learning. This approach seeks to accomplish the following goals:

- students will discover (or rediscover) learning as Intellectual Challenge, and develop a Scholarship of Discovery to inspire them toward learning and lifelong learning
- to accomplish this learning journey, students will develop research skills
- learning and teaching delivery modes used will require students to engage actively with their discipline content. And this active learning process will engender
  - a commitment to knowledge for its own sake, and consequently
  - learning to follow an investigation, in a disciplined fashion, wherever it may lead. (University of Adelaide, 2015)

The university identified many challenges associated with implementing this new approach including:

- finding ways to recognise and reward staff who wish to contribute more to teaching than research;
- re-thinking the way that the university makes use of lecture theatres and other teaching spaces; and
- innovative use of the university budget, including significant investment in information technology and e-learning facilities.

The university also identified a need to assist staff to adapt to new ways of working. For example, using “flipped classrooms”, where lectures and other forms of preparation are put online for students to access before coming to a class, and class time is spent engaging with the material in a more interactive manner (University of Adelaide, 2012).

### **Teacher training for vocational education, Denmark**

A recent legislative change in Denmark introduced new training requirements for teachers delivering vocational education. Within four years of employment, vocational teachers must acquire skills that, as a minimum, correspond to a completed pedagogical diploma programme. The training programme is provided by the National Centre for Vocational Pedagogy (Nationalt Center for Erhvervspædagogik), which specialises in vocational pedagogy. The programme requires the equivalent of one year of full-time study. However, this is generally conducted part-time in conjunction with gaining practical teaching

<sup>24</sup> Conditions apply; for example, a “job” can include internships, freelancing or working as a grader at Udacity.

experience. The National Centre for Vocational Pedagogy also provides education courses for vocational education teachers, such as specific programmes on teaching adults.

The objective of the new requirement is to improve the teaching skills of those at vocational training providers to a level equivalent to teachers in compulsory education (where a bachelor's degree is required). In a broader sense, setting minimum pedagogical training standards is hoped to contribute to the government's goal of a 95% completion rate in vocational education (European Centre for the Development of Vocational Training, 2015).

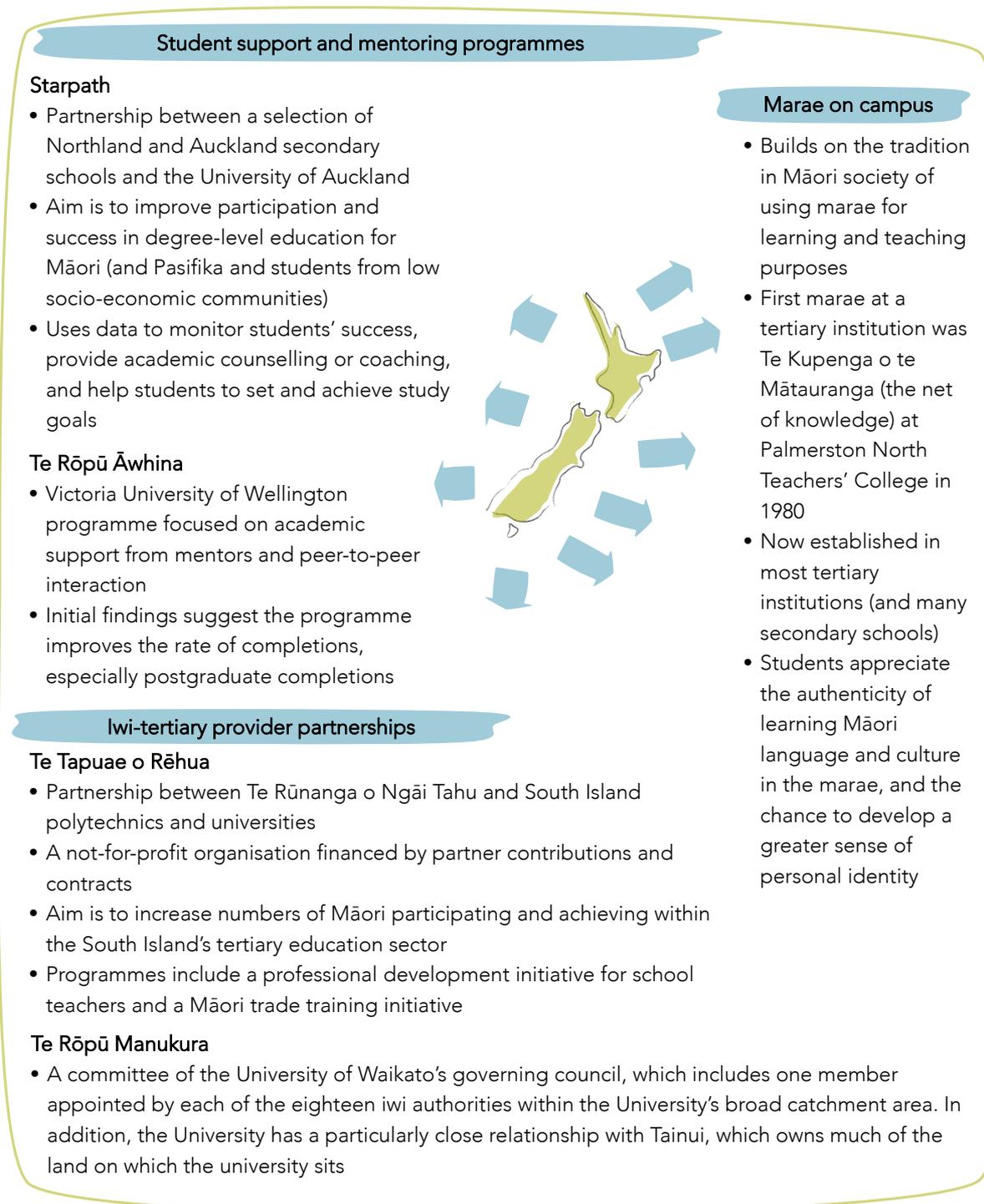
**Q52**

**What can be learnt from the tertiary education systems of other countries? Are there models that could be usefully applied here?**

### **Models focused on priority groups**

The terms of reference require the Commission to “investigate opportunities through new tertiary models to improve access, participation and achievement in tertiary education of priority groups such as: Māori and Pasifika; at-risk youth; and those with limited access to traditional campus-based provision”.

Access to tertiary education by priority groups is a longstanding concern. Nearly every tertiary provider has multiple initiatives in place. Figure 34 describes a selection of ways that tertiary providers, iwi and local communities have tried to address the educational and cultural aspirations of Māori students. The examples indicate the breadth of activity. They also demonstrate that a “new” model can benefit from traditional institutions such as marae.

**Figure 34 Selected tertiary education models tailored to Māori students**

Source: Cram et al., 2014; Adds et al., 2011.

**Q53**

**What measures have been successful in improving access, participation, achievement and outcomes for Māori? What measures have been less successful? Why?**

**Q54**

**What measures have been successful in improving access, participation, achievement and outcomes for Pasifika? What measures have been less successful? Why?**

**Q55**

**What measures have been successful in improving access, participation, achievement and outcomes for at-risk youth? What measures have been less successful? Why?**

**Q56**

**What measures have been successful in improving access, participation, achievement and outcomes for those with limited access to traditional campus-based provision? What measures have been less successful? Why?**

**Q57**

**What measures have been successful in improving access, participation, achievement and outcomes for people with disabilities? What measures have been less successful? Why?**

**Q58**

**What measures have been successful in improving access, participation, achievement and outcomes for adults with low levels of literacy or numeracy? What measures have been less successful? Why?**

## 6 Creating an innovative system

### Innovation happens where innovators think the likely benefits of trying something new outweigh the likely costs

The adoption of successful innovations is essential to producing more and better with fewer inputs – that is, to productivity growth. Christensen et al. (2011) stated that “the goal of policy should be to unleash innovation by setting the conditions for good actors that improve access, quality, and value – be they for-profit, nonprofit, or public – to succeed” (p. 50).

However, innovation of all types requires experimentation (trying something without being sure how it will work – sometimes over and over). Innovation is inherently risky, and has costs as well as potential benefits. When people are thinking about trying something new, in tertiary education as in all other situations, they weigh the expected benefits against the expected costs. They will go ahead only if the resulting calculation is satisfactory to them. In this, their decision is influenced not just by the expected outcomes, but also by their appetite for risk.

The terms of reference for this inquiry suggest that there is “considerable inertia” in the current system and ask the Commission to:

[i]dentify the potential barriers to innovation that could be addressed by government and providers to increase the benefits from adopting new models of tertiary education. This will include for example:

- Policy and regulatory settings that govern tertiary providers.
- The risks perceived by tertiary providers that may make them slow to innovate and develop alternative delivery models.
- Internal change by tertiary providers and their sector bodies.

The Commission seeks submitters’ views on what features of the tertiary education system currently encourage or discourage innovation, where the balance of risk lies for different actors in the system, and what might happen if system settings were changed to shift that balance.

Also, given that changes to a system often result in unintended consequences, the Commission is interested in hearing submitters’ views about what unintended consequences might arise, or have already arisen, from system-level changes aimed at fostering innovation.

#### **Is it ethical to experiment on students?**

Experimentation in tertiary education could create risks for other parties, especially students. Such risks are sometimes used as an ethical argument against experimentation. A counter argument is that it is unethical not to seek improvement in a system that performs poorly on some dimensions, and that improvements cannot be made without some risk to other parties.



This risk can and should be minimised through close monitoring and the rapid termination or modification of poorly performing experiments.

**Q59**

**How innovative do you consider the New Zealand tertiary education system is? Do you agree that there is “considerable inertia” in the system compared to other countries? If so, in what way and why?**

**Q60**

**What are the factors associated with successful innovation in the tertiary education system?**

**Q61**

**What are the benefits to innovators in the tertiary education system? What challenges do they face in capturing these benefits?**

**Q62**

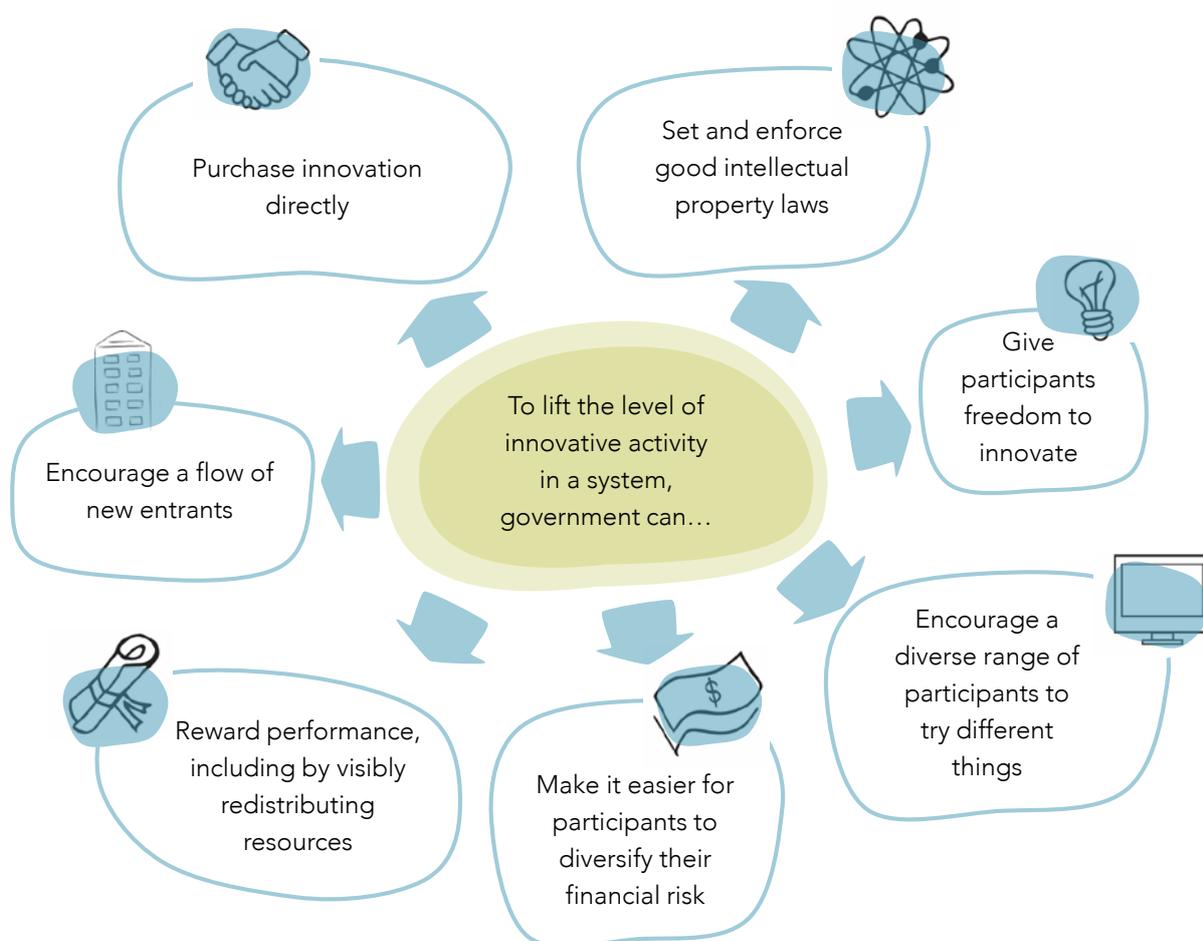
**What are the barriers to innovation in the tertiary education system? What might happen if those barriers are lowered?**

**Q63**

**How well do innovations spread in the tertiary education system? What helps or hinders their diffusion?**

## **Governments can change the equation of benefits versus costs**

A government can increase innovation in a system by lowering the costs to participants of innovating, raising the expected benefits, or encouraging a greater appetite for risk. Some types of intervention will do all three at once. Figure 35 shows the main ways in which government can do this.

**Figure 35 How government can lift the level of innovative activity in a system**

This chapter elaborates on each of these, and asks about how they apply in New Zealand's current tertiary education system.

Many of the approaches interact with one another or are co-dependent; but it is not necessary for all features to be present for innovation to happen.

### Government can purchase innovation directly (where problems are well-defined)

A government can directly purchase innovative activity from participants, and so cover the participant's costs and reward them via payment.

This can work well when problems are well-defined, the set of possible solutions is small, and the political risk is low. However, relatively few of the challenges facing the tertiary education system are like this.

A government can also purchase innovative *capacity* by having funding that is expressly for experimental activity. Performance expectations for this kind of funding need to create meaningful incentives to succeed, without penalising failure to the extent that innovators are not willing to take risks.

## What is the situation in New Zealand's tertiary education system?

The TEC used to administer an application-based contestable fund, "Encouraging and Supporting Innovation", whose stated purpose was to "promote innovation in the tertiary education sector" (New Zealand Treasury, 2010, p. 127). This fund was halved in size in 2009, from \$16 million to \$8 million, and then disestablished at the end of 2010.



**Q64**

**How successful was the Encouraging and Supporting Innovation fund in promoting innovation in the tertiary sector? What evidence supports your view?**

The Commission is not aware of any current examples in the New Zealand tertiary education system of the government directly purchasing innovative activity or innovative capacity.

**Q65**

**Are there examples where the New Zealand Government has directly purchased innovation or innovative capacity in tertiary education? If so, was it successful?**

## Government can encourage a flow of new entrants

New entrants in a system often have more to gain, and less to lose, than incumbents – especially in terms of reputation (which is relatively important in tertiary education). New entrants are also more likely to favour disruptive innovation than are incumbents, who prefer innovations that reinforce their current business model (Christensen et al., 2011). Incumbents' resistance to disruptive innovation can include using their political influence to encourage regulatory barriers to entry.

Allowing in new entrants may also help to lift the average "appetite for risk" in the system. People tend to weigh losses more heavily than gains (Kahneman & Tversky, 1979); so, the less that someone has to lose, the more risk they are likely to accept to get any given reward.

## What is the situation in New Zealand's tertiary education system?

### Entry barriers at the whole-of-organisation level

Entry barriers for new TEIs in New Zealand are very high because TEIs are Crown entities. In addition, any new provider registered with NZQA and wanting to call itself a university, college of education, polytechnic, or institute of technology must apply to the responsible minister for permission to use these terms. This effectively prevents private universities from trading as such in New Zealand (unless they choose not to register with NZQA and forego the use of the term "university").



The barriers to market entry are lower for PTEs. They must apply to NZQA for registration and renew it each year.

Entry to the market by a PTE, in terms of being registered with NZQA, does not guarantee access to TEC funding (which carries with it access to student loans and allowances). A new PTE may struggle to compete for funding with incumbents whose prior performance is known to the TEC. Most market entry of the TEC-funded PTEs reportedly comes from the purchase, by new investors, of existing TEC-funded PTEs, rather than new organisations receiving funding. TEC data show that very few PTEs receive TEC funding for the first time each year (Table 6).

**Table 6 Entry and exit of PTEs to TEC-funded provider market, 2009–2016**

	New PTEs registered with NZQA	PTEs funded by TEC for the first time	TEC-funded PTEs whose funding ceased	Previously funded PTEs accessing TEC funding again after one year or more of no TEC funding
<b>2009</b>	19	6	30	2
<b>2010</b>	15	6	22	2
<b>2011</b>	11	12	33	1
<b>2012</b>	10	6	29	1
<b>2013</b>	12	6	20	3
<b>2014</b>	13	1	41	0
<b>2015</b>	16	6	24	1
<b>2016</b>	1	4	16	4

*Source:* Tertiary Education Commission.

*Notes:*

1. TEC advises that, due to the way this information is recorded, the numbers in this table may vary slightly from the true count but will be a close approximation.
2. Information about the number of new PTEs registered with NZQA in each year was provided to the TEC by NZQA.
3. It is possible for a single PTE to appear multiple times in this table. For example, a PTE could register with NZQA in 2009, receive TEC funding for the first time in 2010, have its funding cease in 2013, and receive TEC funding again in 2016 – and so be represented in every column.

ITOs, before they can receive TEC funding, must be recognised by the responsible minister as having the support of a sufficient proportion of the industry for which they seek coverage. The number of ITOs has reduced from 39 ITOs to 11 in recent years, as organisations merged to gain capability and economies of scale. Most of the change has been straightforward aggregation, though ITO boundaries have shifted when one ITO has successfully applied for an “extension of coverage”.

**Q66**

**How easy or hard is it for a new provider or ITO to access TEC funding?**

### Entry barriers at the course, programme, or qualification level

A new programme or qualification cannot receive TEC funding until it has been approved by Universities New Zealand (via CUAP, for universities) or NZQA (for all other providers). The Commission has heard that these approval processes can take a long time, and – in the case of CUAP – that the people approving a new programme or qualification are sometimes in direct competition for students with those who submitted it, creating a conflict of interest.

**Q67**

**Does the programme or qualification approval process via NZQA or CUAP enable or hinder innovation? Why?**

“Market entry” at the course or faculty level can be roughly measured by looking at changes in the number of graduates across different fields of study. Smart (2016) found that there was more volatility in certificates at levels 1–2 than at higher levels, where the distribution was relatively stable. However, there was a significant increase in the proportion of graduates in STEM subjects at degree-level and above.

In some fields of study, barriers to entry arise from government funding caps, for example for veterinary education or medicine. In the case of Initial Teacher Education, there has been a moratorium since 2000 on funding new or significantly modified programmes. The responsible minister can approve exemptions to this, as with the purchase by the MoE of a small number of “exemplary” postgraduate programmes from 2013.

### Government can reward performance, including by redistributing resources

The biggest impact on productivity comes not from making individual firms more productive, but from re-allocating resources away from those that are less productive, and toward those that are more so (NZPC, 2014; 2015).

However, there are still benefits in making firms more productive; and rewards for good performance are important in incentivising this. In a competitive system, if participants know that an innovative competitor will be reliably rewarded over time for their improved performance, then they will see the potential benefits of innovating as higher, along with the risks of not innovating. Similarly, if new entrants to a system can see that they will be rewarded for doing better than incumbents, then their incentives to innovate will be stronger.

Rewards do not have to be financial. People and organisations have different motivations; for example, greater market share, increased profits, greater autonomy or better fulfilment of a mission.<sup>25</sup> The most effective rewards are those that the participant values most. For some rewards, such as autonomy, one person having more does not mean that someone else must have less. In these cases, the reward on offer can still incentivise innovation (because there is still something valuable to be gained); but there is no added motivation to “beat the competition” to avoid a future loss.

<sup>25</sup> “Increased profits” can be a motivating factor for not-for-profit organisations, as profits represent extra resources that can be devoted to the organisation’s mission. Further, failure to make profits will threaten an organisation’s viability over the medium to long term.

## What is the situation in New Zealand's tertiary education system?

It is unclear how much or where New Zealand's tertiary education system responds to performance. This is partly because performance is often hard to measure and measurements are contested; and partly because many decisions about resource allocation are not visible from the centre (Chapter 3).



However, some data are available on the redistribution of financial rewards (in the form of EFTS) among providers, as outlined below. There is also evidence that the PBRF is successful at lifting the measured performance of tertiary education research (Smart & Engler, 2013).

In addition, the Performance-Linked Funding policy (TEC, 2015c) has resulted in financial penalties for some providers. The policy attaches 5% of a provider's Student Achievement Component 3+ funding to performance against four educational performance indicators: course completion, qualification completion, progression, and retention.

Q68

**What impact has Performance-Linked Funding had on providers' incentives to innovate?**

### How effective is student choice as a means of moving funding between providers?

Some aspects of the system make it difficult to know how important students' choices about which provider to enrol with are in shifting resources within the system, or the extent to which such shifts are driven by students' judgements about provider performance.

- **Funding caps have constrained visible demand.** TEC funding is largely enrolment-driven, so if students do not enrol then a provider is likely to lose funding. But funding is also capped, and until recently providers have faced weak incentives to deliver over their cap, making it difficult to see "latent" student demand for their provision. The government has responded to this by announcing that, from 2016, eligible providers can receive up to 102% of their funding cap if they over-deliver (Minister for Tertiary Education, Skills and Employment, 2015).
- **Students face costs in switching providers.** Recognition between providers of one another's learning credits is inconsistent. Therefore, even if a student comes to view another provider as better, they may be reluctant to shift if they have to repeat learning. NZQA's Credit Transfer and Recognition project is looking at ways to promote the recognition of prior tertiary education via agreements between providers (NZQA, 2015a).
- **Students' enrolment choices are influenced by access as well as quality.** Even if a student does judge there to be a quality difference between providers, their ability to enrol at their preferred provider will often depend on their willingness to travel to study, or to study by distance learning – especially at higher levels of study, or outside the main centres. If a student has strong preferences about studying close to home, this weakens the effectiveness of student choice as a driver of performance-based redistribution in the system.

### Funding shifts between tertiary providers

Table 7 shows that funding shifts between TEIs since the introduction of Plan-based funding in 2008 have been very small.

**Table 7 Distribution of SAC 3+ funding between TEIs, 2008–2014**

	% share of SAC level 3+ funding				% point change in share of SAC level 3+ funding		
	2008–2010	2011–2012	2013–2014	2015–2016 <sup>1</sup>	2008–10 to 2011–12	2011–12 to 2013–14	2013–14 to 2015–16 <sup>1</sup>
University of Auckland	15.2%	15.2%	15.6%	16.2%	0.0%	0.5%	0.5%
University of Waikato	3.7%	3.7%	3.7%	3.6%	0.1%	0.0%	-0.1%
Massey University	8.1%	7.7%	7.7%	7.5%	-0.4%	0.0%	-0.1%
Victoria University of Wellington	7.0%	6.8%	6.7%	6.7%	-0.2%	-0.1%	0.0%
University of Canterbury	6.3%	6.3%	6.2%	6.3%	-0.1%	0.0%	0.1%
Lincoln University	1.3%	1.3%	1.4%	1.5%	0.0%	0.2%	0.0%
University of Otago	11.2%	11.3%	11.2%	11.4%	0.1%	0.0%	0.2%
Auckland University of Technology	6.6%	6.8%	7.0%	7.3%	0.3%	0.2%	0.3%
<b>All universities</b>	<b>59.3%</b>	<b>59.1%</b>	<b>59.7%</b>	<b>60.5%</b>	<b>-0.3%</b>	<b>0.6%</b>	<b>0.8%</b>
Aoraki Polytechnic	0.7%	0.5%	0.3%	0.1%	-0.1%	-0.2%	-0.2%
Bay of Plenty Polytechnic	1.0%	1.1%	1.0%	1.0%	0.0%	-0.1%	0.0%
Unitec New Zealand	3.6%	3.7%	3.4%	3.3%	0.2%	-0.3%	-0.1%
Christchurch Polytechnic Institute of Technology	2.3%	2.2%	2.3%	2.5%	-0.1%	0.1%	0.2%
Eastern Institute of Technology	1.2%	1.2%	1.3%	1.2%	0.0%	0.0%	0.0%
Wellington Institute of Technology	1.2%	1.3%	1.2%	1.1%	0.0%	-0.1%	-0.1%
Universal College of Learning	1.5%	1.3%	1.3%	1.2%	-0.1%	-0.1%	0.0%
Manukau Institute of Technology	2.1%	2.4%	2.4%	2.3%	0.3%	0.0%	0.0%
Nelson Marlborough Institute of Technology	1.1%	1.0%	0.8%	0.8%	-0.1%	-0.2%	0.0%
Northland Institute of Technology (NorthTec)	1.0%	1.0%	0.9%	0.9%	0.0%	-0.1%	0.0%
Otago Polytechnic	1.4%	1.5%	1.6%	1.7%	0.1%	0.1%	0.0%
Whitireia Community Polytechnic	1.1%	1.1%	1.0%	1.0%	0.0%	-0.1%	-0.1%
Southern Institute of Technology	1.3%	1.3%	1.3%	1.2%	0.0%	0.0%	-0.1%

	% share of SAC level 3+ funding				% point change in share of SAC level 3+ funding		
	2009	2010	2011	2012	2015	2016	2017
Western Institute of Technology Taranaki	0.6%	0.6%	0.6%	0.5%	0.0%	-0.1%	-0.1%
Wairiki Institute of Technology	1.0%	1.2%	1.2%	1.1%	0.2%	0.0%	-0.1%
Waikato Institute of Technology	1.9%	2.1%	2.0%	1.9%	0.2%	-0.1%	-0.1%
Open Polytechnic of New Zealand	1.8%	1.8%	1.7%	1.7%	0.0%	-0.1%	0.0%
Tai Poutini Polytechnic	0.9%	0.8%	0.8%	0.8%	-0.1%	0.0%	0.0%
<b>All ITPs</b>	<b>25.7%</b>	<b>26.1%</b>	<b>25.1%</b>	<b>24.3%</b>	<b>0.4%</b>	<b>-0.9%</b>	<b>-0.8%</b>
Te Wānanga o Aotearoa	4.4%	4.5%	4.7%	4.7%	0.0%	0.2%	0.0%
Te Wānanga o Raukawa	0.6%	0.5%	0.5%	0.5%	-0.1%	0.0%	0.0%
Te Whare Wānanga o Awanuiārangī	0.7%	1.0%	1.0%	0.9%	0.3%	0.0%	-0.1%
<b>All wānanga</b>	<b>5.8%</b>	<b>6.1%</b>	<b>6.2%</b>	<b>6.1%</b>	<b>0.3%</b>	<b>0.2%</b>	<b>-0.1%</b>
<b>All PTEs</b>	<b>9.2%</b>	<b>8.8%</b>	<b>9.0%</b>	<b>9.0%</b>	<b>-0.4%</b>	<b>0.2%</b>	<b>0.0%</b>

Source: Tertiary Education Commission.

Notes:

1. Data for 2009–2014 are for actual funded delivery. Data for 2015 and 2016 are for funding allocations.
2. Figures are rounded to one decimal place (as a result, some figures showing the percentage point changes in the share of funding may appear inconsistent with other figures in the table).
3. Allocation data for Aoraki Polytechnic and the Christchurch Polytechnic Institute of Technology for 2016.
4. Data exclude the Universities Tripartite Adjustment Fund, which had its final year of payment in 2008.

Due to the large number of funded PTEs, the data in Table 7 do not show shifts within the PTE subsector. However, TEC (2015) shows that, for most TEC-administered funding, PTEs that met minimum delivery requirements (eg, course completion rates, volume of delivery, or course occupancy) retained their existing allocation for the next year, while PTEs below these thresholds lost some or all of their funding. For some types of funding (eg, Youth Guarantee), PTEs who met all the relevant thresholds were eligible for additional funding, moderated by an assessment of regional need.

Q69

**How much does funding shift between PTEs based on assessments of performance? Whose assessments are they, and what are they based on?**

The data in Table 7 also do not take into account shifts within TEIs. The Commission is interested in learning more about these internal shifts.



Q70

**How much does funding shift inside a TEI (eg, between courses, academics, or faculties) based on assessments of performance? Whose assessments are they, and what are they based on?**

## Government can encourage a diverse range of participants to try different things

Diversity of participants helps encourage innovative activity in a system.

Different kinds of service providers with different backgrounds bring different perspectives to the challenge of delivering better and more cost-effective public services. Diversity allows for experimentation and problem-solving in parallel rather than in serial (trying one solution and only after it has been tested, trying another). (Sturgess, 2012, p. 8)

### What is the situation in New Zealand's tertiary education system?

New Zealand's tertiary education system is unusual in having all post-secondary education – including higher, vocational, foundation and adult and community education – under one funding and regulatory framework.<sup>26</sup>

Also, there are a large number of PTEs in the funded system, ranging from very large national businesses to small, community-based not-for-profit organisations.

As a result, the system could be considered fairly diverse in terms of its constituent organisations, and also of its student population.

However, there may be less diversity between TEOs within a subsector, or within TEOs. For example, all eight of New Zealand's universities are in the top 500 in the QS rankings, and all are in the top 100 for at least one field of study, suggesting they are not highly differentiated in terms of international esteem; and fee regulation means they charge broadly similar fees. Also, although there are some areas of field of study specialisation (eg medicine, agricultural science), all of New Zealand's universities and ITPs provide a broad range of course offerings, reflecting their statutory characterisations.<sup>27</sup> This relative homogeneity enables more students to access provision of interest to them close to home; but it may inhibit providers from concentrating their resources to develop specialisations.



Q71

**What influences tertiary providers towards offering a broad or narrow range of course offerings? What are the advantages and disadvantages (for providers, students, and the sector as a whole) of a relatively homogenous system?**

<sup>26</sup> With some exceptions and variations; for example, separate quality assurance arrangements for universities.

<sup>27</sup> S 162 of the Education Act characterises universities and ITPs as offering a "wide diversity" of provision.

## Government can give participants freedom to innovate

Participants can only innovate in elements of their organisation that they control themselves. Systems with a lot of top-down control, where contracts are tightly specified, tend to see less innovation than those with devolved decision making or outcome-based contracting (NZPC, 2015; Moszoro, Spiller & Stolorz, 2014).

A tight set of top-down controls may also deter risk-takers from participating in the system, so can serve to decrease (or keep low) the overall appetite for risk within the system.

### What is the situation in New Zealand's tertiary education system?

New Zealand tertiary providers' activities are determined in part by funding contracts and quality assurance requirements issued by the TEC, NZQA and CUAP.



Some of these requirements are highly detailed. For example, the government's instructions to the TEC for administration of the single largest tertiary tuition fund, Student Achievement Component 3+ funding, specify:

- how much funding the TEC must allocate, at minimum, to each tertiary subsector (with a small portion of the fund being available to any subsector at the TEC's discretion);
- how much the TEC must pay for each full-time enrolment across 23 funding categories (with subsidies varying by level and field of study, but not by student or provider characteristics);
- what kind of courses are eligible and not eligible for funding – effectively incorporating NZQA's and CUAP's accreditation and approval requirements into the funding agreement, along with various restrictions relating to short courses and health and safety training;
- the fees that TEOs may charge to students, and what they can and cannot charge for; and
- various conditions the TEC must attach to funding concerning things like subcontracting.

These requirements constrain the TEC's own ability to innovate, and similarly constrain providers. In addition:

- NZQA and Universities New Zealand set and monitor against various performance requirements via approval and registration processes, the External Evaluation and Review programme (NZQA) and the Academic Quality Agency (Universities New Zealand); and
- NZQA and TEC set and monitor against expectations of providers' financial performance.<sup>28</sup>

**Q72**

**Do New Zealand's tertiary policy and regulatory frameworks enable or hinder innovation? What might happen if existing constraints are loosened?**

<sup>28</sup> NZQA sets and monitors expectations for PTEs' financial performance as part of the accreditation process. The TEC undertakes additional financial monitoring for PTEs and ITOs as part of its funding process and for TELs both for funding purposes and as the Crown agency responsible for monitoring TELs as Crown entities.

## Government can set and enforce good intellectual property laws

People are less likely to innovate if they believe that they can leverage others' innovative activity instead, and so capture benefits without having to share costs. Similarly, if their competitors can copy successful innovations shortly after implementation, they expect any competitive advantage to be short lived.

Government can therefore increase innovative activity in a system by having intellectual property laws that allow innovators to capture the benefits of their innovation.

There is always a trade-off for governments between protecting intellectual property to incentivise innovation, and capturing the public benefits associated with a new idea by making it widely available. Governments want to settle on a level of protection that maximises innovation and public benefits as much as mutually possible.

### What is the situation in New Zealand's tertiary education system?

Who owns the intellectual property generated by New Zealand's publicly funded TEs varies according to the particular contractual funding arrangements and employment agreements in place.



As well as the usual challenges in finding the "right" level of protection to encourage innovation, management of intellectual property in tertiary education sometimes also has to take into account the professional obligation that academics and teachers can feel toward their discipline or their students, which can affect their view of who should capture the benefits of an innovation. This is less likely to be a factor in innovations that change (for example) a back-office system; but it may be a factor in new models of tertiary teaching or delivery. In these cases, there are potential tensions between the financial interests of a provider and interests of the staff who create the new knowledge.<sup>29</sup>

**Q73**

**How do intellectual property protections in tertiary education foster or hinder innovation? Are the effects different in different parts of the system or for different kinds of provider?**

## Government can make it easier for participants to diversify their financial risk

Innovation often carries a financial risk to the innovator. In general, an innovator can diversify this financial risk through a joint venture (doing the innovation in partnership with someone else, sharing the costs and benefits), or by seeking investment from external parties. Regulatory settings (eg, restrictions on institutional form and ownership) and funding policies can support or hinder these activities.

<sup>29</sup> Staff may be motivated by the idea of sharing what they have learned with their peers at other providers, possibly with the aim of capturing a different kind of benefit – prestige.

## What is the situation in New Zealand's tertiary education system?

### The Crown has residual liability for TEIs

TEIs are Crown entities and, as such, the Crown has residual liability for their debts. The government may also come under pressure to “rescue” a TEI that gets itself into trouble, for the sake of the TEI’s student population and potentially its regional economy and (if applicable) to maintain regional coverage.



These implicit “government guarantees” reduce the chance of financial failure for a TEI, but they do not necessarily strengthen its incentives to innovate. This is because, in return for the implicit guarantee, the government manages TEI risk through monitoring, tight specification of contracts, regulation and by appointing risk-averse or “safe” individuals to governance positions. None of these is conducive to innovation. In addition, a government rescue of a TEI would likely be accompanied by statutory intervention in the institution’s governance and management – so while the institution would endure, the TEIs’ decision makers would likely not.<sup>30</sup>

### PTE owners face different incentives

An innovating PTE can also fail; and its owners may not be as inclined as a government owner to bail it out. In isolation, this might suggest that PTE governance and management would be more risk averse than the case of a TEI.

However, should an innovation succeed, PTE owners will benefit directly. This is the “upside” for bearing the financial risks of innovation. So PTE owners have a reason to select entrepreneurial types for governance and management positions. Also, PTE owners can directly reward individuals who contribute to successful innovation. This changes the incentives for decision makers within the PTE: while they bear risk (as they would in a TEI), they also stand to share in any success.

**Q74**

**How does the Crown’s approach to its ownership role affect TEI behaviour? Is it conducive to innovation?**

### Joint ventures

There are relatively few regulatory barriers to joint activity by tertiary providers in New Zealand. In fact, the TEC appears to encourage collaborative arrangements, especially where they create pathways for students to progress to higher levels of study or, for international collaborations, where they support the provider’s onshore mission (TEC, 2015b).

However, the funding system requires that a single provider “owns” and received payment for each enrolment; and course completions can only be attributed to one provider. This may disincentivise collaboration in the actual delivery of courses (though not necessarily in their design).

<sup>30</sup> In extremis, s 195D of the Education Act allows the Minister of Education to dissolve the council of a TEI and appoint a commissioner in its place. The Act also stipulates (s 176B) that individual council members can be removed from office for failing to carry out their individual duties as councillors, and the council can bring an action against them.

Joint ventures between schools and tertiary providers, or between tertiary providers and employers, can be made more difficult by the need to reconcile two sets of regulatory and funding arrangements.

**Q75**

**Do regulatory or funding settings encourage or discourage providers from engaging in joint ventures? If so, how?**

### Attracting external investment

The freedom of PTEs and ITOs to seek external investment is limited only by their organisational type (eg, whether they are for-profit or not-for-profit) and their need to demonstrate their ongoing financial viability to the TEC and NZQA.

TEIs must meet TEC financial performance criteria, which are more detailed than those applicable to PTEs and ITOs, reflecting the Crown's ownership interest in TEIs. TEIs are further restricted by legislation in the financial and commercial activities they can undertake. For example, s 192(4) of the Education Act provides that a TEI must seek the permission of the Secretary for Education to borrow, issue debentures, or otherwise raise money.

Even so, innovative capital-raising activity does occur in TEIs – for example, the University of Canterbury issued New Zealand's first philanthropic bonds in 2009 (University of Canterbury, n.d.).

**Q76**

**How do regulatory or funding settings encourage or discourage providers from seeking external investment?**

## Tertiary providers can influence the level of innovation within their organisations...

The discussion above has focused on how government can shape the environment in which tertiary providers operate and the incentives they face.

These ideas about what encourages and enables innovation are equally applicable and important *within* tertiary providers at the level of business models, faculties, qualifications, courses, teachers, curriculum and investments like software. In these cases, the innovator could be anyone from a provider's management team to an individual academic.

**Q77**

**How do tertiary providers create incentives for internal participants to innovate? What kinds of choices by providers have the biggest "downstream effects" on their level of innovation?**

## ...as can government ministers and education agencies

Government ministers and education agencies, in deciding how to administer their parts of the system, also face design choices about whether and how to encourage innovation. This includes decisions about how education agencies are configured, the scope of their roles, how they are funded and regulated, and what rewards and sanctions they face for success or failure.

**Q78**

**What incentives do government education agencies have to innovate in the way they carry out their functions, both within and across agencies? What constraints do they face?**

# Summary of questions

**Q1**

What are the advantages and disadvantages of administering multiple types of post-compulsory education as a single system?

**Q2**

Do prospective students have good enough information to enable them to make informed choices about providers and courses? What additional information should be provided? Who should provide it?

**Q3**

Is the business model of universities published by Universities New Zealand a good characterisation? Are there aspects of the business model of universities that it does not explain?

**Q4**

What is the business model of ITPs? Do the business models of ITPs vary significantly? In what ways?

**Q5**

What are the business models of the three wānanga?

**Q6**

Do the business models of PTEs have common characteristics?

**Q7**

What are the implications of economies of scale in teaching (and the government funding of student numbers) for the delivery of tertiary education in different types of providers and for different types of courses and subjects?

**Q8**

How does competition for student enrolments influence provider behaviour? Over what attributes do providers compete? Do New Zealand providers compete with one another more or less than in other countries?

**Q9**

What are the implications of fixed capital costs for the business of tertiary education? Do differences in the capital structure of different tertiary institutions have important implications for the delivery of tertiary education?

**Q10**

What are the implications of the multiple activities of tertiary education for its delivery? What outputs are best produced together? What outputs are best produced separately?

- Q11** What are the benefits and disadvantages, in terms of students' learning outcomes, of bundling together research and teaching at universities in New Zealand?
- Q12** What value is attached to excellence in teaching compared to excellence in research when universities recruit or promote staff?
- Q13** Do New Zealand TEIs cross-subsidise research with teaching income?
- Q14** What other evidence is there about what makes for effective teaching in a tertiary environment? Is it different for different types of learning or student? How can teaching effectiveness be best measured and improved?
- Q15** How do tertiary providers assess, recognise and reward teaching quality in recruitment and career progression? To what extent do tertiary providers support the professional learning of teachers?
- Q16** How do New Zealand tertiary providers use student evaluations? How does this influence provider behaviour?
- Q17** In what ways and to what extent do employers interact with tertiary providers in New Zealand? Are there practical ways to encourage employers to have greater or more productive involvement in the tertiary education system?
- Q18** What are the similarities and differences among ITOs, or between ITOs and other tertiary subsectors, in how they operate?
- Q19** What makes for a successful ITO in terms of meeting the needs of firms for skilled staff?
- Q20** How effective is the ITO model in meeting the needs of learners and firms?
- Q21** What arrangements for arranging workplace training and apprenticeships in other countries could New Zealand usefully learn from?
- Q22** Is the current architecture a good fit for a tertiary education system? What are its advantages and disadvantages? Are there good alternatives?



**Q23**

How effective is the TES instrument at giving government education agencies direction about prioritising resources and making trade-offs in carrying out their roles? What are the benefits and risks, in terms of fostering an innovative system, of a more or less directive TES?

**Q24**

How do other instruments (eg, funding mechanisms, letters of expectation, budget initiatives) influence government agencies' behaviour? How do these align with the TES instrument?

**Q25**

When do the TEC's independent funding role and its Crown monitoring role align, and when are they in tension?

**Q26**

What are the pros and cons of different quality assurance arrangements for universities to those for ITPs, wānanga, and PTEs?

**Q27**

How do New Zealand's government institutional arrangements for tertiary education compare to those in other jurisdictions?

**Q28**

In what ways does a focus on educating international students complement or undermine the other goals of tertiary education providers?

**Q29**

What factors best explain the discrepancy between growing levels of tertiary education attainment without a significant productivity dividend?

**Q30**

What are the best measures to determine whether the tertiary education system is working well?

**Q31**

What other evidence is there about the influence of tertiary education system performance on graduate income premia in New Zealand?

**Q32**

To what extent are graduates meeting employers' expectations with respect to hard or technical skills? What about soft skills and capabilities?

**Q33**

What are the significant trends in employer demand for tertiary-educated employees, and in student demand for tertiary education? How is the system responding?

**Q34**

What is being done to develop, assess and certify non-cognitive skills in tertiary education in New Zealand? Do approaches vary across provider types, or between higher, vocational, and foundation education?

**Q35**

What are the implications of new technologies that are predicted to make many currently valuable skills obsolete? Will this change the role of the tertiary education system?

**Q36**

What challenges and opportunities do demographic changes present for the tertiary education system?

**Q37**

What evidence is there on the effect of tuition fees on student access to, or the demand for, tertiary education in New Zealand?

**Q38**

What are the likely impacts of domestic student fees increasing faster than inflation?

**Q39**

What impact has the pattern of government spending on tertiary education had on the tertiary education provided?

**Q40**

How have providers' input costs and revenue changed over time? What are the implications of these changes?

**Q41**

How might Baumol's cost disease or Bowen's law (discussion of which tends to focus on providers like universities) apply in other parts of the tertiary education system?

**Q42**

What specific technologies should the inquiry investigate? Why?

**Q43**

What parts of the tertiary education system are challenged by ongoing technological change? What parts can exploit the opportunities created?

**Q44**

How has internationalisation affected New Zealand's tertiary education system? What are the ongoing challenges and opportunities from internationalisation of the tertiary education system?

**Q45**

Is the "New Zealand" brand an important part of international competition for students, staff, and education products and services? What should providers and government do to manage or enhance this brand?

**Q46**

What other trends provide challenges and opportunities for the tertiary education system?

**Q47**

What trends are likely to be most influential for the tertiary education system over the next 20 years?

- Q48** Are there other important types of new model that should be included within the scope of this inquiry?
- Q49** What new models of tertiary education are being implemented in universities, ITPs, PTEs and wānanga? How successful have they been?
- Q50** Are current quality assurance and accountability arrangements robust enough to support a wide range of new models?
- Q51** How might new models of tertiary education affect the New Zealand brand in the international market for tertiary educations, students, education products and services?
- Q52** What can be learnt from the tertiary education systems of other countries? Are there models that could be usefully applied here?
- Q53** What measures have been successful in improving access, participation, achievement and outcomes for Māori? What measures have been less successful? Why?
- Q54** What measures have been successful in improving access, participation, achievement and outcomes for Pasifika? What measures have been less successful? Why?
- Q55** What measures have been successful in improving access, participation, achievement and outcomes for at-risk youth? What measures have been less successful? Why?
- Q56** What measures have been successful in improving access, participation, achievement and outcomes for those with limited access to traditional campus-based provision? What measures have been less successful? Why?
- Q57** What measures have been successful in improving access, participation, achievement and outcomes for people with disabilities? What measures have been less successful? Why?
- Q58** What measures have been successful in improving access, participation, achievement and outcomes for adults with low levels of literacy or numeracy? What measures have been less successful? Why?
- Q59** How innovative do you consider the New Zealand tertiary education system is? Do you agree that there is “considerable inertia” in the system compared to other countries? If so, in what way and why?

**Q60**

What are the factors associated with successful innovation in the tertiary education system?

**Q61**

What are the benefits to innovators in the tertiary education system? What challenges do they face in capturing these benefits?

**Q62**

What are the barriers to innovation in the tertiary education system? What might happen if those barriers are lowered?

**Q63**

How well do innovations spread in the tertiary education system? What helps or hinders their diffusion?

**Q64**

How successful was the Encouraging and Supporting Innovation fund in promoting innovation in the tertiary sector? What evidence supports your view?

**Q65**

Are there examples where the New Zealand Government has directly purchased innovation or innovative capacity in tertiary education? If so, was it successful?

**Q66**

How easy or hard is it for a new provider or ITO to access TEC funding?

**Q67**

Does the programme or qualification approval process via NZQA or CUAP enable or hinder innovation? Why?

**Q68**

What impact has Performance-Linked Funding had on providers' incentives to innovate?

**Q69**

How much does funding shift between PTEs based on assessments of performance? Whose assessments are they, and what are they based on?

**Q70**

How much does funding shift inside a TEI (eg, between courses, academics, or faculties) based on assessments of performance? Whose assessments are they, and what are they based on?

**Q71**

What influences tertiary providers towards offering a broad or narrow range of course offerings? What are the advantages and disadvantages (for providers, students, and the sector as a whole) of a relatively homogenous system?

**Q72**

Do New Zealand's tertiary policy and regulatory frameworks enable or hinder innovation? What might happen if existing constraints are loosened?

**Q73**

How do intellectual property protections in tertiary education foster or hinder innovation? Are the effects different in different parts of the system or for different kinds of provider?

**Q74**

How does the Crown's approach to its ownership role affect TEI behaviour? Is it conducive to innovation?

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**Q78**

What incentives do government education agencies have to innovate in the way they carry out their functions, both within and across agencies? What constraints do they face?

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# Terms of reference

## **New Zealand Productivity Commission Inquiry into New Models of Tertiary Education**

Issued by the Minister of Finance and the Minister for Tertiary Education, Skills and Employment (the “referring Ministers”).

Pursuant to sections 9 and 11 of the New Zealand Productivity Commission Act 2010, we hereby request that the New Zealand Productivity Commission (“the Commission”) undertake an inquiry into new models of tertiary education.

### **Context**

The tertiary education sector has adapted to significant change in the last two decades, with growing and changing demand for and participation in higher education, growing internationalisation, and the increasing importance of skills in the economy.

However, the sector operates in a dynamic environment where several key trends are likely to accelerate, offering strategic challenges and opportunities. These trends include:

- Ongoing technological change – offering new ways to deliver higher education programmes and more choice for students, and challenging traditional organisational and operating models.
- Increasing tuition costs.
- Increasing internationalisation of the tertiary education sector including: the growth and rising quality of universities and research organisations in Asia; competition internationally for students, academics and research investment; the growth of export education; and the acceleration of the English language as the language of global business and research.
- Changes in employer demand and student demand, including changes in the types of skills demanded; demand for options to combine study with work and other commitments; and demand for on-job and mid-career re-training.
- Demographic change – an ageing and more diverse population. New Zealand’s demography is set to reduce the number of domestic tertiary students for the next few years.

It was apparent at the 2014 Innovations in Tertiary Education Delivery Summit (ITES) that there are numerous emerging models of provision, but considerable inertia in New Zealand where tertiary providers appear reluctant to be “first movers” or “early adopters” shifting away from the traditional models. Yet ongoing change in the tertiary system is taking place influenced by the Tertiary Education Strategy (2014-19).

In comparison, some overseas tertiary providers appear to be faster and more ambitious in adapting to these trends, and in using new technology to respond to changing demand and improving the quality of education and research.

## Scope

The focus of the inquiry will be on how trends, especially in technology, tuition costs, skill demand, demography and internationalisation, may drive changes in business models and delivery models in the tertiary sector.

The inquiry will take a whole-of-system perspective focussing on Crown Tertiary Education Institutions (i.e. universities, polytechnics and wānanga) as well as private tertiary providers.

In undertaking the inquiry, the Commission should consider both demand and supply factors (including market, institutional and policy constraints) relevant to the adoption of new models of tertiary education, as well as looking broadly across what new models there are or what might emerge.

The Commission should use its knowledge of the tertiary education system, innovation and productivity performance to provide new insights drawing on new and existing sources of information. The Commission should also use its emphasis on public engagement and links with the OECD and other international agencies.

For the purposes of the inquiry the Commission should:

- Examine the key trends likely to drive strategic challenges and opportunities for New Zealand tertiary providers, including changes in technology, tuition costs, employer and student demand, demographics and internationalisation
- Draw on the Tertiary Education Strategy and the main challenges in tertiary education identified by the OECD<sup>31</sup> to assess the potential impacts of the trends and new models on the New Zealand tertiary system.
- Identify the potential barriers to innovation that could be addressed by government and providers to increase the benefits from adopting new models of tertiary education. This will include for example:
  - Policy and regulatory settings that govern tertiary providers.
  - The risks perceived by tertiary providers that may make them slow to innovate and develop alternative delivery models.
  - Internal change by tertiary providers and their sector bodies.
- Review and analyse evidence of success factors associated with innovative tertiary business and delivery models. This will include:
  - Exploring effective overseas models and their applicability in the New Zealand context.
  - Drawing where applicable on the business and delivery models identified through the 2014 Innovations in Tertiary Education Delivery Summit (ITES).
- Explore the options for changes to education funding and pricing mechanisms that may be required to facilitate new models of tertiary education. The focus will be on pricing and fee-setting and not on student support (i.e. student loans and allowances).

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<sup>31</sup> Refer [www.oecd.org/education/skills-beyond-school/44007619.pdf](http://www.oecd.org/education/skills-beyond-school/44007619.pdf) [See Appendix A in this paper.]

- Explore the implications new tertiary models could have for the quality of tertiary education, including transparency, quality assurance and accountability, and the cost of provision.
- Consider the different activities and markets within tertiary education and how this might change with new tertiary models (eg, assessment, certification, the need for flexible, work-orientated study, and the need for face-to face teaching and pastoral support).
- Investigate opportunities through new tertiary models to improve access, participation and achievement in tertiary education of priority groups such as: Māori and Pasifika; at-risk youth; and those with limited access to traditional campus-based provision.
- Consider the impact of overseas domiciled providers on the New Zealand tertiary system.
- Explore the implications new models of tertiary education could have for New Zealand's position in the international market for tertiary educators, students, education products and services.

Policy findings and recommendations should address the challenges and opportunities as well as the levers available to government and the actions required by tertiary providers to increase responsiveness to new ways of delivering tertiary education. Consideration should also be given to links with the recommendations from the Productivity Commission's reports on 'Boosting Productivity in the Services Sector' and 'More Effective Social Services'.

### **Fit with existing work**

The Productivity Commission has a comparative advantage as an independent agency to provide fresh insights into demand, supply and other factors relevant to the adoption of new models of tertiary education, as well as looking broadly across new and emerging models. The Commission will build on its existing programme of analytical and empirical research on the productivity performance of the New Zealand economy in both the public and private sectors.

This inquiry will complement, and is not intended to replicate, work being undertaken on Skilled and Safe Work Places and would contribute to the Business Growth Agenda.

### **Consultation requirements**

In undertaking this inquiry, the Commissions should:

- work closely with the Ministry of Education, the Tertiary Education Commission and Ministry of Business Innovation and Employment.
- consult with key interest groups and affected parties including tertiary providers, students, employers and their representatives as well as academics and international agencies as required.

### **Timeframes**

The Commission must publish a draft report and/or discussion document, for public comment, followed by a final report that must be presented to referring Ministers by 28 February 2017.

HON BILL ENGLISH, MINISTER OF FINANCE

HON STEVEN JOYCE, MINISTER FOR TERTIARY EDUCATION, SKILLS AND EMPLOYMENT

## Appendix A Main challenges in tertiary education identified by the OECD

In 2008 the OECD published *Tertiary Education for the Knowledge Society*. This report drew on the results of a major OECD review of tertiary education policy – the OECD Thematic Review of Tertiary Education – conducted between 2004 and 2008 in collaboration with 24 countries around the world, including New Zealand.

In the report, the OECD identified the main policy challenges in tertiary education. They were:

- Articulating clearly the nation's expectations of the tertiary education system and aligning priorities of individual institutions with the nation's economic and social goals. Creating coherent systems of tertiary education, finding the proper balance between governmental steering and institutional autonomy and developing institutional governance arrangements to respond to external expectations.
- Ensuring the long-term financial sustainability of tertiary education, devising a funding strategy consistent with the goals of the tertiary education system and using public funds efficiently.
- Strengthening quality of tertiary education by developing quality assurance mechanisms for accountability and improvement, generating a culture of quality and transparency and adapting quality assurance to diversity of offerings.
- Ensuring equality of opportunities in tertiary education, devising cost-sharing arrangements that do not harm equity of access and improving the participation of the least represented groups.
- Fostering research excellence and its relevance, building links with other research organisations, the private sector and industry and improving the ability of tertiary education to disseminate the knowledge it creates.
- Ensuring an adequate supply of academics, increasing flexibility in the management of human resources and helping academics to cope with the new demands.
- Including labour market perspectives and actors in tertiary education policy, ensuring the responsiveness of institutions to graduate labour market outcomes and providing study opportunities for flexible, work-oriented study.
- Designing a comprehensive internationalisation strategy in accordance with country's needs, ensuring quality across borders and enhancing the international comparability of tertiary education (OECD, 2008a, p. 1).

## Appendix B Innovations in Tertiary Education Delivery Summit, 2014

The Innovations in Tertiary Education Delivery Summit (ITES) – held in Auckland in 2014 – was attended by a number of prominent academics and innovators in tertiary education. A summary of proceedings derived four key themes from the presentations delivered at the summit (Anon., 2014).

### 1. Evolution of practice enabled by technology

Attendees identified that teaching, learning and delivery practices are evolving in response to technological change and that these changes present an opportunity to develop innovative approaches that do not conform to traditional notions of education delivery.

Changes in learning and the delivery of tertiary education, enabled by technology, were, at various times throughout the Summit, characterised as either “disruptive” and a sign of complete change to the nature and form of traditional tertiary education delivery, or as an opportunity that would enable ever better delivery of tertiary education. ...

One of the key changes that attendees saw as resulting from the changes enabled by technologies was the opportunity for, and perhaps greater necessity of, collaboration and cooperation between existing tertiary education institutions and stakeholders.

### 2. The value of innovative teaching and learning practices, on their own and in combination with traditional delivery

There was general agreement from attendees that technology was enabling and would continue to afford opportunities to reform and improve the way education is delivered and consumed. Such changes were seen as an advance that could operate alongside traditional teaching practice and the value that face-to-face delivery and interaction also provides. ...

Many attendees commented that the “delivery” or “teaching” function of tertiary education might be able to be undertaken virtually. However, the multiple dimensions of the teacher-learner interaction were also discussed. In particular, the importance of real, face-to-face contact, in stimulating learning and providing an external motivation to engage learners to maintain engagement in learning.

### 3. Recognition and support for new ways of learning

A strong interest in how these new learning opportunities could be recognised and integrated into tertiary education practice to create credible and coherent pathways for learners underpinned the conversations about technological advance and the impact of MOOCs. This theme involves questions of credentialisation, funding and how education supports learners into employment. ...

The key issue raised in relation to unbundling was how these more diverse pathways and options could be recognised, and how students could best be supported to gain a coherent



set of skills that would support them in life, including into further training, education or employment. ...

Attendees noted that new approaches would need to be supported by appropriate funding mechanisms to support new types of provision, and also to support learners accessing tertiary education in new or different ways.

#### 4. Roadblocks to change

Attendees noted that innovative, responsive and future-focused education spaces need support to emerge and thrive.

... Professor [Jim] Barber talked about the difficulty of transformative change when traditional institutions are tied to particular ways of delivering education, when academic staff have strongly held beliefs about their role, and when institutions must meet the high and increasing costs of maintaining the physical infrastructure of their organisations. ...

In New Zealand, the traditional competitive nature of providers was also raised as a barrier to greater cooperation between providers in pursuing shared digital learning opportunities.

NEW ZEALAND  
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