

Productivity Commission Submission: The University of Auckland

The purpose of this submission is to provide the Commission with information on the University of Auckland's position in a rapidly evolving national and international context, to provide a high level indication of how it expects to be placed by 2025 and to indicate features of current government policy settings which it sees as constituting barriers to its continued development as New Zealand's leading international university. We paint a picture of a highly productive University that is continuing to evolve, despite operating in a very constrained environment, rather than one of some "new model of university education" that neither we nor any of the leading research universities worldwide has been able to imagine.

1. The Current Situation in Historical Context

In common with other New Zealand universities, the University of Auckland has undergone radical change since 1990. For the most part these changes have been driven by the University as it has pursued increasingly clearly articulated strategic objectives and responded to the needs of students, parents, government and the wider community. Key features of these changes are:

- **Rapidly increasing enrolments.** Since the 1990s the University has grown its total EFTS by over 60%. In 2015 the University had 33,489 EFTS compared to 20,750 EFTS in 1995 (see *Figure 1* on page 2).
- **Increasingly diverse student body,** signalled by the proportion of our students who come from Māori and Pacific Island communities and from migrant groups who are now demographically significant in the Auckland area. In 2015, 9% of Auckland's domestic students were Māori and 11% Pacific (compared with 8% and 9% respectively in 2003). The University has the largest share of Māori and Pacific university students in New Zealand (28.5% and 38% respectively).
- **Selective entry for all programmes,** with undergraduate entry standards for all programmes that are significantly above minimum University Entrance (UE) requirements. In 2016, the University's rank scores required for admission for school leavers with UE ranged from 150 to 280: Bachelor of Arts (150); Bachelor of Science (165-280, depending on major/specialisation); Bachelor of Commerce (180); Bachelor of Health Science (250) and Bachelor of Engineering (260).
- **Increasing numbers** of high-performing school leavers. In 2015, 55% of the University's school leaver intake had a GPE of 5 or greater, compared to 35% in 2010 (see *Figure 2* on page 3).
- **Increasing numbers and proportions of international students.** Since the 1990s the University has effectively quadrupled its number of international student EFTS. In 2015, the University had a total of 4,917 international EFTS (14% of the student body) compared to 886 EFTS (4%) in 1995 (see *Figure 1* on page 2).

Figure 1: University of Auckland EFTS 1995-2015

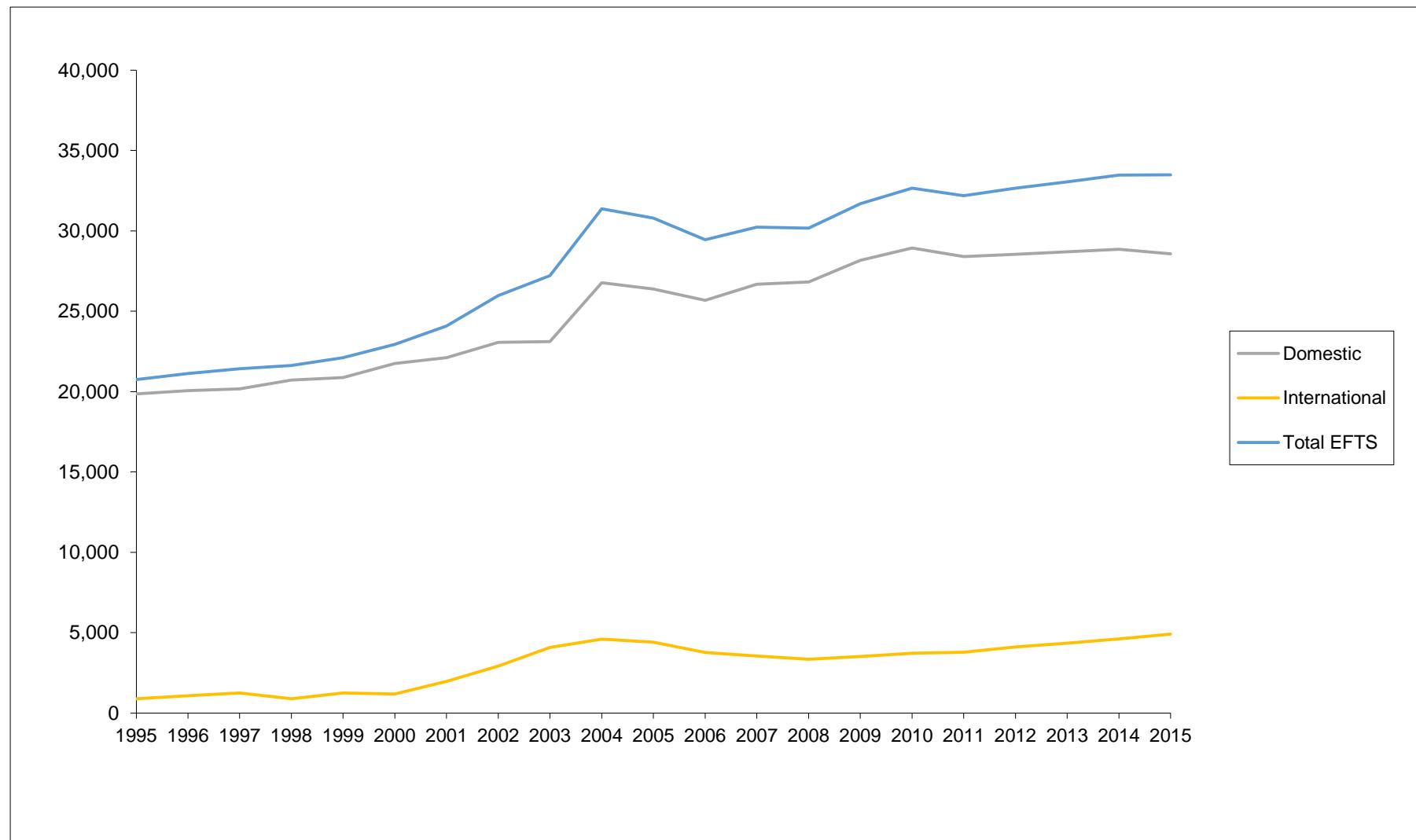
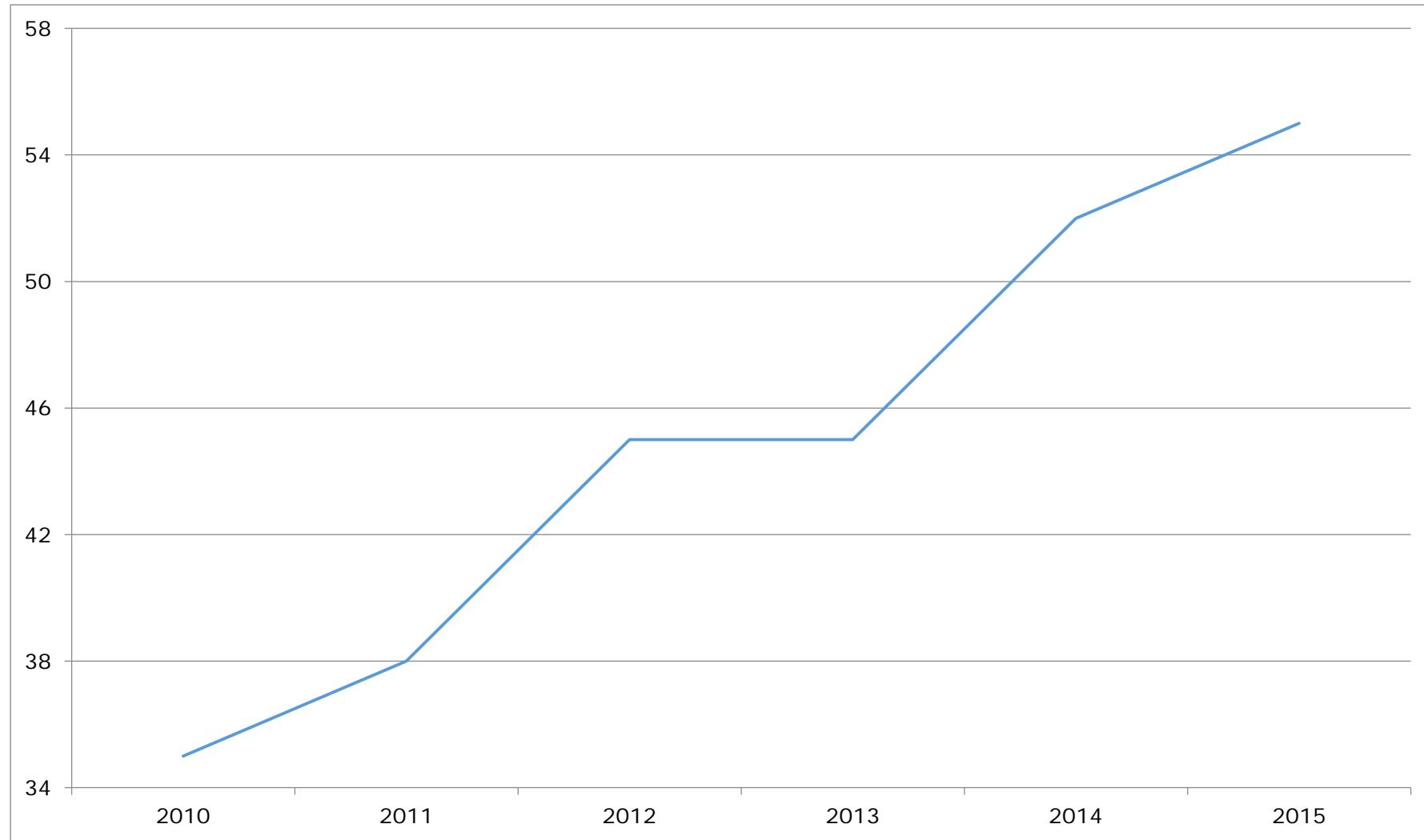


Figure 2: Percentage of School Leavers enrolling at the University of Auckland with a GPE of 5+



- **Increasing numbers and proportions of postgraduate students.** Since 2003, the University has increased its number of postgraduate students significantly. For example, in 2015, the University enrolled 7,636 postgraduate EFTS (22% of all student EFTS), compared with 4,781 in 2003 (17% of all EFTS).
- **Strategic programme developments** involving the introduction of new specialisations which respond to market demands: examples include ICT and information sciences, software engineering, mechatronics, postgraduate specialisations in medical and health sciences and in IP commercialisation, undergraduate and programmes in biomedical sciences, environmental and evolutionary sciences.
- **Development of extra-curricular employment related programmes** involving internships; entrepreneurship and business development (Velocity (formerly Spark), entrepreneurship boot camps, etc.)
- **Evidence-based enhancement of student experience, engagement and performance** utilising student experience and engagement surveys, course and lecturer surveys; learning analytics; research on learning in higher education settings.
- **Extensive innovation in teaching design and delivery.** Increases in student numbers and falling real levels of funding per student have resulted in an increase in the scale of teaching, particularly at undergraduate level. Mass lectures with classes in excess of 300 are the norm in first-year courses and class sizes of more than 100 are common in the upper levels of undergraduate programmes. Contrary to the impressions conveyed in some of the Commission's literature, survey results show that undergraduates see well-delivered lectures as an important way of stimulating their interest in higher level studies and providing a useful base for their own independent engagement with their programmes of study. In passing, it is worth noting that many of the Commission's observations focus exclusively on instruction and ignore the student input into the learning that takes place in degree-level studies. As in the past, mass lectures are supported with small class tutorial and laboratory teaching although these are increasingly difficult to sustain with decreased real funding per student; the imperatives that make mass lectures a widespread mode of delivery in western universities have been financial rather than pedagogical and militate against more resource-intensive additions or alternatives.

Nevertheless, the continuing use of lectures has obscured a range of teaching-related developments that have emerged in the last decade. These developments have been in response to pedagogical imperatives for student-directed learning and active learning experiences in contexts that simulate the collaborative approach to projects and problem-solving which is common in the work place. They are designed to enhance students' learning experience within lecture contexts, and extend opportunities for engagement beyond the classroom. Some of these developments utilise electronic learning technologies (lecture capture systems, interactive feedback software, self-testing and peer review software) and some require significant investment in flexible learning spaces and enhanced staff levels. They all rely upon very significant investment

in IT infrastructures and in self-access electronic information resources which now comprise the major item of expenditure in the budget of the University Library. For example, in 2015 the University's Libraries and Learning Services spent \$15,258,666 on electronic resources out of a total Library Collection spend of \$19,026,335. This equates to 80% of its expenditure.

- **Enhancement of teaching capability** through staff professional development programmes and fostering institutional cultures that value teaching and promote best practice. The University utilises student survey data, peer review, course completion information and reports from accrediting bodies and academic unit reviews, to monitor the quality of its teaching and student responses to it, and to identify and promote best practice. Since 2013 revised standards for academic performance have been in place for continuation and promotion purposes. These standards provide clear specifications of acceptable levels of performance in teaching, research and leadership/service and are part of a career advancement process where teaching performance is on a par with research performance, and promotion depends upon high levels of performance in all areas. Professional development in teaching is supported by research and training provided by the University's Centre for Leadership in Higher Education and Research. The impact of these measures is apparent in student survey data and in the national recognition of teaching excellence. Twenty-three University of Auckland teachers have been awarded a national Tertiary Teaching Excellence Award (TTEA) since they were introduced in 2001. This is more than any other university in New Zealand.
- **The development of a high performance research culture** that embraces academic staff at all levels and the provision of infrastructure and internal funding which supports their efforts and assists them in gaining access to significant levels of funding from non-commercial and commercial external sources. These developments allow us to provide an intellectually rich, research-led environment for our undergraduate and graduate students. The levels of research achievement are clearly apparent in:

PBRF outcomes

- The University consistently attracts the largest share of PBRF funding of any other New Zealand university (approximately 30% of the national PBRF funding pool) (see *Figure 3* on page 6).
- The University consistently claims the highest share of PBRF funding derived from research degree completions (RDC) than any other New Zealand university. In 2014 for example, the University claimed 32% of the total national PBRF RDC funding (followed by Otago which claimed 16.5%).
- The University accounted for 35% of all PBRF A-rated researchers in the country in the last PBRF Quality Evaluation cycle in 2012 (see *Figure 4* on page 7).

International rankings

- In 2015, the University was the highest ranked New Zealand university at 82nd in the Quacquarelli Symonds (QS) World University Rankings (QS Rankings), 172nd in

the Times Higher Education (THE) World University Rankings (THE rankings) and in the 201-300 band for the Academic Ranking of World Universities (ARWU).

- In 2016, 31 University of Auckland subjects (73% of its subjects) were ranked first in New Zealand by the QS World University Rankings.

Revenue derived from research activity

- The University's subsidiary, Auckland UniServices Ltd, has grown to become the premier research commercialisation company in Australasia, and one of the best in the world. It has grown to produce an annual income of over NZ\$135 million per annum, far surpassing any similar operation in New Zealand and Australia. It has about 1,200 active contractual relationships with over 300 New Zealand firms at any one time, as well as numerous international relationships. UniServices also has a high level of patents granted relative to the other universities or the CRI sector (see *Figure 5* on page 7).

Figure 3: Share of total national PBRF funding pool

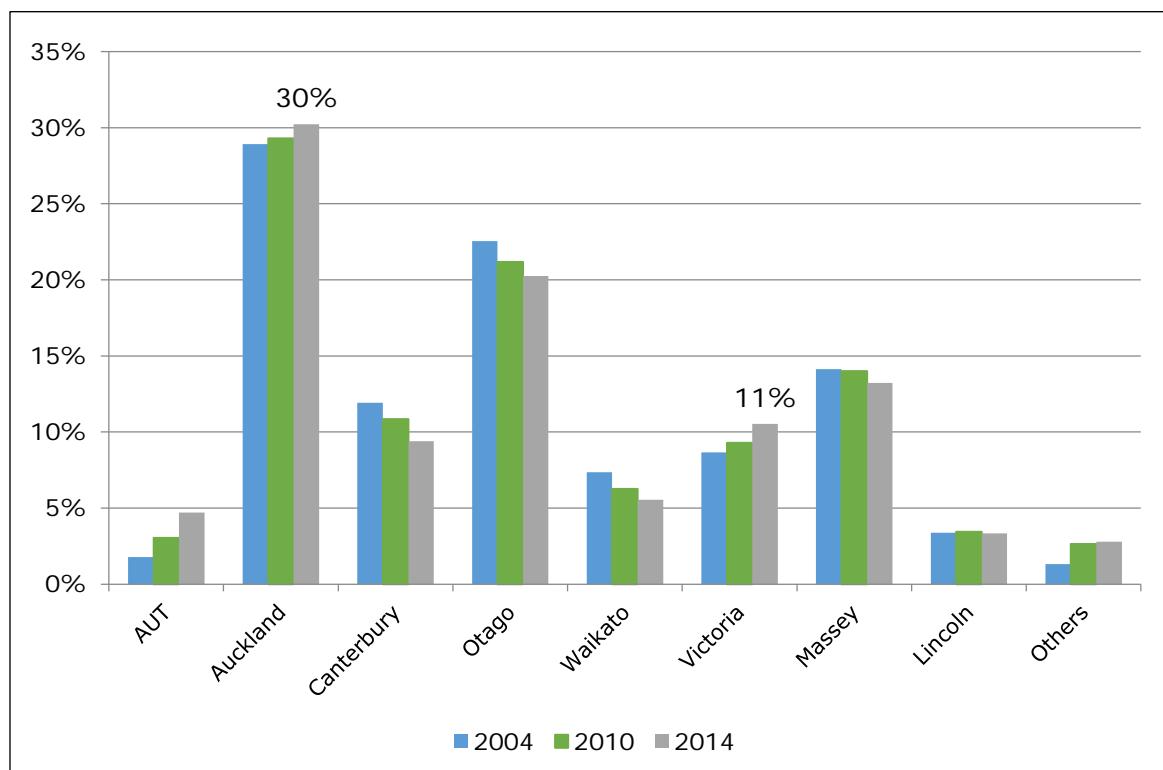


Figure 4: Share of PBRF A-rated researchers (2012)

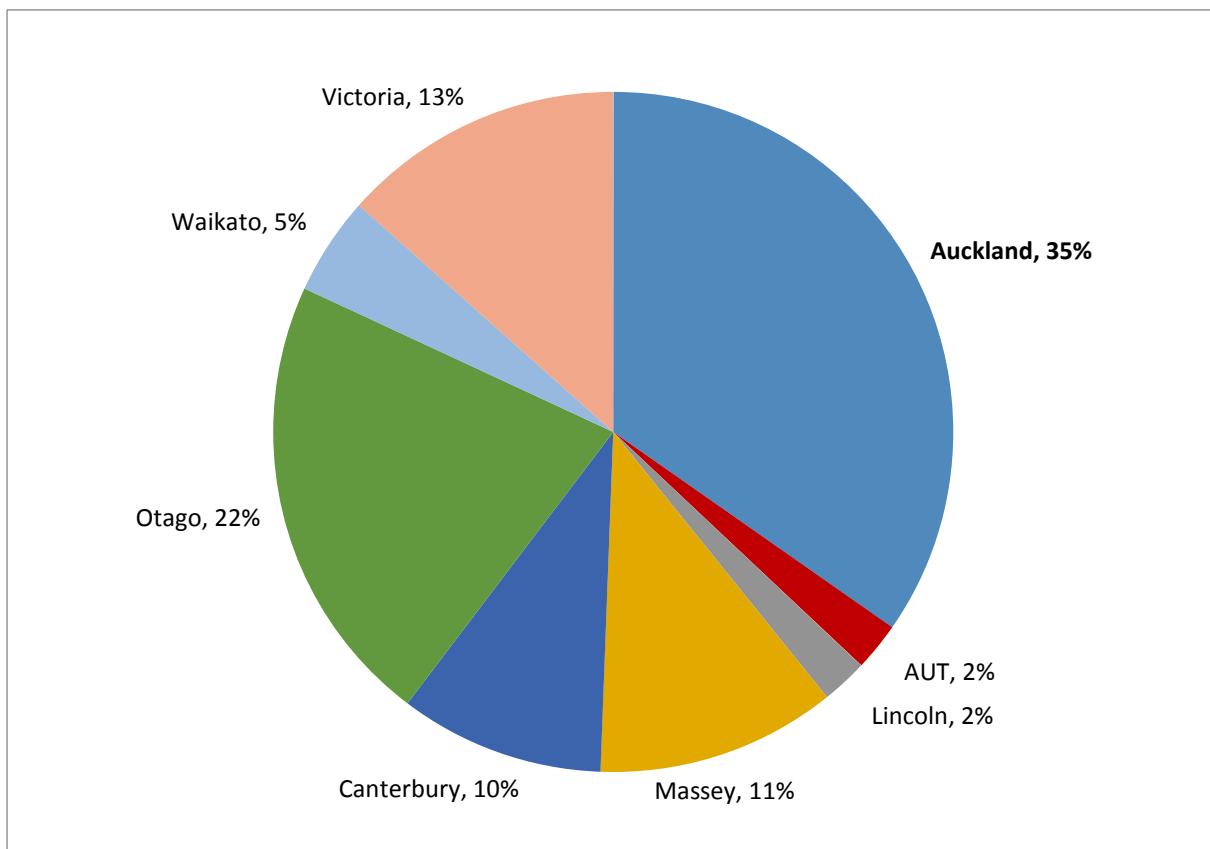
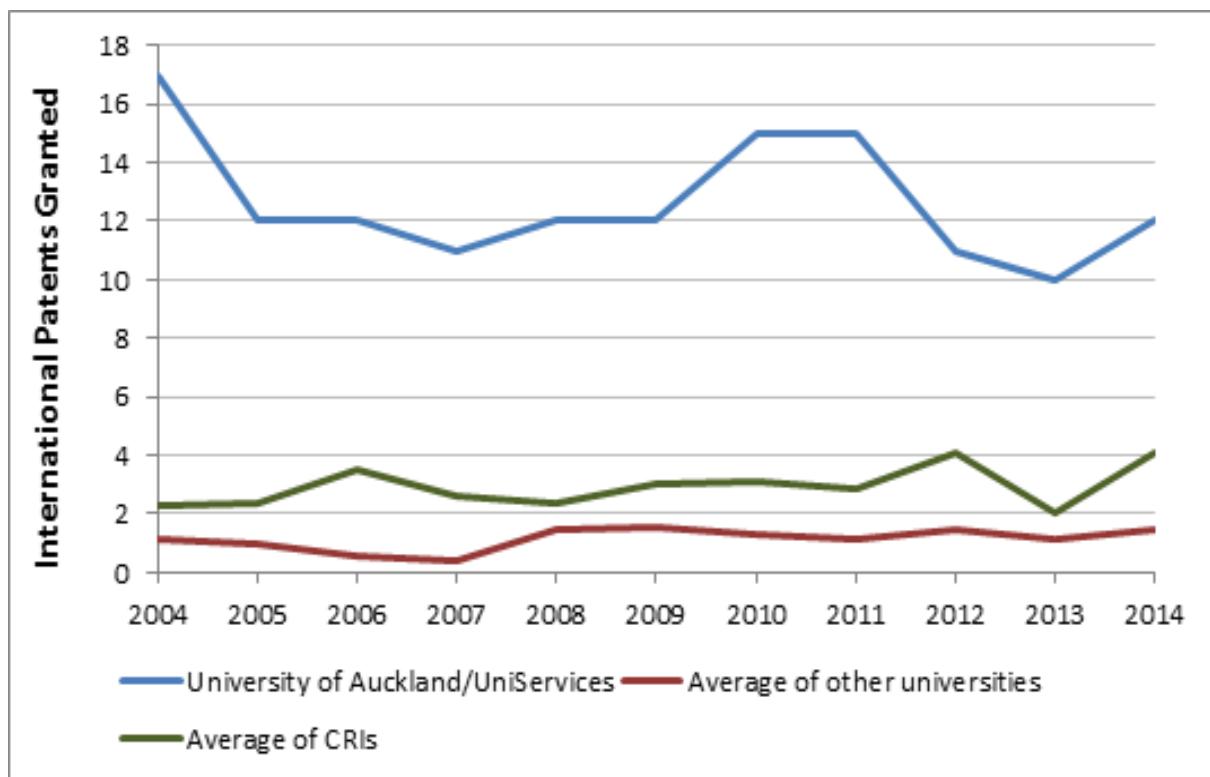


Figure 5: International patents granted to the University of Auckland/UniServices, average of other NZ universities and of CRIs 2004-2014



2. The University in 2025

This section outlines key dimensions of the profile the University expects to have in 2025 and their significance.

- **Rankings:** Top 100 international rankings at university level and across most of its disciplinary areas. However, given that rankings are highly correlated with income per student, and that real income per student is falling, this objective poses a significant challenge.

Why? High rankings provide externally validated indications of our standing relative to leading international universities. They promote our reputation in global markets in ways that will assist the recruitment of good quality international students, the recruitment and retention of high quality teaching and research staff with capacities that match our strategic objectives, and enhance our capacity to enter into partnerships with other research institutions. These partnerships are key to securing access to research funding from international agencies and will deepen the impact of our research outcomes.

- **An undergraduate to postgraduate ratio of 70:30:** The University anticipates that by 2025, its ratio of undergraduate to postgraduate students will be 70:30. This forecast, which is based on the long-term capital plans of its Faculties, exceeds the University's Strategic Plan 2020 target (75:25).

Why? Highly ranked universities are successful in attracting postgraduate students into taught and research programmes. The latter can feed the former and international recruitment of taught postgraduate students provide valuable sources of export education revenue for the university and the community. By training significant numbers of research students we will enhance the level of research outputs and those aspects of our rankings that depend upon them. Graduates with research degrees play a key role in innovative enterprises, most notably in biotechnology, biomedical sciences and a range of engineering-related areas. Government policy settings recognise the contribution that research students from overseas can make to New Zealand economic development.

- **Campus-based, technology-assisted teaching environment:** most undergraduate and pre-work experience postgraduate students will be involved in campus-based learning. Distant learning will be available for a range of post-work experience postgraduate programmes in professional and business-related disciplines.

Why? There is no evidence to support claims that leading international universities are moving away from campus-based teaching models, or that those who aspire to attend them would regard off-campus degree-level studies as an acceptable alternative for which they would pay high fees. It also seems clear that shifting pedagogical imperatives, and a focus on embedding a range of 'soft' employment-related skills in degree programmes, reinforces students' strong preference for on-campus education and the range of educative experiences that it makes possible. Interactive learning, team-based learning and group learning all require face to face interaction and will not

flourish in isolating environments where there are only electronic links between teachers and learners and between learners. In this respect, it is significant that the extended use of IT in the business and governmental realms has not been matched by significant reductions in face-to-face meetings and conferences, even when they involve expensive international travel. It is also significant that the majority of the students who enrol in Massive Open Online Courses (MOOCs) already have a qualification. MOOCs are thus not in demand from the primarily school leaver market which the University of Auckland serves and which is a priority for government.

We see a future for campus-based education for undergraduates and postgraduates where students' experience and learning outcomes are enhanced by the use of learning technologies, and new modes of interaction which are not reliant on them. Surveys make it clear that our students place great importance on campus-based learning and that they understand the added benefits that pedagogically aligned learning technologies provide for their learning. Lecture recording and annotation devices provide students with increased flexibility in lecture attendance, and, more significantly, the opportunity to review lecture material and interact remotely with fellow students and teachers. The MOOCs which the University is currently developing (as part of a collaboration with FutureLearn) also offer this added value though they are not a substitute for the non-campus experience. Personalised video production equipment allows teachers to respond to electronically captured feedback on student understanding. Peer review software allows teachers to establish opportunities for peer assisted learning where the scale of delivery makes traditional means of doing so unviable. Student-teacher interaction through sophisticated learning management tools such as CANVAS (recently adopted by the University at a cost of \$1 million¹) provides data upon which to base timely interventions for at-risk students. Flipped classrooms utilise a range of electronic learning technologies as well as using more conventional means of recording and displaying the outcomes of small scale group based learning activities.

- **High quality teaching delivered by leading researchers:** Teachers will be assisted by professional staff members with learning design expertise but the conceptualisation and delivery of courses will be undertaken by well-qualified academics who are active in research and contribute to the development of their disciplinary and cross-disciplinary fields of study. As at present academics entering the teaching workforce will be required to undergo formal training; ongoing support will be provided to maximise the use of evolving learning technologies.

Why? Degree-level teachers already utilise generic material developed by other academics in the form of textbooks and material derived from electronic sources. These materials, and learning design advice, support the delivery of degree-level teaching rather than forming its substance. Some teachers do follow the text but their efforts are not appreciated by discerning students who understand that 'content' is not a fixed entity but the starting point for the teacher's guiding and stimulating role. In an environment where significant economic advances rest on intellectual verve, imagination

¹ Approximate annual licence fee per annum

and risk-taking it is implausible to think that education can be reduced to the mechanical transfer of content from the mind of someone utterly disconnected with learners and the cultures in which they live, learn and will work.

Reliance on materials produced by offshore institutions will turn New Zealand into a subsidiary of other cultures, lacking capacity to contribute to international scholarship and science and to lever off these contributions. Teaching by academics who conduct their research in a New Zealand context, with strong connections to international colleagues, makes the New Zealand University experience unique.

- **Academically and socially responsive curricula** that incorporate developments in fields of academic study and embed learning experiences that provide students with the opportunity to acquire the ways of thinking and working needed in rapidly evolving future work environments and in the communities of which they are a part.

Why? We do not know what new fields of study may have emerged by 2025 but as in the past we will ensure that our curricula and range of programmes respond to academic and social developments which relate to degree level study. Whatever the particular focus and content of these programmes, they will incorporate learning opportunities that will equip our students with the skills necessary to enhance their career prospects and contribute significantly to New Zealand's economic performance in a highly competitive global market place and to the social and cultural needs of its peoples. This process of adapting curricula and teaching methods to the national and international context, and to developments in technology, has been a constant feature throughout the history of the University.

- **International student enrolments of up to 25%**

Why? International student enrolments contribute to the University's ranking and reputation, strengthen its postgraduate research capacity by drawing on a talent pool that extends beyond New Zealand, enhance its base of philanthropic support from alumni and increase its revenue from full cost fees. Indeed, it can be shown that export education is now the only part of a New Zealand University's operations that generates a margin over costs. Recruitment of international students at degree-level depends on market advantages derived from reputation, distinctiveness, quality of delivery, student experience and learning, and employability outcomes. For students whose first language is not English, overseas study in an English-language environment provides an invaluable means of developing sophisticated language skills which will enhance their future life prospects. Offshore delivery does not produce this benefit and without huge investment cannot replicate the range and quality of education available in Auckland. It also diminishes the benefits of international education for domestic students. The presence of international students in our classrooms and research facilities will help to create an international learning environment for domestic students that mirrors modern workplaces and will assist them in future interactions with international clients and partners. Moves to enhance the quality of on-campus education by the use of learning technologies will benefit international students as well as those from New Zealand.

Indeed, since many of these technologies allow students to have ongoing access to lectures, to signal gaps in their understanding, to allow them to engage with material at their own pace, and for staff to gain early access to information on non-engagement and other indicators of at-risk behaviour, they are likely to be particularly useful in creating learning environments and levels of performance that will enhance the competitive advantage of institutions which deploy them effectively.

Bearing these points in mind, and looking to the experience of international universities which make significant contributions to export education in their countries, moves to displace a primarily on-campus experience by remote learning, would be fatal to New Zealand's export education industry. Fees revenue from international students would drop drastically and falls in international student numbers resident in New Zealand would weaken sectors of the New Zealand domestic economy (housing and services) whose revenue is boosted by them. There seem to be no compelling reasons why a student from Shanghai should pay a premium to access online courses originating in New Zealand, far less to those re-packaged from overseas suppliers. The fate of New Zealand retailers in the face of competition from international online suppliers demonstrates our exposure where competitive advantages are removed.

- **A diverse student body:** Levels of Māori and Pacific participation which match national demographics, and levels of achievement that are comparable with those of other groups.

Why? The University of Auckland is already the largest single source of graduates from Māori and Pacific communities. Our work to recruit and retain these students derives from the University's strategic plans and is consistent with a theme in national tertiary education strategy statements. The pursuit of this objective has important implications for our general approach to degree level education.

The educational considerations which tell against off-campus degree level study for students in general, and for international students, are also significant in relation to the University's commitment to enhanced levels of successful participation by Māori and Pacific students. The international experience of MOOC participation and completion, and the performance of New Zealand students enrolled in distant education programmes, demonstrates the challenges posed for those undertaking degree-level studies without the support and stimulation available to those in on-campus based programmes. Expectations that participation can be widened by off-campus online provision will widen the gap between different parts of the community, creating a two tier system where those from disadvantaged groups study online and face the additional challenges to learning which that entails. As with other groups of students, student experience and learning outcomes can be enhanced by the use of learning technologies but these are only likely to be effective if set within the context of an on-campus learning environment.

3. The Role of Government Policy Settings

Some current settings are supportive of the University's vision for 2025. Domestic fee levels for international PhD students support our UG/PG profile and boost the pool from which we can recruit well trained and high achieving postgraduate researchers. Many of these highly qualified graduates will be available to meet the needs of New Zealand employers. The PBRF provides mechanisms for aligning some funding streams with our rankings, research outcomes and postgraduate student objectives. There may be room for fine tuning here—for example, the research weighting necessary to gain access to completion funding for masters students militate against programmes that may have smaller research components but provide more scope for research training, particularly in high tech areas such as biomedical engineering. Generally, however, the benefits of the PBRF in that respect contrast strongly with the lack of differentiation in income streams deriving from student enrolments.

Institutions receive identical SAC funding for similarly classified courses and fees maxima regulations have prevented institutions setting their fees at levels that reflect their rankings, reputation and the demand for their qualifications. The maintenance of a world-ranked research-led teaching environment requires significant ongoing investment. When government constraints on SAC funding are combined with fees maxima regulations so as to progressively reduce the revenue per student, they pose a significant impediment to change. To the extent that the fees maxima are determined by a wish to reduce the cost of the government's student loan scheme, they are a product of features of that scheme (universal access to interest free loans) which are unnecessary to ensure widespread participation. Indeed, constraints on revenue restrict the University's capacity to provide scholarships and other support for equity target groups and students who face significant financial barriers to participation in university studies.

In its issues paper the Commission makes much of a study that showed that increases in university revenues are matched by increases in expenditure. Its commentary ignores the very obvious consideration that the value of increases in expenditure in universities need to be evaluated by reference to educational outcomes that are generated by it; that is the true measure of the internal productivity of universities. The Commission's comments on the sector's contributions to national productivity are equally short sighted since they imply that the proportion of graduates in a country's workforce is the only significant variable, thus ignoring the impact of government policy settings, geographical advantages and disadvantages, business capability, the skills of employers and the skill level of non-degree qualified employees.

Government constraints on university revenue provide a far more serious limitation on investment options than those canvassed in the Commission's comments on investment and risk. Universities already take risks, in infrastructural developments, marketing and new programme and teaching investments. As indicated earlier, these investments have been considerable and they have, by and large, been productive in terms of student experience and performance, research outputs, securing external research funding and the commercialisation of research capacities. It is true that government's financial management requirements prevent certain forms of risk-taking but that is not necessarily a bad thing. The

capacity for universities to respond to the outcomes of failed investments in ways which are consistent with their obligations to students and research funders is very limited and the reputational basis of their position in export education markets is particularly vulnerable.