

Unitec Research & Enterprise Strategy 2015-2020



Unitec
Institute of Technology
TE WHARE WĀNANGA O WAIRAKA

Tuāpapa Rangahau¹ / Research and Enterprise Office

1 Introduction

This document outlines Unitec's Research and Enterprise Strategy for the period 2015 to 2020. It provides a broad strategic rationale, direction and focus for research activity at Unitec. The strategy has been developed by the Research and Enterprise Office and research leadership within Unitec following significant consultation with staff.

The goal of this document is to:

- » provide the framework for future research and enterprise activity at Unitec;
- » articulate where emphasis on research and enterprise should be placed at an institutional level;
- » identify key deliverables and actions required to meet Unitec's research and enterprise goals;
- » define the unique contribution that Unitec research will make to iwi, community and industry.

The Research and Enterprise Office, clusters and departments will be responsible for implementing the strategy across the institution.

2 Situation Analysis

2.1 External Context: The Tertiary Education Strategy 2014-2019

Unitec's Research and Enterprise Strategy has been developed within the context of the Government's Tertiary Education Strategy 2014-2019, which sets the framework and expectations for tertiary education in New Zealand.

The Tertiary Education Strategy recognises that tertiary education research "provides significant economic, social, cultural and environmental benefits. This includes helping us to better understand our unique culture and our place in the world, effectively manage our natural environment, and improve the health and wellbeing of New Zealanders"².

The strategy emphasises the importance of realising value from research in the tertiary sector and gives particular focus to tertiary providers working with industry stating "The Government expects TEOs [Tertiary Education Organisations] to work more closely with industry to improve the relevance of research and achieve greater transfer of knowledge, ideas and expertise to industry and wider society. We want to increase the tertiary education system's impact on innovation occurring across the country, and hence lift economic growth"³.

1 Platform, foundation, launch pad for research & development

2 Tertiary Education Strategy 2014-2019, pg. 16

3 Idem

2.2 Internal Context: The importance of research for Unitec

This Research and Enterprise Strategy has been developed in response to the rapid changes that have taken place in the New Zealand education sector and concomitant transformation at Unitec.

The Tertiary Education Strategy underscores a fundamental need for TEOs to engage directly with industry and community in a manner which is impactful. "Unitec has engaged in a process of significant transformation in order to stay relevant in the 21st century...Education is on the cusp of disruptive change driven by the impact of technology, learner expectations of employment outcomes, employer and government expectations of relevance and value, and major corporate interest starting to enter the sector (such as Amazon, Facebook, Google)"⁴.

Unitec's role as a TEO is to develop students' specialist and interdisciplinary understanding, independent critical thinking and analytical skills. "Through vocational and applied professional education and learning, and practically oriented research, Unitec equips people to realise their aspirations, and to make a real contribution to their communities"⁵.

At Unitec teaching, learning and research are inseparable. Staff and students are involved in quality research and collaboration with others across the TEO sector, in specialist disciplines, in transdisciplinary teams and with community and industry. Significant innovation in teaching and learning through research will improve the outcomes for students across the ITP (Institutes of Technology and Polytechnic) sector.

Some of the ways that Unitec can contribute to the national and regional research effort are as follows:

- » High impact, applied, specialised or transdisciplinary research and enterprise that increases the resilience, sustainability, wellbeing and productivity of New Zealand's communities, ecologies and which helps to facilitate a diverse, innovation economy.
- » Research and enterprise around teaching and learning methodologies, educational curricula, student success and retention, eLearning and new pedagogies.
- » Research and enterprise around how education can be most valuable to iwi, community and industry.
- » Research and enterprise around mātauranga Māori and applied research which contributes to the resilience, sustainability and productivity of tāngata whenua.
- » Research and enterprise that contributes to the resilience, sustainability and productivity of tāngata Pasifika and the islands of the Pacific.

⁴ Unitec 2015 - 16 Investment Plan statement

⁵ Unitec Strategic Plan 2014

Research and enterprise activity provides opportunities for partnership and collaboration with government, iwi, industry, community organisations, and other institutions locally, nationally and internationally. Research and enterprise at Unitec focuses on opportunities, challenges and problems identified and brought to the institute by iwi, community and industry. This “outside-in” approach is central to Unitec’s research strategy and is made possible by a network of connections with:

- » Businesses and entrepreneurs.
- » Community and non-government organisations (NGOs).
- » Government departments and local body authorities.
- » Iwi and hapu.
- » The teaching and learning community: teachers, students and their families/whānau.

Mechanisms for achieving this include:

- » External research income.
- » Postgraduate education.
- » Scholarships.
- » Consultancy.
- » Intellectual Property development.
- » Facilitating entrepreneurial activity and innovation.
- » Quality research into curriculum, learning, teaching and pedagogies that enhance tertiary education generally and particularly in the New Zealand ITP sector.

2.3 Values

Research supported by or undertaken at Unitec will be in keeping with our Research and Enterprise Strategy and will be conducted in ways that honour Unitec’s values. Unitec upholds that its value to society, iwi, community and industry lies in the knowledge, mātauranga Māori, expertise, research, innovation and capacity inherent in its staff, students and partnerships. All research at Unitec will be conducted according to the core values of Te Noho Kotahitanga and to the highest ethical standards.

2.4 Leadership

The Dean of Research and Enterprise works collaboratively with senior leadership to lead and facilitate research and enterprise at Unitec. The Research and Enterprise Office works with Unitec’s discipline-based research frameworks to support the development of research and research capability. The Dean reports the development and status of research and enterprise at Unitec to Unitec’s Academic Board and Leadership Team.

2.5 Partnership

Researchers and research teams partner with community organisations, iwi and businesses to respond to socio-economic and ecological needs. They will ensure that the research they produce is relevant and responsive to the needs of Unitec’s key stakeholders and the environment.

2.6 Communication

Research and Enterprise at Unitec is disseminated in a way that is accessible to those most likely to benefit from the findings and activities. Dissemination could take the form of a quality publication, public fora, a commissioned report, a creative work or design, consultation, professional advice, advice on Intellectual Property development and/or the commercialisation of Intellectual Property and other relevant means of communication.

2.7 Current Situation

Research and Enterprise at an institutional level at Unitec is managed by the Dean of Research and Enterprise, the Research and Enterprise Office and the Unitec Research Committee. Each of the various disciplines and interdisciplinary areas has a research committee and sub-structures for developing and managing research.

Key features of our performance to date are:

- » Unitec has a strong research capability as is evidenced by the last PBRF assessment where we ranked first amongst ITPs. Overall, our total research outputs have stayed relatively constant over the last four years with quality assured outputs showing a steady year on year upward trend. This reflects a focusing of activity towards PBRF rateable outputs.
- » Postgraduate research degree completions are growing and an increasing percentage of these are PBRF eligible.
- » External research income (from externally funded research projects) is an indicator of external research engagement and a significant source of potential revenue to support our work with stakeholders. We have increased the volume of applications and successes. 2014 was a particularly notable year, with major grants received from MBIE for cybersecurity and communications and from the HRC.
- » Unitec's research performance is measured and managed via research outputs monitoring systems (ROMS and the Research Traffic Light), which provide increasing visibility to the quantity and quality of Unitec's research.

Consultation has identified opportunities for future development:

- » Duplication and inconsistency across divisions at Unitec (faculties).
- » Areas still needing to improve research activity and performance.
- » Areas where policy and processes are outdated and/or inconsistent.
- » Technology and knowledge transfer (which means contract research and student projects, as well as Unitec's Intellectual Property policy).
- » The Government's directive around engagement with SMEs.

Overall we are doing well in particular areas and have achieved some outstanding successes. However, in order to move forward, we need a more coordinated, consistent and strategic approach, with more focus around areas of importance and more partnerships with end users and industry in particular.

3. Research and Enterprise Strategy 2015-2020

3.1 Vision

Unitec aspires to be a world class, world scale Institute of Technology that is an agent of economic, social and environmental change. Our vision for Unitec's research and enterprise activity is that it is a central component to achieving this aspiration, contributing to resilient, sustainable, and productive communities and to an innovative and high value New Zealand economy.

Unitec's strengths lie in its applied and practical focus, its mixture of programmes involving research and enterprise at postgraduate and undergraduate levels, and its strong relationships with community and industry, led by staff. We will develop these strengths through focussed, applied research and enterprise activity that is integrated with teaching and learning and undertaken within networks of stakeholders, enabling effective knowledge transfer. In these networks we aim to contribute to demonstrable benefits such as improved productivity, policy, technologies, products or processes, better knowledge bases for decision making, as well as less tangible outcomes such as improved wellbeing, resilience or socio-cultural contributions.

3.2 Strategic Aims and Priorities

In order to achieve our vision, this strategy has two aims:

1. to continue to improve the quality of our research, through focus and tactical capability development and,
2. to increase research engagement, both external and in relation to teaching and learning.

In order to achieve these aims, we need to progress from our current situation. We have identified five key areas for action that are priorities for Unitec in the next five years. These are listed below, and in Table 1 that follows we detail the specific actions that will be undertaken to achieve these priorities (and the specific deliverables resulting from those actions).

1. **Build more, deeper research relationships with industry.** Research at Unitec will be responsive to the needs of industry and community and we will broaden the range of activities and methods for engaging and supporting these external stakeholders. This is not just about doing 'applied' research, it is about building research relationships with our communities and industries and doing research that is generated, undertaken and delivers benefit within these. This will include the development of a knowledge transfer framework which enables staff to work with businesses and community organisations in contractual arrangements.
2. **Increase strategic focus to create areas of specific expertise.** Following the completion of a gap analysis and opportunity assessment report, Unitec will undertake the acceleration of three strategic research foci in order to grow capacity, capability, partnership and profile in specialised areas of knowledge. These will grow and change over time.

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3. **Improve and support researcher performance.** Resources for contestable research funding, conference attendance, professional development around research, fostering early career researchers, international fellowships as well as hosting symposia and conferences will continue to be available. A targeted Research Development Plan, which will respond to the Research Traffic Light data, will assist in achieving much higher levels of research engagement.
 4. **Efficient, effective and facilitative processes.** Optimise Research and Enterprise Office policy and practice to support research and knowledge transfer, with developments including centralising and rationalising internal funding, Intellectual Property management, research consultancy, large grant management and the review of research support services.
 5. **Teaching-related / teaching-integrated research.** Better integration of postgraduate and staff research, particularly with reference to the strategic research foci, will be achieved through targeted scholarships and other mechanisms.
 6. **Communication and profile.** Working internally and externally to communicate the value of research at Unitec, supporting researchers to showcase and disseminate their work, creating new relationships, and celebrating/acknowledging success and contributions.



Table 1: Key Actions and Deliverables 2015 - 2020

Priority Area	Action	Description	Deliverable
1 - Build More and Deeper Research Relationships with Industry	Internal funding criteria	Increase focus on partnered and co-funded research, as demonstrated by significant stakeholder contribution.	80 percent of contestable funding and 100 percent of discretionary funding will be co-funded by 2020.
	Create strategic foci	Concentrate resources on areas of need and opportunity in the New Zealand economy, environment and communities.	Phase 1 foci established and operational by 2016 (includes management and governance, external funding plans, budget forecast, key stakeholder relationships). Review Strategic Foci Programme 12 months after establishment.
	Research vouchers	Implement a research voucher scheme (in partnership with the ITP Metro Group) which incentivises SMEs and community organisations to engage Unitec staff expertise.	20 Vouchers delivered by 2016. 50 Vouchers per year by 2020.
	Consultancy policy	Develop a framework for undertaking commercial research consultancy.	Undertake a pilot in 2015 and use the learnings to inform a new framework.
2 - Strategic Focus	Create strategic foci	Concentrate resources on areas of need and opportunity in the New Zealand economy, environment and communities.	Phase 1 foci established and operational by 2016 (includes management and governance, external funding plans, budget forecast, key stakeholder relationships). Review Strategic Foci Programme 12 months after establishment.
	Discretionary research investment	Create a central pool for strategically funding research that is responsive to opportunity. This is differentiated from contestable funds.	Central funding implemented 2015.
3 - Improve and Support Researcher Performance	Research performance management systems	Implement internal systems to manage / support research performance, i.e. the 'Traffic Light' and Personal Research Engagement Portfolio (PREP).	Implement pan-institutional online staff research planning in 2015. Implement a Research Development Plan in response to the Research Traffic Light (RTL) in 2015. Move all Red or Amber lit programmes up by one increment by 2016 in the RTL. Achieve 100 percent Green lit programmes by 2020. Integrate PREP into the Living Job framework by 2016.
	PBRF rating improvement	Deliver improved ratings in PBRF (which we reaffirm as a measure of quality relevant to our applied research).	Deliver 'mock' PRBF in 2015. Implement plan for PBRF in 2015 which details milestones for research productivity into the 2018 review.
	Supportive policies	Unitec IP (Intellectual Property) policy.	Undertaken IP development pilots in 2014/15. Use the learning to inform a new IP policy proposal in 2015.

	External research funding	Seed new relationships, build capability in managing research contracts, seed and cultivate staff initiatives, pipeline for future foci and major external contracts.	<p>The number of external grants awarded to Unitec staff increases 10 percent each year between 2015 and 2020.</p> <p>The number of staff actively seeking and winning external grants increases.</p> <p>Unitec's application success rates increase.</p>
	Performance management	Work alongside People and Culture to ensure that performance expectations around research productivity and focus is appropriately managed.	Clearly define what the expectations are for beginner researchers, early career researchers and advanced researchers (members of the professoriate etc).
	Support for Beginner Researchers	Beginner: provide professional development opportunities, writing support, research team membership, seed funding and mentoring for beginner researchers.	Draft annual Research Development Plans which provide the framework for beginner research engagement and allocate funding to do this from 2015 onwards.
	Support for Early Career Researchers	Early Career: support the development of research careers through targeted contestable funding, professional development opportunities, including vouchers, fellowships, awards, roles within strategic foci.	Develop a framework for advancing research careers at Unitec and allocate specific funding to support this by 2016.
	Support for Advanced Researchers	Advanced: facilitate the opportunity for leadership and advanced research at Unitec by providing strategic contestable funding, growing strategic foci, supporting external grant applications and helping build external partnerships.	<p>Review the Strategic Research Fund increasing the emphasis on external co-funding.</p> <p>Develop strategic foci involving research leadership positions by 2017.</p> <p>Allocate within the Research and Enterprise Office specialist leadership roles for supporting grant applications and industrial partnerships.</p>
4 - Efficient and Effective Process	Embedded funding	Implement consistent funding processes that are strategically aligned.	Implement a pan-institutional funding model in 2015.
	Intellectual Property and commercialisation	Develop a framework for supporting the commercialisation of IP for Unitec staff, students and industry partners.	<p>Develop a new IP policy in 2015.</p> <p>Develop guidelines with learning from the IP pilots.</p>
	Consultancy pilot	The Research and Enterprise Office will work with several staff in 2015 to identify the challenges and opportunities around research consultation with specific reference to staff remuneration, publishing, contract, project management, and administrative levies.	A proposed research consultancy framework is presented to the Executive Deans by 2016.

	Research and enterprise services review	Propose review of Research and Enterprise Office support services for research and enterprise once key initiatives have 'bedded down'.	Review 2018.
5 - Teaching and Research	Teaching related research initiatives	Encourage staff research in collaboration with students in credit bearing projects.	Implement Teaching Integrated Research Fund 2015, review in 2016.
	Postgraduate scholarships	Encourage 90 credit or higher postgraduate research in partnership with staff led strategic research projects.	Implement a research scholarship scheme in 2015.
	Create strategic foci	Concentrate resource on areas of need and opportunity in the New Zealand economy, environment and communities.	Phase 1 foci established and operational by 2016 (includes management and governance, external funding plans, internal support, key stakeholder relationships). Review strategic foci programme 12 months after establishment.
6 - Research And Enterprise Communications and Profile	Research communications	Tell our research stories in line with our strategy and in a more targeted manner.	Develop databases for targeted articles and feed press release material to Unitec Communications.
	ePress	Develop and grow the ePress to support key Unitec research and enterprise drivers.	Develop a business plan for the press and resource accordingly in 2015.
	Research symposium	Engage key staff in the annual Research Symposium to achieve targets with the Research Development Plan.	Require that staff receiving support in increasing their research productivity present a paper at Unitec Research Symposium.
	Create strategic foci	Concentrate resource on areas of need and opportunity in the New Zealand economy, environment and communities.	Phase 1 foci established and operational by 2016 (includes management and governance, external funding plans, internal support, key stakeholder relationships). Review strategic foci programme 12 months after establishment.
	Advance magazine	Align Advance with the principle of telling our research stories in a more targeted manner.	Reduce printed version to two editions per annum and utilise resource for disseminating eArticles to targeted industry and community partners.

3.4 Strategic Foci

Probably the most significant development proposed for 2015-2020 is the creation of 'Strategic Foci' for research at Unitec. A heightened degree of focus for research and enterprise activity is a national and international trend, allowing even a relatively small institution to have a high impact in a specialised zone of activity.

Foci will have significant impact on areas of need and opportunity in the New Zealand economy, environment and community. The foci will also create high profile exposure for Unitec as well as opportunity for industry engaged staff, highly responsive programmes and courses and potential business opportunities.

The implementation of Strategic Foci will not compromise advanced research that may fall outside of the foci but has achieved significant recognition, but will facilitate strategic recruitment, targeted capability development and transdisciplinary teams around the foci.

Strategic research foci are specific areas of demonstrated research capability and leadership, aligned to credible external relationships and funding opportunities that we will invest in to accelerate their growth. The intention is that as these foci grow and are successful they can catalyse research development in related areas, and over time the accumulation of these related areas will form larger themes.

Strategic research foci represent a key initiative in changing the balance of internal funding away from the current 100 percent interest led allocation, to include a proportion for mission led resource. This is a change in the balance, not an all or nothing; for example foci will represent 10 percent of funding in 2015 and the greater proportion of investment will remain in support of interest led research. Over time, as the success of foci and the related emergence of larger research themes develops, greater proportions of funding will move toward mission led research.

Strategic research foci will be selected according to the following criteria (the criteria themselves will be tested through consultation):

1. Internal capability and capacity; there is already a group or team working together to achieve substantive research outputs and track record.
 2. Leadership; demonstrated track record of, or commitment to, growing Unitec research capability, including early career researchers.
 3. Research Programme; clear set of research goals / questions / issues with potential to add to knowledge in the field.
 4. External Funding; demonstrable track record of success with growth potential.
 5. Catalytic potential; potential to grow or encourage related research areas across disciplines and build toward larger research themes or vision.
 6. External Relationships; strong, active external research and end user relationships, with demonstrated commitment and contribution, aligned to the research programme and intended impact.
 7. Contribution to Benefit; clear pathway for, and articulation of, research being disseminated, used and benefitting end users, alignment to areas of importance for the region e.g. in terms of economic development, labour market growth, social and cultural wellbeing and environmental sustainability.
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A process to define and implement the first Strategic Foci will be undertaken during 2015. It is likely that cybersecurity will be among this first tranche, as one obvious example of an area that fulfils the above criteria. Other Strategic Foci will roll out over time; with one to two in year one and at least three over the next three years.

3.5 Performance Measures

The performance measures for Unitec's Research and Enterprise Strategy are outlined below. These relate directly to the two aims of the strategy: research quality and research engagement. The six strategic priorities all contribute to a number of these.

Unitec will remain the leading ITP in New Zealand in terms of both the quality and quantity of its applied research and enterprise.

Research Quality:

1. Seventy five percent of Research Traffic Light eligible degree staff will be research engaged by 2020.
2. Unitec will increase the number of rated staff by five percent in the next PBRF round.
3. Unitec will increase its share of the national PBRF income by five percent in the next PBRF round.
4. Unitec will meet the Tertiary Education Commission's mandate that most staff teaching on a degree programme should be research engaged.
5. Quality Assured outputs will result from research (preferably more than one).
6. Postgraduate research, which is aligned with staff research in the strategic foci, will increase.

Research Engagement:

1. External research and related income (e.g. consultancy) will increase by 10 percent per annum, with the average of the last five years' of ERI as a starting point.
 2. The Research and Enterprise Office will aim to administer 10 substantive (over \$25k) contracts in 2015 with a subsequent increase of 10 percent per annum. The number of contracts with private sector companies will be five.
 3. The Research and Enterprise Office will administer 20 Metro Research Vouchers with SMEs and NGOs in 2015, increasing to 50 per annum by 2020.
 4. Externally funded research scholarships will increase by 10 percent per annum, based on an average of the last five years.
 5. Direct co-funding for Unitec supported research and enterprise projects will be at least \$100,000 per annum by 2020.
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