



agenda

Te Komiti Rangahau o Unitec | Unitec Research Committee

Date:	2021-03-11
Scheduled Start:	1300h
Scheduled End:	1500h
Location:	Microsoft Teams

SECTION 1 NGĀ KUPU ARATAKI | PRELIMINARIES

1. Karakia Timatanga | Opening Prayer
2. Mihi Whakatau | Welcome from the Chair
3. Membership
4. Terms of Reference

SECTION 2 STANDING ITEMS

1. Ngā Whakapāha | Attendance, Apologies & Quorate Status
2. Pitopito Kōrero o Ngā Hui | Minutes of the Previous Meetings
3. Mahia Atu | Matters Arising

SECTION 3 MEA HEI WHAKAAE | ITEMS TO APPROVE

1. 2020 - 2024 Unitec Research Strategy – Action Plan (DRAFT)
2. Research Centres Update – CIEE & CCICS
3. Annual Updates to School Research Plans

SECTION 4 WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

1. KPI for Priority One in the 2020 - 2024 Unitec Research Strategy - Action Plan (DRAFT)

SECTION 5 NGĀ TUKUNGA | ITEMS TO RECEIVE

1. Research Bank Changes 2021
2. School Research Plans

SECTION 6 KUPU WHAKAMUTUNGA | CLOSING

1. Ētahi Kaupapa Anō | Any Other Business

2. Komiti Self-Assessment
3. Karakia Whakamutunga | Closing Karakia

SECTION 1 NGĀ KUPU ARATAKI | PRELIMINARIES

Item 1.1 Karakia Tīmatanga | Opening Prayer

KARAKIA TĪMATANGA	OPENING PRAYER
<i>Manawa mai te mauri nuku</i>	<i>Embrace the power of the earth</i>
<i>Manawa mai te mauri rangi</i>	<i>Embrace the power of the sky</i>
<i>Ko te mauri kai au</i>	<i>The power I have</i>
<i>He mauri tipua</i>	<i>Is mystical</i>
<i>Ka pakaru mai te pō</i>	<i>And shatters all darkness</i>
<i>Tau mai te mauri</i>	<i>Cometh the light</i>
<i>Haumi ē, Hui ē, Tāiki ē!</i>	<i>Join it, gather it, it is done!</i>

Item 1.2 Mihi Whakatau | Welcome from the Chair

Item 1.3 Te Komiti Rangahau o Unitec Membership

Marcus Williams (Associate Professor)	Chair and Director Research and Enterprise
Daisy Bentley-Gray (New and Emerging)	Nominee of Director, Pacific Success
Dr Jenny Lee-Morgan (Professor)	Nominee of Director, Māori Success
Dr Helen Gremillion (Associate Professor)	Healthcare and Social Practice
Yusef Patel (New and Emerging)	Architecture
Roger Birchmore (Early Career)	Building Construction
Dr Lian Wu (Associate Professor)	Healthcare and Social Practice
Dr Hamid Sharifzadeh (Associate Professor)	Computing and Information Technology
Dr Leon Tan (Associate Professor)	Creative Industries
Dr Kristie Cameron (Early Career)	Environmental & Animal Sciences
Dr Maryam Mirzaei (Early Career)	Applied Business
Robyn Gandell (Early Career)	Bridgepoint
Susan Eady	Subject Librarian
Vacant	One member nominated by the Student Council
Arun Deo	Research Advisor

In attendance: Brenda Massey Acting URC Secretary

Item 1.4 Te Komiti Rangahau o Unitec Terms of Reference

The powers and functions of Te Komiti Rangahau o Unitec (URC) shall be to:

- a. Foster the conduct of research, and support the achievement of Unitec's strategic research,

enterprise and innovation priorities;

- b. Propose and advise on strategic directions and priorities for research, enterprise and innovation;
- c. Provide expert advice on institutional policy;
- d. Develop protocols and guidelines and make recommendations in relation to the conduct of research, enterprise and innovation;
- e. Oversee the Grants Advisory Committee and the reporting of funded projects;
- f. Encourage and enhance the development of the research, enterprise and innovation culture along with student and staff research capability, with emphasis on the development of Māori and Pacific research capability;
- g. Oversee the monitoring of research outputs and research reporting; and,
- h. Foster Māori and Pacific, transdisciplinary, collaborative and externally engaged research, enterprise and innovation.

SECTION 2 STANDING ITEMS

Section 2.1 Ngā Whakapāha | Attendance, Apologies & Quorate Status

RECOMMENDATION

That the committee accepts the apologies of today's meeting.

Section 2.2 Pitopito Kōrero o Ngā Hui | Minutes of the Previous Meetings

refer to [pg5](#)

RECOMMENDATION

That the committee approves the minutes of the meeting of 2021-02-11.

Section 2.3 Mahia Atu | Matters Arising

refer to [pg11](#)

SECTION 3 MEI HEI WHAKAAE | ITEMS TO APPROVE

Section 3.1 2020 – 2024 Unitec Research Strategy – Action Plan (DRAFT)

refer to [pg12](#)

Section 3.2 Research Centres Update – CIEE & CCICS

refer to [pg24](#)

Section 3.3 Annual Updates to School Research Plans

refer to [pg25](#)

SECTION 4 WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

Section 4.1 KPI for Priority One in the 2020 - 2024 Unitec Research Strategy - Action Plan (DRAFT)

refer to [pg47](#)

SECTION 5 NGĀ TUKUNGA | ITEMS TO RECEIVE

Section 5.1 Research Bank Changes 2021

refer to [pg50](#)

Section 5.2 School Research Plans

refer to [pg51](#)

- School of Applied Business Research Plan [pg53](#)
- School of Architecture Research Plan [pg66](#)
- School of Building Construction Research Plan [pg85](#)
- School of Community Studies Research Plan [pg101](#)
- School of Computing, Electrical and Applied Technology Research Plan [pg115](#)
- School of Creative Industries Research Plan [pg137](#)
- School of Environmental and Animal Sciences Research Plan [pg155](#)
- School of Healthcare and Social Practice Research Plan [pg173](#)

SECTION 6 KUPU WHAKAMUTUNGA | CLOSING

Section 6.1 Ētahi Kaupapa Anō | Any Other Business

Section 6.2 Komiti Self-Assessment

refer to [pg197](#)

Section 6.3 Karakia Whakamutunga | Closing Karakia

TE KARAKIA WHAKAMUTUNGA	CLOSING PRAYER
<i>Ka wehe atu tātou</i>	<i>We are departing</i>
<i>I raro i te rangimārie</i>	<i>Peacefully</i>
<i>Te harikoa</i>	<i>Joyfully</i>
<i>Me te manawanui</i>	<i>And resolute</i>
<i>Haumi ē, Hui ē, Tāiki ē!</i>	<i>We are united, progressing forward!</i>



minutes

Te Komiti Rangahau o Unitec | Unitec Research Committee

Date:	2021-02-11
Scheduled Start:	1300h
Scheduled End:	1500h
Location:	Microsoft Teams

MEETING OPENED:	1300h
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SECTION 1 – NGĀ KUPU ARATAKI | PRELIMINARIES

Item 1.1 Karakia Timatanga | Opening Prayer

KARAKIA TIMATANGA	BEGINNING PRAYER
<i>Manawa mai te mauri nuku</i>	<i>Embrace the power of the earth</i>
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<i>Tau mai te mauri</i>	<i>Cometh the light</i>
<i>Haumi ē, Hui ē, Tāiki ē!</i>	<i>Join it, gather it, it is done!</i>

Item 1.2 Mihi Whakatau | Welcome from the Chair

The Chair warmly welcomed members of the committee to the first meeting of 2021.

SECTION 2 – STANDING ITEMS

Item 2.1 Ngā Whakapāha | Attendance, Apologies & Quorate Status

Members Present

1. A/P Marcus Williams (Chair)
2. Daisy Bentley-Gray
3. A/P Helen Gremillion
4. Roger Birchmore
5. Susan Eady
6. Yusef Patel
7. A/P Hamid Sharifzadeh

8. A/P Leon Tan
9. Tui Matelau (proxy for Robyn Gandell)
10. A/P Lian Wu (from 1.15pm)
11. Gerald Ryan (from 1.25pm)

Total members represented: 11 members

Apologies

1. Dr Kristie Cameron
2. Arun Deo
3. Robyn Gandell

Total apologies: 3 member/s

Absent

1. Prof Jenny Lee-Morgan
2. Dr Maryam Mirzaei

Total absences: 2 member/s

MOTION

That the committee accepts the apologies for today's meeting.

Moved: Daisy Bentley-Gray

Seconded: Susan Eady

MOTION CARRIED

Quorate Status

A minimum of 9 representatives is required; the meeting was quorate.

Hunga Mahi | Staff in Attendance

1. Brenda Massey, Acting Secretary

Item 2.2 Pitopito Kōrero o Ngā Hui | Minutes of Previous Meeting

The Chair advised that Academic Committee has approved the committee's 2021 Work Plan.

SPSS has been discontinued. R training opportunities will be offered soon.

MOTION

That the committee approves the minutes of the 2020-12-10 meeting as a true and accurate record.

Moved: Helen Gremillion

Seconded: Hamid Sharifzadeh

MOTION CARRIED

Item 2.3 Mahia Atu | Matters Arising

Agenda Item	Action	Responsible	Outcome
3.2	Amend the 2021 Work Plan as follows:	Brenda Massey	Complete

	- Schedule “discuss the date and format of the Unitec Research Symposium” for March not June. - Schedule “consider the format of the annual research report” for March. Bring the 2019 annual research report to the committee in March for feedback on the format. - Merge the November and December rows, as the items scheduled then are generally considered over two meetings. Schedule “construct a 2022 Work Plan” for November/December.		
5.2	Undertake a survey to ascertain any ongoing need for support amongst former SPSS users.	Arun Deo	In progress

SECTION 3 – MEA HEI WHAKAAE | ITEMS TO APPROVE

Section 3.1 ECR Support: Return from Parental Leave Application – Dr Hoa Nguyen

Funding will contribute towards relieving the applicant’s teaching load. The applicant’s Head of School is supportive of the proposal.

MOTION

That the committee approves Dr Hoa Nguyen’s application for ECR Support.

Moved: Daisy Bentley-Gray

Seconded: Roger Birchmore

MOTION CARRIED

Section 3.2 Definition of an Early Career Researcher at Unitec

The committee discussed and agreed to the request to revise the definition of an ECR, subject to the definition being slightly amended as highlighted in green below.

Funding and professional development is available to support researchers who don’t meet the first criteria to meet the second criteria. It is important that researchers who are allocated early career researcher funding are experienced in leading projects and producing high quality outputs.

Principal Investigators must meet the Unitec definition of an ECR:

An ECR at Unitec lies between ‘emerging/beginner’ and ‘senior/advanced’. An ECR is within 10 years (prior to the closing date for full applications) of becoming an ‘independent’ researcher, which is defined as:

- 1. A researcher who has completed a higher research qualification (a PhD, or Masters¹); or*
- 2. A researcher who was the first author of a disseminated quality assured research output.*

Time taken for parental leave³ is not counted as part of the 10-year window (i.e. one year of parental leave would extend the eligibility period to 11 years since graduating).

¹ Must be a minimum 90 credit Master’s Thesis.

² **This excludes conference presentations.**

³ *Other forms of extended leave may be considered by negotiation with Tūāpapa Rangahau.*

MOTION

That the committee approves the revised definition of an Early Career Researcher (ECR) at Unitec in regards to eligibility for ECR funding, subject to the amendments highlighted in green above being made.

Moved: Helen Gremillion

Seconded: Daisy Bentley-Gray

MOTION CARRIED

Section 3.3 Research Centre Annual Report Template

The committee unanimously approved the proposed research centre reporting template with no changes. It was noted that the form will procure information that is important to the committee. Marcus Williams and Brenda Massey were commended for producing a succinct and concise document that should be able to be completed by centre directors quickly and easily.

SECTION 4 - WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

No items were scheduled for discussion this meeting.

SECTION 5 - NGĀ TUKUNGA | ITEMS TO RECEIVE

Item 5.2 was discussed ahead of item 5.1.

Section 5.2 Reaccreditation of the Centre for Computational Intelligence and Cybersecurity (CCICS) and the Centre for Computational Intelligence for Environmental Engineering (CIEE)

It was noted that neither of the research centres due for reaccreditation currently have a Director.

It was suggested that any documentation required to support reaccreditation requests be based on the research centre reporting template. The committee gave Tūāpapa Rangahau approval to adapt the research centre template if/as required.

Action: Marcus Williams will notify the Head of School of Computing and Information Technology that the CCICS and CIEE need to be reaccredited if they are to continue to operate as research centres at Unitec. If the centres intend to seek reaccreditation, they will be required to complete the research centre reporting template which will be adapted for this purpose if/as necessary.

Section 5.1 2021 Unitec Early Career Researcher Fund Outcomes

The committee noted the outcomes of the ECR fund. The Chair advised that while Min Hall's application was declined, she will in fact be working to complete her 2020 funded project this year,

which was delayed last year due to COVID-19. Funds from the 2021 budget will be utilised for this purpose as ECR funding is not rolled over from year to year.

The committee was concerned to hear that Vision Mātauranga is still being poorly understood and considered by applicants. This appears to highlight a development need at Unitec.

Effort has been made in the past to address this need. A course was in development, however it proved difficult to find a course facilitator.

Action: the committee requested that Tūāpapa Rangahau explore options around offering support to staff to address Vision Mātauranga in their research and applications for funding.

Section 5.3 Update on research undertaken into non-completing students at Unitec

Last year Tūāpapa Rangahau created a dedicated fund to support research into the success of Unitec's priority learners. The Director Pacific Success was already working on a project that seeks to understand why some Pacific students don't complete. The fund is supporting this project. The other priority group directors are being supported by a contracted researcher to understand why other priority groups at Unitec don't complete. It is hoped this research will inform better resourcing for priority group learners at Unitec.

In the future it would be good to see more research like this being produced by Unitec academics.

SECTION 6 - KUPU WHAKAMUTUNGA | CLOSING

Section 6.1 Ētahi Kaupapa Anō | Any Other Business

There was no other business.

Section 6.2 Komiti Self-Assessment

The Chair considers the committee to be critically engaged, contributing to meetings in a positive and proactive way.

Any additional feedback can be emailed to the Secretary following the meeting.

Section 6.3 Karakia Whakamutunga | Closing Karakia

TE KARAKIA WHAKAMUTUNGA	ENDING PRAYER
<i>Ka wehe atu tātou</i>	<i>We are departing</i>
<i>I raro i te rangimārie</i>	<i>Peacefully</i>
<i>Te harikoa</i>	<i>Joyfully</i>
<i>Me te manawanui</i>	<i>And resolute</i>
<i>Haumi ē, Hui ē, Tāiki ē!</i>	<i>We are united, progressing forward!</i>

MEETING CLOSED:	1415 h
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SUMMARY OF ACTIONS

Agenda Item	Action	Responsible	Outcome
2.3	Undertake a survey to ascertain any ongoing need for support amongst former SPSS users.	Arun Deo	
3.1	Advise Dr Hoa Nguyen of the outcome of her application and arrange payment of the grant.	Marcus Williams	
5.1	Explore options around offering support to staff to address Vision Mātauranga in their research and applications for funding.	Marcus Williams	
5.2	Notify the Head of School of Computing and Information Technology that the CCICS and CIEE need to be reaccredited if they are to continue to operate as research centres at Unitec. If the centres intend to seek reaccreditation, they will be required to complete the research centre reporting template which will be adapted for this purpose if/as necessary.	Marcus Williams	

MATTERS ARISING

Agenda Item	Action	Responsible	Outcome
2.3	Undertake a survey to ascertain any ongoing need for support amongst former SPSS users.	Arun Deo	In progress
3.1	Advise Dr Hoa Nguyen of the outcome of her application and arrange payment of the grant.	Marcus Williams	Complete
5.1	Explore options around offering support to staff to address Vision Mātauranga in their research and applications for funding.	Marcus Williams	In progress
5.2	Notify the Head of School of Computing and Information Technology that the CCICS and CIEE need to be reaccredited if they are to continue to operate as research centres at Unitec. If the centres intend to seek reaccreditation, they will be required to complete the research centre reporting template which will be adapted for this purpose if/as necessary.	Marcus Williams	Complete

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11th March 2021

Title	2020 - 2024 Unitec Research Strategy – Action Plan (DRAFT)
Provided by:	A/P Marcus Williams – Director Research and Enterprise
For:	APPROVAL

Recommendation

That the committee considers and approves the appended 2020 - 2024 Unitec Research Strategy – Action Plan (DRAFT).

Purpose

The purpose of this paper is to present the proposed action plan for feedback and approval, as per the URC workplan.

Background

It was agreed in the consultation and development of the 2020 - 2024 Unitec Research Strategy that an Action Plan would be developed subsequently.

Next Steps

Once the 2020 - 2024 Unitec Research Strategy - Action Plan is approved, it will be the responsibility of Tūāpapa Rangahau to implement it. The implementation of actions and outcomes of these actions will be reported in the Annual Research Report. The KPIs will be reported in the Unitec BI Dashboard and will also indicate to the URC, the effectiveness of the Action Plan.

Contributors

A/P Marcus Williams – Director Research and Enterprise
Penny Thomson – Research Partner
Gregor Steinhorn – Research Partner Enterprise

Attachments

2021 Unitec Research Strategy – Action Plan (DRAFT)

2020 - 2024 Unitec Research Strategy

Unitec Research Strategy – Action Plan

Priority One	Goal one	KPI	Action Summary	Actions
Research that is aligned with Te Tiriti o Waitangi Unitec will ensure that its support for research, governance and processes is aligned with Tiriti o Waitangi. In this way, Unitec will exemplify leadership in Māori research in the NZIST sector and in Aotearoa. The principle of rangatiratanga expressed through our partnership document, Te Noho Kotahitanga, will apply to research at Unitec: that Māori will have authority over and responsibility for all research related to Māori dimensions of knowledge. Vision Mātauranga will be integrated into all research processes and researchers will be supported to understand and fulfil these requirements. We will resource and grow the numbers and capability of Māori researchers, including Māori supervisors of our postgraduate programmes. We will actively seek and maintain partnerships with iwi, hapū, Māori businesses, institutions and peak Māori bodies. We will evolve our research office appropriately to ensure Māori research governance and rangatiratanga.	Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.	(NB – the committee could consider a KPI that is suitable for this priority. None currently exist)	Review research policy, guidelines and processes to ensure rangatiratanga	- Consult with Māori researchers on how we do the management of contracts and the appropriate appointment of Māori researchers for these projects. - At the appropriate interval; review policy to ensure rangatiratanga - Review funding frameworks to update Vision Mātauranga sections
			Review all funding frameworks, guidelines and processes to incorporate Vision Mātauranga	- Review guidelines and processes as above - Ensure appropriate Māori representation on research funding application assessment panels
			Increase Māori postgraduate supervisors and student scholarships	- Appoint an expert Kaupapa Māori Supervisor/Advisor - Work with the postgraduate committee to increase Māori scholarships - Develop strong Mahi Kotahitanga between programme and Māori scholarship committees
			Provide professional development by Māori for Māori researchers and postgraduate supervisors	- Support and provide administrative backup to the Kaupapa Māori Supervisor/Advisor to provide professional development for Māori researchers & supervisors - Provide administrative support for the Māori and Pacific Postgraduate Support Roopu
			Support and resource Ngā Wai a te Tūi appropriately	- Provide contract oversight, compliance support and administrative expertise
			Review capability and plan for institutional research co-governance and leadership	- Consult with Ngā Wai a te Tūi on a research governance model in line with Te Tiriti - Consider research office structure in line with above - Consult with Unitec Research Committee on this - Submit a relevant proposal to ELT
			Tell stories of Māori research projects, outcomes and success	- Advocate to Unitec Corporate Comms for Māori research stories - Publish Māori research in ePress

				- Include Māori research stories in the Unitec Research Blog
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Priority Two	Goal Two	KPI	Action Summary	Actions
A flourishing, collaborative research culture Unitec will grow a productive, diverse, student integrated, engaged and sustainable research workforce with the necessary resourcing and infrastructure. There will be an inclusive pipeline of support for developing the capability of our people and empowering them toward transformative outcomes for our communities; from the beginnings of their research independence through to leadership at the highest level, as expressed in Unitec's Research Competencies. Grounded in Te Tiriti and Te Noho Kotahitanga partnership, this will be inclusive and provide opportunity for the diverse cultures and individuals who make up our institution and the varied nature of that activity we call research and its related enterprises. This pipeline will be aligned with and actively support the initiatives at the heart of Te Manaakitia te Rito, Unitec's Renewal Strategy.	The diverse people of Unitec have fit-for-purpose capability development and support toward sustainable, collaborative research productivity and excellence	QA Outputs, Student Integrated Research, Research Engaged Programmes	Provide high quality, diverse, multi-level research professional development	- provide a range of research blended workshops - provide research master classes - run writing retreats - offer developmental research for emerging researchers
			Implement formalised research planning at individual and School level	- provide continuously improved templates for Individual Plans - support and oversee compliance - implement a School Plan review and improvement process
			Support degree teachers to be research engaged	- monitor Research Traffic Light to identify staff most needing support - Prioritise Research Dissemination funding to improve Traffic Light - run writing retreats - offer developmental research funding for emerging researchers - run an externally engaged research symposium
			Increase research excellence and productivity	- monitor ROMS to identify staff most needing support - prioritise Research Dissemination funding to build strong portfolios - run an internal review and publicity campaign in preparation for PBRF - provide Research Partners - provide support for the professoriate
			Develop Research Groups in every School offering degree programmes	- provide Research Partner support to develop Research Groups in schools - structure the Unitec symposium around Groups
			Develop Research Centres, facilitate concomitant business planning and annual evaluations	- provide Research Partner support to Research Centres - provide expert administrative, contractual and IP support - implement annual reviews and tri-annual re-accreditation as per the procedure - publicise to groups the procedure to become a research centre

			Support Strategic Research Foci - provide research assistants and associates - provide research materials and equipment - help resolve accommodation, facility and branding needs - provide support with publicity
			Support emerging and early career researchers; grow leaders - provide expert administrative, contractual and IP support to ECRs - provide ECR research support funding (Parental Leave support etc) - provide ECR contestable research funding - provide ECR Research Fellowships - provide support to PIs of ECR funded projects toward external funding - support ECRs with external funding grant development and writing - support the ECR Forum - fund ECR Forum Chair to attend Royal Society meetings - provide Emerging Researcher Start-up Funding - provide comprehensive PD opportunities for emerging researchers
			Collate, authenticate, sustainably disseminate and publicise research - publish double blind peer reviewed papers with ePress - publish three journals at ePress; Whanake, Perspectives in Biodiversity and Asylum - publish Unitec Research Symposium papers - provide advice to manage predatory and vanity publishing risks - oversee Research Output Management System and verify all research outputs - report research outputs in the Annual Research Report - monitor research at programme level for Research Traffic Light - liaise with Corporate Comms to publicise Unitec research

			Support and resource postgraduate student research - lead and administer the Postgraduate Research and Scholarship Committee - administer all scholarships - review the effectiveness of scholarships - review the accessibility of scholarship processes for students - implement improvements which emerge from the reviews - promote all scholarships - offer specialist scholarships to Māori and Pacific students - offer Bold Innovator Scholarship and mentor the recipient
			Increase student involvement in research - offer contestable Industry Scholarships with strong partnerships criteria - develop criteria for 5th research goal - Student Integrated Research - ratify a 5th research goal at Academic Committee for Student Integrated Research - modify ROMS to allow input of Student Integrated Research data - monitor and report productivity of this goal in Annual Research Report - offer expert administrative support for Research Studentships - ensure Student Integrated Research is a criteria for Research with Impact Award - ensure Student Integrated Research is a criteria for internal contestable funding
			Foster research into Wairaka, our place; the natural environment, history and wairua - liaise with roopu Kaitiaki, Nga Wai a te Tui, Sustainability Manager & Pae Arihi - pilot a 2021 contestable fund; Wairaka - natural environment, history and culture - create an ongoing fund; Wairaka - natural environment, history and culture
			Embed sustainability into all funding guidelines - review all internal funding documents to ensure sustainability questions are asked

Priority Three	Goal Three	KPI	Action Summary	Actions
Partnered research and innovation Research at Unitec will concentrate on opportunities and problems identified by Māori, industry and community partners. Strong, enduring partnerships will be facilitated and valued, with investment in capacity building, innovation and leadership in this space. The reciprocity created by these partnerships will enhance opportunity for student work-integrated learning.	Research that is industry/community partnered and promotes innovation	Industry/Community Funded Research, External Research Income	Weave, ignite and nurture long-term partnerships across community, academia and industry	- seed fund industry partnered conferences and seminars at Unitec - encourage strong industry partnerships in contestable funding frameworks - provide expert industry partnership support (Research Partner Enterprise) - provide expert legal, contractual and administrative support
			Facilitate subsidised research consultancy	- fund and administrate the research voucher scheme - assist in growing resulting partnerships
			Implement industry/community-partnered postgraduate research scholarships	- create guidelines for Industry Scholarships - fund and administrate Industry Scholarships - assist in growing resulting partnerships
			Provide industry partnering, IP, innovation and commercialisation advice and practical support	- provide expert commercialisation support (Research Partner Enterprise) - provide expert legal, contractual and administrative support - ensure contracts and agreements protect IP appropriately as per policy
			Develop reputation through the establishment of Research Centres with strong partnerships	- provide funding to Research Centres which are Strategic Foci - work with the Unitec Communications Team to publicise achievements - provide support to develop funding applications - provide support to maximise collaboration between Research Centres
			Identify areas of future importance and opportunity; Research Sandpits	- ensure school plans have Research Groups - keep schools aware of the Research Sandpits and other areas of priority in Auckland, New Zealand and the Pacific

UNITEC

Research Strategy 2020-2024

NB – in keeping with Unitec process on strategies, a separate action plan will outline how we implement the actions, how we show the progress of that implementation and what indicators we use to measure success. This will follow approval of this draft research strategy.

Vision

To undertake research of excellence that aligns to Te Tiriti o Waitangi and has transformative outcomes for the communities we serve.

Mission

We undertake impactful research in order to provide significant economic, social, cultural and environmental benefits to Māori, New Zealand communities, industries and the environment. We do this by igniting the power of our founding document, Te Tiriti o Waitangi, partnering with tangata whenua, our communities and industry. This partnering is at the heart of our value proposition and is fundamental to research from the beginning of the research process, through to the dissemination of the outcomes. Unitec's strengths lie in its kaupapa Māori capability, 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. We will develop these strengths through focused, sustainable research and enterprise activity that is Treaty aligned, integrated with teaching and learning and undertaken within networks of stakeholders and partners, enabling effective knowledge transfer. In these networks we aim to contribute to better knowledge bases for decision making, improved wellbeing, socioeconomic resilience, cultural diversity, flourishing communities and improved productivity, policy, technologies, products or processes.

Background

During the 2015 – 2019 Research Strategy period, three Strategic Research Foci were developed: the Cybersecurity Focus, the Applied Molecular Solutions Focus and the Kaupapa Māori Focus. Through mechanisms such as the Research Voucher Scheme, the strategy successfully drove institutional change toward higher levels of industry-partnered research resulting in many funded projects. Coupled with an emphasis on building staff capability and research leadership, Unitec has experienced growth in its research, with externally funded research increasing by 450%, increased external partnering with 184% more industry-funded projects, improvement in excellence with a 97% success rate through the PBRF Quality Evaluation and increased NZQA compliance with 91% of degree programmes research compliant. The Kaupapa Māori Focus led to the appointment of two highly respected Māori professors, and the establishment of Ngā Wai a te Tūi Māori and Indigenous Research Centre, which is now leading numerous externally funded projects, including an Endeavour Fund Research Programme and a National Science Challenge project.

This next strategic period will see Unitec continue investing in our Strategic Research Foci with an emphasis on rangatiratanga, embedding a flourishing, diverse and sustainable research culture and weaving strong, enduring industry/community partnerships.

Te Tiriti o Waitangi and Te Noho Kotahitanga

Unitec will uphold Te Tiriti o Waitangi, the founding document of our nation and its principles, through our research. Our commitment to Te Noho Kotahitanga, which express Unitec's Treaty partnership and its principles, underpins the values and kaupapa of our organisation, including our approach to research.

Rangatiratanga

Whakaritenga

Kaitiakitanga

Mahi Kotahitanga

Ngākau Māhaki

Authority and Responsibility

Legitimacy

Guardianship

Co-operation

Respect

 RANGATIRATANGA AUTHORITY AND RESPONSIBILITY	 WHAKARITENGA LEGITIMACY	 KAITIAKITANGA GUARDIANSHIP	 MAHI KOTAHITANGA CO-OPERATION	 NGĀKAU MĀHAKI RESPECT
<i>E whakarite ana te Whare Wānanga o Wairaka ki te pūtake ake o te rangatiratanga o te Māori me ngā mātauranga Māori.</i> Unitec accepts the principle that Māori have authority over and responsibility for all teaching and learning relating to the Māori dimensions of knowledge.	<i>E whakarite ana te Whare Wānanga o Wairaka ki te mana o tena, o tena, ki te noho kotahi, ki te puaki i tona ake reo, ki te whakamahi i ngā rawa mo ngā iwi katoa.</i> Unitec believes that each partner has a legitimate right to be here, to speak freely in either language, and to put its resources to use for the benefit of all.	<i>E whakarite ana te Whare Wānanga o Wairaka ki te kaitiakitanga o ngā taonga mātauranga.</i> Unitec accepts responsibility as a critical guardian of knowledge.	<i>E whakarite ana te Whare Wānanga o Wairaka kia tau he ngākau māhaki i roto i ngā mahi katoa.</i> Unitec affirms that a spirit of generosity and co-operation will guide all its actions.	<i>E whakarite ana te Whare Wānanga o Wairaka ki te whakanui i ngā taonga tuku iho o ngā ao e rua, a hiko ki mua. Ko te Māori me te Pākehā e mahi tahi ana mo Te Whare Wānanga o Wairaka.</i> Unitec values each partner's heritage and customs, current needs and future aspirations. Māori and Pākehā working together within Unitec.

Vision Mātauranga

Unitec acknowledges and actively supports staff in engaging with the Vision Mātauranga policy as outlined by the Ministry of Business, Innovation and Employment. The policy aims to unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

Code of Practice and Research Ethics

Research at Unitec will function within Ngā Tikanga Whakahaere (Unitec's Code of Conduct) and the research-specific Code of Professional Standards and Ethics developed by the Royal Society Te Apārangi. All human research is conducted with guidance from the Unitec Research Ethics Committee, an accredited research ethics committee, and animal research is overseen by an approved committee.

Priorities

The Unitec Research Strategy 2020 – 2024 has three key priorities which underpin our goals, our actions and the way we measure success:

Priority One	Research that is aligned with Te Tiriti o Waitangi
Priority Two	A flourishing, collaborative research culture
Priority Three	Partnered research and innovation

Priority One – Research that is aligned with Te Tiriti o Waitangi

Unitec will ensure that its support for research, governance and processes is aligned with Tiriti o Waitangi. In this way, Unitec will exemplify leadership in Māori research in the NZIST sector and in Aotearoa. The principle of rangatiratanga expressed through our partnership document, Te Noho Kotahitanga, will apply to research at Unitec: that Māori will have authority over and responsibility for all research related to Māori dimensions of knowledge. Vision Mātauranga will be integrated into all research processes and researchers will be supported to understand and fulfil these requirements. We will resource and grow the numbers and capability of Māori researchers, including Māori supervisors of our postgraduate programmes. We will actively seek and maintain partnerships with iwi, hapū, Māori businesses, institutions and peak Māori bodies. We will evolve our research office appropriately to ensure Māori research governance and rangatiratanga.

GOAL ONE:

Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

Actions:

- Review research policy, guidelines and processes to ensure rangatiratanga
- Review all funding frameworks, guidelines and processes to incorporate Vision Mātauranga
- Increase Māori postgraduate supervisors and student scholarships
- Provide professional development by Māori for Māori researchers and postgraduate supervisors
- Support and resource Ngā Wai a te Tūi appropriately
- Review capability and plan for institutional research co-governance and leadership
- Tell stories of Māori research projects, outcomes and success

Priority Two - A flourishing, collaborative research culture

Unitec will grow a productive, diverse, student integrated, engaged and sustainable research workforce with the necessary resourcing and infrastructure. There will be an inclusive pipeline of support for developing the capability of our people and empowering them toward transformative outcomes for our communities; from the beginnings of their research independence through to leadership at the highest level, as expressed in Unitec's Research Competencies. Grounded in Te Tiriti and Te Noho Kotahitanga partnership, this will be inclusive and provide opportunity for the diverse cultures and individuals who make up our institution and the varied nature of that activity we call research and its related enterprises. This pipeline will be aligned with and actively support the initiatives at the heart of Te Manaakitia te Rito, Unitec's Renewal Strategy.

GOAL TWO:

The diverse people of Unitec have fit-for-purpose capability development and support toward sustainable, collaborative research productivity and excellence.

Actions:

- Provide high quality, diverse, multi-level research professional development
- Implement formalised research planning at individual and School level
- Support degree teachers to be research engaged
- Increase research excellence and productivity
- Develop Research Groups in every School offering degree programmes
- Develop Research Centres, facilitate concomitant business planning and annual evaluations
- Support Strategic Research Foci
- Support emerging and early career researchers; grow leaders
- Collate, authenticate, sustainably disseminate and publicise research
- Support and resource postgraduate student research
- Increase student involvement in research
- Foster research into Wairaka, our place; the natural environment, history and wairua
- Embed sustainability into all funding guidelines

Priority Three - Partnered research and innovation

Research at Unitec will concentrate on opportunities and problems identified by Māori, industry and community partners. Strong, enduring partnerships will be facilitated and valued, with investment in capacity building, innovation and leadership in this space. The reciprocity created by these partnerships will enhance opportunity for student work-integrated learning.

GOAL THREE:

Research that is industry/community partnered and promotes innovation.

Actions:

- Weave, ignite and nurture long-term partnerships across community, academia and industry
- Facilitate subsidised research consultancy
- Implement industry/community-partnered postgraduate research scholarships
- Provide industry partnering, IP, innovation and commercialisation advice and practical support
- Develop reputation through the establishment of Research Centres with strong partnerships
- Identify areas of future importance and opportunity; Research Sandpits

RESEARCH SANDPITS HAVE:

- the values of Te Noho Kotahitanga
- high societal need
- student-involved research and learning potential
- existing external partnerships
- cross-school transdisciplinary opportunity

POTENTIAL FUTURE DIRECTIONS (MANAAKITIA TE RITO)

- Business, finance and professional services
- Maori and indigenous research
- Construction and infrastructure
- Health and wellbeing
- Transport and logistics
- Education and training
- Environmental services
- Creative industries and arts
- Computing and services

Glossary

Ngā Tikanga Whakahaere – Unitec’s Code of Conduct

NZIST – the New Zealand Institute of Skills and Technology incorporating 16 Institutes of Technologies and Polytechnics

Research Centres – Formally structured research institutes governed by the Unitec Research Committee

Research Competencies – Detailed description of what it means to be research competent at Unitec

Research Groups – Informal groups of researchers around a theme, identified in School Research Plan

Research Sandpits - areas of future research importance and opportunity

Strategic Research Foci – Research Centres which receive seed funding from Unitec

Te Manaakitia te Rito – Unitec’s Renewal Strategy 2019 – 2022

Te Noho Kotahitanga – Unitec’s Partnership agreement under Te Tiriti and our values

Te Tiriti o Waitangi – the founding document of Aotearoa, New Zealand

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11th March 2021

Title	Research Centres Update – CIEE & CCICS
Provided by:	Marcus Williams – Director Research and Enterprise
For:	APPROVAL

Recommendations

That the Centre for Computational Intelligence and Environmental Engineering (CIEE) be closed permanently.

That the Centre for Computational Intelligence and Cybersecurity (CCICS) is granted one year of grace before being required to apply for reaccreditation as a Research Centre at Unitec.

Purpose

The CCICS and CIEE are required to apply for reaccreditation if they are to continue to operate as Research Centres at Unitec, as per Unitec's Research Centre Procedure.

Information/Background

A/P Marcus Williams, Director Research and Enterprise met with Susan Bennett, Interim Head of School of Computing and Information Technology to discuss the future of the CIEE and CCICS.

Marcus and Susan recommend that the CIEE be closed permanently. **Rationale:** the Chinese partnerships central to this Centre are defunct and there are no staff that are able to lead restoration or reaccreditation of the Centre.

Marcus and Susan recommend that the CCICS is granted one year of grace before being required to apply for reaccreditation. **Rationale:** Unitec currently holds a \$1m MBIE Endeavour Fund Smart Ideas grant for a cybersecurity project, has successfully completed a six year cybersecurity project, is rolling out its Diploma in Cybersecurity nationally and is developing a business case for cybersecurity R&D consultancy which has its first customer. It lacks however, the academic leadership needed to attend to the reaccreditation process and time would allow for the necessary recruitment which is supported by the Head of School.

Key computer science academics in the School of Computing and Information Technology were also consulted. A/P Iman Ardekani, A/P Hamid Sharifzadeh and Dr Bashar Barmada have committed to providing thought leadership in this space and consulting with other staff in the School. They will respond to the committee in 2022.

Next Steps

The CIEE will cease to operate.

The CCICS will be asked to apply to the Committee for reaccreditation in 12 months' time.

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11 March 2021

Title	Annual Updates to School Research Plans
Provided by:	Brenda Massey and Arun Deo
For:	APPROVAL

Recommendation

That the Committee reviews and approves a format for Unitec's Schools to report annually against their Research Plans.

Background

The Committee has asked that Schools report annually against the Research Plans they developed in 2020, as per the Committee's 2021 Work Plan.

Purpose

Schools need to be provided with a template they can use to report against their Research Plans.

Rather than creating a fresh document, Tūāpapa Rangahau proposes to ask Schools to add to and/or edit their current Research Plans as a way of updating the committee on progress towards their goals and KPIs. Extra fields/rows/columns, with annotated prompts, would be added to Schools' current Research Plans for this purpose. Tūāpapa Rangahau would, where it can, pre-populate some of the sections of the Plans in order to minimise the effort required of Schools, for example Tūāpapa Rangahau would update the table that quantifies the number of Quality Assured outputs produced by Schools in 2020.

An example of how a Research Plan could be adapted in such a way is attached. The example proposes that Research Plans are adapted to procure the following information from Schools:

- a. Any updates/amendments to Schools' SWOT analysis.
- b. Any updates/amendments to the research groups operating within Schools with a view to ascertaining whether any new research groups have been established, whether there have been any changes within existing research groups and, where research groups are now well-established, whether they might be in a position to apply to become a research centre (achievements that would suggest this will be required to be listed). Any updates/amendments to research groups' statement of purpose should also be outlined.
- c. Progress towards any goals listed as due to have been achieved in 2020.
- d. New goals that Schools are working towards in 2021.

- e. Any updates/amendments to lists of staff expertise.
- f. Any additional information Schools would like to make the Committee aware of or report against.

Next Steps

Unitec's Schools will be asked to update their Research Plans for review by the Committee to an achievable deadline. Research Leaders will be provided with individualised templates for this purpose.

Contributors

A/P Marcus Williams, Director Research and Enterprise

Arun Deo, Research Advisor

Brenda Massey, Senior Grants Advisor/Acting URC Secretary

Attachments

Unitec School Research Plan Update Template (draft example)

School Research Plan - School of Creative Industries

Review Notes

Schools need to update their current plans. Please update information as requested in the comments under each section. There are two colour codes in the comments. The RED colour indicates update to be done by the school and the BLUE colour indicates updates to be done by Tūāpapa Rangahau.

Summary of review and update required

- » Review the SWOT analysis, amending as necessary.
- » Regarding the research groups that Schools identified last year, are they remaining as they are or have there been changes? For those groups who are well established, are they in a position to apply to become a research centre? If so, what are some of the achievements that would suggest this? Please list them.
- » Review each research group's statement of purpose, amending as necessary.
- » Add a column to Table 1 to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.
- » New goals for 2021 need to be captured (and will need to be reported on next year).
- » Review and update as necessary the table of staff expertise (Schools only need to update the last column; Tūāpapa Rangahau will update the data in the other columns).
- » A few schools have extra bits in the appendix. Schools can add extra information as an appendix if they want.

1 Introduction and current state

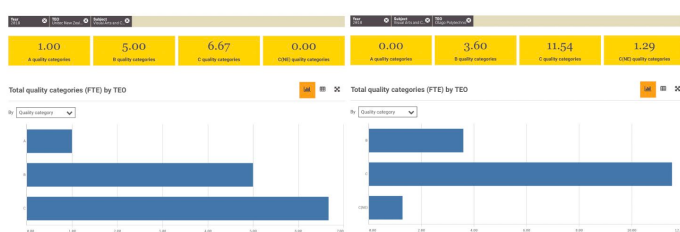
The School of Creative Industries was formed in 2016 as a merger of the already established Department of Design and Contemporary Arts and Department of Performing and Screen Arts. The School offers a suite of programmes from level 5 to level 9; the Bachelor of Creative Enterprise (BCE: with pathways in Design and Contemporary Arts), the Bachelor of Performing and Screen Arts (BPSPA: with pathways in Acting, Dance, Screen and Production Design Management) and the Master of Creative Practice Suite (MCP, PGDCP). Researchers are currently grouped in 2 research clusters: Design and Contemporary Arts and Performing and Screen Arts, with a third aspirational cluster, Creative Praxis and Culture signposted for the future.

The School promotes research that has a focus on applied practice within the creative arts (acting, dance, screen and visual arts) and design (graphic, product and UX), which contributes to, or enriches, cultural life in Aotearoa, New Zealand. The School is committed to supporting and developing creative research of relevance to Māori and Pacific peoples, implementing Manaakitia te Rito as a means of developing cultural capability in the staff team to support Māori and Pacific student progression into postgraduate research.

Number of degree teaching staff	26
Total research FTE allocated	3.19
Current Research Traffic Light rating (Percentage of green lit staff)	88%
PBRF history (Number of PBRF rated staff in 2018)	12

Staff in the School are research active across the full spectrum of levels, with beginning as well as expert researchers across the various disciplines. Twelve staff achieved funded ratings in the recent (2018) PBRF round (1A, 3Bs, 8Cs), making the School one of the highest performing in the ITP sector in the Creative and Performing Arts (see comparison with Otago Polytechnic below). All programmes were green-lit status in the 2020 Research Productivity Traffic Light, with the BCE and MCP Suite having been consistently green lit since 2015, and the BPSA green lit since 2018.

Unitec and Otago Polytechnic



Research Informed Teaching and Learning

The majority of research in the School takes the form of practice-based or practice-led¹ outputs; staff research occurs primarily as an outcome of engagement in advanced practice within the fields of performance, dance and acting, screen and visual arts and crafts and graphic, product and UX design. Advanced *practice-as-research* is embedded throughout the teaching and learning approaches and curricula of the School, which is mostly at degree level. Examples range from the inclusion of current industry approaches and standards in project courses, technical and skill-based application in studio classes, practice-led research skills, helping students to develop a research-based approach (critical and reflective thinking), and teaching and supporting students to develop and carry out their own practice-based/led research projects at degree and postgraduate levels.

Teaching staff train and mentor students to achieve creative practice based/led outputs in the form of public facing and industry partnered course projects (ICIB 7002, 7012, 8005, 8007, 9003 and BPSA 7223, 7213, 7214, 7304). The efficacy of research informed teaching in the School is reviewed during programme evaluation and planning and is also reflected in student, graduate and alumni success in industry placements and awards in the creative industries in Tāmaki Makaurau and beyond.

Examples of research informed teaching and learning in the School include;

- Contemporary arts and design staff (Emma Smith, Gina Ferguson, Richard Fahey, William Bardebes) collaborated with marae whanau, alumni (BDVA, MCP) and current students (BCE ICIB 7002, 7012) to realize Te Tatai o Matariki² in 2019, contributing to the cultural life of the Mt. Albert and Auckland communities;
- Photography staff Allan McDonald and Yvonne Shaw worked with BCE (ICIB 7002, 7012) and MCP students (ICIB 8005, 9003) to realize contributions to the Auckland Festival of Photography annually;
- Contemporary arts and design staff mentor students (ICIB 7002, 7012, 8005, 8007, 9003) in the development of projects that go on to win industry awards (Eden Art Schools Award, Molly

Morpeth Canaday Award, Wallace Art Award, ECC Craft / Design Award) and gallery representation, e.g. at Two Rooms, Trish Clark Gallery and Foenander Gallery;

- Dance staff Katie Burton and Paul Young curated the 2019 Showcase 30 Years (PASA 7223, 6222, 5224) and remounted the choreography Penumbra with level 5 students (PASA 5224) at the Raye Freedman Centre, Auckland;
- Performing and screen arts staff mentor students (PASA 7223, 7213, 7214, 7304) in the development of their training and projects which go on to win professional awards, residencies, and placements in the Auckland Fringe Festival, Tempo Dance Festival, Pop Up Globe Theatre, Auckland Theatre Company, Aloalii and Friends, ATEED and Power Rangers, New Zealand International Film Festival, New Zealand Dance Company, Dance Aotearoa NZ;
- Discipline Leader for Dance, Charles Koroneho mentors Beijing Dance Academy students in an exchange with Unitec Dance in contemporary practice methodologies that draw from indigenous philosophies and practice (PASA 6221, 6222).

Examples of where research-active staff incorporate outputs into teaching include;

- Leon Tan: ICIB 8071 and 8072 – design and contemporary arts and the public realm;
- Becca Wood: PASA7223 social and site-based choreography – choreoauratics.

Industry Funded and Partnered Research

Research-active staff have extensive industry links, some of which manifest as industry funded research projects. Industry funding in the creative industries typically takes the form of commissioned, curated and funded practice-based/led outputs, where the costs of realizing and publicizing a performance or exhibition are paid for, partially or fully, by the commissioner/funding body/curator/venue. Researchers in this field are typically curated or commissioned on the basis of a national or international track record of advanced practice, and it is this advanced practice that informs applied (project-based) education in the creative arts and design.

Examples of industry funded and partnered research;

- Gina Ferguson – Sculpture in the Gardens 2019-2020 commission
- Emma Smith – Malcolm Smith Gallery / Uxbridge 2019 exhibition
- Richard Fahey – Object space exhibition 2019 exhibition curation
- Allan McDonald – Anna Miles Gallery 2019 exhibition
- William Bardebbs - Geoff Wilson Gallery 2019 exhibition and Lifewise Trust 2019 publication
- Cris de Groot – Pheromite Ltd. 2019 design
- Paul Woodruffe – Artweek 2019 exhibition and Lifewise Trust 2019 publication
- Bobby Hung – Artweek 2019 exhibition and 400ml (Beijing) 2019 exhibition
- Samuel Holloway – City Gallery Wellington 2019 presentation
- Leon Tan – Routledge Publishing 2019-2020 editing commission
- Bronwyn Bradley – Three Now (South Pacific Pictures) 2019 acting commission
- Becca Wood - *Walking About* series – A social choreography - Te Uru Gallery and Auckland City Council 2019-2020 commission
- Katie Burton - Performance in *Orchids* directed by Sarah Foster-Sproull - Creative New Zealand 2019
- Claire O’Neil (contribution to publication) *Te Ao Live Experimental Dance Aotearoa NZ in the Early 21st Century* - Sponsored by Dance Aotearoa NZ 2019
- Elizabeth Hawthorne - Performance in *Daniel* - New Zealand Film Commission 2019
- Samantha Spelich – Maori Television and TVNZ editing commissions 2019

School of Creative Industries research is informed and supported by industry and professional networks including educators and creative practitioners in the field as well as professional organizations and venues (e.g. Women in Film and Television, Dance Aotearoa NZ, The Actors Guild, Tautai, NZ Institute of Architects, Design Assembly, Designers Institute of NZ, Auckland Art Gallery, Wellington Art Gallery, WeCreate, CUMULUS). The School aspires to become a hub of practice-based research excellence in Tāmaki Makaurau, particularly in Screen and Digital Creativity.

Programme Development and Review

Programme development and review need to be informed by the *interconnection of advanced practice, research and teaching* in the School. Specifically, this means that due consideration must be given to the scaffolding of studio/project courses across levels 5-7 (undergraduate) and levels 8-9 (postgraduate). This approach supports students in developing their practice towards public-facing exhibitions, performances and screenings and design projects with real briefs and clients, in a staged process that introduces complexity and raises the stakes incrementally. Student progression into postgraduate research is recommended through the inclusion of at least two pathways at level 7, one orienting students towards employment and the other towards postgraduate research.

2 School of Creative Industries Goals and KPIs

Commented [AD1]: This section will be updated by Tūāpapa Rangahau.

The School of Creative Industries has the current goals. The baseline figures represent 2018 data.

- Stretch goal: maintain the external research funding at \$23,000 per year
- Increase the annual number of quality assured (QA) research outputs from 41 to 56 by 2020.
- Maintain industry-funded projects at 3-5 projects per year
- Work towards maintaining green traffic light status with 88% or more

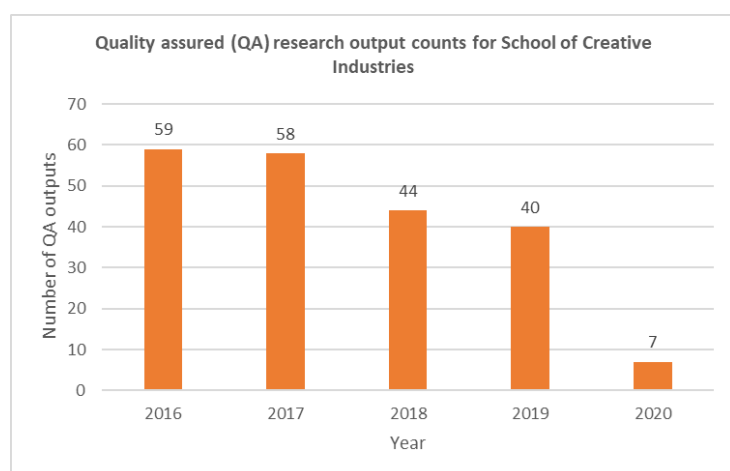


Figure 1: School of Creative Industries Quality Assured Research Outputs

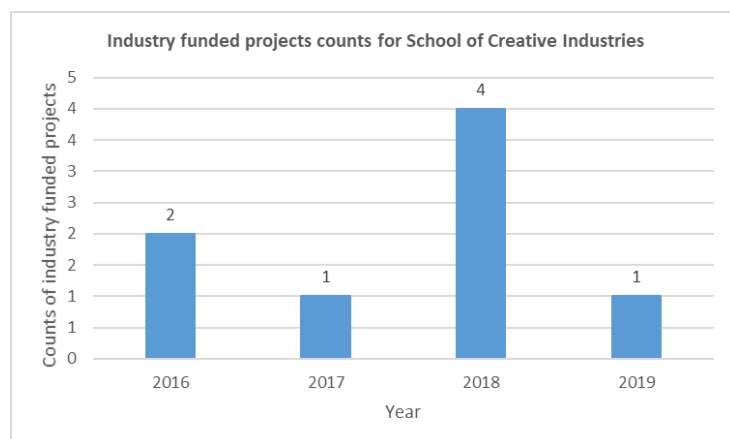


Figure 2: School of Creative Industries Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

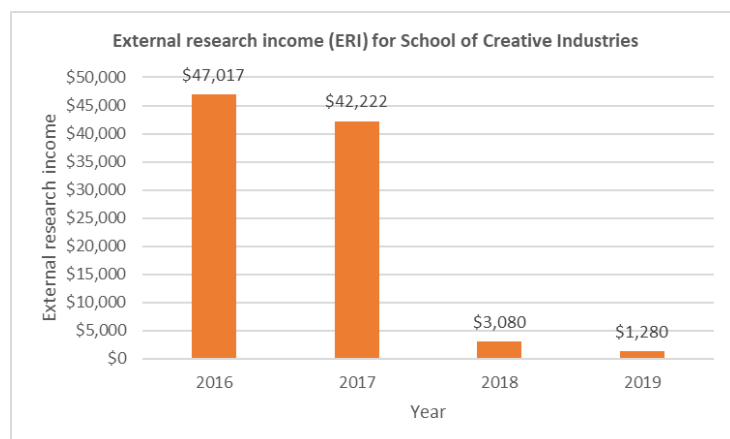


Figure 3: School of Creative Industries External Research Income

3 SWOT analysis for research in School of Creative Industries

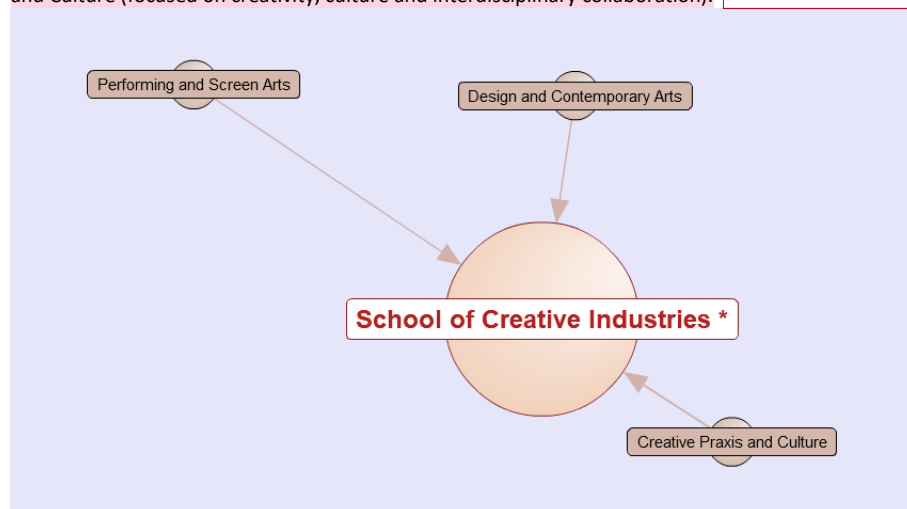
Commented [AD2]: Review the SWOT analysis, amending as necessary. Please list the changes below this chart and I will update the chart.



4 Research Groups and projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes and this approach is equally unlikely to result in impactful research for our industries and communities.

The School of Creative Industries has two research groups [1] Design and Contemporary Arts and [2] Performing and Screen Arts, with a third aspirational group intended for the future [3] Creative Praxis and Culture (focused on creativity, culture and interdisciplinary collaboration).



Commented [AD3]: Regarding the research groups that Schools identified last year, are they remaining as they are or have there been changes? For those groups who are well established, are they in a position to apply to become a research centre? If so, what are some of the achievements that would suggest this? Please list them.

Figure 4: School of Creative Industries research groups

The above research groups partner with external funders and win funding/grants, which Unitec calls it External Research Income (ERI). Below are the external research partners who funded projects over the last 4 years.

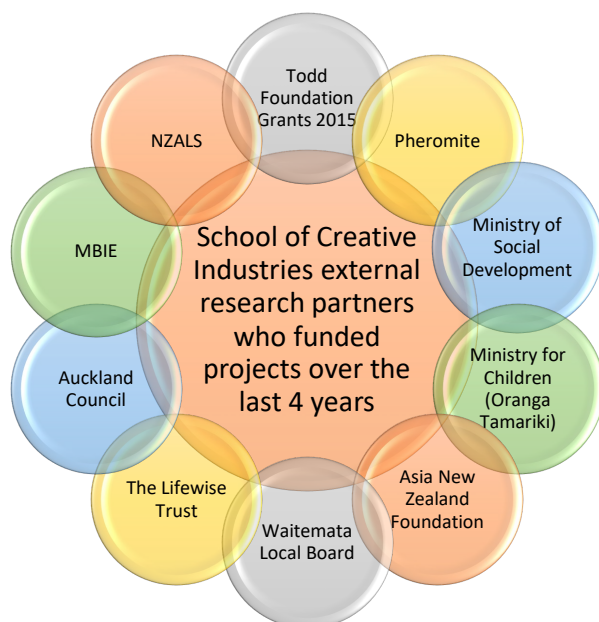


Figure 5: School of Creative Industries external research partners who funded projects over the last 4 years

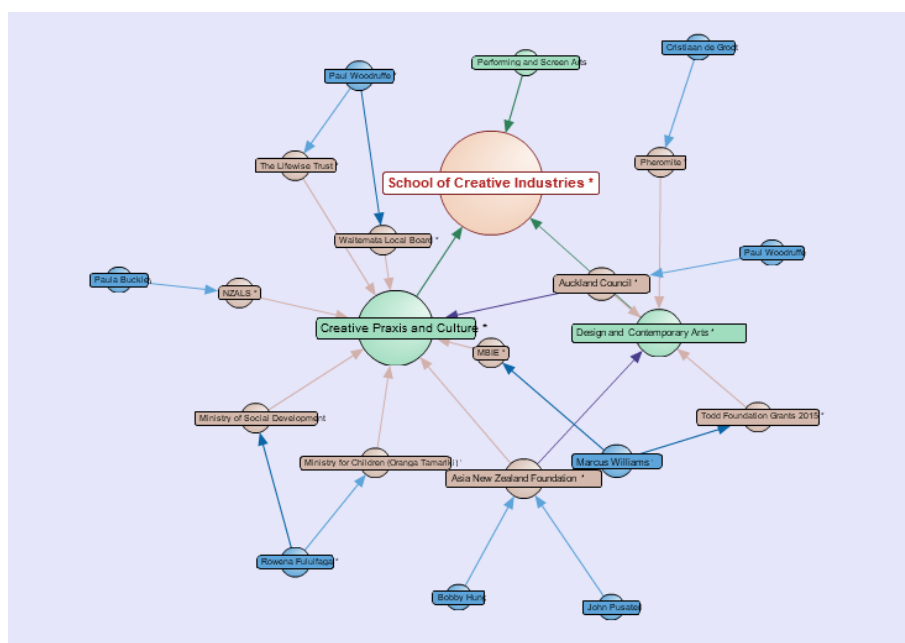


Figure 6: School of Creative Industries external research partners who funded projects over the last 3 years, along with the three research groups and lead researchers

4.1 Research Group One – Design and Contemporary Arts

Statement of purpose

Research in the area of Design and Contemporary Arts is directed towards:

- Understanding the changing nature of contemporary arts and design and its impacts on society;
- Developing or contributing to new methods and modes of production, distribution and reception in the arts and design;
- Making 'sense' of, commenting on, intervening in the contemporary world through novel forms of creative and cultural expression;
- Applying artistic and design processes to create solutions to community or commercial problems;
- Fostering the integration of indigenous values and methodologies specific to the South Pacific region in creative practice-based research;
- Contributing to and enriching cultural life and recreation in Aotearoa, New Zealand

Commented [AD4]: Review each research group's statement of purpose, amending as necessary.

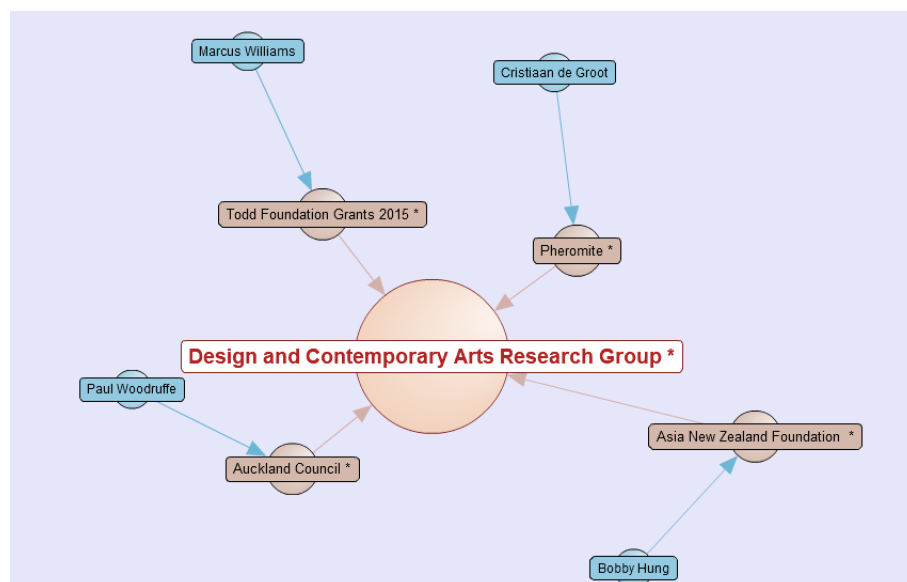


Figure 7: School of Creative Industries Design and Contemporary Arts research group externally funded research partners and lead researchers

2020 Goals

Goal 1: Develop and support research capability Design and Contemporary Arts					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Initiate staff research support group	Research Leader	June 2020	RL time allocation	Monthly meetings	
Prioritize PBRF ranked staff for research		May 2020	Tūāpapa Rangahau RDF	Maintain/increase PBRF participation and performance	

Commented [AD5]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

dissemination funding				in the 2024 PBRF round	
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Goal 2: Increase external research income in Design and Contemporary Arts					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Investigate external research funding opportunities with relevant agencies	Research Leader and Paul Woodruffe	November 3 rd	Brenda Massey	Funding for project secured for 2021	
Investigate Royal Society humanities funding (fast start or standard)	Research Leader	December 2 nd	Brenda Massey	Eol draft completed in time for submission in Feb 2021	

Commented [AD6]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

2021 Goals

Goal 1: Increase external research income in Design and Contemporary Arts				
Action	Responsible	Deadline	Resources needed	Desired result

Commented [AD7]: Please populate this table with 2021 goals.

Goal 2: Increase external research income in Design and Contemporary Arts				
Action	Responsible	Deadline	Resources needed	Desired result

Commented [AD8]: Please populate this table with 2021 goals.

* Arts industry funding is generally structured in such a way that established artists and arts organisations are funded directly through a small number of key funding bodies on a project or long-term basis. For example Creative New Zealand (who fund a majority of significant projects in contemporary arts and crafts) are explicit in their policy not to support projects that are associated with the core business of an educational institution. Generating external funding as currently defined would require a shift in strategy and research activity for many of our staff.

4.2 Research Group Two – Performing and Screen Arts

Statement of purpose

Research in the area of Performing Arts and Screen Arts is directed towards:

- Building meaningful and collaborative relationships both within the performing and screen arts community, creative industries community and across other sectors;
- Contributing to new methods, modes of creating and delivery in the arts through live performance and screen-based practices;

- Promoting critical commentary, radical intervention and leadership in the arts as vital to contemporary society in Aotearoa, New Zealand and beyond;
- Developing innovative strategies for the sustainability of performing and screen arts; in community, health and welfare, commercial and professional projects;
- Expanding awareness and value of creative arts practices to enhance society;
- Fostering the integration of indigenous values and methodologies specific to the South Pacific region in creative practice-led research;
- Contributing to and enriching cultural life and recreation in Aotearoa, New Zealand

Commented [AD9]: Review each research group's statement of purpose, amending as necessary.

2020 Goals:

Goal 1: Develop and Support Research Capability in Performing and Screen Arts					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Initiate staff research support group	Research Leader	June 2020	RL time allocation	Monthly meetings and workshops for staff	
Prioritize and support PBRF ranking amongst staff in PASA through research dissemination funding		May 2020	Tūāpapa Rangahau RDF	Increase funded PBRF ranks in the PASA disciplines in 2024 round (3 in the 2018 round; 5 in the 2024 round)	

Commented [AD10]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

Goal 2: Increase external research income in Performing and Screen Arts					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Investigate external research funding opportunities with relevant external agencies	Research Leader & Sean Connelly	Scoping funding opportunities over 2020	Sean Connelly and staff or research assistant time allocation	Funding proposal for PASA archive database	
*Identify key projects and plan for external funding opportunities for staff research projects	Research Leader with support from Tūāpapa Rangahau	December 2020	RL time allocation and Tūāpapa Rangahau	Seeding externally funded research projects in Performing and Screen Arts for 2021	

Commented [AD11]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

2021 Goals

Goal 1: Develop and Support Research Capability in Performing and Screen Arts					
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Commented [AD12]: Please populate this table with 2021 goals.

Action	Responsible	Deadline	Resources needed	Desired result

Goal 2: Increase external research income in Performing and Screen Arts				
Action	Responsible	Deadline	Resources needed	Desired result

Commented [AD13]: Please populate this table with 2021 goals.

* Performing and Screen Arts industry funding is generally structured in such a way that established artists and arts organisations are funded directly through a small number of key funding bodies on a project basis. For example Creative New Zealand (who fund a majority of significant projects in performing arts) are explicit in their policy not to support projects that are associated with the core business of an educational institution. This conflicts with the objective to increase external research income to Unitec in relationship with typical industry funding. Generating external funding as currently defined would require a shift in strategy and research activity for many of our staff.

4.3 Aspirational Research Group Three – Creative Praxis and Culture

Statement of purpose

Research in the area of Creative Praxis and Culture is directed towards:

- Understanding the nature and relationship of creativity and culture;
- Developing novel approaches to creative praxis and cultural development;
- Exploring and understanding different cultural approaches to (and histories of) creativity

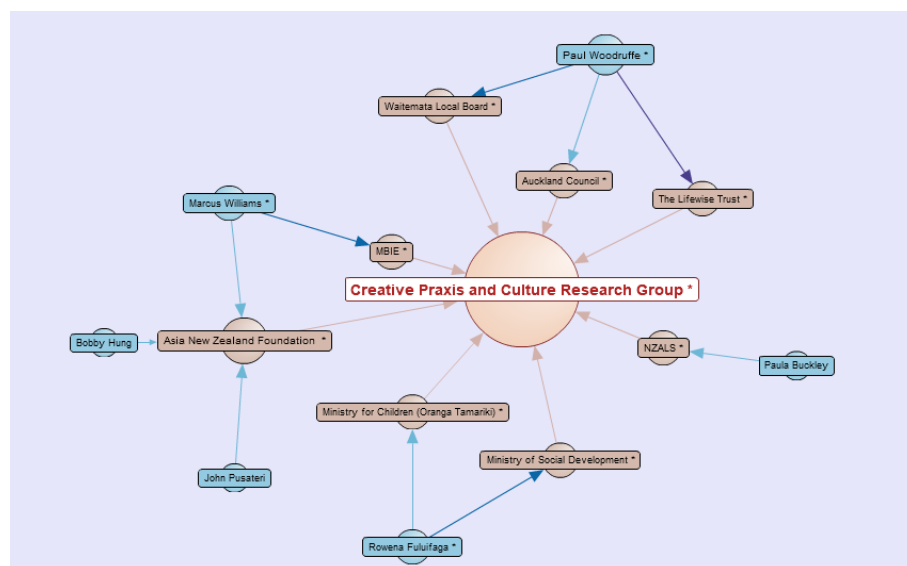


Figure 8: School of Creative Industries Creative Praxis and Culture research group externally funded research partners and lead researchers

2020 Goals

Goal 1: Increase number of research-active staff in Creative Practice and Culture					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Explore staff interest	Research Leaders	December 2020	RL Time Allocation	Formation of formal group in 2021 with sufficient interest from 5 or more staff members	
Develop staff cultural capability in mātauranga Māori and Pacific knowledge	APMs, Line Managers, Maia Māori Centre and Kaihautu, Pacific Centre	December 2020	Staff PD time allocation	Staff achievement of parity badges	

Commented [AD14]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

Goal 2: Increase external research income in Creative Practice and Culture					
Action	Responsible	Deadline	Resources needed	Desired result	Progress on the goals
Explore staff interest	Research Leaders	December 2020	RL Time Allocation	Formation of formal group in 2021 with sufficient interest from 5 or more staff members	

Commented [AD15]: Please populate this new column to capture progress on the goals, i.e. goals that were listed with 2020 dates need to be spoken to.

2021 Goals

Goal 1: Increase number of research-active staff in Creative Practice and Culture				
Action	Responsible	Deadline	Resources needed	Desired result

Commented [AD16]: Please populate this table with 2021 goals.

Goal 2: Increase external research income in Creative Practice and Culture				
Action	Responsible	Deadline	Resources needed	Desired result

Commented [AD17]: Please populate this table with 2021 goals.

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last three years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Alexandra Whitham			Green lit	1-Conference Contribution- Abstract, 3- Performances	mātauranga māori and bicultural approaches to teaching & learning, karanga, pedagogy, voice & acting training
Allan McDonald			Green lit	2-Book Authored, 4- Exhibitions - Group, 2- Exhibitions - Solo, 1- Journal Article	photography and typologies of natural and built forms in New Zealand
Becca Wood			Green lit	1-Book Chapter, 2- Conference Contributions- Oral Presentation, 2- Journal Articles	choreography, social-choreography, somatic practice, participatory performance, site-based performance, practice-led research, performance art and interdisciplinary practice
Benjamin Jarrett			Green lit	2-Conference Contributions- Oral Presentation, 1- Design Output, 2- Presentations (non-conference)	design research, digital fabrication, product design, experience design, audio electronics, IoT, electronics design

Commented [AD19]: Review this column " Expertise", amend it as necessary.

Commented [AD18]: These columns will be updated by Tūāpapa Rangahau

Bobby (Wing-Tai) Hung	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	14-Artifact/ Object/ Craftwork, 1-Awarded Doctoral Thesis, 1-Conference Contribution- Oral Presentation, 1-Exhibition - Curatorial Exercise, 6-Exhibitions - Group, 1-Exhibition - Solo, 1-Film/video, 3-Presentations (non-conference)	education, pedagogy, visual arts, visual culture, knowledge, street art, graffiti, illustration, public art, arts based research and methodologies
Bronwyn Bradley			Green lit		acting – film, television and theatre, voice, directing, education
Charles Koroneho			Green lit	3-Performances, 2-Presentations (non-conference)	performance art, performance making, choreography, installation, contemporary practice, intercultural performance, contemporary dance practices
Claire O'Neil			Green lit	1-Book Chapter, 1-Conference Contribution- Oral Presentation, 1-Performance	choreography, improvisation, contemporary dance technique, somatically informed movement techniques, movement for well-being
Cris DeGroot	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	3-Conference Contributions- Oral Presentation, 1-Design Output, 1-Presentation (non-conference)	product design, industrial design, business-focussed design, creativity, creative entrepreneurship
Daniel Nel			Red lit		production technologies, technical services for theatre and

					television, digital archive design and curation
Daniel (Dan) Wagner			Red lit	1-Awarded Masters Thesis, 2-Conference Contributions- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Film/video, 1-Journal Article	re-framing screen education for a constantly evolving digital landscape; curricular change
Elizabeth Hawthorne			Green lit	3-Film/videos, 10-Performance	acting for film and theatre, performance
Emma Smith			Green lit	1-Book Chapter, 1-Conference Contribution- Oral Presentation, 13-Exhibitions - Group, 1-Exhibition - Solo, 1-Journal Article	painting, visual art, contemporary art
Gina Ferguson			Green lit	2-Artifact/ Object/ Craftwork, 1-Exhibition - Curatorial Exercise, 11-Exhibitions - Group	sculpture, craft, installation practices, public art
Johanna Smith			Green lit	2-Conference Contributions- Oral Presentation, 1-Dramatic and Literary Texts, 1-Other	creative writing, screen writing, script writing
Katie Burton			Green lit	1-Conference Contribution- Oral Presentation, 4-Performances	choreography, collaborative performance making, feminist performance

Leon Tan			Green lit	3-Book Chapters, 1-Conference Contribution- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Edited Book/Volume, 1-Essay - Published (Unitec only), 1-Exhibition - Group, 2-Exhibitions - Solo, 1-Other, 4-Presentations (non-conference)	public art, participatory art, participatory design, art history, cultural history, interdisciplinary collaboration, psychoanalysis, psychotherapy, mental health, urbanism
Michael Miller			Red lit		directing, scriptwriting, creative, editing, composing, education
Paul Woodruffe	PI for 5 externally funded projects	PI for 2 industry funded projects	Green lit	2-Artifact/ Object/ Craftwork, 2-Conference Contributions- Oral Presentation, 2-Design Outputs, 3-Exhibitions - Curatorial Exercise, 5-Exhibitions - Group, 2-Exhibitions - Solo, 3-Journal Articles, 1-Other, 1-Presentation (non-conference)	visual art, public art, design for social innovation

Paul Young			Green lit	1-Composition, 1-Conference Contribution- Oral Presentation, 1-Exhibition - Curatorial Exercise, 1-Exhibition - Group, 2-Others, 1-Performance, 1-Presentation (non-conference)	contemporary dance and contemporary dance technique, choreography, performance,
Pedro Ilgenfritz			Green lit	3-Conference Contributions- Oral Presentation, 1-Journal Article, 6-Performances, 2-Presentation (non-conference)	theatre, performance, mask, movement for actors, acting, physical theatre, theatre pedagogy, improvisation, dramaturgy
Richard Fahey			Green lit	1-Book Chapter, 1-Exhibition - Curatorial Exercise, 1-Journal Article, 3-Others, 3-Presentations (non-conference)	New Zealand craft, ceramics, visual art, visual art education, curating
Samantha Sperlich			Green lit	9-Film/video	documentary, reality tv and drama editing, research and practice, cinéma vérité vs. direct cinema techniques, constructed reality

Samuel Holloway			Green lit	1-Artifact/ Object/ Craftwork, 3-Compositions, 1-Conference Contribution- Oral Presentation, 2-Performances, 3-Presentations (non-conference)	experimental sound/music, contemporary art, sound in moving image and visual art practices, music composition and theory, collaborative and interdisciplinary practices
Vanessa Byrnes			Green lit	1-Book Review (Unitec only), 8-Conference Contributions- Oral Presentation, 2-Film/video, 3-Performances, 2-Presentation (non-conference)	director studies; contemporary performance discourse; performances ecologies; acting; directing; production practice; creative practice; New Zealand arts practice
William Bardebes			Green lit	3-Artifact/ Object/ Craftwork, 1-Conference Contribution- Oral Presentation, 2-Design Outputs, 1-Exhibition - Group, 1-Presentation (non-conference)	graphic design, motion graphic design, animation and contemporary art

¹ See Candy and Edmonds (2018) for definitions of practice based and practice led research:

https://www.mitpressjournals.org/doi/pdf/10.1162/LEON_a_01471

² See <https://www.unitec.ac.nz/about-us/te-tai-o-matariki-exhibition-at-unitec-s-gallery-one-showcases-mori-graduate-work> and <http://www.artsdiary.co.nz/130/3126.html>

Appendix

A few schools have extra bits in the appendix. Schools can add extra information as an appendix if they want.

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11th March 2021

Title	KPI for Priority One in the 2020 - 2024 Unitec Research Strategy - Action Plan (DRAFT)
Provided by:	A/P Marcus Williams – Director Research and Enterprise
For:	Discussion

Recommendation

That the committee discusses a possible Key Performance Indicator for Priority One in the 2020 - 2024 Unitec Research Strategy – Action Plan (DRAFT).

Purpose

The purpose of this paper is to agree on a KPI for Priority One in the 2020 - 2024 Unitec Research Strategy – Action Plan (DRAFT).

Background

The 2020 - 2024 Unitec Research Strategy was developed 2019 and approved in 2020, the concomitant Action Plan is on the agenda for this meeting, for approval. There are KPI for Priority Two and Three, but none for Priority One, which has appropriately arrived in this position on the new Unitec Research Strategy as a result of Manaakitia te Rito; the Unitec strategy. Priority One is;

Priority One – Research that is aligned with Te Tiriti o Waitangi

Unitec will ensure that its support for research, governance and processes is aligned with Tiriti o Waitangi. In this way, Unitec will exemplify leadership in Māori research in the NZIST sector and in Aotearoa. The principle of rangatiratanga expressed through our partnership document, Te Noho Kotahitanga, will apply to research at Unitec: that Māori will have authority over and responsibility for all research related to Māori dimensions of knowledge. Vision Mātauranga will be integrated into all research processes and researchers will be supported to understand and fulfil these requirements. We will resource and grow the numbers and capability of Māori researchers, including Māori supervisors of our postgraduate programmes. We will actively seek and maintain partnerships with iwi, hapū, Māori businesses, institutions and peak Māori bodies. We will evolve our research office appropriately to ensure Māori research governance and rangatiratanga.

Goal One in relation to Priority One is;

Goal One Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

A Key Performance Indicator (KPI) is a measure of progress toward a goal (as the name suggests); Unitec currently has five research KPI which support the other two priorities and the related goals (see strategy);

1. **Industry Funded Projects** - research and enterprise projects Unitec is receiving funding for, where the services Unitec is providing is applied contract research or consultancy from all funders excluding any governmental contestable funding sources. This is measured as a count of the number of projects.
2. **External Research Income (ERI)** - income received from external sources for research purposes calculated on the project milestones achieved and spending to date, in a particular year. This is measured in dollars.
3. **Research Productivity** - measure of staff teaching on degree programmes who meet the agreed levels of research in the research traffic light. This is measured as the ratio research active staff to the total number of staff on a degree programme.
4. **Quality Assured (QA) Research Outputs** - recognised research outputs that have been through a peer review process or have been specifically commissioned. This is presented as a ratio of counts of the number of QA outputs to FTE of degree teaching staff.
5. **Student Integrated Research** - a measure of student input into staff-engaged research including authorship, contributions to wānanga, creative outputs, studentships, or research assistant positions, awards or other contributions (as defined by the PBRF).

Next Steps

When considering a KPI (for example; **QA outputs that demonstrate principles of Vision Mātauranga and Rangatiratanga**), we need to think about whether they measure the goal in the best way we can find and be cognizant of the efficacy or otherwise of the data collection process; how can we practically collect the data in order to measure progress toward the goal? In order to help us consider the practical parameters, the Research Adviser, who's job involves collecting and verifying research data, has provided a list of information that is readily available.

- o **Quality assured research outputs by Māori researcher's** – this is easy to identify in ROMS using Maori staff list from HR.
- o **Quality assured research outputs involving Maori research** – this can be identified in ROMS from the research title by searching for key Māori words. We would need a list of key Maori words to direct this.
- o **Māori research projects** – characteristics such as leadership, capability, excellence, quality partnerships and governance could be captured from a range of source. This data is not in ROMS, it would involve manual processes, going through other data bases and lists of projects.
- o The Industry Funded Projects data base (an existing KPI, the data exists)
- o The External Research Income database (an existing KPI, the data exists)

- o Searching the folder with all the research contracts (internal and external) held by Tūāpapa Rangahau (data does not exist, time intensive, but possible)

Contributors

A/P Marcus Williams – Director Research and Enterprise
Arun Deo – Research Adviser

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11 March 2021

Title	Research Bank Changes 2021
Provided by:	A/P Marcus Williams
For:	INFORMATION

Recommendation/s

That the Committee notes the upcoming changes to Unitec's Research Bank online repository.

Information

During the week starting 15 March 2021 the interface and content for Research Bank will change as we will go live with updates that enable us to share the repository system with three other ITPs (EIT, Toi Ohomai and Otago Polytechnic). The Research Bank will no longer have Unitec branding but will instead become a shared platform with content from all four ITPs.

Please note that the content from the other ITPs will be added gradually over time after go-live and will not all appear on day one. Also once we go live we will continue to tweak the interface and search function so a few more minor changes may be made in the weeks after go live.

[David Church](#), who administers Unitec's Research Bank, can be contacted if more information is required. More information is also available on the Nest here: [Mahi Kotahitanga in action: Unitec shares Research Bank with Te Pūkenga subsidiaries -The Nest \(Staff Intranet\)](#)

Unitec New Zealand Limited

Meeting of Unitec Research Committee

11 March 2021

Title	School Research Plans
Provided by:	A/P Marcus Williams
Authored by:	Brenda Massey
For:	INFORMATION

Recommendation/s

That the Committee is provided with copies of the Research Plans for the eight schools that offer degree programmes for its information.

Purpose

The purpose of research planning is to help schools undertake research which is:

- integrated into programme curricula and approaches to teaching and learning,
- working toward the five Unitec research goals,
- collaborative and maximising resources, and
- coordinated into a cohesive and shared vision.

Background

All eight Schools that offer degree programmes completed Research Plans in 2020. The Plans are appended to this memo.

Contributors

Arun Deo, Research Advisor

Attachments

- School of Applied Business Research Plan
- School of Architecture Research Plan
- School of Building Construction Research Plan
- School of Community Studies Research Plan
- School of Computing, Electrical and Applied Technology Research Plan

- School of Creative Industries Research Plan
- School of Environmental and Animal Sciences Research Plan
- School of Healthcare and Social Practice Research Plan

School Research Plan - School of Applied Business

1 Introduction and current state

The School of Applied Business was formed in 2019 from Business Practice Pathway, which evolved from Faculty of Creative Industries and Business in 2016. The School offers degrees in 2 areas: Business and Applied Practice (Professional Accounting). The researchers are grouped in two research groups [1] Future of Work and [2] Applied Learning, with a third aspirational group intended for the future [3] Accounting / Reporting (based on an existing collaboration, which may lead to a cluster in the future).

Number of degree teaching staff	19
Total research FTE allocated	3.3
Current Research Traffic Light rating (Percentage of green lit staff)	79%
PBRF history (Number of PBRF rated staff in 2018)	13

The School of Applied Business offers a suite of undergraduate and postgraduate programs from level 4 to level 9 as follows: New Zealand Certificate in Study and Career Preparation (Level 4) - Business and Communication, New Zealand Certificate in Real Estate (Salesperson), New Zealand Diploma in Business – Accounting/Leadership and Management, Bachelor of Business (Accountancy, Marketing, Management), Graduate Certificate in Professional Accountancy, Graduate Diploma in Business (Accountancy, Marketing, Human Resource Management, Operations Management), Postgraduate Diploma in Business, Master of Applied Practice (Professional Accounting), Master of Business.

The School of Applied Business actively promotes research led teaching by time allocation in workloads and the appointment of research leaders to support and mentor research activities. This includes creation of research groups and clusters whereby new and emerging researchers are given the opportunity to collaborate on research projects within a supported environment. Furthermore, research activity is promoted during biannual ADEPT meetings, where research plans discussed and improved in a proactive manner. These processes contributed to 79% of the degree teaching staff being research active in 2020. The School reaffirms its commitment to academic research, which is evidenced by the data in table above.

The School also teaches research practice courses (BSNS 6371, CISC8001, CISC8002, APMG8177) and engage in supervision of wide range of research projects across disciplines associated with various programmes (CISC9045, APMG9151, APMG9150). In some areas, lectures also share their research work while teaching research practice. For example, in the CISC8002 course, students are asked to provide commentary in which they critique the peer reviewed published papers authored by the lecturer.

Research findings are used as examples for classroom teaching as case studies and reading resources. An example is the published case study projects used to develop assessments for BSNS6162. These ensure that the cases are current and authentic, describing contemporary New Zealand projects. Such publications can be shared by developing a database of our School research outputs to be used as teaching material (refer to action 1).

Lecturers also researching the contemporary issues enabling the application of emerging concepts and theories within their discipline to the curriculum. Such research results in currency in discipline

and enables the application of theories to examine contemporary issues which in turn enriches classroom teaching. For example, impact of AI innovations in process improvement discussed in BSNS6350.

Moreover, a cluster of staff is researching authentic assessments and applied learning, which impacts pedagogy and teaching methods. The findings are also shared through research seminar series or internal workshops with staff as a way of improving teaching practices within the School. This is demonstrated under the research clusters and projects section.

Research in collaboration with industry creates networking opportunities and connections that are useful for both research and teaching. For example, in BSNS7350 students' group projects fed into research ideas, and in turn, research collaboration fed into further student projects. A good example is our continuous collaboration with one of our industry partners that resulted in 4 undergraduate student projects and 3 publications amongst 5 staff members. Such collaboration will be more productive as newly formed clusters progress in their projects.

Research also enhances programme development. Continuous research activities within the department have developed and maintained the skills required to systematically investigate market needs and stakeholders' expectations from a program as well as subject matter expertise in relevant discipline. Programme development activities also expose staff to ideas and opportunities for future research projects. Currently we are reviewing Bachelor of Business and redeveloping the Master of Applied Business (MAB) and Masters of Professional Accounting (MPA). On boarding new researchers within the School has resulted in developing two new Master's specialisations; Business Analytics and Supply Chain Management. Part of the redevelopment includes embedding applied research into the curriculum. This will enable students to be engaged in the research and will provide opportunities in student staff applied research collaborations, including industry partnered research.

2 School of Applied Business Goals and KPIs

The School of Applied Business has the following current goals.

- Stretch goal: maintain the external research funding at an average of \$50,000 per year
- Maintain at least 1 quality assured (QA) research outputs per year per degree teaching staff FTE.
- Work towards achieving and maintaining green traffic light status with 79% or more
- Maintain industry-funded projects at 2 projects every two year over the medium term

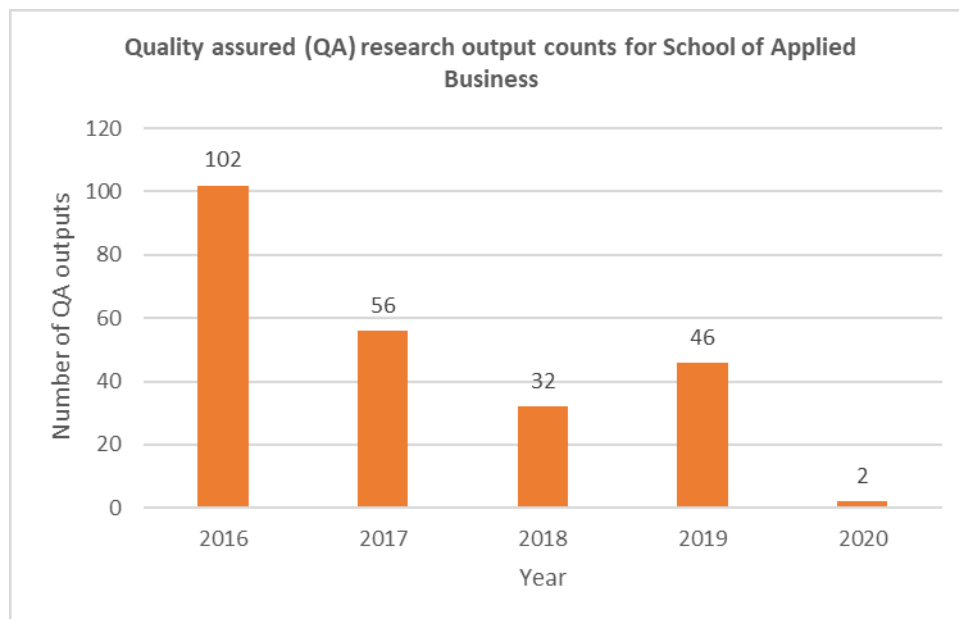


Figure 1: School of Applied Business Quality Assured Research Outputs

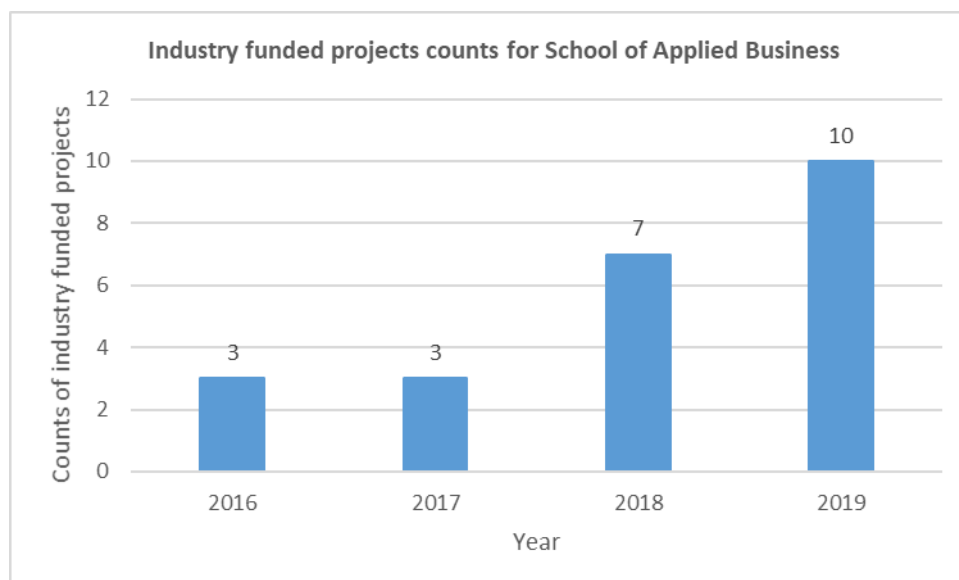


Figure 2: School of Applied Business Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

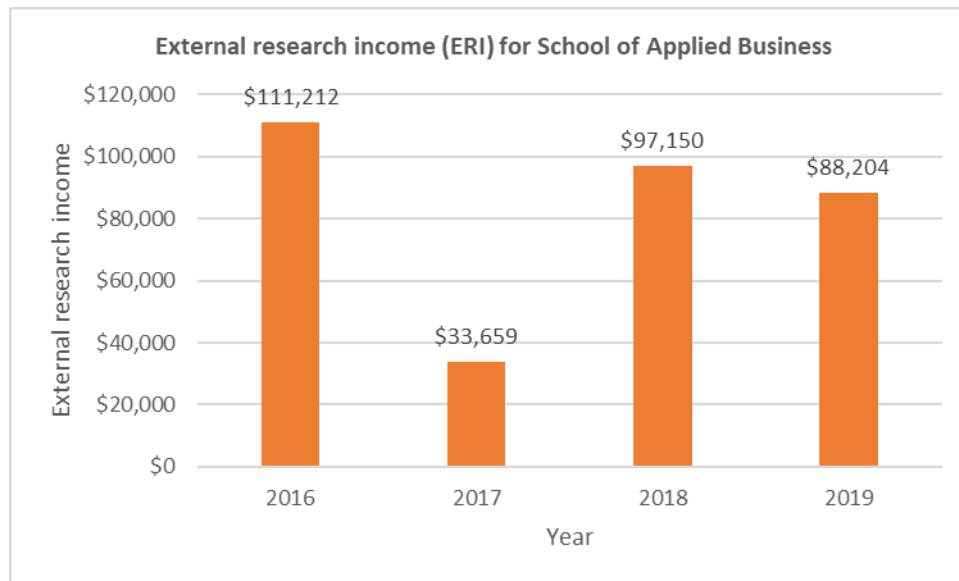
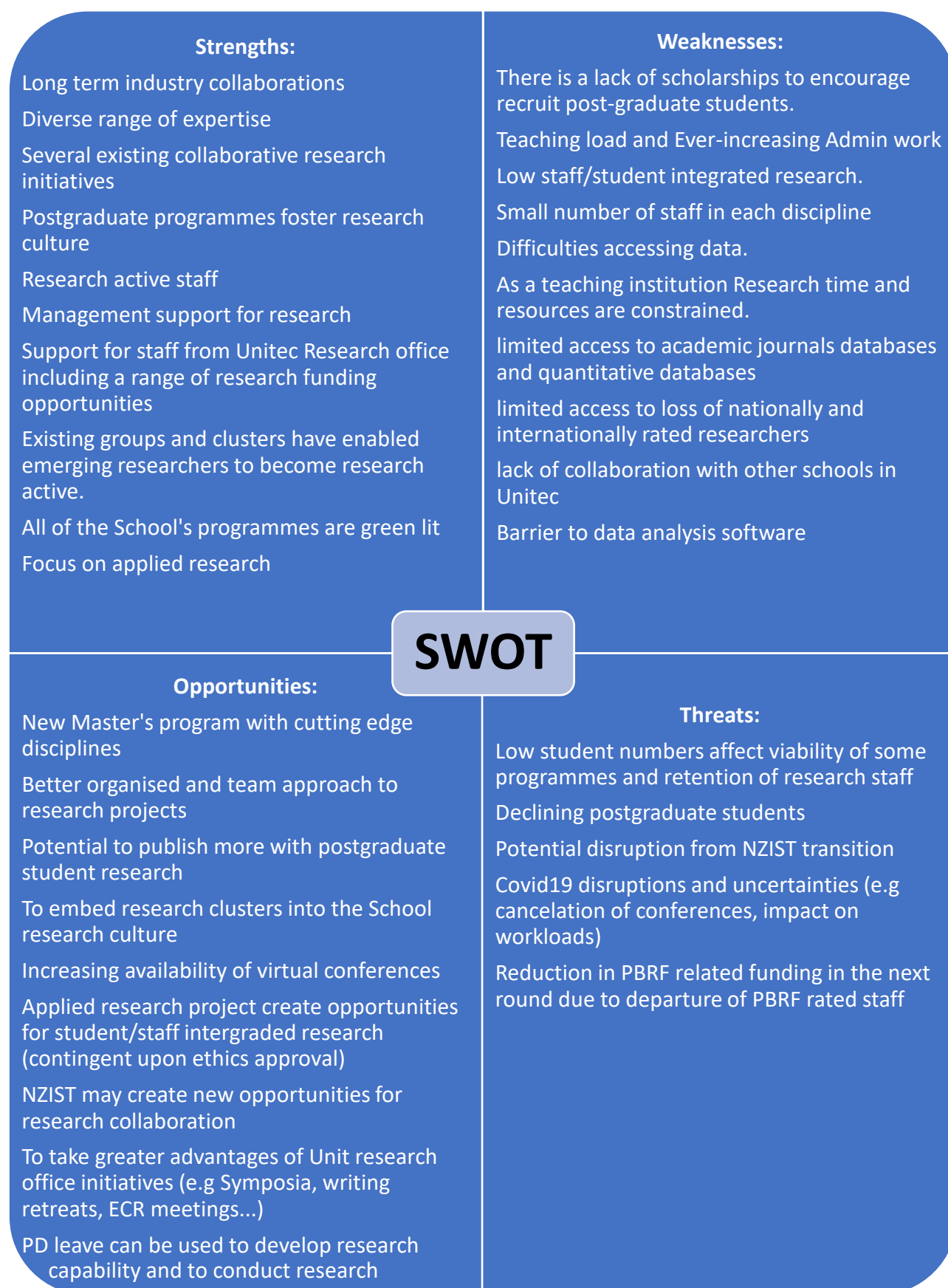


Figure 3: School of Applied Business External Research Income

3 SWOT analysis for research in School of Applied Business



4 Research Groups and projects

One successful technique for achieving goals and achieving efficient utilisation of resources is by working in synergistic collaboration. Unitec supports group projects and encourages the development of research clusters by prioritizing funding as well as promoting the collaborative research culture.

The School of Applied has two research groups [1] Future of Work and [2] Applied Learning, with a third aspirational group intended for the future [3] Accounting (based on an existing collaboration, which may lead to a cluster in the future).

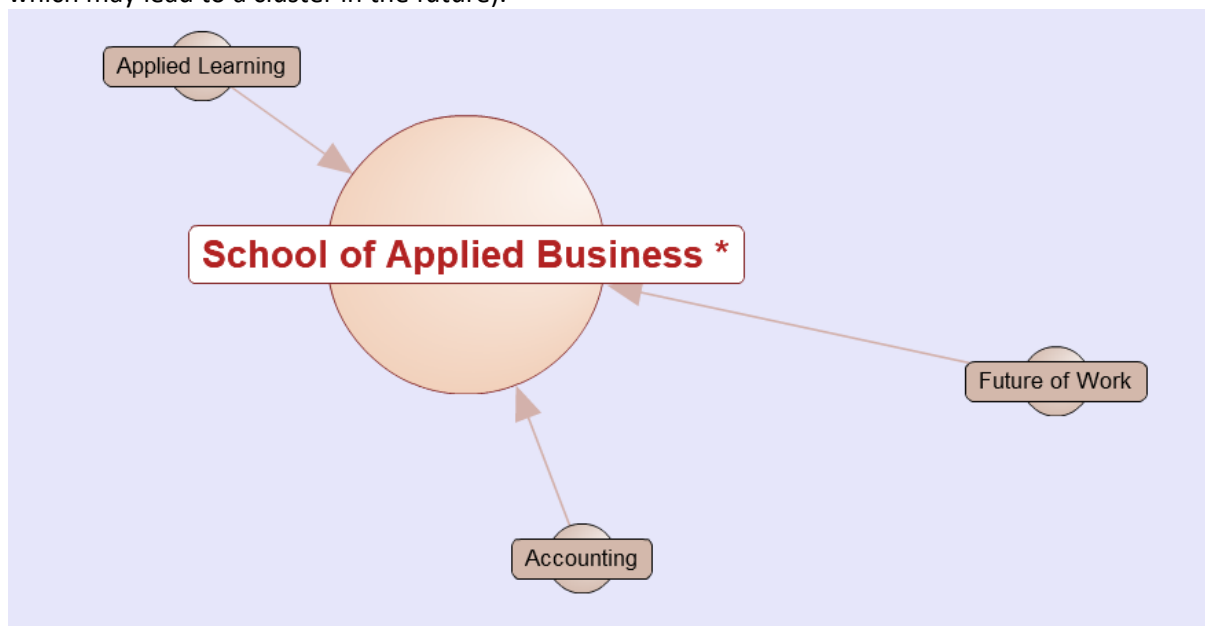


Figure 4: School of Applied Business research groups

The above research groups/centre partner with external funders and win funding/grants, which Unitec calls it External Research Income (ERI). Below are the external research partners who funded projects over the last 4 years.

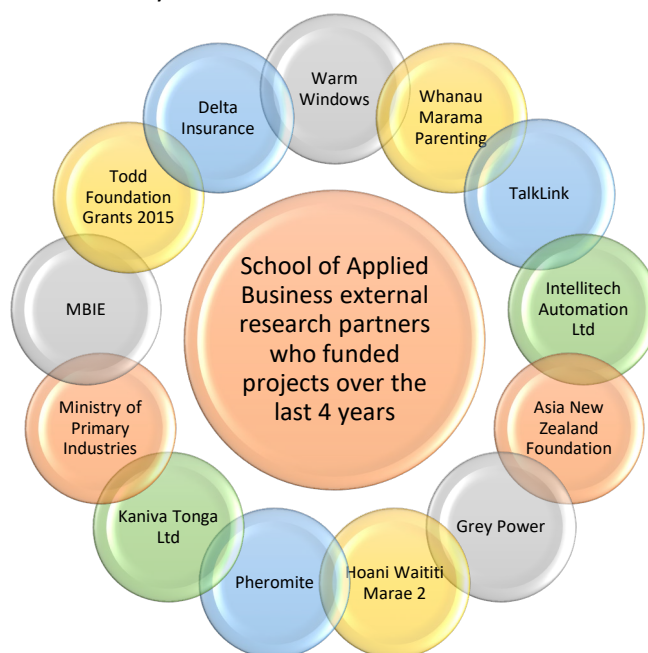


Figure 5: School of Applied Business external research partners who funded projects over the last 3 years

4.1 Research Group one – Future of Work

Statement of purpose

Research in the area of Future of Work is directed towards: analytics, supply chain and change management. The topics may include:

- New technology in future of work,
- Future of supply chain,
- Change management and technology adoption.

This group works on future of work activities. The group members are:

- Alan Lockyer
- David Airehrour
- Maryan Mirzaei
- Nicholas Kearns
- Sanjeev Ranganathan

Goal 1: Increase number of research-active staff in Future of Work				
Action	Responsible	Deadline	Resources needed	Desired result
Initiate staff research support group	Research leaders	April 2020	Allocated meeting session to form cluster	Teams formed and functions
Support staff to attend writing retreats	APMs	Sep 2020	Tūāpapa Rangahau support	Research output this year

Goal 2: Increase external research income in Future of Work				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Members in the research cluster	September 2020	Gregor Steinhorn	Apply for Funding in 2021
Integrate undergraduate industry-based student project	Members in the research cluster	July 2021	Program Manager - Malama	Authentic industry- based assessments
Engage future postgraduate students with the projects	Members in the research cluster	July 2021	Program Manager - Liz	Postgraduate student joining the cluster

Appendix 6.1 outlines the details of existing funding, collaborations and publications for this research group.

4.2 Research Group Two – Applied Learning

Statement of purpose

Research in the area of Applied Learning is directed towards teaching and learning activities. The topics include:

- Authentic assessment,
- Industry based learning,
- Teamwork,
- Peer feedback.

This group works on teaching and learning activities. The group members are:

- Craig Robertson
- Denisa Hebblethwaite
- Malama Saifoloi
- Manpreet Malhotra
- Maryan Mirzaei
- Patrick Dodd
- Sanjeev Vellore
- Ngaire Molyneux

Goal 1: Increase number of research-active staff in Future of Work				
Action	Responsible	Deadline	Resources needed	Desired result
Initiate staff research support group	Research leaders	April 2020	Allocated meeting session to form cluster	Teams formed and functions
Support staff to attend writing retreats	APMs	Sep 2020	Tūāpapa Rangahau support	Research output this year

Section 6.2 outlines the details of existing funding, collaborations and publications for this research group.

4.3 Aspirational Research Group Three – Accounting

Statement of purpose

Research in the area of Accounting is directed towards:

- Sustainability reporting
- Financial reporting

We are planning to use research seminar series as an incubator for developing this potential cluster by inviting accounting staff to present their current research projects. We are hoping this will enhance development of discussion and consequently would lead to join research projects and cluster. Three presentations have been scheduled throughout the year to foster discussion and collaboration.

Goal 1: Increase number of research-active staff in Accounting				
Action	Responsible	Deadline	Resources needed	Desired result
Explore staff interest	Research Leaders	December 2020	Time allocation in seminar ser	Formation of formal group in 2021 with sufficient interest from 5 or more staff members
Initiate staff research support group	Research leaders	July 2021	Allocated meeting session to form cluster	Teams formed and functions

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last four years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Ahesha Perera			Green lit	1-Conference Contribution- Oral Presentation, 1- Conference Contribution- Paper in published Proceedings, 3- Journal Articles	Accounting/reporting
Alan Lockyer			Green lit	1-Conference Contribution- Abstract, 3- Conference Contributions- Paper in published Proceedings, 2- Report	Human resources
Craig Robertson			Amber lit	1-Conference Contribution- Paper in published Proceedings	Team dynamics / Human resources
David Airehrour			Green lit	15-Conference Contribution- Paper in published Proceedings, 1- Conference Contribution- Poster Presentation, 8- Journal Articles	Analytics

Denisa Hebblethwaite			Green lit	3-Conference Contributions- Paper in published Proceedings, 3- Journal Articles	Marketing Industry based learning
Elizabeth Rainsbury			Green lit	4-Conference Contributions- Oral Presentation, 4- Journal Articles	Accounting
Glenn Simmons			Green lit		
James Prescott			Green lit	1-Book Chapter, 3- Conference Contributions- Oral Presentation, 1- Conference Contribution- Paper in published Proceedings, 1- Report	
James Stewart	PI for 4 externally funded projects	PI for 3 industry funded projects	Green lit	2-Journal Articles, 3-Report	
Linda Harold			Red lit		
Malama Saifoloi		PI for 1 industry funded projects	Green lit	2-Conference Contributions- Oral Presentation, 1- Report	
Manpreet Malhotra			Red lit		
Maryan Mirzaei			Green lit	1-Awarded Doctoral Thesis, 9- Conference Contributions- Oral Presentation, 2- Conference Contributions- Paper in published Proceedings, 1- Conference Contribution- Poster Presentation, 3- Journal Articles, 1- Other	Project management Supply chain management Authentic assessments Change management Team dynamics
Mitra Etemaddar			Green lit	3-Journal Articles	Tourism

					Marketing
Nadesa Goundar			Green lit	2-Conference Contributions- Oral Presentation	
Ngairé Molyneux	PI for 1 externally funded project	PI for 4 industry funded projects	Amber lit	1-Conference Contribution- Oral Presentation, 1- Journal Article, 1- Report	
Nicholas Kearns		PI for 1 industry funded project	Green lit	1-Conference Contribution- Oral Presentation, 1- Conference Contribution- Poster Presentation, 2- Reports	
Patrick Dodd	PI for 1 externally funded project		Green lit	3-Conference Contributions- Oral Presentation, 1- Conference Contribution- Poster Presentation	Authentic assessment Team dynamics
Saman Bandara			Green lit	1-Conference Contribution- Abstract, 1- Conference Contribution- Oral Presentation, 2- Journal Articles	
Sanjeev Ranganathan			Green lit	3-Conference Contributions- Oral Presentation, 1- Conference Contribution- Poster Presentation	Supply chain management
Wajira Dassanayake			Green lit	1-Conference Contribution- Abstract, 1- Conference Contribution- Oral Presentation, 2- Conference Contributions- Paper in published Proceedings, 3- Journal Articles, 1- Presentation (non-conference)	

6 Appendix

6.1 Appendix – Existing work for the Future of Work Research Group

Below are the details of funding received and publications achieved related to the research group – Future of Work.

- Funding: Unitec Early career researcher fund 2019 - for change management and technology adoption

Publications:

1. Mirzaei, M., Kearns, N., & Vellore, S. (2019). Resistance to change can improve change management. Applied Business Conference, Christchurch - New Zealand.
2. Mirzaei, M., Ranganathan, S., Kearns, N., Airehrour, D., & Etemaddar, M. (2019). Investigating Challenges to SME Deployment of Operational Business Intelligence. UCC '19: IEEE/ACM 12th International Conference on Utility and Cloud Computing, Auckland, New Zealand.
3. Mirzaei, M., & Vellore, S. (2019). Mobility: A by-product of supply chain integration. Mobilities Research Symposium, Queenstown, Queenstown, New Zealand.
4. Madanian, S., Parry, D., Airehrour, D., & Cherrington, M. (2019). mHealth and big-data integration: promises for healthcare system in India. BMJ Health and Care Informatics (Vol. 26(1)).
5. Airehrour, D., Gutierrez, J., & Ray, S. K. (2019). SecTrust-RPL: A secure trust-aware RPL routing protocol for Internet of Things. Future Generation Computer Systems (Vol. 93).
6. Hathurusingha, C., Abdelhamid, N., & Airehrour, D. (2019). Forecasting Models Based on Data Analytics for Predicting Rice Price Volatility: A Case Study of the Sri Lankan Rice Market. Journal of Information & Knowledge Management (Vol. 1950006).
7. Cherrington, M., Airehrour, D., Lu, J., Xu, Q., Wade, S., & Madanian, S. (2019). Feature Selection Methods for Linked Data: Limitations, Capabilities and Potentials. Kenneth Johnson & Josef Spillner, Proceedings of the 6th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies.
8. Airehrour, D., Gutierrez, J., & Ray, S. K. (2016). A Lightweight Trust Design for IoT Routing. Wang, K. I-K., Jin, Q., Zhang, Q., Bhuiyan, M.Z.A., & Hsu, C-H. IEEE 14th Intl Conf on Dependable, Autonomic and Secure Computing, 14th Intl Conf on Pervasive Intelligence and Computing, 2nd Intl Conf on Big Data Intelligence and Computing and Cyber Science and Technology Congress (DASC/PiCom/DataCom/CyberSciTech).
9. Airehrour, D., Gutierrez, J., & Kumar Ray, S. (2016). Secure routing for internet of things: A survey. Journal of Network and Computer Applications (Vol. 66).
10. Airehrour, D., & Gutierrez, J. (2015). An analysis of secure MANET routing features to maintain confidentiality and integrity in IoT routing. L. J. Janczewski, International Conference on Information Resources Management (CONF-IRM) 2015 Proceedings.

6.2 Appendix – Existing work for the Applied Learning Research Group

Below are the details of funding received, collaborations and publications achieved related to the research group – Applied Learning.

- Funding: Unitec Emerging researchers fund 2018 - for authentic assessment
- Funding from Ako Aotearoa 2018 for Peer ass pro
- Collaboration in place with Victoria university of Wellington, Waikato, and AUT for peer assess pro for education

Publications:

1. Mirzaei, M., Dodd, P., Yates, A., & Saifoloi, M. (2019). Student learning experiences as they interact with assessments. ITP Research Symposium, Napier - New Zealand.
2. Mirzaei, M., Vellore, S., & Saifoloi, M. (2019). Weaving Authentic Assessments into Operations Management Teaching. New Zealand Applied Business Education, Christchurch - New Zealand.
3. Mirzaei, M., Dodd, P., Yates, A., & Saifoloi, M. (2019). Student learning experiences as they interact with assessments. ITP Research Symposium, Napier - New Zealand.
4. Ayling, D., Hebblethwaite, D. E., & Kirkland, K. (2019). Back to the Future: Business workplace competencies revisited. K. E. Zegwaard and K. Hoskyn, Our place in the Future of Work: New Zealand Association of Co-operative Education 2019 Refereed Conference Proceedings.
5. Hebblethwaite, D.E., & Ayling, D. (2018). The seven wonders of employability. K.E. Zegwaard and K. Hoskyn, New Zealand Association of Cooperative Education 2018 Conference Proceedings.
6. Published and unpublished work conducted by Dr Peter Mellalieu, Founder, Peer Assess Pro and Patrick in the last few years
7. Mirzaei, M., Dodd, P., Mellalieu, P., & Robertson, C. (2019, 11). Team optimisation. Presented at the NZIE Business, management and leadership Symposium, Auckland - New Zealand.

School Research Plan - School of Architecture 2020

1	Introduction and current state.....	2
1.1	Teaching and research inform each other:	3
1.2	Teaching informed by staff research:.....	4
1.3	Research through teaching:.....	4
2	School of Architecture Goals and KPIs	5
3	SWOT analysis for research in School of Architecture.....	7
4	Research Groups and projects	7
4.1	Research Group One – Art & Culture	10
4.2	Research Group Two – Environment & Sustainability	10
4.3	Research Group Three – Conservation & Heritage	11
4.4	Research Group Four – Social Topics	12
4.5	Research Group Five – Te Hononga & Māori Housing	12
4.6	Research Group Six – Technology & Fabrication.....	13
4.7	Research Group Seven – Urban & Housing	14
	Current staff expertise	15
5	Industry-connected research	19

1 Introduction and current state

The Department of Architecture was founded in 1994, the same year that Building One was first used as a teaching building for Unitec. The Department of Landscape Architecture was set up in 2000. In 2004, the Department of Architecture and Landscape Architecture merged into one school and was named School of Architecture and Landscape Architecture (ScALA). In 2010, faculty structures were created at Unitec and Architecture and Landscape Architecture were separated again under departments in to the Faculty of Creative Industries and Business. In 2017, Unitec adopted to Network and Pathway structures and Architecture and Landscape Architecture merged again into one Pathway named Architecture. Then in 2019, when the new school structures were created at Unitec, the Architecture Pathway became the School of Architecture.

The School offers degrees in two areas: Architecture and Landscape Architecture, and offers five degree programmes. The researchers are grouped across seven research groups [1] Art & Culture, [2] Environment & Sustainability, [3] Conservation & Heritage, [4] Social, [5] Technology & Fabrication, [6] Urban & Housing and [7] Te Hononga & Māori Housing. These groups are closely aligned to help the Master of Architecture (Professional) students identify areas of expertise for their ARCH 9111 Research Projects.

The School of Architecture maintains a vibrant and active research culture. This has been so for more than a decade and is on-going. Our research is scientific and scholarly, practice-based and theoretical, investigating design teaching and fundamental theoretical questions. All of this research is tightly connected to teaching in the Bachelor of Architectural Studies (BAS) as well as in the Master of Architecture (Professional) (MARCP), and in the Landscape programmes. It is perhaps useful to point out that the BAS is generally seen as preparation for the MARCP, which is more heavily based on research – both in terms of staff research as students' own research.

Three different kinds of research are conducted in the School of Architecture:

- Research by students (predominantly through ARCH 9111 – the 120 credit Research Project course),
- Research by staff,
- Collaborative research by staff and students.

Twenty-one staff from the school submitted a portfolio for the 2018 PBRF round, all of which received a funded quality category grade. This is the biggest number of any of the schools at Unitec and demonstrates the linkages of research and collaboration through the undergraduate and postgraduate programmes as well as across disciplines.

Number of degree teaching staff	32
Total research FTE allocated	5.09
Current Research Traffic Light rating (Percentage of green lit staff	81%
PBRF history (Number of PBRF rated staff in 2018)	21

1.1 Teaching and research inform each other:

BAS (Bachelor of Architectural Studies):

Methods of undertaking research are taught in the BAS from early on: since design is seen as a research activity (TEC's definition), students are systematically prepared for thorough, in-depth investigations of site, technologies, design strategies from Year 1 onwards. This begins with a course like Design Communication and equally by connecting students to the academic support services at Unitec from first year onwards. As such, students are preparing themselves for more in-depth self-directed research-based design in the MARCP. Elements of scholarly research are taught in the Critical Studies Strand in History 1 and 2 as well as in Architectural Theory 1 and Urban Design. Undertaking searches into architects and buildings, evaluating judgements on architecture, methods of essay writing, referencing and the like are taught consistently throughout the BAS.

MARCP (Master of Architecture (Professional)):

Research Methods is one of the first year MARCP courses, preparing students for their candidature for ARCH 9111 course and for the combination of scholarly and design research they will be undertaking in their year-long project. A connection between Research Methods and Design Studio fosters the development of a design research approach to prepare for the final 'thesis' Research Project. Teaching staff¹ apply their own experience of having supervised many MARCP Research Projects to foster students' understanding of methods and approaches to diverse research questions. Architectural Theory (ARCH 8311) continues to develop students' capability in researching and formulating complex theories while linking them to the analysis of buildings via the means of drawing. Electives foster the development of research capability in specific interest areas for students – often the electives are chosen directly as preparation for the final year Research Project.

In the final year, the individual supervision of ARCH 9111 is often driven directly by staff's own research area and expertise, at times resulting in joint outputs by staff and students (in writing and publishing papers as well as in making prototypes etc.).

Bachelor of Landscape Architecture / Master by Project:

Negotiated Studies, a year 4 (final year) course, pursues a research driven agenda for the capstone professionally accredited programme. The Master of Landscape Architecture and Master of Architecture (Professional) are grounded in project-based design research investigations and are driven by staff's own research expertise. A pathway for Māori practitioners has been recently established with the help of Dr. Di Menzies. Dr. Menzies has helped to develop mātauranga Māori protocols around research presentation. All workshops now begin with a karakia and a whakawhanaungatanga. Māori students are encouraged to use Kaupapa Māori Research methods. Connection to industry-based research projects is an important part of the masters programme. A recent research collaboration has been with Beca, a multidisciplinary and international engineering consultancy, and a Pacific student on a water flood remediation project in Apia, Samoa.

Recent student successes have included; the development of a GIS mapping system for a Hokianga hapu. The successful graduate has recently been accepted into the PhD programme at Auckland University. Another successful applied research project is being completed. The candidate is researching traditional Māori garden practice. The outcome will be the construction of a series of Māori gardens at Pourewa, the ancestral land of Ngata Whātua Orākei. The project has recently

¹ Christoph Schnoor (course-coordinator), Kerry Francis for design-research workshops, with Graeme McConchie, Annabel Pretty and others as guest critics.

received funding and will begin construction in 2021. A sterling example of applied research using Kaupapa Māori Research methods.

1.2 Teaching informed by staff research:

Teaching material in the research courses are informed directly by the research activities of the respective lecturers. A few annotated examples of staff research that has influenced teaching in the BAS and the MARCP programme are:

- David Turner on Urban Housing. Genesis research into Urban Housing elective.
- Christoph Schnoor on Ernst Plischke (SAHANZ 2011, 2014, 2015) into ARCH 7626 New Zealand Architectural History.
- Min Hall's research on low-carbon materials and design practices is directly related to teaching in Tech 1 course and in her elective.
- Chris Murphy on earthquake-prone buildings into his elective, also supporting the alternative pathway to registration for the NZRAB.
- Peter McPherson on digital technologies into his elective.
- Yusef Patel on digital fabrication (CNC) into his elective.
- John Pusateri on lithography techniques in his elective and individual studies.
- Architectural Theory: both staff teaching Architectural Theory (Christoph Schnoor; Renata Jadresin-Milic for ARCH 8311) directly feed their research into teaching – this includes published writing on theories by Vitruvius, Le Corbusier, Ernst Plischke and others.
- Renata Jadresin Milic, ARCH7624 Digitalisation of Heritage is directly related to her prior and teaching (INTBAU Italy International Architectural Programme Cultural Landscape and Heritage Skills in Lizoni, June 2018).

1.3 Research through teaching:

Teaching also develops research through student-led research and/or industry partnership. Some examples include:

- Renata Jadresin-Milic – digital scanning elective ARCH7624 Digitalisation of Heritage (funded with ECR grant).
- Christoph Schnoor in ARCH 7626 New Zealand Architectural History – Publication *The Vertical Picturesque* (2019), currently research on Ponsonby Road in Auckland to be published in 2021.
- Rau Hoskins, in particular through Māori Studio.
- Hamish Foote's connection with ADHB (Auckland District Health Board), which facilitates real-world input into ARCH 9111 Research Projects
- Practice-based design research for small groups of 1st yr MARCP students happens through their design studio placement with several Auckland-based architectural practices, such as PeddleThorpe and Jasmax (4 students each per year).

2 School of Architecture Goals and KPIs

The School of Architecture has set itself a number of qualitative goals. These are:

- Increase the number of student-related collaborative research projects. This is being achieved through links to courses, involvement of students in authoring papers, etc.
- Steadily increase the higher degrees of staff. 10 Current PhD holders are: Matthew Bradbury, Hugh Byrd, Hamish Foote, Lucia Melchioris, Renata Jadresin-Milic, Yusef Patel, Christoph Schnoor, Bin Su, David Turner, Cesar Wagner; enrolled are Krystina Kaza, Annabel Pretty and Xinxin Wang.
- Encouraging staff to produce more collaborative co-authored research outputs and generate outputs like Asylum and X-Section.
- Encouraging staff to publish more research outputs like journal articles and book chapters.
- Looking at the possibility of establishing a research centre or two.

The School has the following current quantitative goals.

- Stretch goal: Maintain the external funding at \$130,000 per year
- Maintain at least 1 quality assured (QA) research output per year per degree teaching staff FTE.
- Maintain industry-funded projects at 2-3 projects per year
- Maintain green traffic light with 81% or more
-

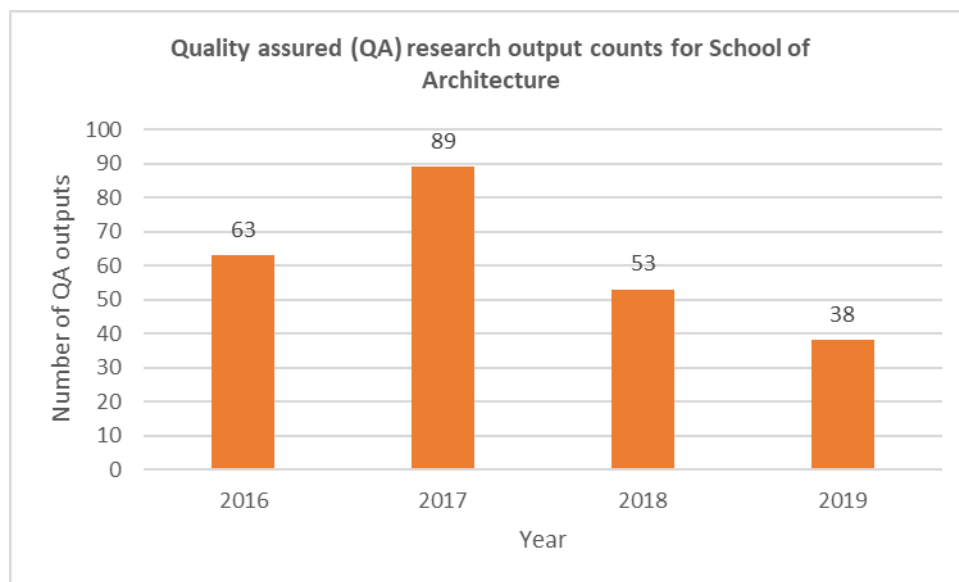


Figure 1: School of Architecture Quality Assured Research Outputs

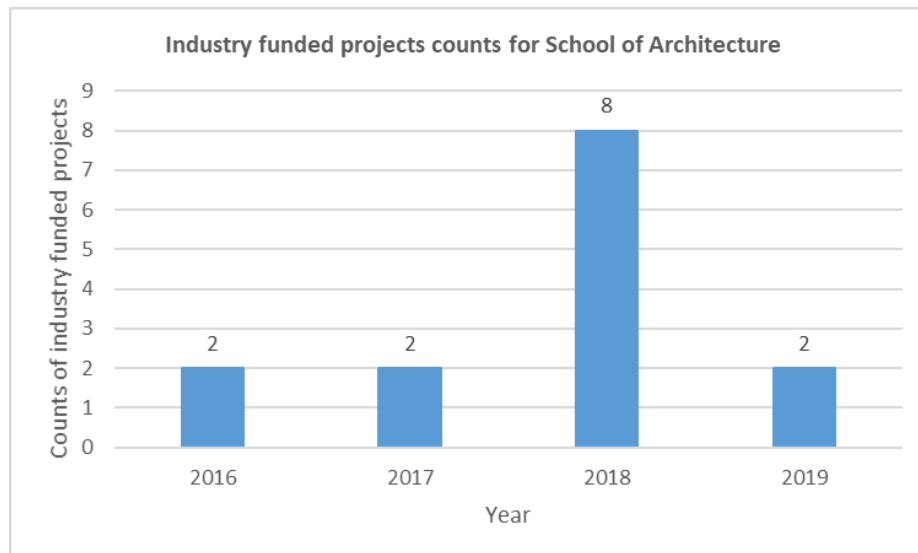


Figure 2: School of Architecture Industry Funded Projects

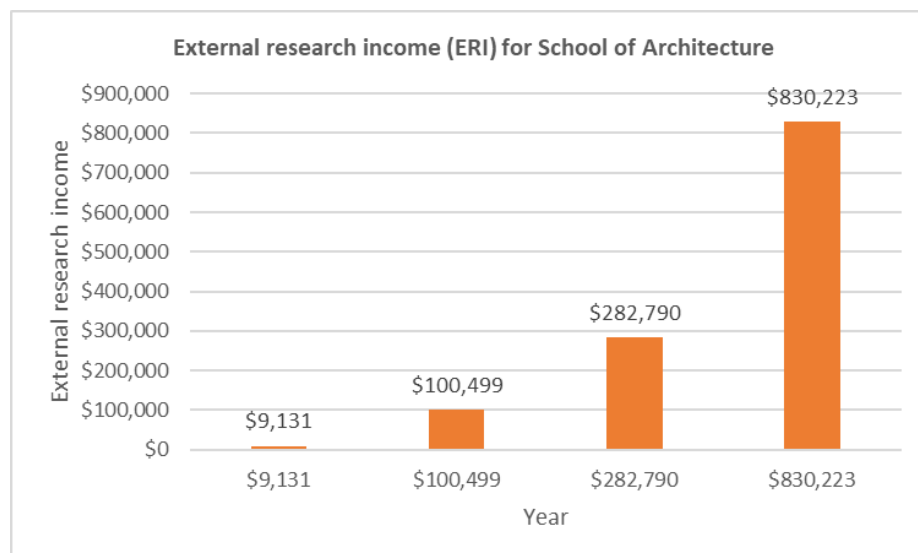


Figure 3: School of Architecture External Research Income

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus, the 2018 figures reported are comparatively higher than that of 2016 and 2017.

3 SWOT analysis for research in School of Architecture



4 Research Groups and projects

The School of Architecture currently has seven research groups [1] Art & Culture, [2] Environment & Sustainability, [3] Conservation & Heritage, [4] Social, [5] Technology & Fabrication, [6] Urban & Housing and [7] Te Hononga & Māori Housing. These groups – or clusters – have been defined to help Master students identify their area of focus and of staff expertise. They have, however, not been formed to pigeonhole staff research because it is very apparent in this School that staff research across topics covered by these clusters. Therefore, research projects solely run by staff may more often than not stretch across these clusters.

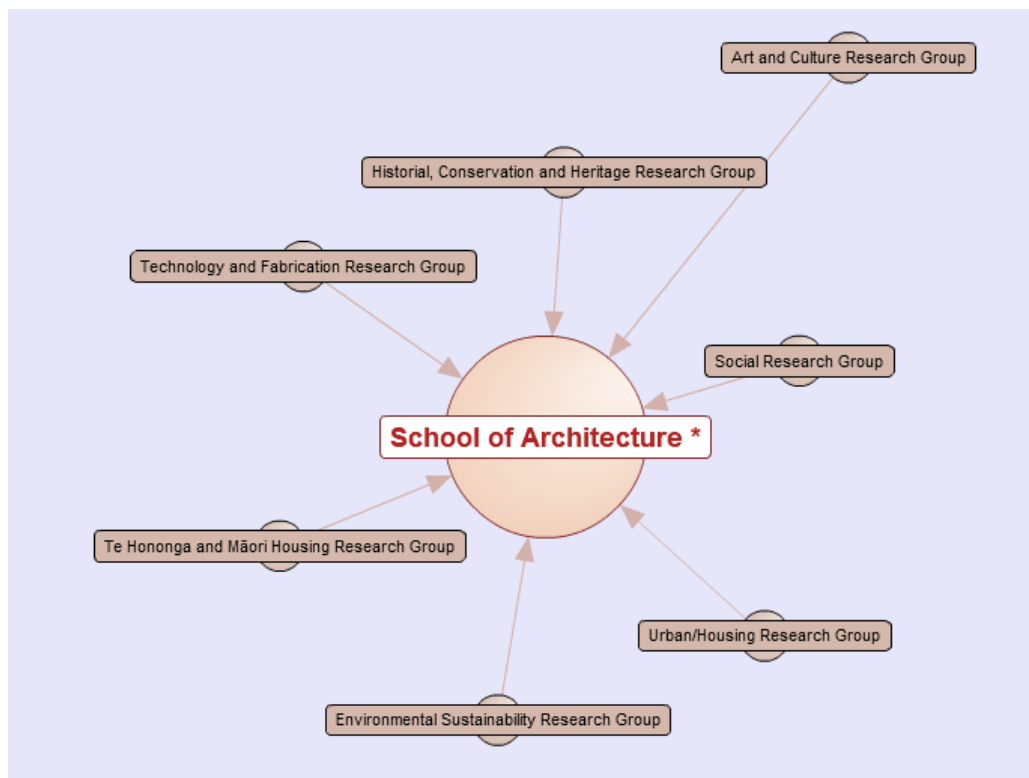


Figure 4: School of Architecture seven research groups

Below are the external research partners who funded projects over the last 4 years.



Figure 5: School of Architecture external research partners who funded projects over the last 4 years

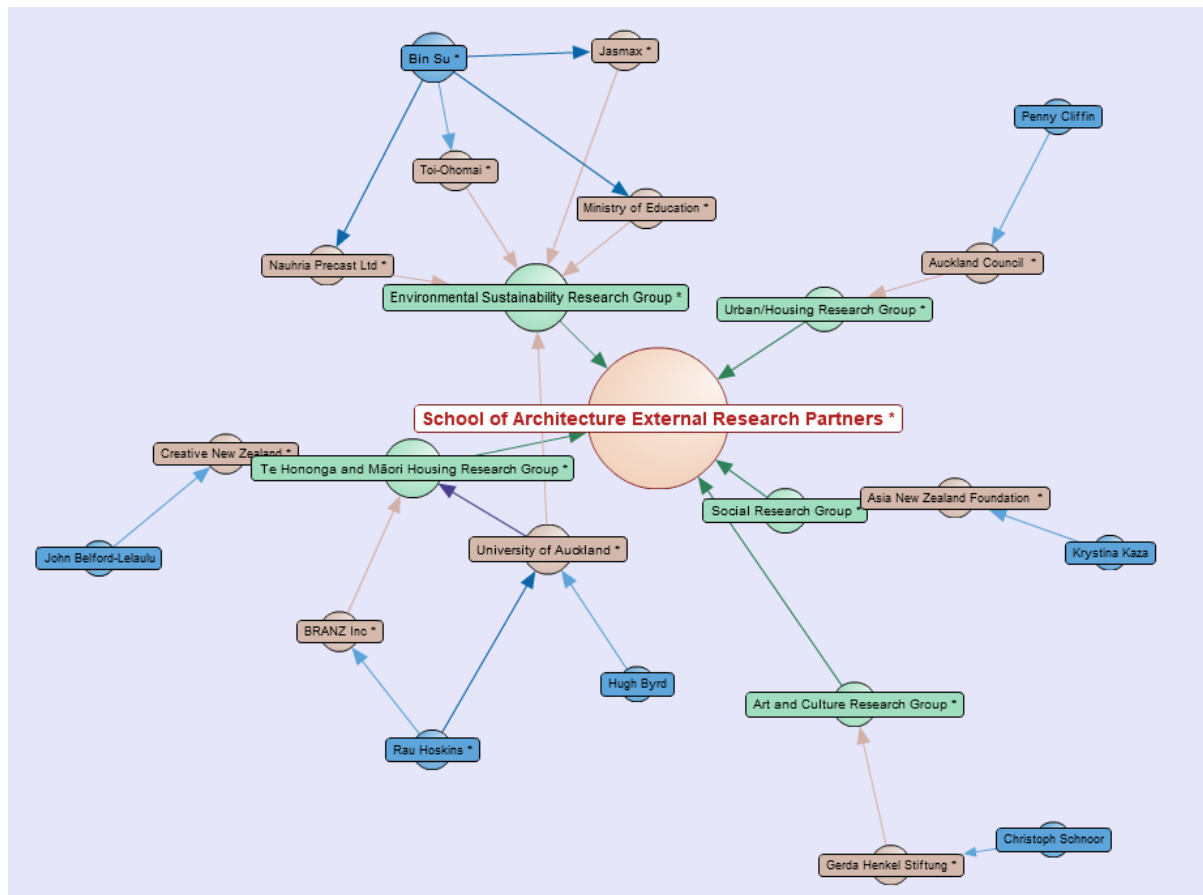


Figure 6: School of Architecture external research partners who funded projects over the last 4 years, along with the research groups and lead researchers

4.1 Research Group One – Art & Culture

Statement of purpose

This cluster promotes research projects that engage with the history, theory and practice of artistic or cultural phenomena. The lead staff member is Dr Christoph Schnoor.

For MARCP Research Projects, this could include research:

- » at the intersection between art and architecture;
- » that investigates design theory and practice;
- » into the production of art and craft, dealing with traditional or contemporary, material or immaterial culture;
- » studying cultural practices from a local, global or indigenous point of view;
- » that is interested in historical or contemporary instances of 'pop', 'high' or counter-culture. Projects include, but are not limited to museums, educational institutions that explore the specifics of a culture, performance venues or dwellings related to art practice, or critiques of urban phenomena related to cultural issues.

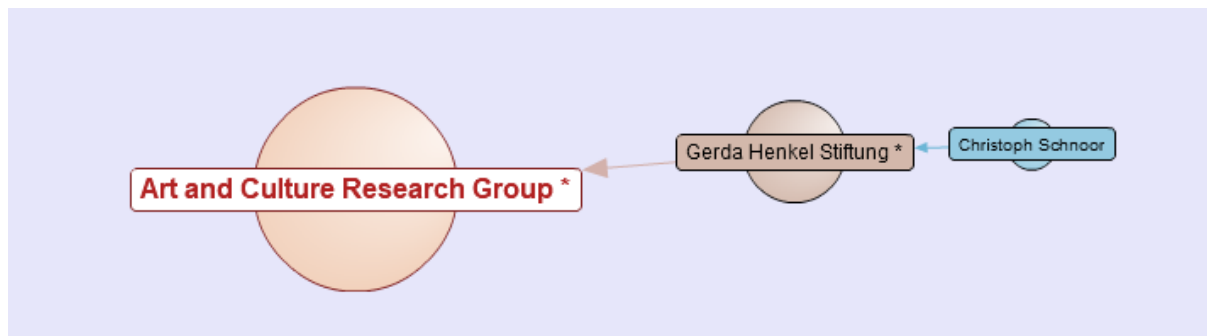


Figure 7: School of Architecture Art and Culture research group externally funded research partners and lead researchers

4.2 Research Group Two – Environment & Sustainability

Statement of purpose

This cluster promotes research towards environment and sustainability. The lead staff member is Dr Hugh Byrd.

ESD (environmentally sustainable design) is all about building for the future. It is underpinned by a concern for the depletion of natural resources and also for climate change. We currently tend to design buildings with little consideration to their 'embodied energy' (the value of the resources to construct, recycle or dispose of) and their operational energy (the value of the resources to keep a building running). Both constructing and operating result in the production of 'greenhouse gases' (GHGs) that warm the climate. ESD is about utilising resources that are renewable for both construction (e.g. timber that is managed so that it does not deplete) and operation (e.g. using the sun's energy rather than fossil fuels) and minimising GHG production.

For architects, this means designing by 'passive' means (maximising the energy in the natural environment) with the aim of achieving 'free-running' or 'zero-energy' buildings or even 'regenerative' buildings that produce more energy than they consume. This has implications on the shape and form of buildings (and cities) as well as utilising 'disruptive technologies'.

Environmental sustainability underpins both social and economic sustainability since, without resources, society and economy would collapse. Sustainability in this context is defined as the aim of maintaining a system (e.g. a building) indefinitely.

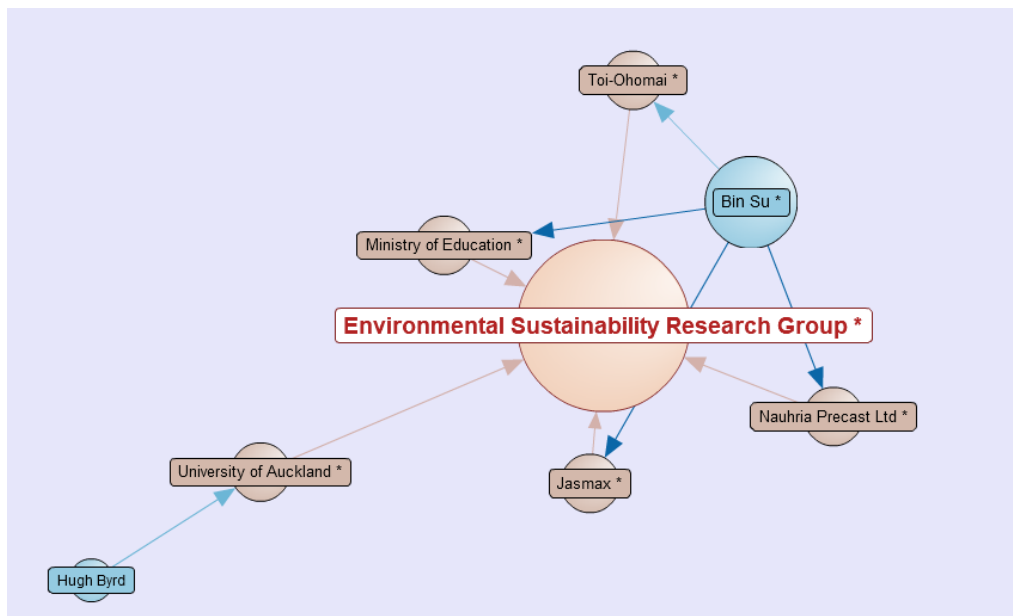


Figure 8: School of Architecture Environmental Sustainability research group externally funded research partners and lead researchers

4.3 Research Group Three – Conservation & Heritage

Statement of purpose

This cluster promotes research towards Conservation and Heritage. The lead staff member is Dr Renata Jadresin-Milic.

The Conservation & Heritage Research cluster explores the theory and practice of heritage conservation and adapting historic places, as well as incorporating new design into heritage environments, both internationally and in Aotearoa New Zealand. This research (cluster) addresses conservation, future use and development of historic and modern buildings, from preservation through to adaptive reuse – how they were built, how to assess their heritage value and how they can be preserved or adapted in our contemporary world to regenerate, maintain and enhance the local character and sense of place. Students engaged in this research (cluster) will be prepared to conduct ‘applied’ or ‘real world’ research in collaboration with industry, community, iwi or other external partners.

As example: ARCH7624 Digitalisation of Heritage – teaching and research project:

Industry partners in the project so far (2020) - national and international professionals in the field:

- » Salomond Reed Architects (Mari McKee, Tracey Hartley)
- » AsBuilt Digital (Jason Blac, Freddie Nodalo)
- » Survis (Malcolm Archbold)
- » Global Survey (Tim Jervis)

Local community and government organisations interest and connections established in 2020:

- » Pt Chev Social Enterprise Trust
- » Auckland Council, Heritage Unit, Plans and Places Department, Chief Planning Office

» Heritage New Zealand

Existing and possible partners internationally:

INTBAU Italy and Politecnico di Milano – (grant for PI (50% scholarship) from INTBAU Italy and Fondazione Antonio Meneghetti, Switzerland towards the participation of the Unitec students and PI); Iowa State University, Project Parametric Research of the Studenica Church: Questioning the use of physics in medieval domed churches.

4.4 Research Group Four – Social Topics

Statement of purpose

This cluster promotes research towards society or its organization. The lead staff member is Dr Hamish Foote.

Social research is that which ‘relates to society or its organization’. As such, facilities that fall within its scope include, but are not limited to: hospitals, rest and funeral homes, childcare and mental health centres, hospices, schools and prisons.

A Memorandum of Understanding (MOU) between Unitec and the Auckland District Health Board (ADHB) has enabled this research cluster to identify real-world issues and gain access to a variety of ADHB facilities, managers, specialists and other key stakeholders. As student’s research develops, close ties with industry professionals such as Jasmax Architects provides an opportunity for professional input into student-led projects.

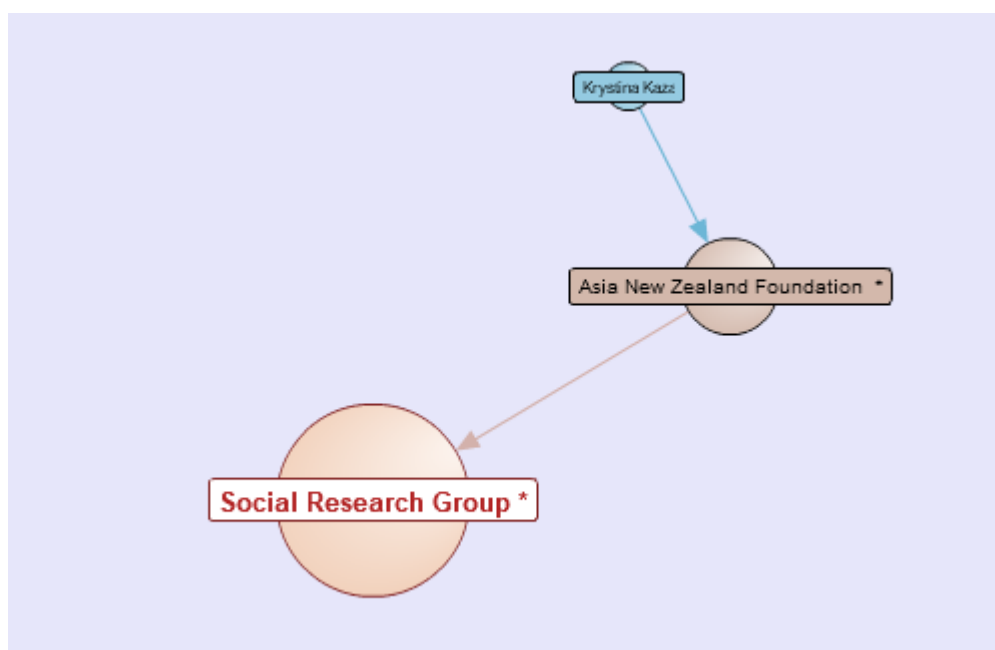


Figure 9: School of Architecture Social research group externally funded research partners and lead researchers

4.5 Research Group Five – Te Hononga & Māori Housing

Statement of purpose

This cluster promotes architectural research towards Māori Housing and Culture. The lead staff member is Rau Hoskins.

Rau Hoskin's current research, which is carried out through the Ngā Wai a te Tūi Māori and Indigenous Research Centre, centres on strengthening urban marae through a focus on whare (built environment and housing solutions), wai (potable and storm water quality), whānau (community engagement) and whai rawa (business development) I am also particularly interested in urban papakāinga innovations including whare kāhui (nano whare clusters) which can benefit from access to existing marae based communal facilities while being relatively affordable emergency, transitional and long term housing solutions.

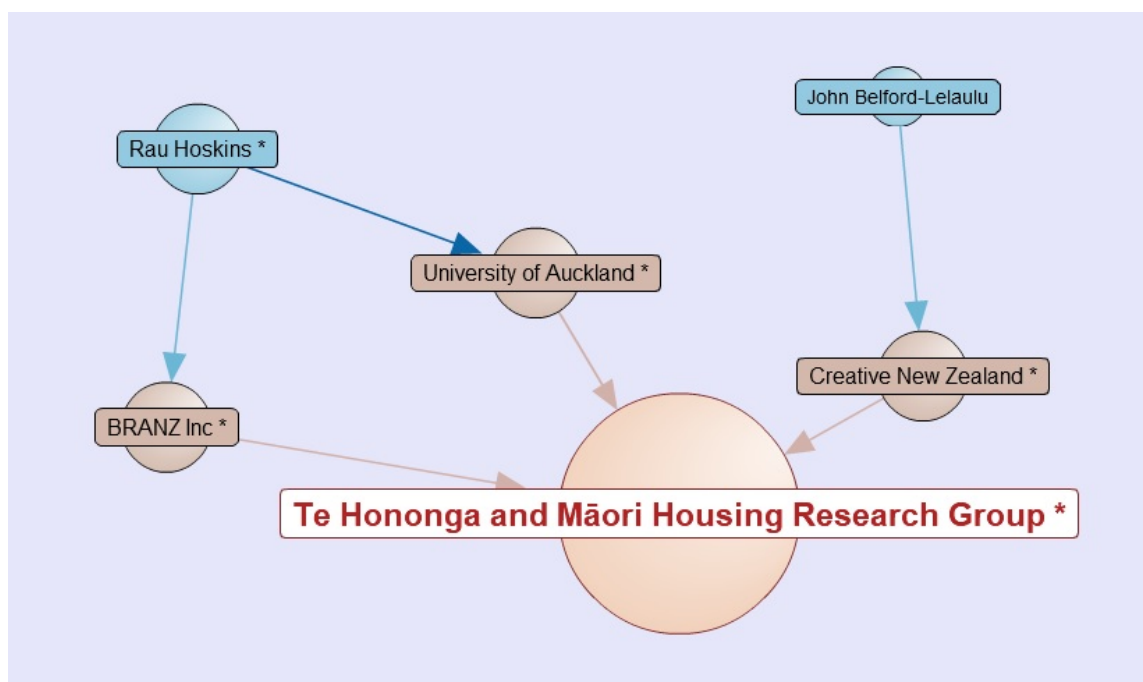


Figure 10: School of Architecture Te Hononga and Māori Housing research group externally funded research partners and lead researchers

4.6 Research Group Six – Technology & Fabrication

Statement of purpose

This cluster promotes architectural research towards Technology and fabrication. The lead staff member is Dr Yusef Patel.

Technology is allowing researchers to engage in the design and production of novel architectural outcomes. Large emphasis is placed in developing ideas and concepts through iterative prototyping technologies.

The research stream places a large emphasis on working with industry stakeholders such as Futurebuild LVL, Pro Clima, James Hardie, and Panuku Development Auckland.

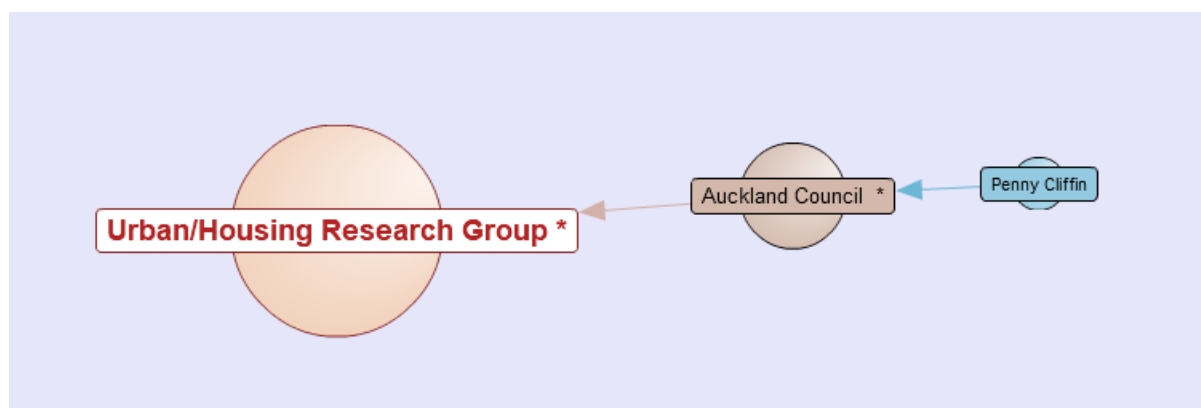
A large majority of the research focusses on adding value to everyday construction materials to create novel architectural outputs. To ensure the research

4.7 Research Group Seven – Urban & Housing

Statement of purpose

This cluster promotes architectural research towards Urban and Housing. The lead staff member is Dr David Turner.

We are re-developing the Housing Research Group to engage particularly with urban housing issues with the intention to offer planning, technical, and architectural design research to the various private & government agencies in the field – HNZ (Kāinga Ora -Homes and Communities), Auckland Council, but also – increasingly – comment & advice to some of the newer operations such as Architecture NZ & Architecture Now website, Oneroo (NZ Herald) & The Property Crowd.



Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last four years (2016–2019), including some of the 2020 outputs.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Sybil Bloomfield			Green lit	1-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings	Urbanism and Landscape Architecture
Dr Matthew Bradbury			Green lit	1-Book Authored, 1-Book Chapter, 3-Conference Contributions- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Exhibition - Group, 2-Journal Articles, 2-Other	Climate change and urban design
Jeanette Budgett			Green lit	1-Book Chapter, 4-Journal Articles	Pacific Architecture, Urban Heritage, Architectonics, architectural pedagogy
Dr Hugh Byrd	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	1-Book Chapter, 8-Journal Article	Architecture, environmental performance, climate change, ecological footprint, low-energy design
David Chaplin			Red lit		Design process
Natalie Couch			Green lit	1-Exhibition - Group	Art practice and Maori research approaches
Dr Hamish Foote			Green lit	1-Conference Contribution- Oral Presentation, 2-Exhibitions - Group, 1-Film/video, 3-Journal Articles	Fine art, landscape architecture and biological science with a focus on the relationship between exotic and native species of flora and fauna in the New Zealand environment
Kerry Francis			Green lit	2-Conference Contributions- Abstract, 1-Conference Contribution- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 1-Journal Article	design pedagogy; creative work: drawing; New Zealand architecture

Magdalena Garbarczyk			Green lit	3-Conference Contributions- Abstract, 2-Conference Contributions- Paper in published Proceedings, 1-Edited Book/Volume, 3-Exhibitions - Curatorial Exercise	Regenerative development, Sustainability in architectural education, Architecture in the Anthropocene
Min Hall			Green lit	1-Conference Contribution- Abstract, 4-Conference Contributions- Paper in published Proceedings, 1-Exhibition - Curatorial Exercise	History of earth building in Aotearoa, Low carbon construction techniques
Rau Hoskins	PI for 2 externally funded projects	PI for 2 industry funded projects	Green lit	1-Artifact/ Object/ Craftwork, 1-Book Authored, 1-Book Chapter, 3-Conference Contributions- Oral Presentation, 2-Design Outputs, 1-Exhibition - Curatorial Exercise, 1-Film/video, 1-Journal Article	Māori architectural practice / guidelines for bi-cultural planning and building practice
Daniel Irving			Green lit	1-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 1-Design Output, 1-Edited Book/Volume, 1-Essay - Published (Unitec only), 2-Presentations (non-conference)	Ecology
Dr Renata Jadresin-Milic			Green lit	2-Book Chapters, 1-Book Review (Unitec only), 1-Conference Contribution- Abstract, 4-Conference Contributions- Oral Presentation, 7-Conference Contributions- Paper in published Proceedings, 1-Edited Book/Volume, 4-Journal Articles, 1-Other	Role of arch. history/theory in arch. design and prof. practice today; theory and practice of heritage conservation; methods of presentation and Utilisation of historic sites
Krystina Kaza	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	11-Exhibitions - Group	<i>(on leave in 2020: Sculpture, installation art, material investigations, painting, drawing, abstract language, geometry, minimalism)</i>
Graeme McConchie			Green lit	1-Book Chapter, 1-Conference Contribution- Abstract, 1-Conference Contribution- Paper in published Proceedings, 1-Edited Book/Volume	history of New Zealand architecture, heritage conservation in NZ

Peter McPherson			Green lit	3-Book Chapters, 1-Book Review (Unitec only), 5-Conference Contributions- Paper in published Proceedings, 1-Exhibition - Group, 3-Journal Articles	Design education (of architects) and the influence of technology on architectural practice, including BIM, design and manufacture, descriptive geometry
Lucia Melchioris			Green lit	1-Book Authored, 2-Book Chapters, 2-Conference Contributions- Paper in published Proceedings, 5-Journal Articles	urban design: metropolitan governance
Lester Mismash			Red lit		<i>(no outputs yet)</i>
Christopher Murphy			Green lit	1-Conference Contribution- Oral Presentation, 6-Conference Contributions- Paper in published Proceedings, 1-Journal Article	Building Technology, building code & financial issues around Earthquake Prone Building legislation in NZ; responsiveness of Municipal District plans in NZ to Coastal Hazards legislation
Ainsley O'Connell			Green lit	1-Artifact/ Object/ Craftwork, 1-Awarded Masters Thesis, 1-Conference Contribution- Poster Presentation, 13-Exhibitions - Group, 1-Exhibition - Solo, 1-Presentation (non-conference)	Sculpture
Nikolay Popov			Red lit	1-Book Chapter	Digital landscape design
John Pusateri			Green lit	2-Exhibitions - Curatorial Exercise, 14-Exhibitions - Group, 4-Exhibitions - Solo	Contemporary fine art practice exploring museology and natural history, Collaborative research through printmaking and lithography
Yusef Patel			Green lit	4-Artifact/ Object/ Craftwork, 1-Conference Contribution- Abstract, 8-Conference Contributions- Paper in published Proceedings, 4-Design Outputs, 1-Exhibition - Group, 3-Journal Articles	Digital Fabrication, Social enterprise, prefabrication, Industry and community design
Annabel Pretty			Green lit	3-Book Chapters, 2-Conference Contributions- Abstract, 2-Conference Contributions- Oral Presentation, 9-Conference Contributions- Paper in published Proceedings, 1-Exhibition -	Follies-Pavilions, speculative/paper architectural representation/s, social architecture

				Curatorial Exercise, 4-Journal Articles	
Julian Rennie			Amber lit	2-Conference Contributions- Oral Presentation, 3-Conference Contributions- Paper in published Proceedings, 1-Edited Book/Volume, 1-Journal Article	Architectural Pedagogy, NZ Coloured Light, Christchurch Earthquake temporalities, Venetian temporalities, NZ Architectural Details
Dr Christoph Schnoor	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	2-Books Authored, 3-Book Chapters, 3-Conference Contributions- Abstract, 2-Conference Contributions- Paper in published Proceedings, 1-Edited Book/Volume, 2-Journal Articles	History/ theory of modern architecture: perception and design of arch./urban space (Le Corbusier), architecture and emigration (Ernst Plischke); cultural transfer (Samoa)
Dr Bin Su	PI for 2 externally funded projects	PI for 2 industry funded projects	Green lit	1-Conference Contribution- Oral Presentation, 6-Conference Contributions- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 4-Intellectual Property, 3-Journal Articles, 1-Report	Architectural science and technology, Building indoor thermal and health conditions, Building passive design and energy efficiency
Dr David Turner			Green lit	1-Essay - Published (Unitec only)	urban design: medium density housing theory and practice in New Zealand
Cesar Wagner			Amber lit	1-Book Chapter, 2-Conference Contributions- Paper in published Proceedings, 1-Journal Article, 1-Other	Sustainable urban development; urban and regional planning; metropolisation; gentrification; urban morphology; housing policies; community development projects
Susan Wake			Green lit	3-Book Chapters, 2-Conference Contributions- Oral Presentation, 5-Conference Contributions- Paper in published Proceedings, 2-Conference Contributions- Poster Presentation, 1-Edited Book/Volume, 2-Presentations (non-conference)	Children environments

Xinxin Wang			Green lit	1-Conference Contribution- Oral Presentation, 1- Conference Contribution- Poster Presentation, 1- Edited Book/Volume, 2- Journal Articles	Urban Design: integrated green-grey infrastructure / the intersection of landscape and urban design
Carin Wilson			Red lit	3-Artifact/ Object/ Craftwork, 3-Design Outputs	Cultural influences in Indigenous architecture and appropriate technologies

5 Industry-connected research

A series of industry connected projects related to digital fabrication, run by Yusef Patel and Peter McPherson. The projects below are a series of research based, industry connected projects that have led to traditional research outputs in national and international conferences.

- » Waiheke Gateway Pavilion for Headland Sculpture on the Gulf – a collaboration with architect, engineer, and builder. 2017 project received an NZIA national award for small projects.
- » Tech Futures fitout.
- » The Living Pod – a series of phases for a pre-fabricated, modular dwelling.
- » PrefabNZ and Carter Holt Harvey Woodproducts (plus ProClima and others) - ongoing collaborations for public events and roadshows highlighting digital fabrication techniques and processes.
- » Min Hall has led industry connected research into bio-based materials for the construction industry.

School Research Plan - School of Building Construction - September 2020

1 Introduction and current status

The School of Building Construction was formed in 2019 from a combination of the School of Construction and the Civil Engineering section of the previous School of Engineering.

These disciplines have been operating as separate schools or departments at Unitec for many years before their alliance in 2019.

The School of Building Construction offers the Bachelor of Construction (first delivered in 1992), and Bachelor of Engineering Technology degree (first delivered 2009) as well as NZ Diplomas across these disciplines. Research across the School is primarily focused on seven research focus groups: Sustainability in the Architecture, Engineering and Construction, (AEC) sector; Technology; Industry & Academia Collaboration; Construction Management & Economics; Construction Education; Waste Minimisation, and Environmental Engineering.

This Research Plan reports on the current research status of this new School as at August/September 2020 and looks forward to the next 12 months or so into 2021. Of note is the reality of the newly formed NZIST, which will certainly impact on our School and our programmes at some point, before and/or during 2021 at Unitec. Hence the decision to create an alliance between the Schools of Construction and Engineering, rather than merge them. The Head of School (HOS) Paul Jeurissen is responsible for the leadership and management of the School of Building Construction in terms of the delivered programmes, and the responsibility for all of the staff (whether Construction or Engineering) to ensure common accountability, and goals- and especially in regard to Research.

Given that the School is made up of an alliance essentially of what were, and to a large extent still are, two essentially separate schools- this Research Plan is presented in sections that either demonstrate the common philosophies and approaches for the combined disciplines and staff cohorts, (Construction and Engineering), or split into discrete and detailed sections that are specific to Engineering or specific to Construction- whether that is by programme, delivery, staffing, research outputs, grants and/or future research prospects.

In 2019, the Environmental Solutions Research Centre was formed, and launched, to pursue applied transdisciplinary research across Engineering and Building Construction research investigations and outputs. The success of this centre after less than one year of its inception is apparent from the academic, commercial and industry partnerships, external research income won, publications, and student opportunities it has provided and achieved so far.

Just over 50% of the Staff in the School are research-active (to meet the requirement of all staff delivering more than 0.2 of their workload into degree courses having to be research active. Nine of the PBRF eligible staff who submitted portfolios were successful in achieving ratings in the latest (2018) PBRF round (six BCons Staff and three BEng Tech staff). This reflects the combination of long-term experienced researchers and the recent addition of new and emerging research staff. Refer Table 1 below.

Table 1: School of Building Construction Research FTE , PBRF and in-house RPTL compliance statistics

	Construction Cohort	Engineering Cohort	Overall
Number of degree teaching staff	12	16	28
Total research FTE allocated	1.35	1.8	3.15
Current Research Performance Traffic Light (RPTL) rating (Percentage of green lit staff as at April 2020)	69%	50%	56%
PBRF history (Number of PBRF rated staff in 2018 round)	6	3	9

**Please also refer to Appendix 2 Research Performance Summary for the Bachelor Construction in particular.

2. Current staff's research expertise

Staff Name	Key Research Topics
Afjalur Rahman	Completing PhD, Collaboration in industry
Amos Clarke	Digital technologies; Construction Technologies (working with ESRC)
Anna Kimaro	Procurement, Construction economics; Housing affordability
Babar Mahmood	Stream Health Assessments and treatment for fats, oils and greases in wastewater
Cesar Lador	Effect of stormwater runoff on cliff face erosion and the use of unmanned aerial vehicle (UAV) for estimating contamination levels in freshwater
Christopher Carson	Innovation and efficiencies in construction Industry
David Phillips	Civil, Environmental and Coastal Engineering, Erosion and Sediment Control, Infrastructure, Surfing Science
Duaa Al Shadli	Coastal erosion and digital heritage recording
Edward Chai	Civil Engineering, Highway Engineering, Student performance in Dip/B ENG Tech
Hugh Wilson	Micro-credentials, engineering graduate roles, engineering credential structure, engineering education
Jonathan Leaver	Energy-economic systems analysis and modelling
Kathryn Davies	Adoption of BIM Tech transfer and dissemination best practice, MATES worker wellbeing; H&S

Linda Kestle	Academia/Industry partnerships; Sustainable design; construction & development; Productivity; Risk, PI-Waste Management Minimisation Grant Auckland City Council
Lusa Tuleasca	Detailed Seismic Assessment Reports, building structural performance (earthquakes), concrete performance
Lydia Kiroff	Adaptive Reuse of Commercial Buildings, early contractor involvement, creative industries and the built environment, Digital natives and digital technologies in construction education
Malachy McGarrigle	Virtual Desktop Infrastructure for Architects & Engineers,
Rashika Sharma	Education and Professional Development, Employment Issues
Roger Birchmore	Research Houses-Impacts of MVHR energy consumption, IEQ; Science and Building Physics
Sadegh Aliabarlou	Value Management; Prefabrication Construction Procurement; Productivity; Disaster reconstruction
Savae Latu	No topics currently
Taija Puolitaival	Digital technologies for competence in industry, BIM; VDC; CPD
Terri-Ann Berry	Asbestos bioremediation, occupational asbestos health risks, erionite health hazards, coastal erosion, indoor air quality, construction waste minimisation
Wei Yuen Loo	Detailed Seismic Assessment Reports, building structural performance (earthquakes), concrete performance

3. How our applied research is disseminated and provides impact

3.1 Research is embedded within teaching and learning approaches and the curriculum, particularly at the degree level.

Examples range from the inclusion of recently published research in taught content, teaching students practical research skills which may be literature-, lab- or field-based, helping students to develop a research-based mindset (critical and reflective thinking, ethics), including students in lecturer and stakeholder/industry-led research and supporting students to develop and carry out their own research projects. The success or otherwise of these activities is reviewed at the completion of every degree course in a moderation process which feeds into Course and Programme Evaluation and Planning Reports (CEPs and PEPs). Specific course examples can be provided on request.

3.2 Research Active staff investigate, author and co-author published QA research outputs with colleagues

Outputs include final year Level 7 Industry Project Students' capstone research projects as a basis to meet TEC requirements for degree delivery and to meet Unitec in house RPTL (traffic light) requirements. Research active staff need to publish at the rate of 2QA outputs minimum per annum in highly recognized discipline related Journals and Conference Proceedings if PBRF eligible and working towards a portfolio, or 2 research outputs every 2 years if only meeting TEC and degree accreditation conditions. In addition, staff often co-author QA research outputs with previous final year degree research students – again in discipline related conference proceedings.

** Please refer to Appendix 1- School of Building Construction ROMS Research Outputs for 2019 and 2020 for the full listings of research outputs

Selected Examples:

Construction-

- Humphrey, L., & Kestle, L. (2020). Climate change adaptation legislation and the construction sector. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), Proceedings – New Zealand Built Environment Research Symposium, Vol. 6 (pp. 276-279). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Kestle, L., & van de Linde, S. (2020). Has NZ's Construction Industry's Productivity Related GDP Contribution Increased by the Productivity Commission's Target of 20% by 2020. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), Proceedings – New Zealand Built Environment Research Symposium, Vol. 6 (pp. 251-253). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Ryder, K., & Kestle, L. (2020). Urban Resolutions - Auckland and Vancouver comparisons. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), Proceedings – New Zealand Built Environment Research Symposium, Vol. 6 (pp. 228-240). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- van de Linde, S., & Kestle, L. (2019). The current state of productivity in the NZ construction industry. In Bill Zhao (Ed.), AUBEA Conference 2019 - Built to thrive (pp. 648-661).

Engineering –

- Low, J. K., Wallis, S.L., Hernandez, G., Cerqueira, I.S., Steinhorn, G., & Berry, T-A. (2020). Encouraging Circular Waste Economies for the New Zealand Construction Industry: Opportunities and Barriers. *Frontiers in Sustainable Cities - Open Access*, 2(35), 1-7. doi:10.3389/frsc.2020.0003y5
- Areke, A., T., & Mahmood, B. (2019). Sea Level Rise Impact on Underground Freshwater Lens – An Environmental Case Study. Proceedings of Water New Zealand Conference & Expo 2019, to be held in Hamilton, New Zealand from 18th to 20th September, 2019.

3.3 Industry sponsored research projects -

Research-active staff have extensive industry links, some of which involve externally-funded research projects. Results of research collaborations with external industry partners are frequently published as QA research outputs and used to underpin and add value to BCons and BEngTech degree courses in particular,

Selected Examples and publications from 2018- 20

Construction -

- Hawkins Construction – including top AUBEA 2018 paper *“Learnings from a collaborative academia-construction sector bespoke study programme – a reflective case-study”*- authored by Linda Kestle and Neil Laing (Unitec) - awarded by the Singapore Institute of Building from 90 accepted QA research papers at the AUBEA Conference in Singapore September 2018.

Engineering -

- Indoor Air Quality Research, the impact of mechanical ventilation on human health and comfort in New Zealand homes, sponsored by HRV (awarded \$35k), with advisors from University of Auckland (Faculty of Science; Faculty of Engineering) and University of Otago (Faculty of Public Health).
- Asbestos Handling Training in support of our asbestos bioremediation research programme, 2019 sponsored by Chemcare, awarded \$5k, PI Assoc Professor Terri-Ann Berry.

3.4 Awards and Prizes

Examples –

- Using micro-credentials to enable the use of the NZDE (Civil) to provide more flexible and focused response to industry requirements, 2018-2019, sponsored by the Tertiary Education Commission, awarded \$29,340, PI Hugh Wilson
- Luke Thomson (BCons final year student) being on the winning team of 3 (Arch Eng and CM student) at the Annual National ARCHENGBUILD 2019 competition sponsored by the NZ Concrete Association, and in August 2020 - 3 Unitec BCons CM nominees 2020 have been selected to compete this year.
- Best Technical Paper Award 2020 Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A. & Berry, T. (2020). Air Tightness, Friend or Foe? In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>.

4. Environmental Solutions Research Centre (ESRC)

The Environmental Solutions Research Centre (ESRC) is Unitec’s newest research centre and was founded in 2019 by Dr Terri-Ann Berry, Shannon Wallis and German Hernandez. The centre was designed to foster transdisciplinary industry engaged research to tackle waste and pollution challenges to improve environmental outcomes in New Zealand. Current ESRC activity investigates ideas and concepts including:

Waste

Hazards associated with asbestos and asbestiform minerals and the potential application of bioremediation processes; waste minimisation in construction and engineering, with a focus on plastic waste; and the recycling/reuse of waste streams into the built environment.

Pollution

Air quality (with an emphasis on particular particulate matter); indoor air pollution in NZ homes; stormwater and its influence on coastal erosion; the treatment of nitrate-rich runoff from agriculture; and the partitioning of persistent organic pollutants in wastewater systems.

ESRC collaborates with a broad range of partners including national and international universities, crown research institutes, government organisations and industry. The centre is funded jointly internally, by various NZ governmental groups and ongoing industry sponsorship.

The sustainability challenges in New Zealand and globally require new ways of research and innovation. ESRC investigates areas of great relevance to New Zealand environmentally, economically and socially. The initial research area included within ESRC was concerned with hazards associated with asbestos, including long-term disposal options for its contaminated waste. Unitec had already significant success in this field establishing an international collaboration with the University of Canberra and University of Pennsylvania. Furthermore, the Research Group has won a \$400,000 grant from the Ministry for the Environment, Waste Minimisation Fund. Industry partner, Chemcare has offered \$30,000 cash contribution and significant in-kind contribution for this research.

With the inclusion of Centre Director, Assoc Professor Terri-Ann Berry into the International Association of Engineering Geologists – Naturally Occurring Asbestos group (IAEG-NOA) as Australasian representative, ESRC has also been named on an \$8 million Endeavour fund application (with University of Auckland) to progress research in the field of asbestiform mineral, erionite which has recently been awarded. This project has considerable financial support from both civil industry and Auckland Council.

In addition to the initial asbestos remediation industry collaboration group further such groups have been formed including research around indoor air quality in buildings, coastal erosion mitigation practices and the reduction of plastic-based construction waste from residential development. By partnering industry collaboration groups from different industries with a core transdisciplinary academic research team, significant applied research capabilities can be built with great potential for positive spill-over effects to other related research areas. We believe these partnership opportunities with the Research Centre have the potential to impact how individual businesses can collaborate together to resolve critical, shared challenges.

5 . Current research grant projects (and values)

Construction and Engineering – within the Environmental Solutions Research Centre

- *Potential impact of energy saving building design on occupant health*, 2017-2018, awarded by BRANZ, \$94k, PI was Assoc Professor Terri-Ann Berry.
- *Remediation of asbestos contaminated soil: an alternative to landfill disposal*, 2019-2022, awarded by Ministry for the Environment, \$393k, PI is Assoc Professor Terri-Ann Berry.

- *Plastic Waste Minimisation in Engineering & Construction*, (12/2019- 08/2021), awarded by Auckland Council's Waste Minimisation Innovation Funding Scheme, \$50k- This is an exploratory study being undertaken as a pilot project with three main industry partners - a commercial construction company; a leading building materials' supplier, and a large recycling company, to undertake a comprehensive waste audit analysis of plastic waste, and workplace incentivisation for source separation of waste. PI is Assoc Professor Linda Kestle.
- Awarded \$8.8M by the 2020 MBIE Endeavour Fund (09/2020)- Research Programme in conjunction with University of Auckland to assess and manage the risk of carcinogenic erionite in New Zealand. Exposure to erionite is emerging as a significant international hazard, and one which has recently been identified in the Auckland region that is exacerbated by major infrastructure developments. Research Aim 3 (*"Mitigating the potential impacts of erionite in the environment"*) will be led by PI Dr Terri-Ann Berry in consultation with industry.

Construction and Engineering research award – external to Environmental Solutions Research Centre

- *Hydrogen and clean energy*, 2016-2019, sponsored by Industrial Research Ltd, awarded \$88,889, PI Assoc. Professor Jonathan Leaver

6 . School of Building Construction Research related Goals and KPIs for 2020 and 2021

- Align all Research strategies, goals, foci and grant applications with the current Unitec Research Strategic Plan and goals.
- Research active staff (delivering into degree courses) to maintain research outputs at the rate of up to 2QA research outputs per annum that also align with the School of BC research foci (ref the 7 foci in section 1 of this plan).
- Continue to seek out, increase, and build on existing external research funding and industry partnered research projects nationally and internationally -primarily through and via the Environmental Solutions Research Centre.
- Recruit and mentor new and emerging researchers into the School.
- Run an annual research hui /symposium to affirm and network with potential research collaborators within the School of Building Construction, across other Unitec Schools and across the Tertiary Research Sector and Industry partnerships.

APPENDICES

APPENDIX 1 –

SCHOOL OF BUILDING CONSTRUCTION - ROMS Research Outputs 2019 and 2020

2019 - Quality Assured Research Outputs

- Adafin, J., Rotimi, J.O.B., Wilkinson, S., & Mbachu, J. (2019). An assessment of risk factors impacting budget variability in New Zealand commercial construction projects. In Gorse, C & Nelson, C.J. (Ed.), *Proceedings of the 35th Annual ARCOM Conference* (pp. 44-53).

- Chowdhury, T., Adafin, J., & Wilkinson, S. (2019). Review of digital technologies to improve productivity of New Zealand construction industry. *Journal of Information Technology in Construction*, 24, 569-587. doi:10.36680/j.itcon.2019.032
- Alshadli, D., & Chong, A. (2019). Correlating foot posture with foot mobility using a high-accuracy foot measurement system. 2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC) (pp. 1-6). doi:10.1109/I2MTC.2019.8827146
- Aliakbarlou, Sadegh., Nishan, Fernando., Bakhshi, Javad., & Hosseini, Reza. (2019). Investigating Construction Workers Health and Safety Risks in Sustainable Building Projects. *CIB World Building Congress 2019* (pp. 21. Ab0495).
- Steinhorn, G., Berry, T-A., & Wallis, S.L. (2019, April). Building collaborative research networks to tackle asbestos waste with a circular economy approach. Paper presented at the ITP Research Symposium, Napier.
- Brook, M., Berry, T-A., Black, P., Dirks, K., Salmond, J., Steinhorn, G., Adam, L., & Patel, J. (2019). Zeolitic erionite in the Auckland region and implications for tunnelling and excavations. In Kamp, PJJ and Pittari, A (Ed.), *Geoscience Society of New Zealand Miscellaneous Publication, Geosciences 2019, Hamilton, New Zealand.* , Vol. 154A (pp. 28).
- Brook, M.S., Black, P.M., Salmond, J., Dirks, K.N., Berry, T-A., & Steinhorn, G. (2019). Exposure to erionite: health effects and implications for geotechnical risk management in the New Zealand construction sector. *New Zealand*, 98, 78-81.
- Wallis, S.L., Hernandez, G., Poyner, D., Birchmore, R., & Berry, T-A. (2019). Particulate matter in residential buildings in New Zealand: Part I. Variability of particle transport into unoccupied spaces with mechanical ventilation. *Atmospheric Environment X*, 2, 1-10. doi:10.1016/j.aeaoa.2019.100024
- Wallis, S.L., Hernandez, G., Poyner, D., Holmes, W., Birchmore, R., & Berry, T-A. (2019). Particulate Matter in Residential Buildings in New Zealand: Part II. The Impact of Building Airtightness, Mechanical Ventilation using Simulated Occupancy. *Atmospheric Environment X*, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- Look, M., Holmes, W., & Birchmore, R. (2019). Reliability of wireless sensors using low cost WiFi chipsets for Structural Monitoring. *The 18th International Conference on Electronics, Information, and Communication* (pp. 227-230).
- Wallis, S., Hernandez, G., Poyner, D., Birchmore, R., & Berry, T. (2019). Particulate matter in residential buildings in New Zealand: Part I. Variability of particle transport into unoccupied spaces with mechanical ventilation. *Atmospheric Environment X*, 2, 1-10. doi:10.1016/j.aeaoa.2019.100024
- Wallis, S., Hernandez, G., Poyner, D., Holmes, W., Birchmore, R., & Berry, T-A. (2019). Particulate Matter in Residential Buildings in New Zealand: Part II. The Impact of Building Airtightness, Mechanical Ventilation using Simulated Occupancy. *Atmospheric Environment X*, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- Borna, K., Moore, A., Bollard, B., & Ghobakhlou, A. (2019, September). Application of Vector Agents to Weed detection from UAV imagery. Paper presented at the GeoComputation, Queenstown.
- Chancellor, W., Abbott, M., & Carson, C. (2019). Measuring construction industry activity and productivity: The impact of shadow economy. In Best, R. & Meikle, J. (Eds.), *Accounting for Construction: Frameworks, Productivity, Cost and Performance* (pp. 75-85). New York, USA: Routledge.

- Chancellor, W., Abbott, M., & Carson, C. (2019). Productivity and levels of output in the construction industry. In Best, R. & Meikle, J. (Eds.), *Accounting for Construction: Frameworks, Productivity, Cost and Performance* (pp. 87-99). New York, USA: Routledge.
- Puolitaival, T., Davies, K., & Kähkönen, K. (2019). Digital technologies and related competences in construction management in the era of fast-paced digitalisation. *CIB World Building Congress 2019 Constructing Smart Cities*, Vol. 08 Smart Services (pp. 11pp). Retrieved from <http://www.wbc2019.hk/>
- Carson, V., & Davies, K. (2019). Managing company responsibility for mental health in the New Zealand construction industry. *CIB World Building Congress 2019 Constructing Smart Cities*, Vol. 03 Smart Planning, Design & Construction (pp. 11pp). Retrieved from <http://www.wbc2019.hk/>
- Davies, K. (2019). Professional pathways in BIM and digital construction. In B. Kumar, F. Pour Rahimian, D. Greenwood & T. Hartmann (Ed.), *Advances in ICT in Design, Construction and Management in Architecture, Engineering, Construction and Operation (AECO) Proceedings of the 36th CIB W78 2019 Conference* (pp. 475-487).
- Wallis, S.L., Hernandez, G., Poyner, D., Birchmore, R., & Berry, T-A. (2019). Particulate matter in residential buildings in New Zealand: Part I. Variability of particle transport into unoccupied spaces with mechanical ventilation. *Atmospheric Environment: X*, 2, 1-10. doi:10.1016/j.aeaoa.2019.100024
- Wallis, S.L., Hernandez, G., Holmes, W., Birchmore, R., & Berry, T-A. (2019). Particulate Matter in Residential Buildings in New Zealand: Part II. The Impact of Building Airtightness, Mechanical Ventilation using Simulated Occupancy. *Atmospheric Environment X*, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- Kenley, R. (2019). CME Forum: a response to “Construction flow index: a metric of production flow quality in construction. *Construction Management and Economics*, 37(2), 112-119. doi:DOI: 10.1080/01446193.2018.1535712
- Davies, K., Kestle, L., Laing, N., & Bryan, A. (2019, November). Balancing the Seesaw-The ups and downs of delivering vocational training programmes. Paper presented at the Ako Aotearoa-Talking Teaching Conference, Ako Aotearoa Talking Teaching Conference.
- Zaiat, M., Laing, N., & Kestle, L. (2019). COLLABORATION IN THE NEW ZEALAND COMMERCIAL CONSTRUCTION SECTOR – A CASE STUDY OF A MEDIUM SIZED CONSTRUCTION COMPANY. In Bill Zhao (Ed.), *AUBEA Conference 2019 - Built to thrive* (pp. 299-310).
- van de Linde, S., & Kestle, L. (2019). THE CURRENT STATE OF PRODUCTIVITY IN THE NZ CONSTRUCTION INDUSTRY. In Bill Zhao (Ed.), *AUBEA Conference 2019 - Built to thrive* (pp. 648-661).
- Munoz, D., Podemska, A., & Kestle, L. (2019, June). Feasibility of additive manufacturing techniques as sustainable construction method for Antarctica. Poster presented at NZ Antarctic Science Conference 2019-Our Future in Focus, Christchurch NZ.
- Puolitaival, T., & Kiroff, L. (2019, 28th - 29th November). Digital natives and digital technologies in construction education. Paper presented at the Talking Teaching 2019, Ako Aotearoa, Academy of Tertiary Teaching Excellence, Unitec Institute of Technology, Auckland.
- Davies, K., Kestle, L., Laing, N., & Bryan, A. (2019, November). Balancing the seesaw – the ups and downs of delivering vocational training programmes. Paper presented at the Ako Aotearoa Academy of Teaching Excellence - Talking Teaching 2019, Unitec Institute of Technology.

- Shafiei, E., Davidsdottir, B., Stefansson, H., Ingi Asgeirsson, E., Fazeli, R., Halldór Gestsson, M., & Leaver, J. (2019). Simulation-based appraisal of tax-induced electro-mobility promotion in Iceland and prospects for energy-economic development. *Energy Policy*, 133, 110894. doi:10.1016/j.enpol.2019.110894
- Quarton, C.J., Tlili, O., Welder, L., Mansilla, C., Blanco, H., Heinrichs, H., Leaver, J., Samsatli, N.J., Lucchese, P., Robinius, M., & Samsatli, S. (2019). The curious case of the conflicting roles of hydrogen in global energy scenarios. *Sustainable Energy and Fuels*, 9 Oct, 1-17. doi:10.1039/C9SE00833K
- Loo, W. Y., & Tuleasca, L. (2019). A simple and rapid approach for the numerical simulation of non-linear elements and examples of its application. In *Computational Civil Engineering Conference (CCE2019) (Ed.)*, Iasi (pp. 2-8).
- Tuleasca, L., Loo, W., & Wardak, I. (2019). Assessing the earthquake performance of existing buildings of various material types and configurations in New Zealand. In *Materials Science and Engineering (Ed.)*, Computational Civil Engineering Conference, Iasi, Romania , Vol. 586 (2019) 012022 (pp. 1 to 8). doi:10.1088/1757-899X/586/1/012022 Retrieved from <http://www.cce.ci.tuiasi.ro/>
- Mahmood, B. (2019, November). Use of Socratic Tool to Effectively Engage & Assess Diverse Learners – Sharing an Experience. Paper presented at Talking Teaching, Unitec Institute of Technology, Mt Albert Campus, Auckland.
- Tiareti, A. A., & Mahmood, B. (2019). Sea Level Rise Impact on Underground Freshwater Lens – A Case Study. *Proceedings of Water New Zealand* (pp. 1-19).
- McGarrigle, M. (2019, November). Inclusive and consistent assessment of architectural drawings across teaching teams on Architectural Technology courses. Paper presented at the Ako Aotearoa Academy of Teaching Excellence - Talking Teaching 2019, Unitec Institute of Technology.
- Atkin, E. A., Mead, S.T., & Phillips, D. (2019). Investigations of Offshore Wave Preconditioning. *Journal of Coastal Research*, SI 87, 78-90.
- Wallis, S.L., Hernandez, G., Poyner, D., Birchmore, R., & Berry, T-A. (2019). Particulate matter in residential buildings in New Zealand: Part I. Variability of particle transport into unoccupied spaces with mechanical ventilation. *Atmospheric Environment X*, 2, 1-10. doi:10.1016/j.aeaoa.2019.100024
- Wallis, S.L., Hernandez, G., Poyner, D., Holmes, W., Birchmore, R., & Berry, T-A. (2019). Particulate Matter in Residential Buildings in New Zealand: Part II. The Impact of Building Airtightness, Mechanical Ventilation using Simulated Occupancy. *Atmospheric Environment X*, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- Puolitaival, T., & Kiroff, L. (2019, 28th-29th November). Digital natives and digital technologies in construction education. Paper presented at Talking Teaching 2019, Ako Aotearoa, Academy of Tertiary Teaching Excellence, Unitec Institute of Technology, Auckland.
- Puolitaival, T., Davies, K., & Kähkönen, K. (2019). Digital technologies and related competences in construction management in the era of fast-paced digitalisation. *CIB World Building Congress 2019 Constructing Smart Cities* , Vol. 8 (pp. 11). doi:Retrieved from <http://www.wbc2019.hk/>
- Sharma, R. (2019). Creating a Green Culture in TVET: A New Zealand Perspective (Unpublished Doctoral Thesis). Deakin University, Melbourne, Australia.

- Sharma, R. (2019, 28-30 November). Sustainability learning opportunities through campus research projects: When student involvement matters. Paper presented at the Talking Teaching 2019 - Diverse Learners: Inclusive Teaching, Unitec Institute of Technology.
- Loo, W., & Tuleasca, L. (2019). A simple and rapid approach for the numerical simulation of non-linear elements and examples of its application. In CCE 2019 Computational Civil Engineering (Ed.), Iasi, Romania (pp. 2-8).
- Tuleasca, L., & Loo, W. (2019). Assessing the earthquake performance of existing buildings of various material types and configurations in New Zealand. In Computational Civil Engineering 2019 (Ed.), Iasi, Romania (pp. 2-8).
- Steinhorn, G., Berry, T-A., & Wallis, S.L. (2019, April). Building collaborative research networks to tackle asbestos waste with a circular economy approach. Paper presented at the ITP Research Symposium, Napier.
- Wallis, S.L., Hernandez, G., Poyner, D., Birchmore, R., & Berry, T-A. (2019). Particulate matter in residential buildings in New Zealand: Part I. Variability of particle transport into unoccupied spaces with mechanical ventilation. *Atmospheric Environment X*, 2, 1-10. doi:10.1016/j.aeaoa.2019.100024
- Wallis, S.L., Hernandez, G., Poyner, D., Holmes, W., Birchmore, R., & Berry, T-A. (2019). Particulate Matter in Residential Buildings in New Zealand: Part II. The Impact of Building Airtightness, Mechanical Ventilation using Simulated Occupancy. *Atmospheric Environment X*, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- Wilson, H., & Hay, M. (2019). Use of online on-demand microcredentials to provide an alternative learning pathway for an engineering diploma programme. *Proceedings of the AAEE 2019 30th Annual Conference* (not yet published) (pp. ??).

2019 Non-quality Assured Research Outputs

- Aliakbarlou, Sadegh. (2019, 16 - 18 October). Modular Construction and Prefabrication for Post Disaster Reconstruction Projects: Case Studies and Clients' Perspectives. Paper presented at the Search Results Web results 4th NZ Modular Construction and Prefabrication Forum 2019, New Zealand.
- Berry, T-A., & Wallis, S.L. (2019, November). Managing Asbestos Waste – Potential for Treating Asbestos. Paper presented at the Asbestos Management Conference, Wellington.
- Davies, K., Kestle, L., Laing, N., & Bryan, A. (2019, November). Balancing the seesaw – the ups and downs of delivering vocational training programmes. Paper presented at the Talking Teaching 2019 - Diverse Learners, Inclusive Teaching, Unitec Institute of Technology, Auckland.
- Etherington, P. M. (2019). Closing the Performance Gap (Unpublished Master Thesis). Massey University, Auckland.
- Leaver, J. D. (2019, August). Hydrogen and New Zealand's Heavy Vehicle Fleet. Paper presented at the 16th International Conference of Institute of Road Transport Engineers NZ, Rotorua.
- Lucchese, P., Ohira, E., & Leaver, J. (2019, September). IEA Hydrogen Technology Collaboration Program (TCP) End of Term Report 2015-2020 and Strategic Plan 2020-2025. Paper presented at the 76th Meeting of Working Party on Renewable Energy Technologies, Helsinki, Finland.
- Leaver, J. D. (2019, May). International Energy Agency (IEA) strategic initiatives and activities for hydrogen. Paper presented at the NZ Hydrogen Association Workshop, Wellington.

- Leaver, J. D. (2019, August). Modelling with Hydrogen: A Holistic Challenge. Paper presented at the IEA – H2TCP Task 41: Hydrogen Data and Modelling Workshop, Brussels, Belgium.
- Watabe, A., Leaver, J., Ishida, H., & Shafiei, E. (2019). Impact of low emissions vehicles on reducing greenhouse gas emissions in Japan. *Int. J. Hydrogen Energy*, Volume 130, Pages 227-242. doi:10.1016/j.enpol.2019.03.057
- Dolci, F., Thomas, D., Hilliard, S., Fu'nez Guerra, C., Hancke, R., Ito, H., Jegoux, M., Kreeft, G., Leaver, J., Newborough, M., Proost, J., Robinius, M., Weidner, E., Mansilla, C., & Lucchese, P. (2019). Incentives and legal barriers for power-to-hydrogen pathways: An international snapshot. *International Journal of Hydrogen Energy*, 1, 1-8. doi:10.1016/j.ijhydene.2019.03.045
- Leaver, J. (2019, February). IEA Hydrogen Forum - New Zealand Update. Presentation conducted at the HYDROGEN TODAY: Global Trends and Outlook - A Forum of the International Energy Agency, Millenium Resort and Spa Hotel - Rotorua.
- Loo, W Y. (2019, April). Marketisation and managerialism in vocational education: Unitec TEU member's views on RoVE. Paper presented at the QPEC (Quality Public Education Coalition) 2019 Forum, St Columba, Vermont St, Ponsonby.
- Berry, T-A., & Wallis, S.L. (2019, November). Managing Asbestos Waste – Potential for Treating Asbestos. Paper presented at the Asbestos Management Conference, Wellington.
- Wilson, H. (2019, February). What Civil Engineering Graduates actually do. Paper presented at the NZBED Forum, Christchurch.
- Wilson, H. (2019, October). Microcredentials: meeting the needs of learners and employers. Presentation conducted at the Unitec Teaching and Learning Symposium, Auckland.

2020 Quality Assured Research Outputs

- Borna, K., Alshadli, D., & Moore, A. (2020, November). Analysing Construction Cost Estimation Factors as a Map. Paper presented at the AutoCart2020: the 23rd International Research on cartography and GIScience, United States.
- Alshadli, D., Borna, K., & Lador, C. (2020, November). Development of Unified and Dynamic Geometric Framework for Modelling Plant Leaf Spots. Paper presented at the Symposium on Pattern Recognition and Applications, Rome, Italy.
- Aliakbarlou, Sadegh., Wilkinson, Suzanne., Costello, Seosamh., & Jang, Hyounseung. (2020). Producing Work-Ready Graduate for the Construction Industry. In Roggema, Rob, Roggema, Anouk (Eds.) (Eds.), *Smart and Sustainable Cities and Buildings* (pp. 607-617). Switzerland: Springer.
- Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A., & Berry, T. (2020). Air Tightness, Friend or Foe?. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Wallis, S.L., Lemckert, C., Hardy, R., & Berry, T-A. (2020). Disposal or Treatment: Future Considerations for Solid Waste from the Construction and Demolition Industry. In Wessex Institute (Ed.), *Waste Management 2020*, Vol. x (pp. xx).
- Wallis, S.L., Emmett, E.A., Hardy, R., Casper, B.B., Blanchon, D.J., Testa, J.R., Mendes, C.W., Gonneau, C., Jerolmack, D.J., Seiphoori, A., Steinhorn, G., & Berry, T-A. (2020). Challenging Global Waste Management – Bioremediation to Detoxify Asbestos. *Frontiers in Environmental Science*, 8, 20. doi:10.3389/fenvs.2020.00020

- Low, J.K., Wallis, S.L., Hernandez, G., Cerqueira, I.S., Steinhorn, G., & Berry, T-A. (2020). Encouraging Circular Waste Economies for the New Zealand Construction Industry: Opportunities & Barriers. *Frontiers in Sustainable Cities*, xxxx, xx. doi:xx
- Low, J. K., Wallis, S.L., Hernandez, G., Cerqueira, I.S., Steinhorn, G., & Berry, T-A. (2020). Encouraging Circular Waste Economies for the New Zealand Construction Industry: Opportunities and Barriers. *Frontiers in Sustainable Cities - Open Access*, 2(35), 1-7. doi:10.3389/frsc.2020.00035
- Schunke, A.J., Hernandez, G.A., Padhye, L., & Berry, T-A. (2020). Energy Recovery in SWRO desalination: Current Status and New Possibilities. *Frontiers in Sustainable Cities*, 2, 1-7.
- Brook, M.S., Black, P.M., Dirks, K.N., Salmond, J., Berry, T-A., & Steinhorn, G. (2020). Erionite in Auckland bedrock and malignant mesothelioma: an emerging public and occupational health hazard?. *New Zealand Medical Journal*, 133, 73-78.
- Hernandez, G., Wallis, S.L., Graves, I., Narain, S., Birchmore, R., & Berry, T-A. (2020). The Effect of Ventilation on Volatile Organic Compounds Produced in Residential Buildings Under Simulated Occupancy. *Atmospheric Environment X*, 6, 1-11.
- Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A., & Berry, T. (2020). Air Tightness, Friend or Foe?. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Hernandez Herra, G.A., Graves, I., Birchmore, R., Wallis, S., Narain, S., & Berry, T. (2020). The Effect of Ventilation on Volatile Organic Compounds Produced in Residential Buildings Under Simulated Occupancy. *Atmospheric Environment X*, 6, 1-11.
- Borna, K., Alshadli, D., & Moore, A. (2020). Analysing Construction Cost Estimation Factors as a Map. *AutoCarto2020* (pp. N/A). Retrieved from <https://cartogis.org/autocarto/autocarto-2020/>
- Chai, E. (2020, February). The performance of ex New Zealand Diploma in Engineering (NZDE) Civil Engineering students in BEngTech programme at Unitec. Paper presented at the 2020 NZDE/ BENGTECH Teaching & Research Forum, Hamilton.
- Dimyadi, J., Fernando, S., Davies, K., & Amor, R. (2020). Computerising the New Zealand Building Code for Automated Compliance Audit. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 39-46). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A., & Berry, T. (2020). Air Tightness, Friend or Foe?. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Low, J.K., Wallis, S.L., Hernandez, G., Cerqueira, I.S., Steinhorn, G., & Berry, T-A. (2020). Encouraging Circular Waste Economies for the New Zealand Construction Industry: Opportunities and Barriers. *Frontiers in Sustainable Cities - Open Access*, 2(35), 1-7. doi:10.3389/frsc.2020.00035
- Hernandez, G., Wallis, S.L., Graves, I., Narain, S., Birchmore, R., & Berry, T-A. (2020). The Effect of Ventilation on Volatile Organic Compounds Produced in Residential Buildings Under Simulated Occupancy. *Atmospheric Environment X*, 6, 1-11.

- Humphrey, L., & Kestle, L. (2020). CLIMATE CHANGE ADAPTATION LEGISLATION AND THE CONSTRUCTION SECTOR. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 276-279). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Kestle, L., & van de Linde, S. (2020). Has NZ's Construction Industry's Productivity Related GDP Contribution Increased by the Productivity Commission's Target of 20% by 2020. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 251-253). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- McGarrigle, M., & Kestle, L. (2020). Reliable Assessment of Drawings on Architectural Technology Courses. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 254-257). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Ryder, K., & Kestle, L. (2020). Urban Resolutions - Auckland and Vancouver comparisons. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 228-240). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Kiroff, L. (2020). Nexus between creative industries and the built environment: Creative place making in inner Auckland. *Frontiers of Architectural Research*, 9(1), 119-137. doi:<https://doi.org/10.1016/j.foar.2019.08.004>
- Leaver, JD. (2020, February). ExCo Member Update: New Zealand. Paper presented at the 82nd IEA Hydrogen Executive Committee Meeting, Paris.
- Watabe, A., Leaver, JD., Shafiei, E., & Ishida, H. (2020). Life cycle emissions assessment of transition to low-carbon vehicles in Japan: combined effects of banning fossil-fueled vehicles and enhancing green hydrogen and electricity. *Clean Technologies and Environmental Policy*, Online, 19. doi:10.1007/s10098-020-01917-9
- Spittler, N., Davidsdottir, B., Shafiei, E., Leaver, J., Asgeirsson, E.I., & Stefansson, H. (2020). The role of geothermal resources in sustainable power system planning in Iceland. *Renewable Energy*, 153, 1081-1090. doi:10.1016/j.renene.2020.02.046
- McGarrigle, M., & Puolitaival, T. (2020). Augmenting industry collaboration with architectural practices through design and development of productive internship schemes. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 258-261). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- McGarrigle, M., & Kestle, L. (2020). Reliable Assessment of Drawings on Architectural Technology Courses. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 254-257). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A., & Berry, T. (2020). Air Tightness, Friend or Foe?. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp.

- 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
- McGarrigle, M., & Puolitaival, T. (2020). Augmenting industry collaboration with architectural practices through design and development of productive internship schemes. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium* (pp. 259-261). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
 - Puolitaival, T., & Kähkönen, K. (2020). Individual Competence Requirements for Digital Technologies in Construction Management. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 262-266). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
 - Birchmore, R.C., Wallis, S.L., Hernandez, G., Pivac, A., & Berry, T. (2020). Air Tightness, Friend or Foe?. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), *Proceedings – New Zealand Built Environment Research Symposium*, Vol. 6 (pp. 119-128). Retrieved from <http://nzbers.massey.ac.nz/wp-content/uploads/2020/03/Proceedings-NZBERS-Feb2020.pdf>
 - Wallis, S.L., Lemckert, C., Hardy, R., & Berry, T.-A. (2020). Disposal or Treatment: Future considerations for solid waste from the construction and demolition industry. *WIT Transactions on Ecology and the Environment*. Wessex Waste Management., Vol. 247 (pp. 171-183). doi:10.2495/WM200161
 - Wallis, S.L., Emmett, E.A., Hardy, R., Casper, B.B., Blanchon, D.J., Testa, J.R., Menges, C.W., Gonneau, C., Jerolmack, D.J., Seiphoori, A., Steinhorn, G., & Berry, T-A. (2020). Challenging Global Waste Management – Bioremediation to Detoxify Asbestos. *Frontiers in Environmental Science*, 8, 20. doi:10.3389/fenvs.2020.00020
 - Low, J.K., Wallis, S.L., Hernandez, G., Cerqueira, I.S., Steinhorn, G., & Berry, T-A. (2020). Encouraging Circular Waste Economies for the New Zealand Construction Industry: Opportunities and Barriers. *Frontiers in Sustainable Cities - Open Access*, 2(35), 1-7. doi:10.3389/frsc.2020.00035
 - Hernandez, G., Wallis, S.L., Graves, I., Narain, S., Birchmore, R., & Berry, T-A. (2020). The Effect of Ventilation on Volatile Organic Compounds Produced in Residential Buildings Under Simulated Occupancy. *Atmospheric Environment X*, 6, 1-11.

2020 Non-quality Assured Research Outputs

- Leaver, JD. (2020). Challenges for the Use of Hydrogen. [Composition]. Auckland: Unitec.
- Leaver, JD. (2020, July). Hydrogen Focussed Research: A Unitec Update. Paper presented at the Hydrogen R&D Strategy Meeting, Wellington and Zoom.
- Leaver, JD. (2020, August). UniSyD and UniTrac Modelling of the Impact of Hydrogen on the New Zealand Energy Economy. Paper presented at the Progress Meeting - Smart Idea UOCX1905 Hydrogen Production and CO2 Capture from Biomass Gasification, Univesrity of Canterbury.
- Leaver, JD. (2020). Challenges for the Use of Hydrogen. White paper for Task 38 – Power to X. International Energy Agency Hydrogen Technology Partnership. 1. Challenges for the Use of Hydrogen. New Zealand: French Alternative Energies and Atomic Energy Commission (CEA).

- Leaver, JD. (2020, September). Task 41: Analysis and Modelling of Hydrogen Technologies: A Personal Perspective. Presentation conducted at the Task 41 Analysis and Modelling of Hydrogen Technologies Online Meeting, MS Teams Online.
- Berry, T-A., Wallis, S.L., & Tohill, S. (2020, August). Asbestos Risks - From Cradle to Grave. Presentation conducted at the Environmental Science, Risk and Society (EnvSci303), University of Auckland.
- Wilson, H. (2020, February). Microcredentials - now and in the future. Paper presented at the NZDE/BEngTech Forum, Hamilton.

APPENDIX 2- RESEARCH PERFORMANCE SUMMARY

Programme:

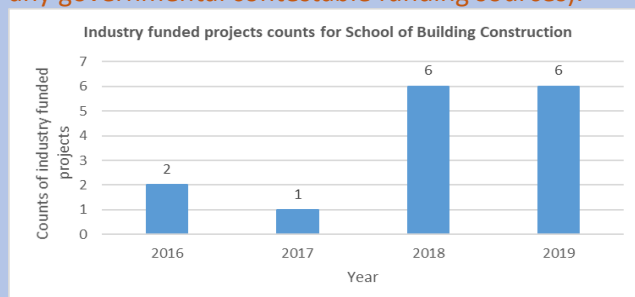
Performance-Based Research Fund (PBRF) (an assessment of the research performance of staff by an expert peer review panel organised by the Tertiary Education Commission (TEC).

Number of staff from School of Building Construction, who were rated in the 2018 PBRF

Round was **9** (6 of which were BConstruction research active staff)

>> PBRF assessment is done every six years.

Industry Funded Projects (research and enterprise projects Unitec is receiving funding for, where the services Unitec is providing is applied contract research or consultancy from all funders excluding any governmental contestable funding sources).

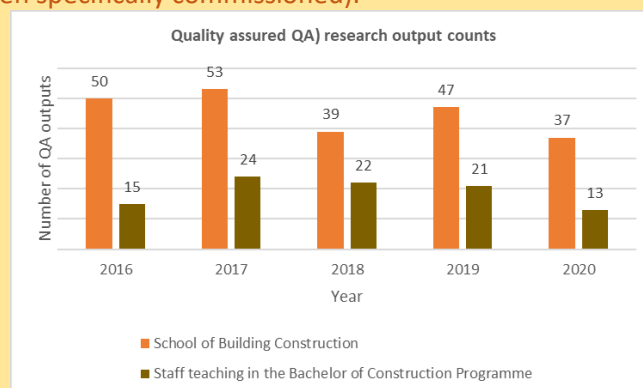


*Industry funded projects are measured and reported at school level and not programme level.

Research Productivity Traffic Light (RPTL) (measure of research productivity of staff teaching on degree programmes who meet the agreed levels of research in the research traffic light).

Year	2017	2018	2019	2020	2021-Predicted
RPTL Status	Amber (70%)	Amber (60%)	Green (75%)	Amber (69%)	Green (75% or more)

Quality Assured Research Outputs (recognised research outputs that have been through a peer review process or have been specifically commissioned).



Note: The above data/graphs are constructed/extracted either from the School Research Plans or the data from the Power BI tool. For more details about these data, please go to the Power BI tool and refer to **11 Research Dashboard (Research Office)** under the **Institutional Reports**.

School Research Plan - School of Community Studies

1 Introduction and current state

The School of Community Studies was formed in 2018. The School offers degrees in the areas of: Bachelor of Applied Sciences (Human biology), Bachelor of Sport, Bachelor of Teaching (ECE), Bachelor of Health and Social Development and Master of Osteopathy. Researchers are grouped into three research groups [1] Culturally Inclusive Pedagogy and Equity in Early Childhood, [2] Play Therapy and Community Well-being and [3] Responsive Teaching and Learning.

Number of degree teaching staff	24
Total research FTE allocated	2.11
Current Research Traffic Light rating (Percentage of green lit staff)	79%
PBRF history (Number of PBRF rated staff in 2018)	6

Staff in the School are highly research-active. Teaching is “research-informed” and current thinking and field-relevant knowledge is embedded into the curriculum. Examples range from the inclusion of recently published research in taught content, teaching students practical research skills, helping students to develop a research-based mindset to be critical and reflective thinkers. Staff also support students to develop and carry out their own research projects.

Current literature and research in tertiary education informs teaching pedagogy and pastoral care approaches for the students in different programs. For example: Literature and research in youth development is used to directly inform teaching material.

Research is included in the course work as either taught or supplementary content in all the courses. Students acquire or develop skills in finding relevant recent research to complement lecturer-provided materials.

Some examples of where research-active staff incorporate research outcomes into teaching include:

- Helen Wrightson: EDUC 6529 Informed Practicum and other Practicum Courses
- Yvonne Culbreath: EDUC 6921 Historical and Current Contexts of ECE in Aotearoa
- Jayne Mercer: Literature and research in youth development used to directly inform teaching material

Staff enjoy sharing their professional experience, their research and their expertise at conferences and through workshops to contribute to the sector. Staff have collaborated with colleagues in university institutions who have more time to research (e.g. AUT) to establish collaborative projects drawing on the particular strengths each display. For example, the **Student ECE Kaiako Hauora Collaborative Research Project** targeting early childhood kaiako and taura at present. The potential research aim and questions are as follows:

Evaluate the impact of weaving wellbeing strategies into delivery of teacher education curriculum.

Potential research questions:

- How do student ECE teachers develop sustainable wellbeing strategies for study and practice?
- How does an innovative teaching and learning environment support hauora?

The project is part of a multidisciplinary team coordinated by Catherine Powell of Healthy Families Waitakere she is their Lead Systems Innovator. The research group consists of: Andrew Gibbons AUT, Rebecca Hopkins AUT, Rainie Yu AUT, Kiri Gould UoA, Jacoba Matapo UoA, Justine O'Hara Gregan UoA, Mary-Liz Broadley Open Polytechnic, Yo Heta-Lensen and Pauline Bishop Unitec and Cathie Powell.

Other example of collaboration is the project: 'Teacher and caregiver perspectives on the effect of Arts and Play Therapy in Education'. This is a Voucher Project partnering with Not-for-profit organisation APTE.

Staff are continuing to produce research outputs and contribute to bodies of knowledge in their field. Programs are on track to be green lit by end of 2020 in the recent Institute Research Traffic light. However, staff are constrained by losing the degree courses – three degree courses are being taught out.

2 School of Community Studies Goals and KPIs

The School of Community Studies has the current goals. The baseline figures represent 2018 data.

- Stretch goal: maintain the external research funding at \$30,000 per year
- Increase the annual number of quality assured (QA) research outputs from 34 to 51 by 2020.
- Maintain industry-funded projects at 1-2 projects per year
- Work towards achieving and maintaining green traffic light status with 75% or more

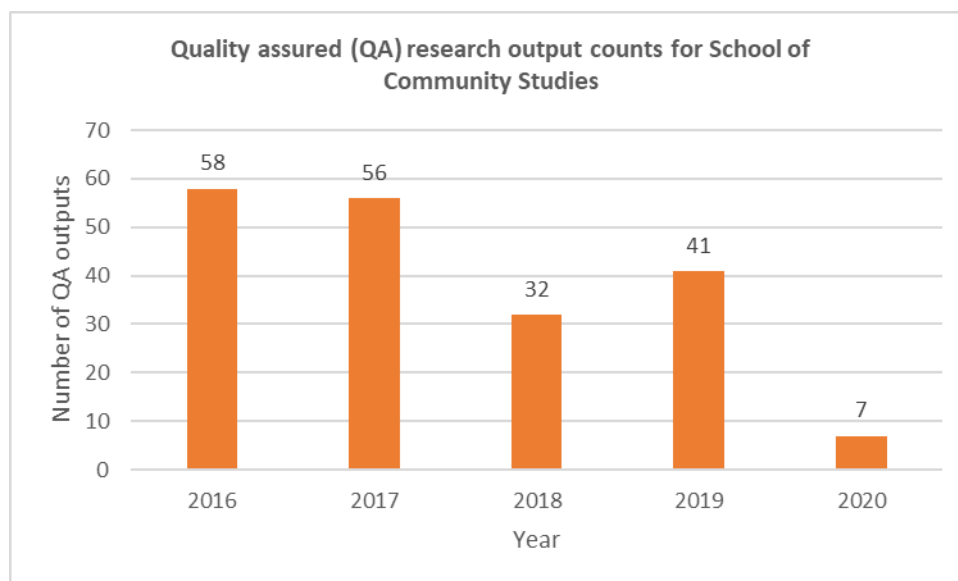


Figure 1: School of Community Studies Quality Assured Research Outputs

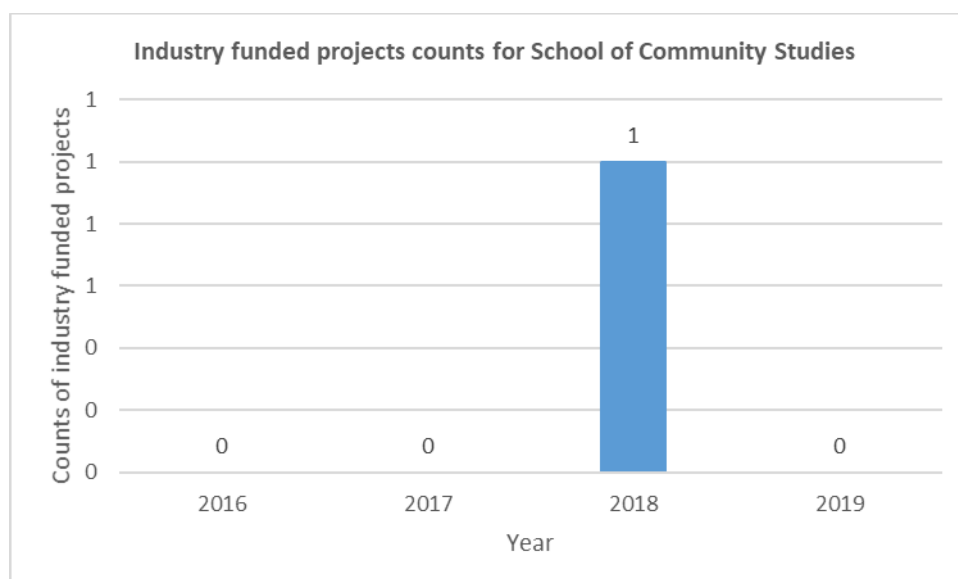


Figure 2: School of Computing & Information Technology Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

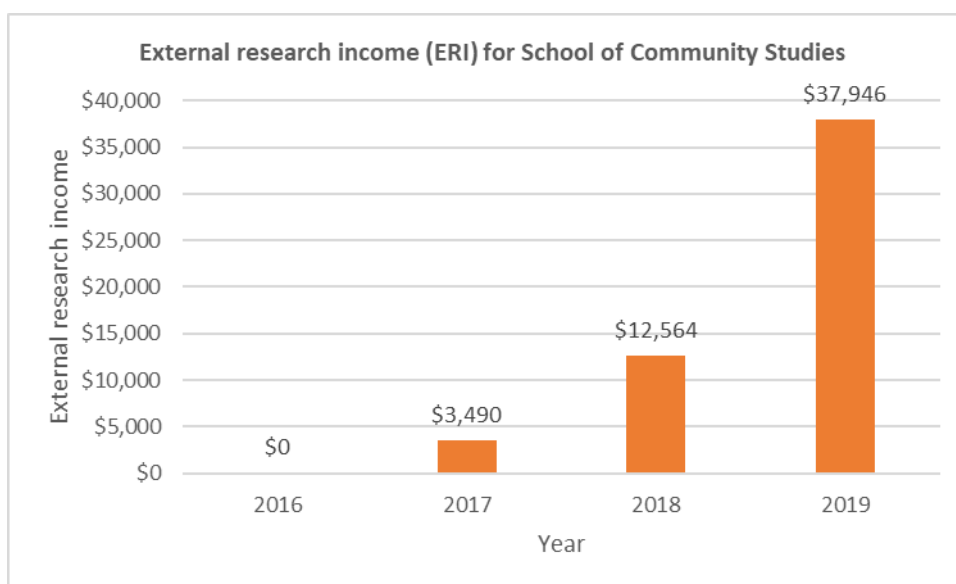


Figure 3: School of Community Studies External Research Income

3 SWOT analysis for research in School of Community Studies



4 Research Groups and projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes and this approach is equally unlikely to result in impactful research for our industries and communities.

The School of Community Studies has three research groups [1] Culturally Inclusive Pedagogy and Equity in Early Childhood, [2] Play Therapy and Community Well-being and [3] Responsive Teaching and Learning.

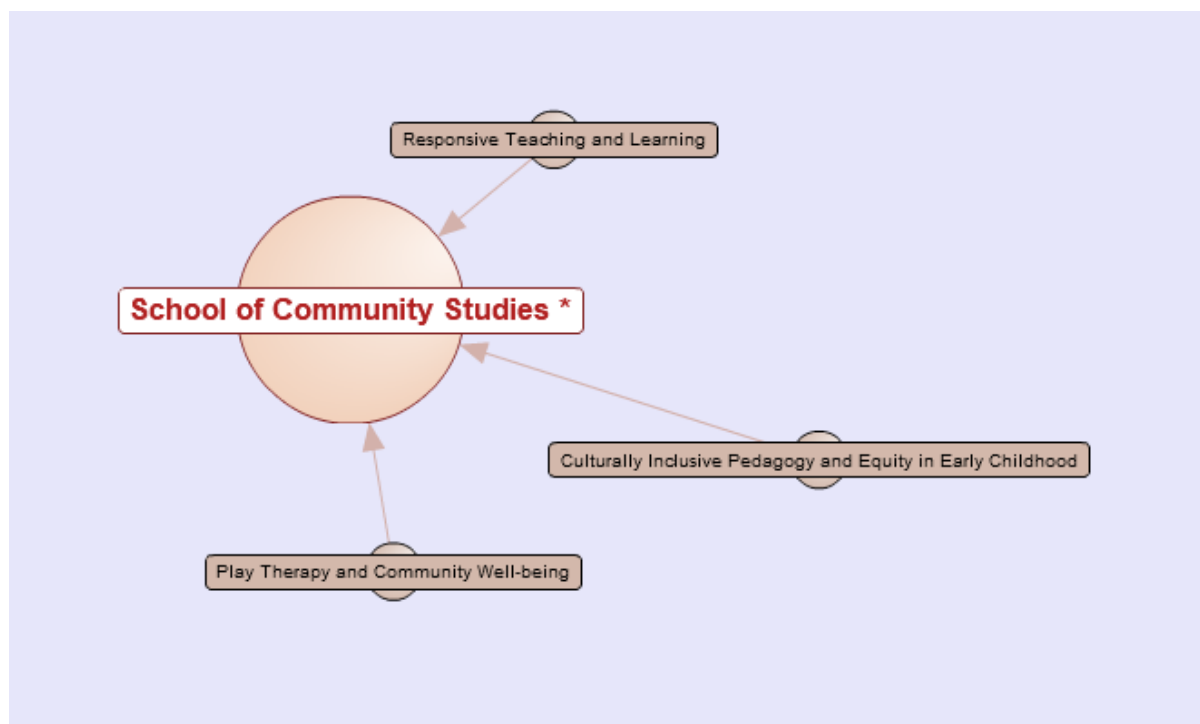


Figure 4: School of Community Studies research groups

The above research groups partner with external funders and win funding/grants, which Unitec calls as External Research Income (ERI). Below are the external research partners who funded projects over the last 4 years.

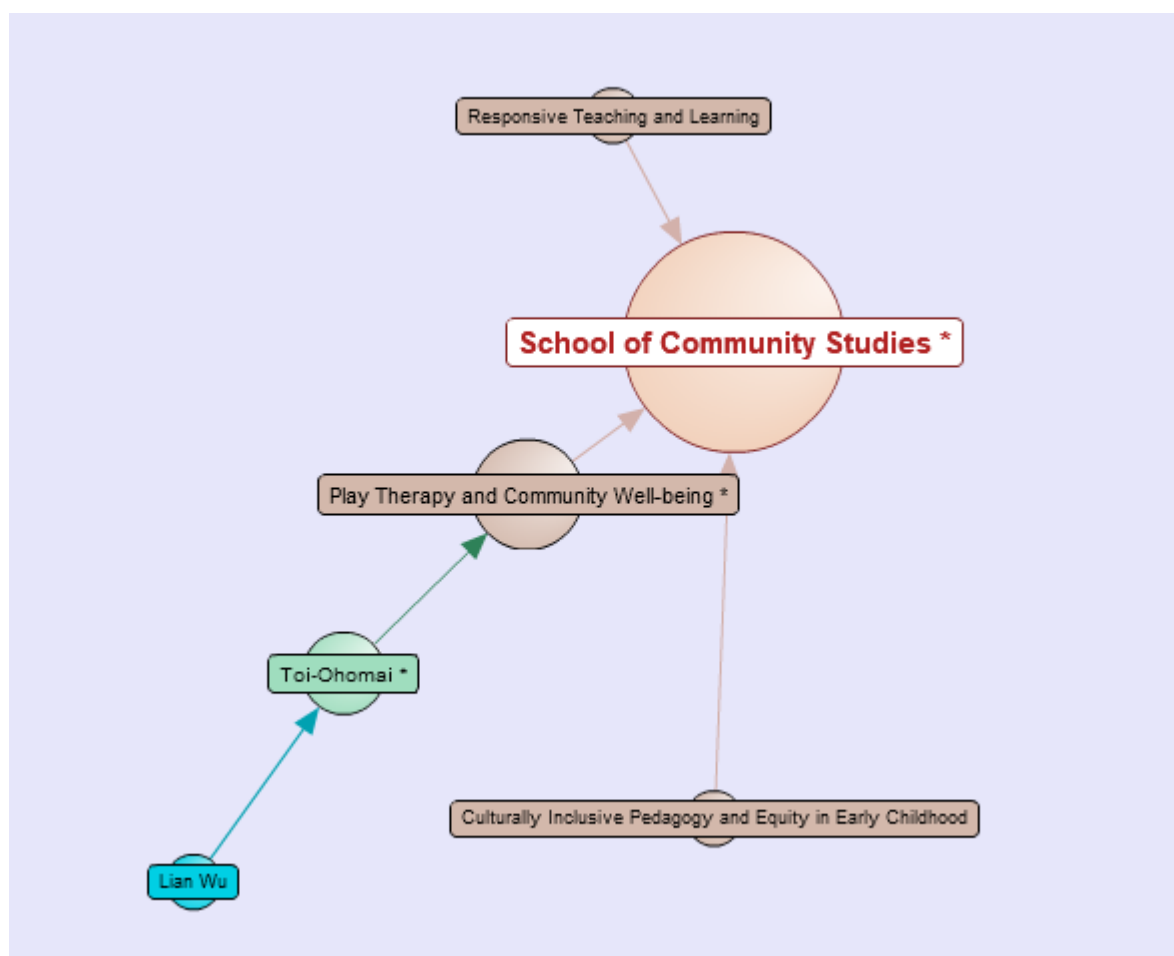


Figure 5: School of Community Studies external research partners who funded projects over the last 3 years, along with the three research groups and lead researchers

4.1 Research Group One – Culturally Inclusive Pedagogy and Equity in Early Childhood Statement of purpose

Research in this area explores culturally inclusive pedagogies of care to achieve more equitable outcomes for those at the margins of our education system. The project focuses on teachers' narratives of teaching and learning experiences with students in the tertiary education setting that includes Maori, Pasifika, Pākehā, Asian and Indian students. The team includes three lecturers (Pasifika and Indian origin teachers) from ECE team. Aim to include more lecturers from the team.

The aim is to explore our experiences as teachers in a diverse and multi-ethnic city in New Zealand.

Note: There is scope for other or extended research projects to emerge from each research group in the future.

Goal 1: Increase number of research-active staff in Culturally Inclusive Pedagogy and Equity in Early Childhood				
Action	Responsible	Deadline	Resources needed	Desired result
Identify and appoint Research Fellow in this area to mentor and partner	Research Leader	Feb. 2020	Application to URC	project set up over semester 2

Initiate staff research support group			None	
Support staff to attend writing retreats			Tūāpapa Rangahau support	

Goal 2: Increase external research income in Culturally Inclusive Pedagogy and Equity in Early Childhood				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Research Leader and research team	June 2020	Gregor Steinhorn and Penny Thomson	Funding for project start in 2021
Investigate contract research opportunities with environmental consultants and councils	Research Leader and research team	December	Tūāpapa Rangahau	Funding for project start in 2021
Support expansion of current subcontracting arrangements with current funders				

4.2 Research Group Two – Play Therapy and Community Well-being

Statement of purpose

The research project is comprised of three separate, but connected studies, that examine the effect that play therapy services and community well-being as offered by Arts and Play Therapy (APTE) has on supporting children in the primary school setting.

Research team: Amanda Perry, Carla Keighron, Sylvia Hach and Jayne Mercier

The research project is comprised of three separate, but connected studies:

Study 1 – offering play therapy sessions within a South Auckland primary school and gaining initial data on the effect of services provided by the Arts and Play Therapy (APTE) organisation to a cohort of primary school students, to assess the effect of services as perceived by school staff and parents/caregivers.

Study 2 – to replicate Study 1 but this time to gain initial data on the effect of services provided by APTE to a cohort of primary school students at a second South Auckland primary school, to assess the effect of services as represented by the evaluations of participating children.

Study 3 – to measure the effect of Creative Circle Time professional development offered to teachers in Study 1, where teachers wanted more skills in order to be able to support their learners within the classroom environment.

Goal 1: Increase number of research-active staff in Play Therapy and Community Well-being				
Action	Responsible	Deadline	Resources needed	Desired result
Identify and appoint Research Fellow in this area to mentor and partner	Principal research Investigator	August 25 th 2019	Application to UREC	3 projects set up over semester 2
Initiate staff research support group			None	
Support ?? staff to attend writing retreats	Principal research investigator		Tūāpapa Rangahau support	

Goal 2: Increase external research income in Play Therapy and Community Well-being				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Research Group		Gregor Steinhorn and Penny Thomson	Look at external funding at a later stage.
Investigate contract research opportunities with environmental consultants and councils	Research Leader and research team	November 3rd		Funding for project start in 2021
Support expansion of current subcontracting arrangements with current funders				

4.3 Research Group Three – Responsive Teaching and Learning

Statement of purpose

Research in the area of Responsive Teaching and Learning- during COVID 19 is directed towards:

1. To document the impact of COVID-19 across a range of programmes offered at Unitec
2. To determine teacher's levels of concern before and after the switch to online delivery
3. To identify any changes in levels of concern over the course of the semester
4. To document the challenges faced and opportunities that arose as a result of the switch
5. To identify strategies used in the moment to overcome challenges presented
6. To determine whether a phase 2 study would be viable

This research was initiated by Samantha Heath (Health Care) and includes researchers from School of Community Studies.

Goal 1: Increase number of research-active staff in Responsive Teaching and Learning				
Action	Responsible	Deadline	Resources needed	Desired result
Identify and appoint Research Fellow in this area to mentor and partner	Main Investigator and co-researchers	25 th May 2020	Application to URC	Start Date: June 2020 End Date: Sept. 2020
Initiate staff research support group	Four co-researchers from School of community Studies			
Support ?? staff to attend writing retreats			Tūāpapa Rangahau support	

Goal 2: Increase external research income in Responsive Teaching and Learning				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Principal investigator and co-researchers		Gregor Steinhorn and Penny Thomson	Funding for project start in 2020
Investigate contract research opportunities with environmental consultants and councils			Brenda Massey	
Support expansion of current subcontracting				

arrangements with current funders				
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Note: There is scope for other or extended research projects to emerge from each research group in the future.

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last four years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Amanda Perry			Green lit	1-Conference Contribution- Oral Presentation, 1- Journal Article, 1- Other, 2- Presentations (non-conference)	Play therapy, mental health, child/educator well being, supervision of teachers
Andre Kleinbaum			Amber lit	2-Journal Articles, 1- Presentation (non-conference)	
Carla Keighron			Amber lit	1-Conference Contribution- Oral Presentation	Play Therapy/Field Practice and practicum/Bicultural Practice
Daniel Stamp			Green lit	1-Conference Contribution- Abstract, 1- Conference Contribution- Paper in published Proceedings, 1- Conference Contribution- Poster Presentation, 1- Journal Article	
Dianne Roy			Green lit		
Helen Wrightson			Green lit	5-Conference Contributions- Oral Presentation, 1- Journal Article	Visual arts in early education; Bicultural teaching practice; Early childhood teaching practice.

Jayne Mercier			Green lit	3-Conference Contributions- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 2-Journal Articles, 1-Report	Youth development, youth work, youth programmes – research area includes factors that support engagement and success in tertiary education.
John MacFarlane			Green lit	1-Conference Contribution- Oral Presentation, 2-Journal Articles, 1-Presentation (non-conference)	Authentic and Legitimate forms of organisation and governance for actions/lifestyle sports
John Waugh			Amber lit	1-Conference Contribution- Oral Presentation, 2-Journal Articles	
Kiri Neho			Red lit	1-Conference Contribution- Oral Presentation	Bi-cultural practice
Lata Rana			Green lit	1-Conference Contribution- Abstract, 5-Conference Contributions- Oral Presentation, 2-Journal Articles	Cultural diversity; culturally inclusive pedagogies, globalisation and developments in higher education.
Lee-Anne Turton			Green lit	3-Conference Contributions- Oral Presentation, 1-Journal Article, 1-Other, 1-Report	ECE visual arts pedagogy; Digital Technologies in Education
Lian Wu	PI for 1 externally funded project	PI for 1 industry funded project	Green lit		
Micalla Williden			Green lit	4-Journal Articles	Low Carbohydrate Healthy Fat diets, maramakta and food intake, food habits in NZDF
Pauline Bishop			Green lit	3-Conference Contributions- Oral Presentation	Student ECE Kaiako Hauora
Robert Gambolati			Amber lit	3-Conference Contributions- Oral Presentation	Youth Sports and Play
Saeideh Aminian			Green lit	4-Journal Articles	

					Sedentary Behaviour, Behaviour Change Interventions; Non-Exercise Activity Thermogenesis, Physical Activity, Sedentary Behaviour and Physical activity Measures
Shamim Shaikh			Green lit	1-Conference Contribution- Abstract, 4-Conference Contributions- Oral Presentation, 1-Conference Contribution- Poster Presentation, 2-Journal Articles	Chronic conditions (diabetes, obesity and neurodegeneration), Developing therapies, improved diagnostic tools, Modifiable factors of health - sleep, life style, food, Biomarkers (health, Inflammation, stress), Inflammation, Immunomodulation
Sue Emerson			Green lit	1-Awarded Masters Thesis, 2-Conference Contributions- Oral Presentation, 1-Journal Article, 3-Presentations (non-conference)	Youth Leadership, Sport leadership, Leadership accessibility, Womens leadership
Sylvia Hach			Green lit	4-Conference Contributions- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 2-Conference Contributions- Poster Presentation, 6-Journal Articles, 2-Other	stroke, depression, spatial perception, laterality, pain
Timothy Friedlander			Green lit	1-Book Chapter, 2-Conference Contributions- Oral Presentation, 1-Journal Article, 1-Presentation (non-conference)	Competence, education (clinical/academic), risk/public safety, health care attitudes and beliefs

Wesley Verhoeff			Green lit	1-Awarded Masters Thesis, 1-Conference Contribution- Paper in published Proceedings, 2-Journal Articles	
Yolanda Heta-Lensen			Green lit	4-Conference Contributions- Oral Presentation, 1-Journal Article, 3-Presentations (non-conference)	Maori Pedagogies Bicultural practice?
Yvonne Culbreath			Green lit	3-Conference Contributions- Oral Presentation, 1-Journal Article	Indigenous cultures; inclusive pedagogies

School Research Plan - School of Computing, Electrical & Applied Technology

1 Introduction and current state

The School of Computing, Electrical, and Applied Technology was formed in 2020 by merging School of Computing and Information Technology with part of School of Engineering and Applied Technology.

The School offers a suite of programmes from level 5 to level 9 covering various areas in computing, information technology, electrical engineering, electronics and automotive. There are six-degree programmes offered by this school: Bachelor of Applied Technology (BAT), Bachelor of Computing Systems (BCS), Bachelor of Engineering Technology- Electrical (BEngTech), Postgraduate Diploma in Computing (PGDCG), Master of Computing (MCOMP), and Doctor of Computing (DCOMP [Teach out]). Staff in the School are research active across the full spectrum of levels, with early career researchers as well as established and expert researchers across the various disciplines.

The researchers in the school are grouped in seven research groups: [1] Intelligent Systems and Data Science, [2] Cyber Security and Networking, [3] Software Engineering, [4] Internet of Things and Sensor Networks, [5] Electromagnetic Measurements and Non-Destructive Sensing, [6] Power Systems, and [7] Automotive.

Number of degree teaching staff	30
Total research FTE allocated	3.2
Current Research Traffic Light rating (Percentage of green lit staff)	57%
PBRF history (Number of PBRF rated staff in 2018)	14

Fourteen staff achieved funded ratings in the recent 2018 PBRF assessment round (3Bs, 11Cs), however, seven of them have left Unitec in the past 2-3 years.

The research is very well integrated into levels 7 to 9 degree programmes (i.e. MCOMP, PGDCG, and Capstone in BCS) as some learning outcomes and course descriptions in these programmes include major research components such as investigative research assignments, technical reports, thesis components, etc.

Staff and students are co-authoring a number of quality assured publications each year, some examples in 2019 (names of students in *italic*):

- *S. Varastehpour*, H. Sharifzadeh, I. Ardekani and X. Francis “Vein Pattern Visualisation and Feature Extraction Using Sparse Auto-encoder for Forensic Purposes”, in IEEE 16th International Conference on Advanced Video and Signal-based Surveillance (AVSS), Taipei, Taiwan, 2019
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- *X. Francis*, H. Sharifzadeh, A. Newton, N. Baghaei and S. Varastehpour “Learning Wear Patterns on Footwear Outsoles using Convolutional Neural Networks” in IEEE 18th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), Rotorua, New Zealand, 2019.

- S. Sen and C. Jayawardena, "Analysis of Network Techniques and Cybersecurity for Improving Performance of Big Data IoT and Cyber-Physical Communication Internetwork," 2019 IEEE International Conference on Industrial Technology (ICIT), Melbourne, Australia, 2019, pp. 780-787.
- Dassanayake, W., Jayawardena, C., Ardekani, I., & Sharifzadeh, H. (2019). Models Applied in Stock Market Prediction: A Literature Survey. Unitec ePress Research Report Series (Vol. 1).

In postgraduate space, the teaching is very well informed by research in terms of curriculum design and delivery as the lecturers have been teaching the courses that are aligned with their research expertise; some examples:

- ISCG8026- Data Science, taught by Iman Ardekani and Hamid Sharifzadeh
- ISCG8040- Enterprise Network Information Security Management, taught by Bashar Barmada
- ISCG8041- Mobile and Wireless Communications, taught by Samad Kolahi
- ISCG8047- Cyber Security and Cloud Computing, taught by Bahman Sarrafpour
- ISCG8050- Machine Learning, taught by Hamid Sharifzadeh
- ISCG8052- The Internet of Things, taught by Guillermo Ramirez-Prado

For further information on student achievements (KEQs 1 and 2) in terms of publications and industry connections in the past couple of years, please refer to annual PEP reports for MCOMP and DCOMP programmes in 2018 and 2019 available in H drive.

2 School of Computing, Electrical & Applied Technology Goals and KPIs

The School of Computing, Electrical, and Applied Technology understands the importance of embedding relevant and informed applied research into our learning and teaching professional practice. To this end, the School has developed the current goals. The baseline figures represent 2018 data.

- Stretch goal: Maintain the external funding at \$420,000 by 2022
- Increase the annual number of quality assured (QA) research outputs from 66 to 75 by 2022.
- Maintain industry-funded projects at 3 -7 projects per year
- Achieve and maintain green traffic light with 75% or more in each programmes.

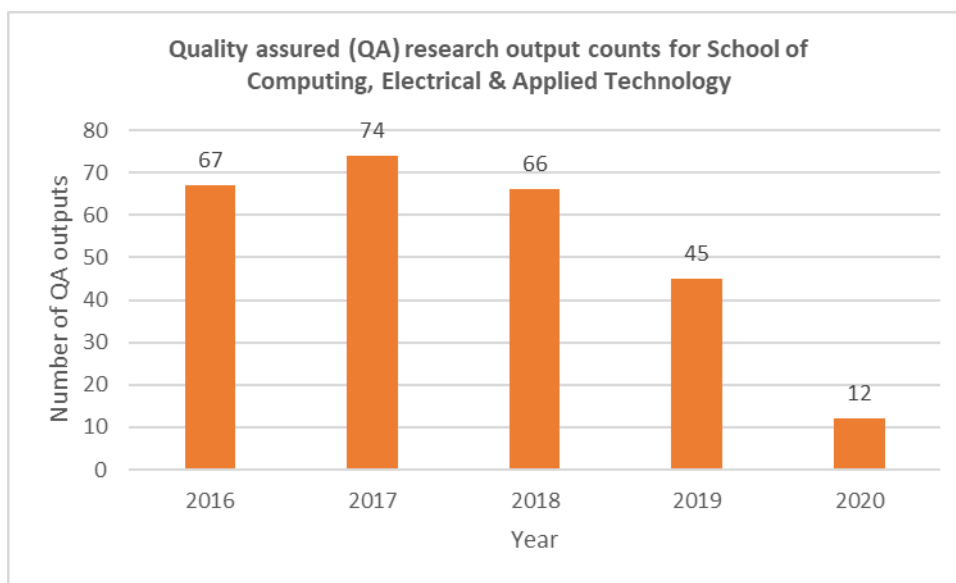


Figure 1: School of Computing, Electrical & Applied Technology Quality Assured Research Outputs

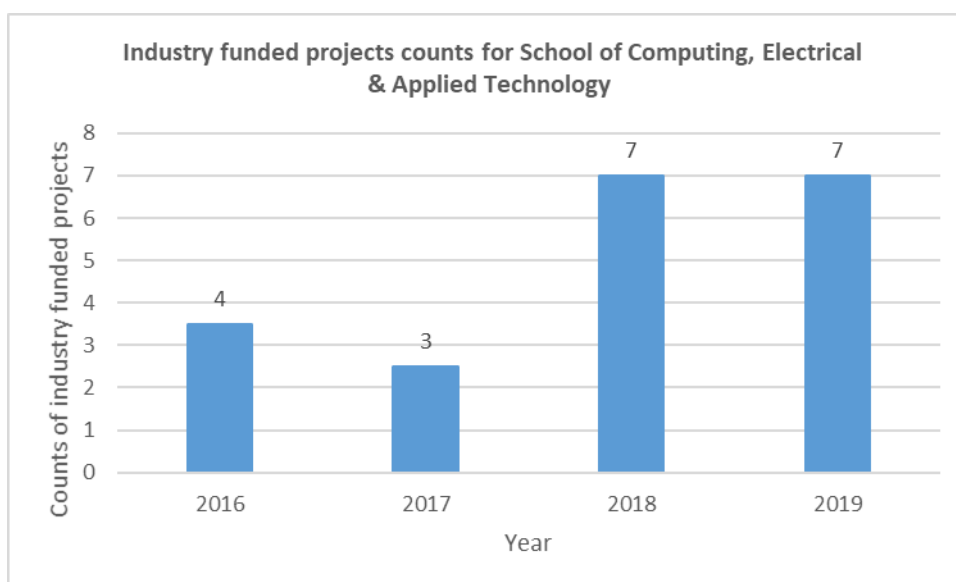


Figure 2: School of Computing, Electrical & Applied Technology Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

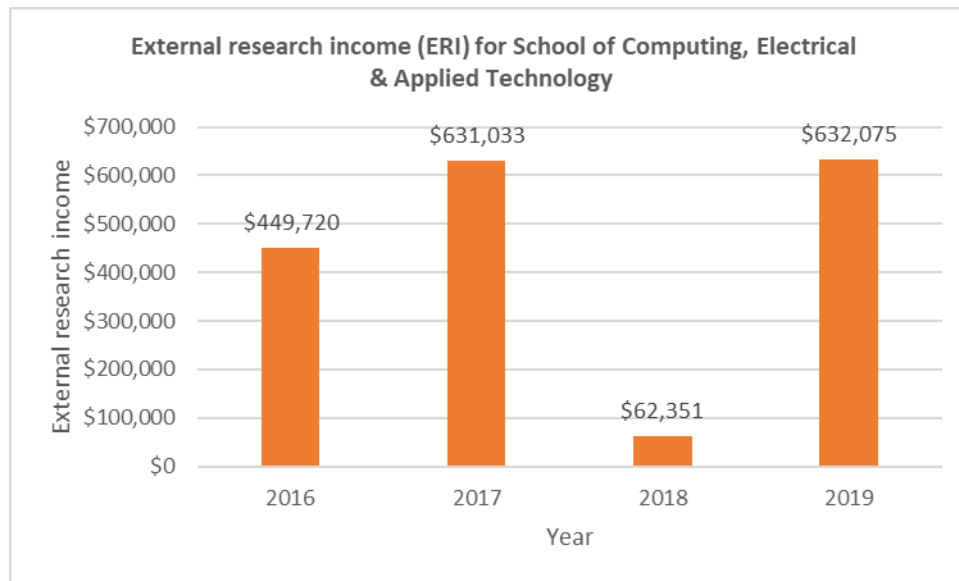
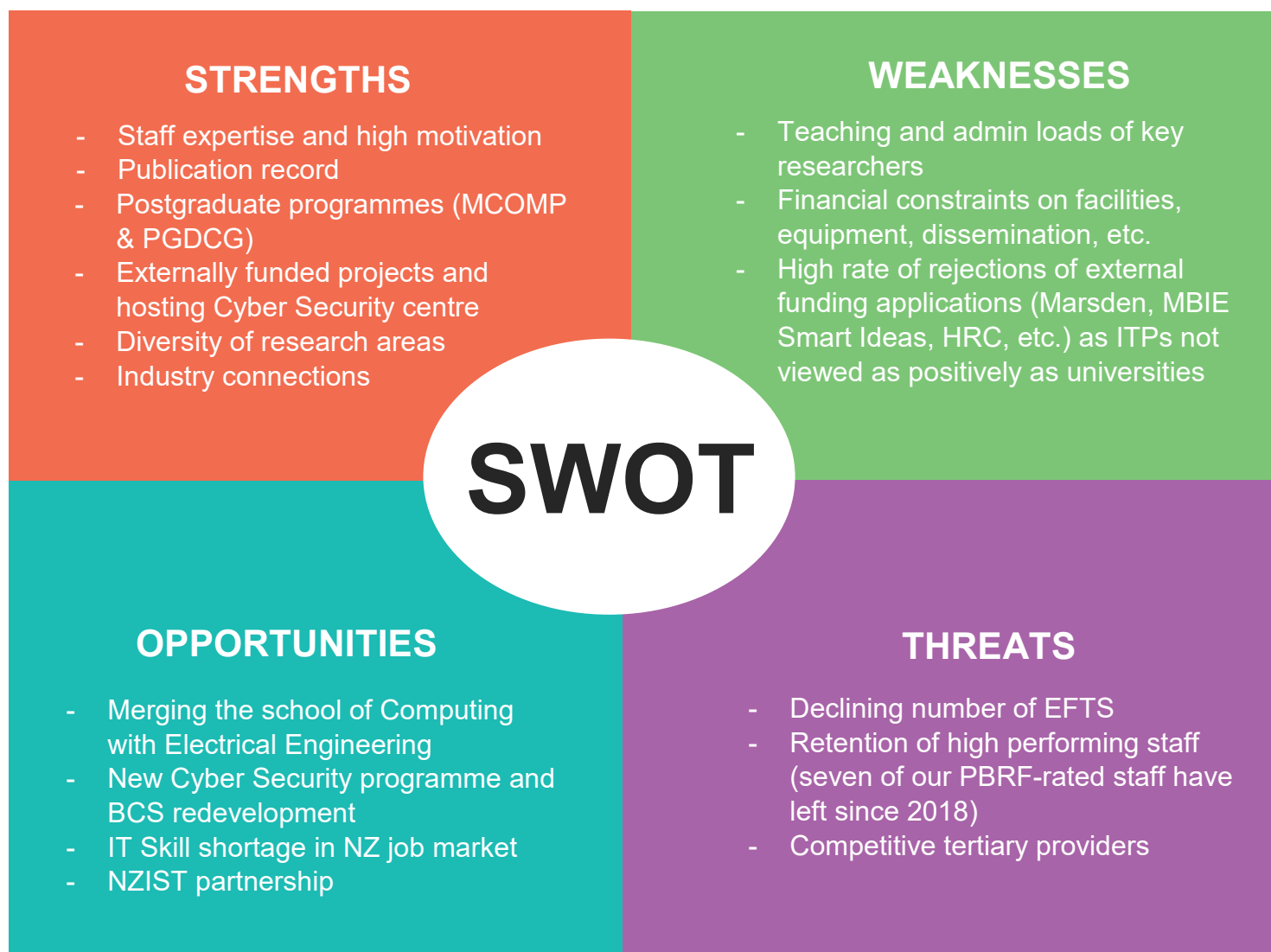


Figure 3: School of Computing, Electrical & Applied Technology External Research Income

3 SWOT analysis for research in School of Computing, Electrical and Applied Technology



4 Research Groups and Projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes and this approach is equally unlikely to result in impactful research for our industries and communities.

[1] Intelligent Systems and Data Science, [2] Cyber Security and Networking, [3] Software Engineering, [4] IoT and Sensor Networks, [5] Electromagnetic Measurements and Non-Destructive Sensing, [6] Power Systems, and [7] Automotive.

The School of Computing, Electrical & Applied Technology has seven research groups (Intelligent Systems and Data Science; Cyber Security and Networking; Software Engineering; Internet of Things and Sensor Networks; Electromagnetic Measurements and Non-Destructive Sensing; Power Systems; Automotive) and hosts a research focus (Cybersecurity).

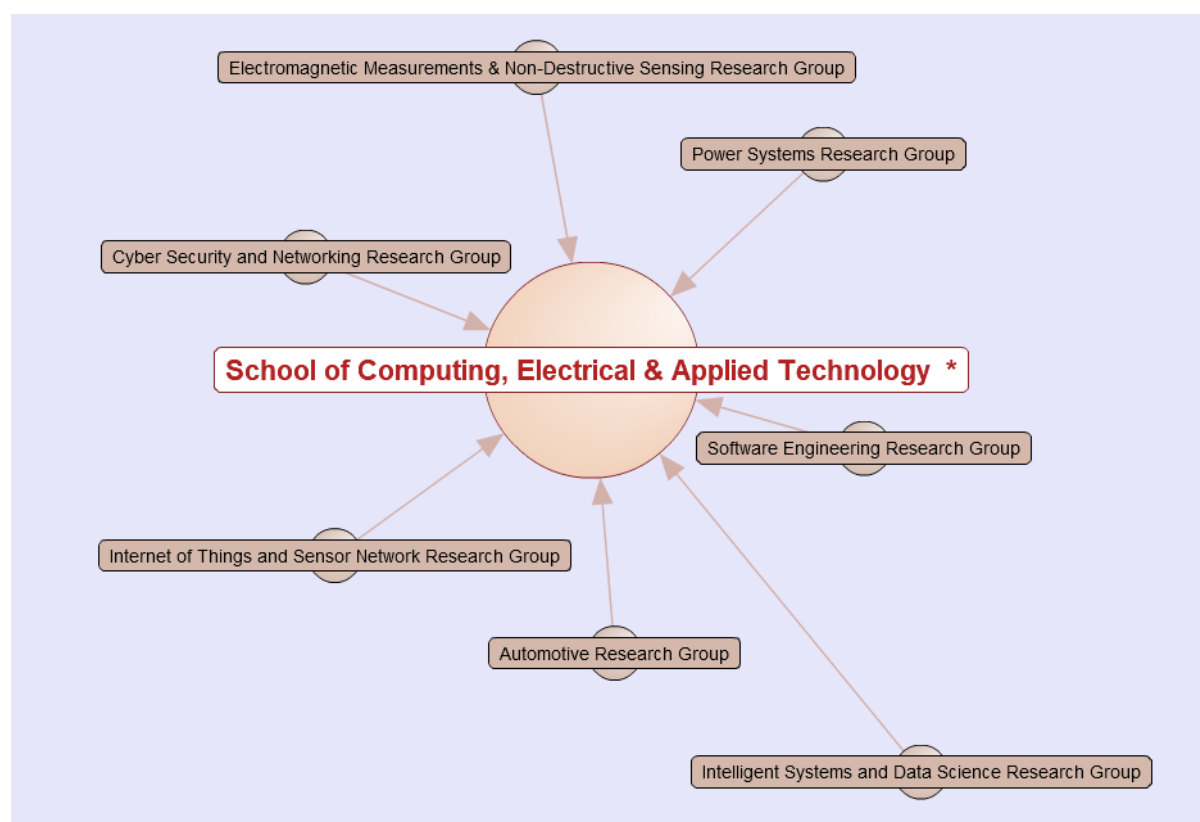


Figure 4: School of Computing, Electrical & Applied Technology seven research groups

The above research groups/centre partner with external funders and win funding/grants, which Unitec calls it External Research Income (ERI). Below are the external research partners who funded projects over the last 4 years.

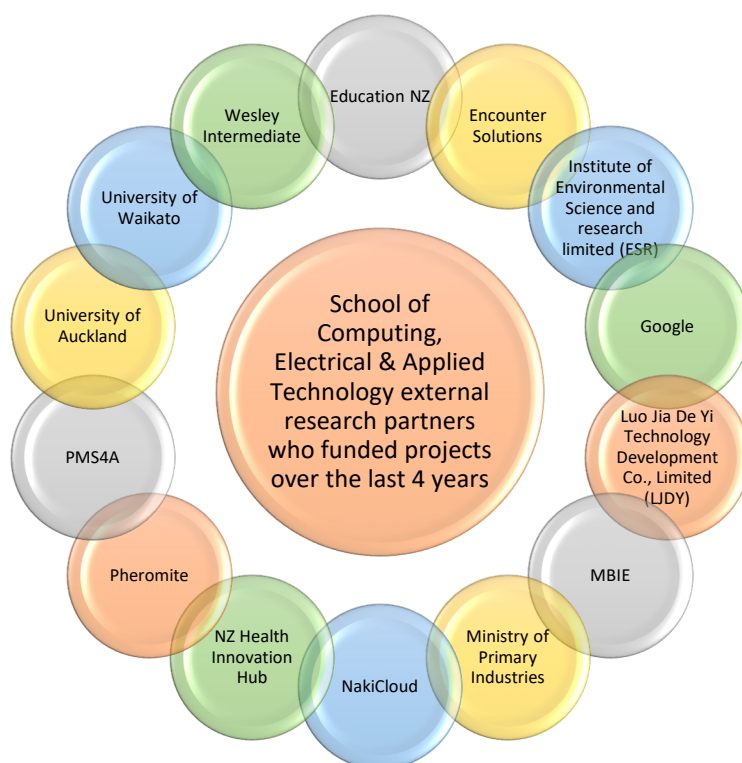


Figure 5: School of Computing, Electrical & Applied Technology external research partners who funded projects over the last 4 years

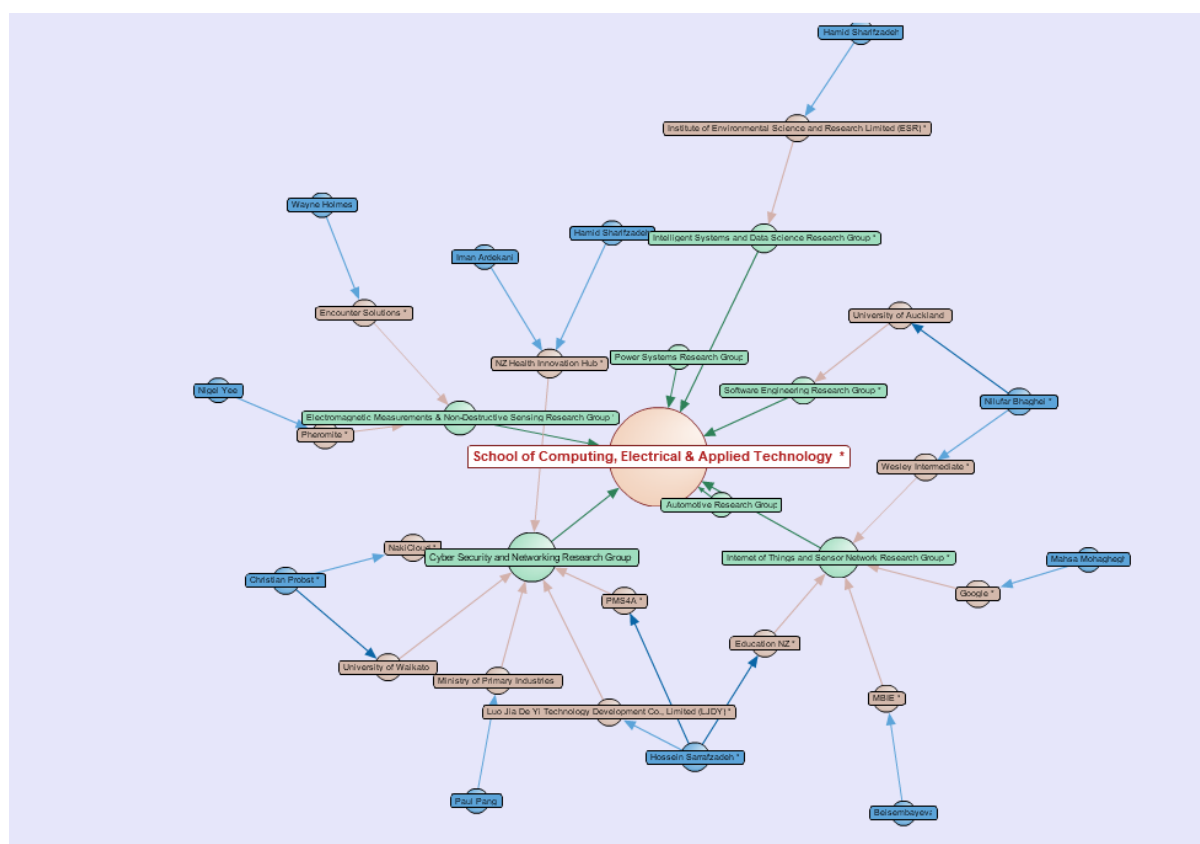


Figure 6: School of Computing, Electrical & Applied Technology external research partners who funded projects over the last 4 years, along with the five research groups and lead researchers

4.1 Research Group One – Internet of Things and Sensor Networks

Statement of purpose

Research in the area of Internet of Things (IoT) and Sensor Networks is directed towards:

- Developing technologies for smart homes and elder care
- Configuration and analysis of wireless sensor networks
- Designing and utilising embedded systems and microprocessors
- Exploring IoT applications in various areas from healthcare to industry and agriculture
- Further integration of IoT research in teaching and learning activities such as curriculum/programme/course design

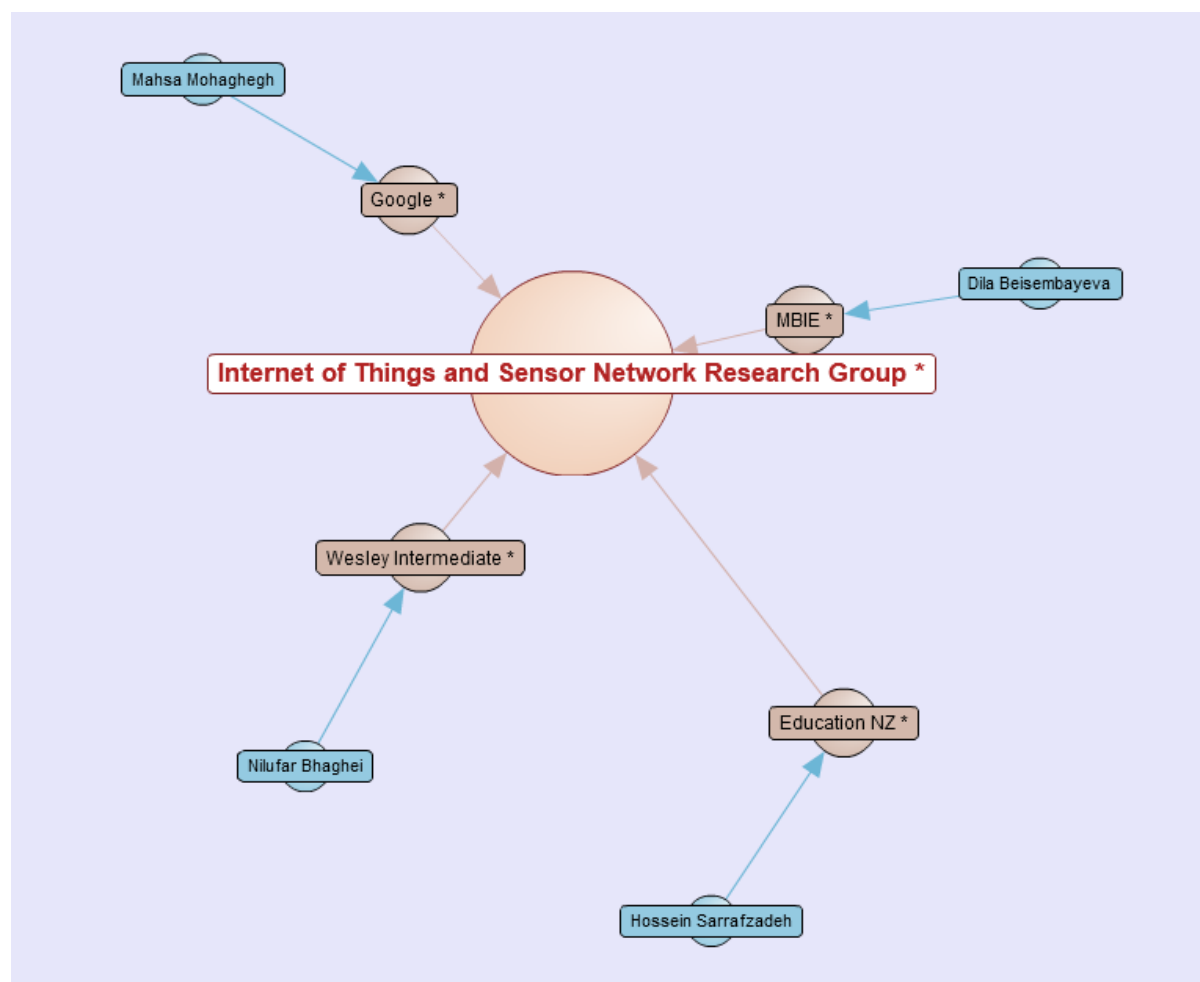


Figure 7: School of Computing, Electrical and Applied Technology Internet of Things and Sensor Networks research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Internet of Things and Sensor Networks				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None	Monthly meetings

Goal 2: Increase external research income in Internet of Things and Sensor Networks				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

4.2 Research Group Two – Intelligent Systems and Data Science

Statement of purpose

Research in the area of Intelligent Systems and Data Science is directed towards:

- Developing smart technologies using artificial intelligence and machine learning
- Developing smart systems based on data science and big data analysis
- Exploring wide range of artificial intelligence applications in various areas from healthcare to industry, education, business, security, etc.
- Further integration of artificial intelligence research in teaching and learning activities such as curriculum/programme/course design

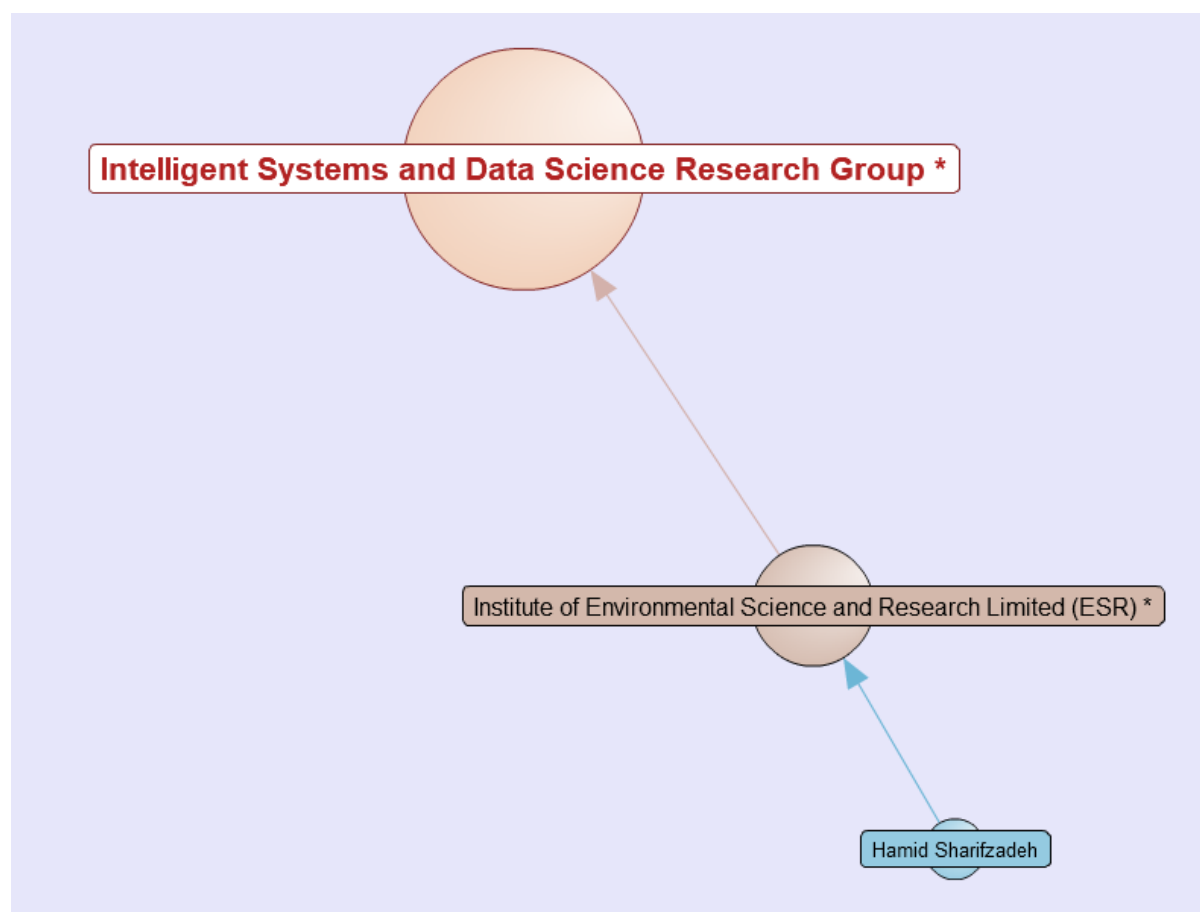


Figure 8: School of Computing, Electrical & Applied Technology Intelligent Systems and Data Science research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Intelligent Systems and Data Science				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Intelligent Systems and Data Science				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021

Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021
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4.3 Research Group Three – Software Engineering

Statement of purpose

Research in the area of Software Engineering is directed towards:

- Design and development of software including mobile apps, web applications, computer games, databases, web programming, etc.
- Human computer interaction and user interfaces
- Utilising cloud computing/services, programming languages, and compilers
- Further integration of software engineering research in teaching and learning activities such as curriculum/programme/course design

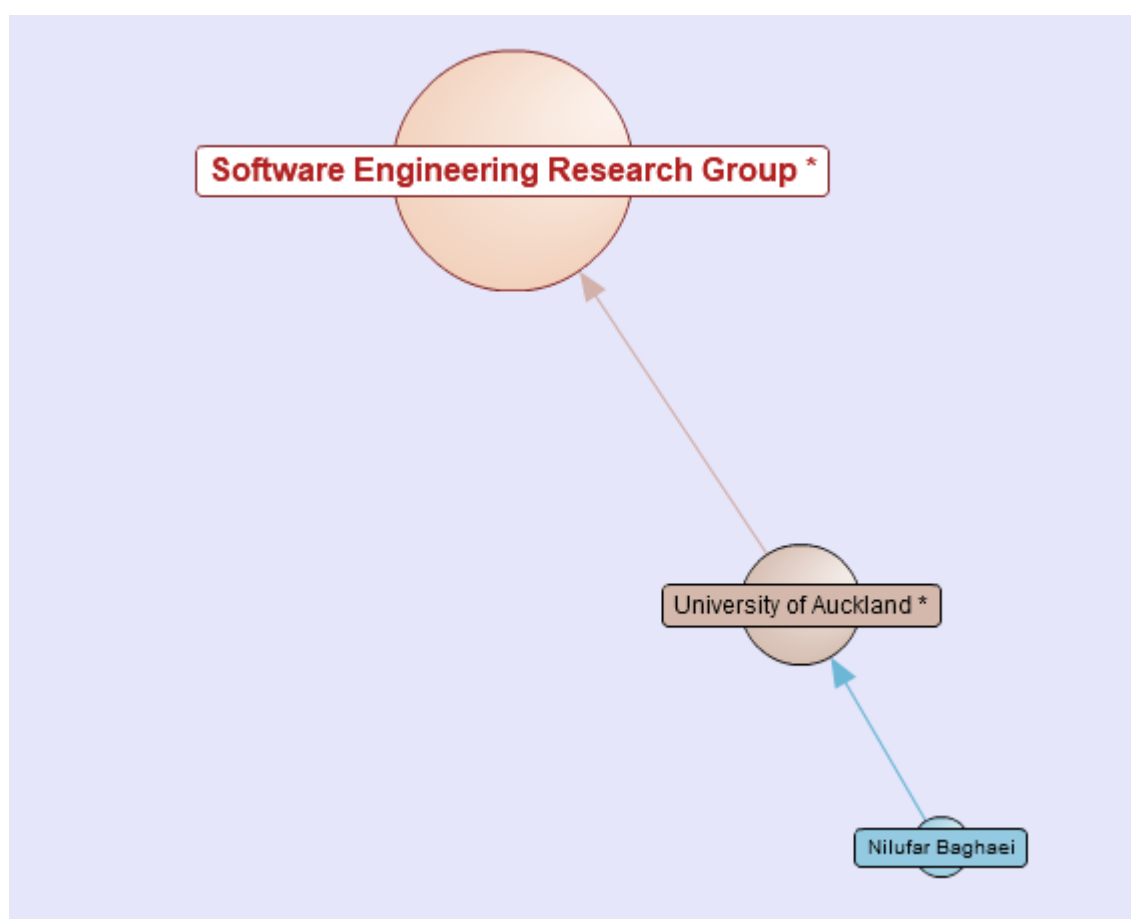


Figure 9: School of Computing, Electrical & Applied Technology Software Engineering research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Software Engineering				
Action	Responsible	Deadline	Resources needed	Desired result

Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Software Engineering				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

4.4 Research Group Four – Cyber Security and Networking

Statement of purpose

Research in the area of Cyber Security and Networking is directed towards:

- Malware analysis, ethical hacking, security breaches, cryptography, data resiliency and recovery
- Architecture, testing, and management of computer networks, routers, switches for deployment of next generation networks, software defined networks, mobile communications, etc.
- Further integration of Cyber Security and Computer Networks research in teaching and learning activities such as curriculum/programme/course design

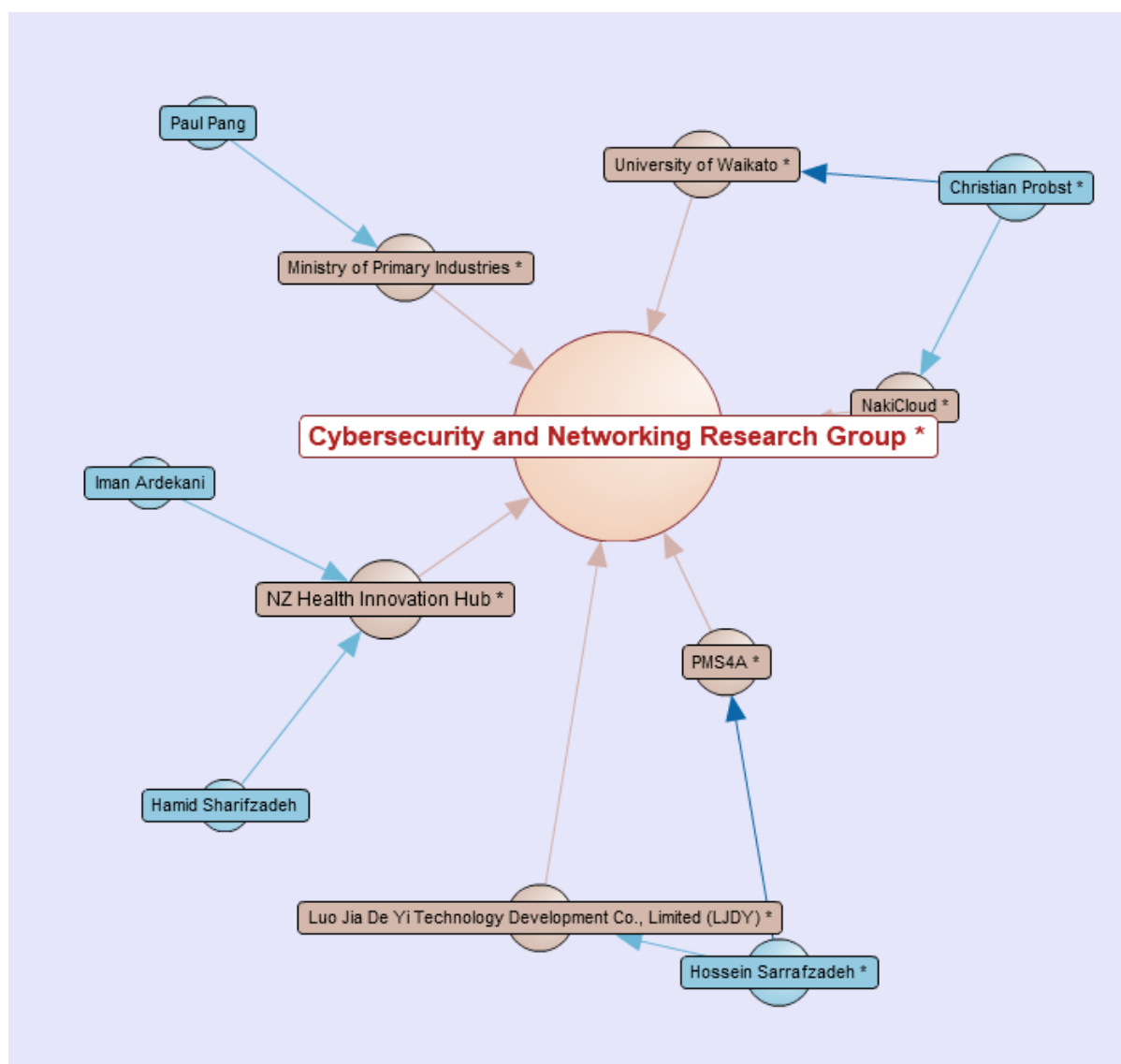


Figure 10: School of Computing, Electrical & Applied Technology Cybersecurity and Networking research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Cyber Security and Networking				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Cyber Security and Networking				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

4.5 Research Group Five – Automotive

Statement of purpose

Research in the area of Automotive is directed towards:

- Assessments in Trades based vocational education (Teaching practice)
- Estimating the rubber compound emission from tyre tread wear of motor vehicles (Sustainability / Environmental)
- Automotive plastic waste: A case study of Nissan Leaf (Sustainability)
- A case study of small automotive service centres in Auckland, New Zealand (Industry collaboration)
- Further integration of Automotive research in teaching and learning activities such as curriculum/programme/course design

Goal 1: Increase number of research-active staff in Automotive				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Automotive				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

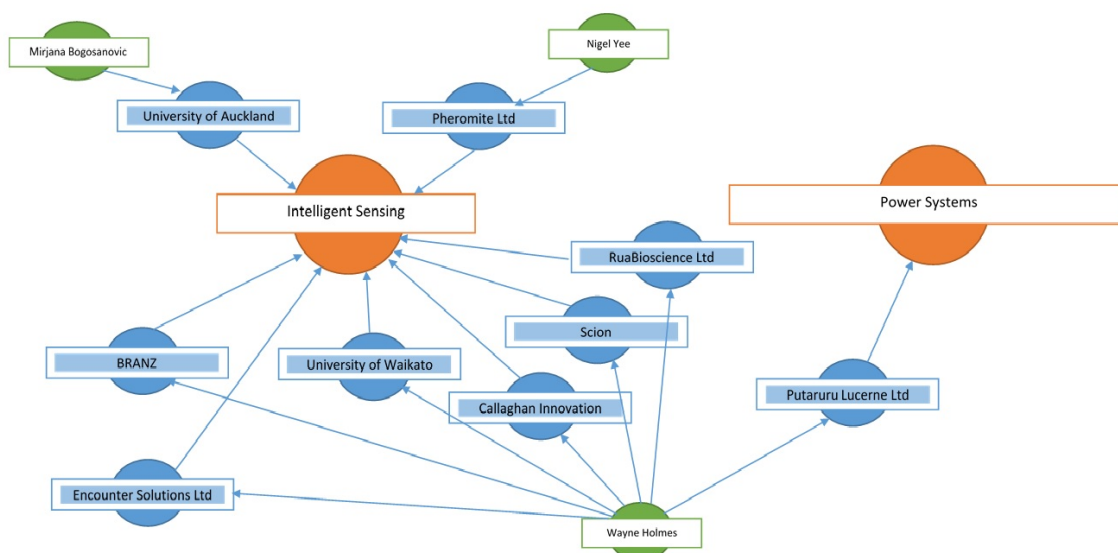
opportunities with industry				
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4.6 Research Group Six – Electromagnetic Measurements and Non-Destructive Sensing

Statement of purpose

Research in the area of Electromagnetic Measurements and Non-Destructive Sensing is directed towards:

- Developing intelligent sensing and measurement systems such as Intelligent light driven imaging (visible and NIR) for natural products (applications in pastoral agriculture and medicinal cannabis)
- Structural monitoring using electromagnetic resonant structures
- Remote monitoring (beehive monitoring)
- Further integration of Electromagnetic Measurements and Non-Destructive Sensing research in teaching and learning activities such as curriculum/programme/course design



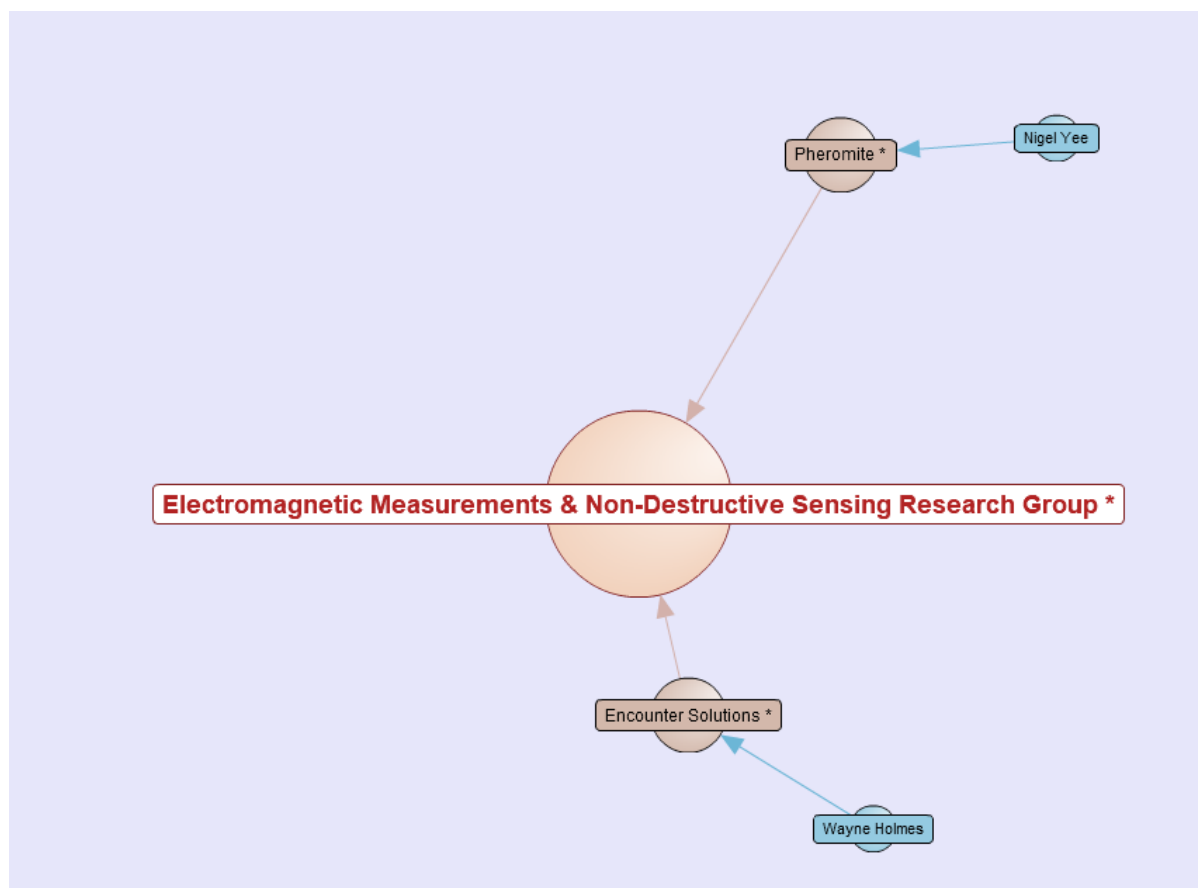


Figure 11: School of Computing, Electrical & Applied Technology Electromagnetic Measurements and Non-Destructive Sensing research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Electromagnetic Measurements and Non-Destructive Sensing				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Electromagnetic Measurements and Non-Destructive Sensing				
Action	Responsible	Deadline	Resources needed	Desired result

Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

4.7 Research Group Seven – Power Systems

Statement of purpose

Research in the area of Power Systems is directed towards:

- Applications of Power Electronics, Integration of Distributed Generation, and Microwave Heating and processing
- Distribution Systems such as Protection, Automation and Control, State Estimation, Observability and Reconfiguration, Power Quality
- Energy Management Systems, Micro-grids, Integration of Distributed Generation and Storage Systems
- Power Systems Technologies such as Electric Machines, Transmission (Conductors, PMUs, Substations, Communication, Storage Systems, etc.), Distribution (Smart Grid Technologies, EVs, ICT, etc.)
- Further integration of Power Systems research in teaching and learning activities such as curriculum/programme/course design

Goal 1: Increase number of research-active staff in Power Systems				
Action	Responsible	Deadline	Resources needed	Desired result
Identify a Research Focus Lead in this area to facilitate and support activities of research group	Research Leader (RL)	August 2020	None (except RL time)	1-2 projects set up over semester 2
Initiate staff research support group	RL and Research Focus Lead (RFL)	September 2020	None (except RL and RFL time)	Monthly meetings

Goal 2: Increase external research income in Power Systems				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	RL and Brenda Massey	September 2020	Brenda Massey	Funding for project start in 2021
Investigate contract research opportunities with industry	RL and RFL	October 2020	Gregor Steinhorn	Funding for project start in 2021

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last three years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Amruta Kar			Red lit		Applications of Power Electronics, Innovative Teaching
Andrew David			Amber lit	1-Conference Contribution- Paper in published Proceedings	
Anthony Lai			Red lit		Machine learning, Image processing, Robotics
Anura Bakmeedeniya			Green lit	3-Reports	Emission Treatment, Vehicle Control
Bahman Sarrafpour			Green lit	7-Conference Contributions- Paper in published Proceedings	Cyber security, AI, Computer Architecture, IoT
Bashar Barmada			Green lit	8-Conference Contributions- Paper in published Proceedings, 5-Conference Contributions- Poster Presentation, 2-Journal Articles	Networking, Security and IoT applications
Deepinder Sidhu			Red lit		Machine learning, Image processing, Robotics
Eltahir Kabbar			Green lit		Smart government, qualitative research, Structured Equation Modelling (SEM)
Gerry Hamilton			Amber lit	1-Discussion/Working Paper (Published), 1-Film/video	Engine Dynamics, Vehicle Design
Glenn Nicholson			Red lit	1-Presentation (non-conference)	

Guillermo Ramirez-Prado			Green lit	1-Book Chapter, 2-Conference Contributions- Oral Presentation, 4-Conference Contributions-Paper in published Proceedings, 4-Conference Contributions-Poster Presentation	Networking and security, Smart homes, Control systems
Hamid Sharifzadeh	PI for 3 externally funded projects	PI for 2 industry funded projects	Green lit	3-Conference Contributions- Oral Presentation, 13-Conference Contributions-Paper in published Proceedings, 5-Journal Articles	Machine Learning, Digital Signal Processing (Speech and Image Processing), Embedded Operating Systems
Han (Ashley) Yan			Amber lit	1-Conference Contribution- Oral Presentation, 1-Report	Modelling, Energy Management Systems (Smart Homes), Integration of Distributed Generation and Storage Systems
Iman Ardekani	PI for 1 externally funded project		Green lit	1-Conference Contribution- Oral Presentation, 14-Conference Contributions-Paper in published Proceedings, 1-Conference Contribution-Poster Presentation, 6-Journal Articles	Digital Signal Processing, Statistical Optimisation, Adaptive Systems
John Casey			Green lit	3-Conference Contributions-Paper in published Proceedings, 2-Journal Articles, 1-Other	Java, Microservices, AWS

Jone Tawaketini			Amber lit	1-Awarded Masters Thesis, 1-Conference Contribution- Abstract, 1-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published)	Educational Practices, Vehicle Service and Support
Maryam Erfanian			Green lit	2-Conference Contributions- Paper in published Proceedings	Acoustic Measurements, Databases and Data Mining, Human Computer Interactions
Momen Bahadornejad			Green lit		Integration of Distributed Generation, Electricity Market, Protection, Automation and Control, Innovative Teaching
Morgan Look			Green lit	2-Conference Contributions- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation	Instrumentation/measurement, data capture and communication, FPGA
Natalia Nehring			Green lit	1-Conference Contribution- Abstract, 2-Conference Contributions- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Journal Article	Utilising Moodle to improve students achievements, Challenges of distance learning

Nigel Yee	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Design Output, 1-Journal Article, 1-Report	Integration of Distributed Generation, Application of Digital Signal Processing, Energy Management Systems (Smart Homes)
Niranjan Singh			Green lit	1-Awarded Masters Thesis, 1-Conference Contribution- Abstract, 2-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 3-Journal Articles	Educational Practices, Vehicle Dynamics
Nuttapod Nuntalid			Red lit		Spiking Neural Networks, Health informatics, Business Intelligence
Philip Plunket			Red lit		
Roman Kudin			Amber lit	1-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 2-Reports	Engineering Material, Failure Analysis
Samad Kolahi			Green lit	4-Conference Contributions- Paper in published Proceedings, 3-Journal Article	Performance evaluation of networks Wireless networks Cyberattack and defences
Shiu Ram			Red lit	1-Conference Contribution- Abstract	Ergonomics, Moderation, Information Systems

Simon Dacey			Red lit	1-Awarded Doctoral Thesis, 1-Conference Contribution- Oral Presentation, 3-Conference Contributions-Paper in published Proceedings, 3-Journal Articles	Assessment development, delivery of programming courses, remote sensing
Soheil Varastehpour			Green lit	5-Conference Contributions-Paper in published Proceedings	
Wayne Holmes	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	1-Conference Contribution- Oral Presentation, 3-Conference Contributions-Paper in published Proceedings, 1-Conference Contribution-Poster Presentation, 1-Journal Article, 1-Presentation (non-conference)	Electromagnetic and dielectric modelling, Electromagnetic sensing of natural products, Radio/microwave systems, Imaging systems, Hyperspectral imaging

School Research Plan - School of Creative Industries

1 Introduction and current state

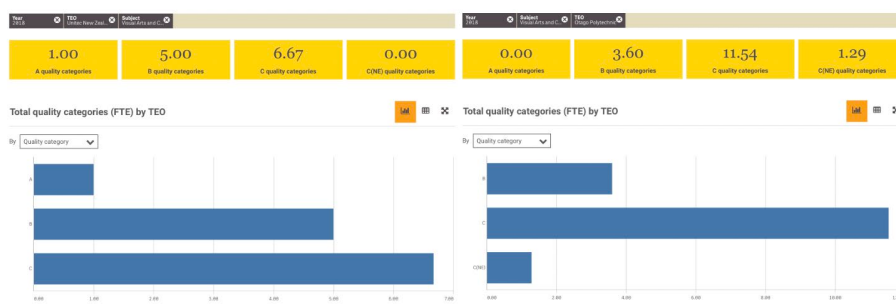
The School of Creative Industries was formed in 2016 as a merger of the already established Department of Design and Contemporary Arts and Department of Performing and Screen Arts. The School offers a suite of programmes from level 5 to level 9; the Bachelor of Creative Enterprise (BCE: with pathways in Design and Contemporary Arts), the Bachelor of Performing and Screen Arts (BPSA: with pathways in Acting, Dance, Screen and Production Design Management) and the Master of Creative Practice Suite (MCP, PGDCP). Researchers are currently grouped in 2 research clusters: Design and Contemporary Arts and Performing and Screen Arts, with a third aspirational cluster, Creative Praxis and Culture signposted for the future.

The School promotes research that has a focus on applied practice within the creative arts (acting, dance, screen and visual arts) and design (graphic, product and UX), which contributes to, or enriches, cultural life in Aotearoa, New Zealand. The School is committed to supporting and developing creative research of relevance to Māori and Pacific peoples, implementing Manaakitia te Rito as a means of developing cultural capability in the staff team to support Māori and Pacific student progression into postgraduate research.

Number of degree teaching staff	26
Total research FTE allocated	3.19
Current Research Traffic Light rating (Percentage of green lit staff)	88%
PBRF history (Number of PBRF rated staff in 2018)	12

Staff in the School are research active across the full spectrum of levels, with beginning as well as expert researchers across the various disciplines. Twelve staff achieved funded ratings in the recent (2018) PBRF round (1A, 3Bs, 8Cs), making the School one of the highest performing in the ITP sector in the Creative and Performing Arts (see comparison with Otago Polytechnic below). All programmes were green-lit status in the 2020 Research Productivity Traffic Light, with the BCE and MCP Suite having been consistently green lit since 2015, and the BPSA green lit since 2018.

Unitec and Otago Polytechnic



Research Informed Teaching and Learning

The majority of research in the School takes the form of practice-based or practice-led¹ outputs; staff research occurs primarily as an outcome of engagement in advanced practice within the fields of performance, dance and acting, screen and visual arts and crafts and graphic, product and UX design. Advanced *practice-as-research* is embedded throughout the teaching and learning approaches and curricula of the School, which is mostly at degree level. Examples range from the inclusion of current industry approaches and standards in project courses, technical and skill-based application in studio classes, practice-led research skills, helping students to develop a research-based approach (critical and reflective thinking), and teaching and supporting students to develop and carry out their own practice-based/led research projects at degree and postgraduate levels.

Teaching staff train and mentor students to achieve creative practice based/led outputs in the form of public facing and industry partnered course projects (ICIB 7002, 7012, 8005, 8007, 9003 and BPASA 7223, 7213, 7214, 7304). The efficacy of research informed teaching in the School is reviewed during programme evaluation and planning and is also reflected in student, graduate and alumni success in industry placements and awards in the creative industries in Tāmaki Makaurau and beyond.

Examples of research informed teaching and learning in the School include;

- Contemporary arts and design staff (Emma Smith, Gina Ferguson, Richard Fahey, William Bardebes) collaborated with marae whanau, alumni (BDVA, MCP) and current students (BCE ICIB 7002, 7012) to realize Te Tatai o Matariki² in 2019, contributing to the cultural life of the Mt. Albert and Auckland communities;
- Photography staff Allan McDonald and Yvonne Shaw worked with BCE (ICIB 7002, 7012) and MCP students (ICIB 8005, 9003) to realize contributions to the Auckland Festival of Photography annually;
- Contemporary arts and design staff mentor students (ICIB 7002, 7012, 8005, 8007, 9003) in the development of projects that go on to win industry awards (Eden Art Schools Award, Molly Morpeth Canaday Award, Wallace Art Award, ECC Craft / Design Award) and gallery representation, e.g. at Two Rooms, Trish Clark Gallery and Foenander Gallery;
- Dance staff Katie Burton and Paul Young curated the 2019 Showcase 30 Years (PASA 7223, 6222, 5224) and remounted the choreography Penumbra with level 5 students (PASA 5224) at the Raye Freedman Centre, Auckland;
- Performing and screen arts staff mentor students (PASA 7223, 7213, 7214, 7304) in the development of their training and projects which go on to win professional awards, residencies, and placements in the Auckland Fringe Festival, Tempo Dance Festival, Pop Up Globe Theatre, Auckland Theatre Company, Aloalii and Friends, ATEED and Power Rangers, New Zealand International Film Festival, New Zealand Dance Company, Dance Aotearoa NZ;
- Discipline Leader for Dance, Charles Koroneho mentors Beijing Dance Academy students in an exchange with Unitec Dance in contemporary practice methodologies that draw from indigenous philosophies and practice (PASA 6221, 6222).

Examples of where research-active staff incorporate outputs into teaching include;

- Leon Tan: ICIB 8071 and 8072 – design and contemporary arts and the public realm;
- Becca Wood: PASA7223 social and site-based choreography – choreoauratics.

Industry Funded and Partnered Research

Research-active staff have extensive industry links, some of which manifest as industry funded research projects. Industry funding in the creative industries typically takes the form of commissioned, curated and funded practice-based/led outputs, where the costs of realizing and publicizing a performance or exhibition are paid for, partially or fully, by the commissioner/funding body/curator/venue. Researchers in this field are typically curated or commissioned on the basis of a national or international track record of advanced practice, and it is this advanced practice that informs applied (project-based) education in the creative arts and design.

Examples of industry funded and partnered research;

- Gina Ferguson – Sculpture in the Gardens 2019-2020 commission
- Emma Smith – Malcolm Smith Gallery / Uxbridge 2019 exhibition
- Richard Fahey – Object space exhibition 2019 exhibition curation
- Allan McDonald – Anna Miles Gallery 2019 exhibition
- William Bardebes - Geoff Wilson Gallery 2019 exhibition and Lifewise Trust 2019 publication
- Cris de Groot – Pheromite Ltd. 2019 design
- Paul Woodruffe – Artweek 2019 exhibition and Lifewise Trust 2019 publication
- Bobby Hung – Artweek 2019 exhibition and 400ml (Beijing) 2019 exhibition
- Samuel Holloway – City Gallery Wellington 2019 presentation
- Leon Tan – Routledge Publishing 2019-2020 editing commission
- Bronwyn Bradley – Three Now (South Pacific Pictures) 2019 acting commission
- Becca Wood - *Walking About* series – A social choreography - Te Uru Gallery and Auckland City Council 2019-2020 commission
- Katie Burton - Performance in *Orchids* directed by Sarah Foster-Sproull - Creative New Zealand 2019
- Claire O’Neil (contribution to publication) *Te Ao Live Experimental Dance Aotearoa NZ in the Early 21st Century* - Sponsored by Dance Aotearoa NZ 2019
- Elizabeth Hawthorne - Performance in *Daniel* - New Zealand Film Commission 2019
- Samantha Sperlich – Maori Television and TVNZ editing commissions 2019

School of Creative Industries research is informed and supported by industry and professional networks including educators and creative practitioners in the field as well as professional organizations and venues (e.g. Women in Film and Television, Dance Aotearoa NZ, The Actors Guild, Tautai, NZ Institute of Architects, Design Assembly, Designers Institute of NZ, Auckland Art Gallery, Wellington Art Gallery, WeCreate, CUMULUS). The School aspires to become a hub of practice-based research excellence in Tāmaki Makaurau, particularly in Screen and Digital Creativity.

Programme Development and Review

Programme development and review need to be informed by the *interconnection of advanced practice, research and teaching* in the School. Specifically, this means that due consideration must be given to the scaffolding of studio/project courses across levels 5-7 (undergraduate) and levels 8-9 (postgraduate). This approach supports students in developing their practice towards public-facing exhibitions, performances and screenings and design projects with real briefs and clients, in a staged process that introduces complexity and raises the stakes incrementally. Student progression into postgraduate research is recommended through the inclusion of at least two pathways at level 7, one orienting students towards employment and the other towards postgraduate research.

2 School of Creative Industries Goals and KPIs

The School of Creative Industries has the current goals. The baseline figures represent 2018 data.

- Stretch goal: maintain the external research funding at \$23,000 per year
- Increase the annual number of quality assured (QA) research outputs from 41 to 56 by 2020.
- Maintain industry-funded projects at 3-5 projects per year
- Work towards maintaining green traffic light status with 88% or more

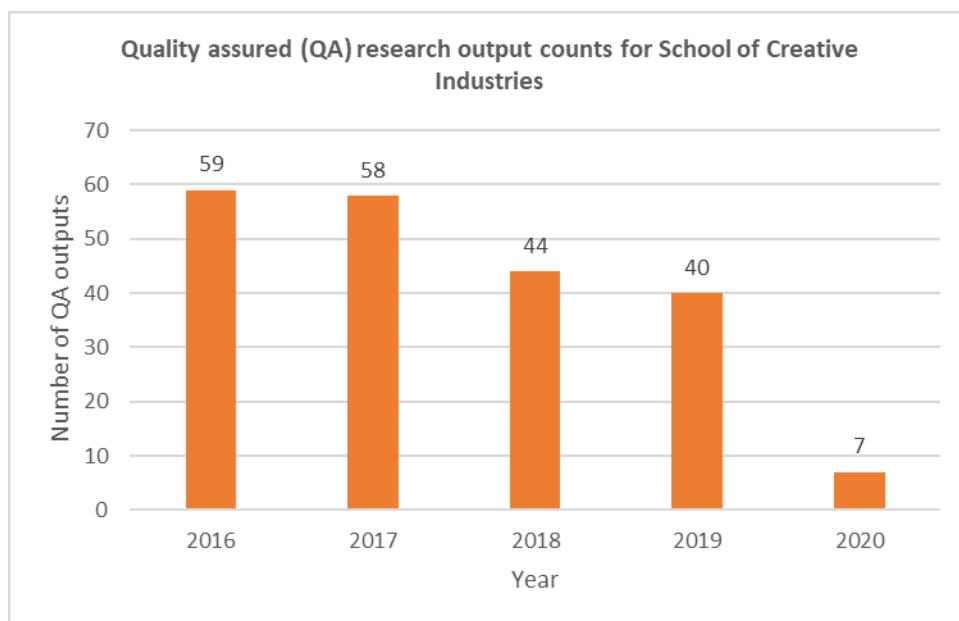


Figure 1: School of Creative Industries Quality Assured Research Outputs

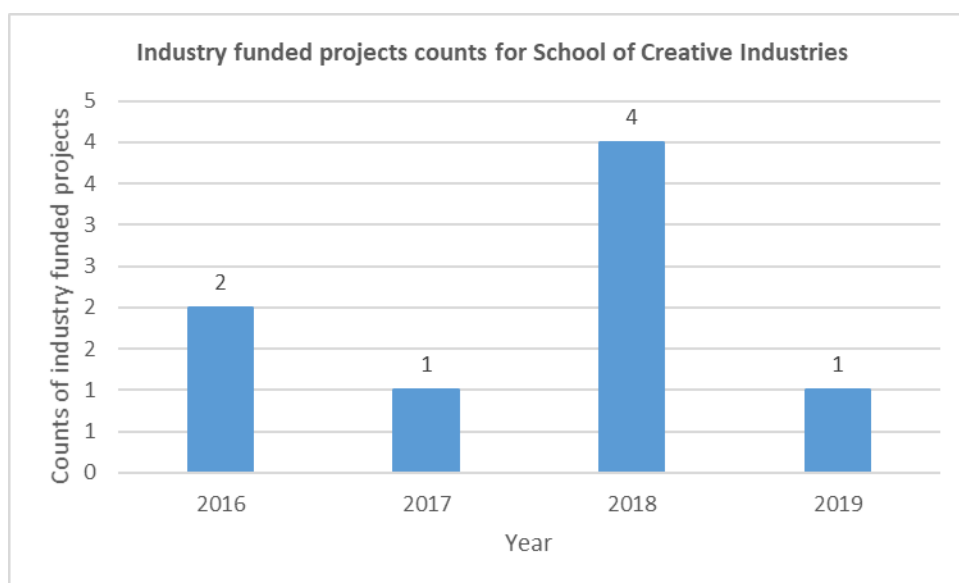


Figure 2: School of Creative Industries Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

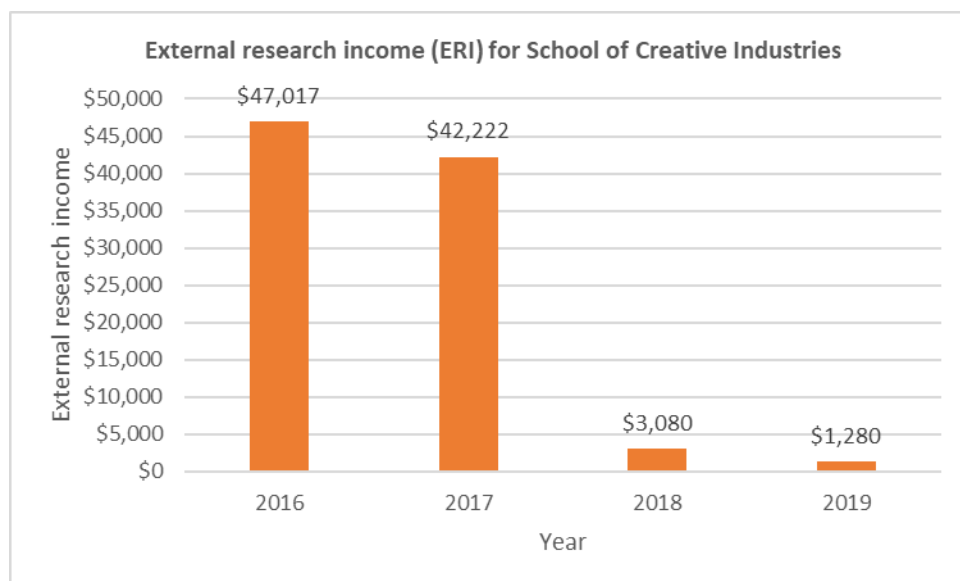


Figure 3: School of Creative Industries External Research Income

3 SWOT analysis for research in School of Creative Industries



4 Research Groups and projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes and this approach is equally unlikely to result in impactful research for our industries and communities.

The School of Creative Industries has two research groups [1] Design and Contemporary Arts and [2] Performing and Screen Arts, with a third aspirational group intended for the future [3] Creative Praxis and Culture (focused on creativity, culture and interdisciplinary collaboration).

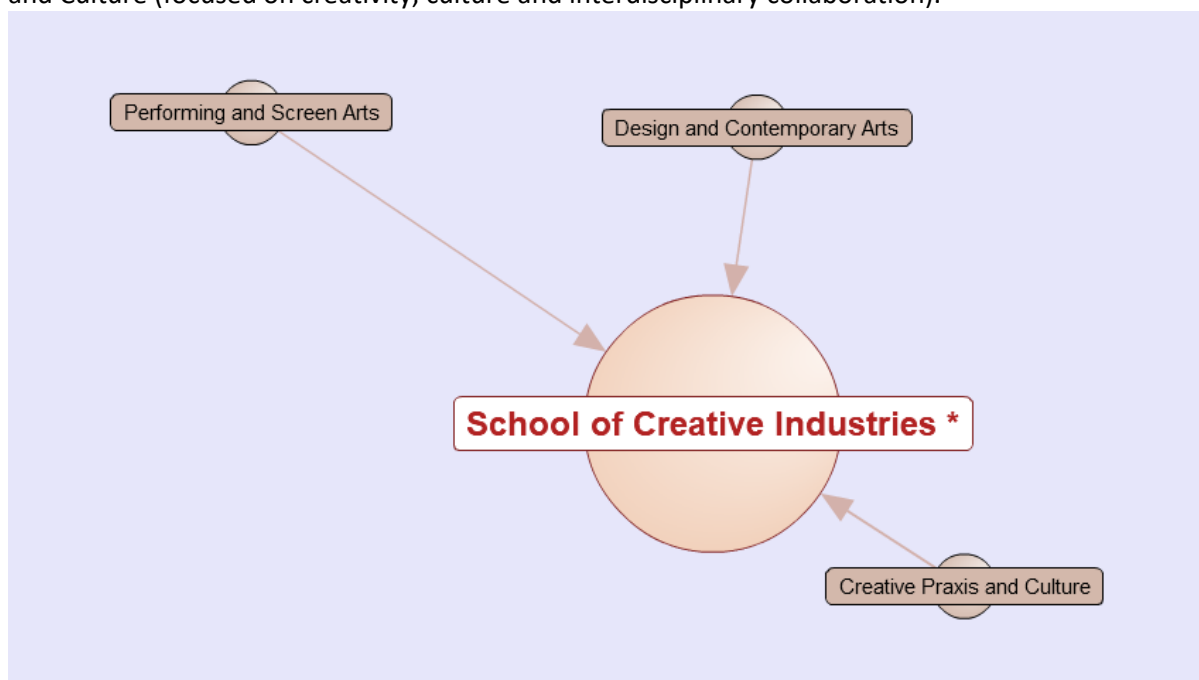


Figure 4: School of Creative Industries research groups

The above research groups partner with external funders and win funding/grants, which Unitec calls it External Research Income (ERI). Below are the external research partners who funded projects over the last 4 years.

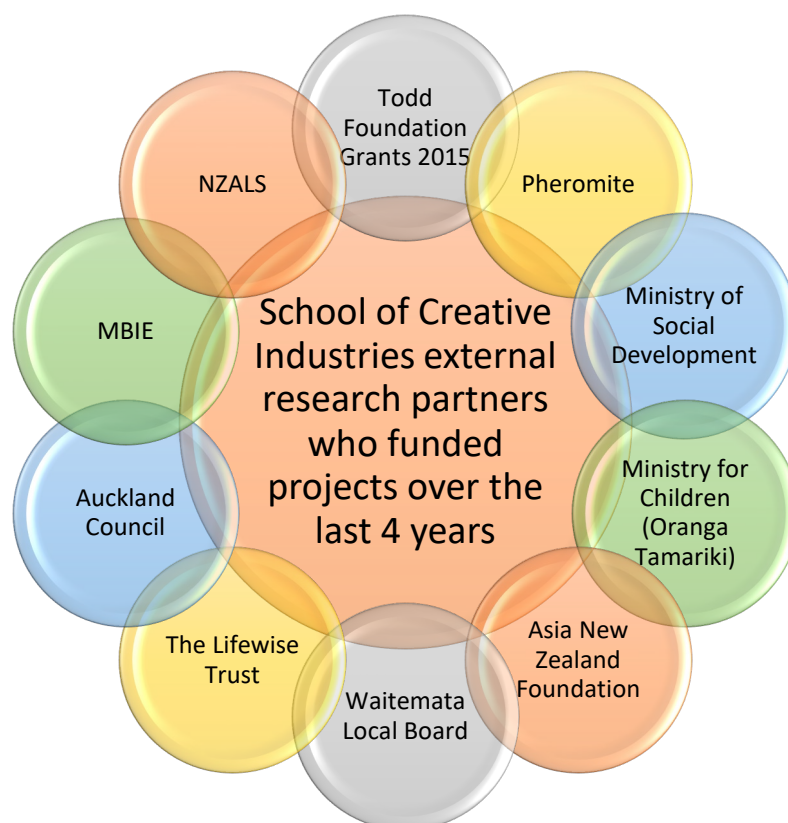


Figure 5: School of Creative Industries external research partners who funded projects over the last 4 years

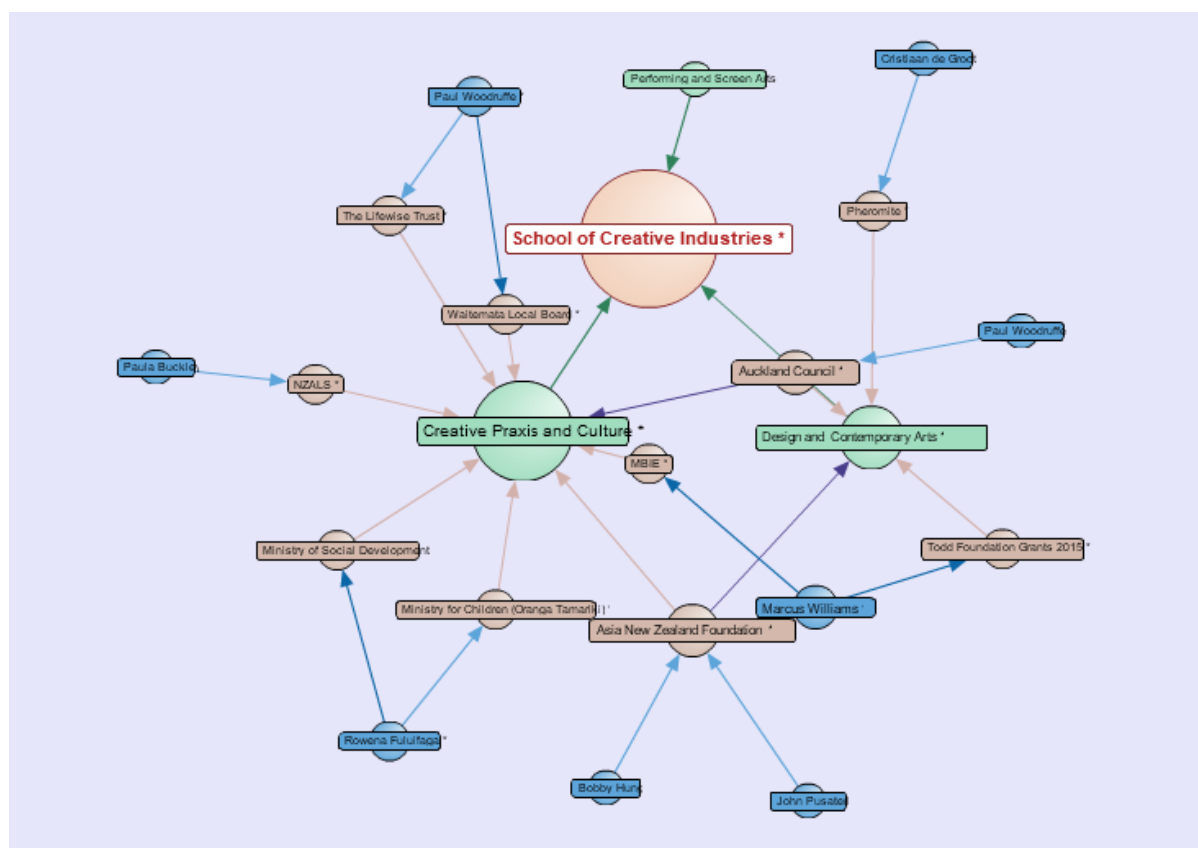


Figure 6: School of Creative Industries external research partners who funded projects over the last 3 years, along with the three research groups and lead researchers

4.1 Research Group One – Design and Contemporary Arts

Statement of purpose

Research in the area of Design and Contemporary Arts is directed towards:

- Understanding the changing nature of contemporary arts and design and its impacts on society;
- Developing or contributing to new methods and modes of production, distribution and reception in the arts and design;
- Making 'sense' of, commenting on, intervening in the contemporary world through novel forms of creative and cultural expression;
- Applying artistic and design processes to create solutions to community or commercial problems;
- Fostering the integration of indigenous values and methodologies specific to the South Pacific region in creative practice-based research;
- Contributing to and enriching cultural life and recreation in Aotearoa, New Zealand

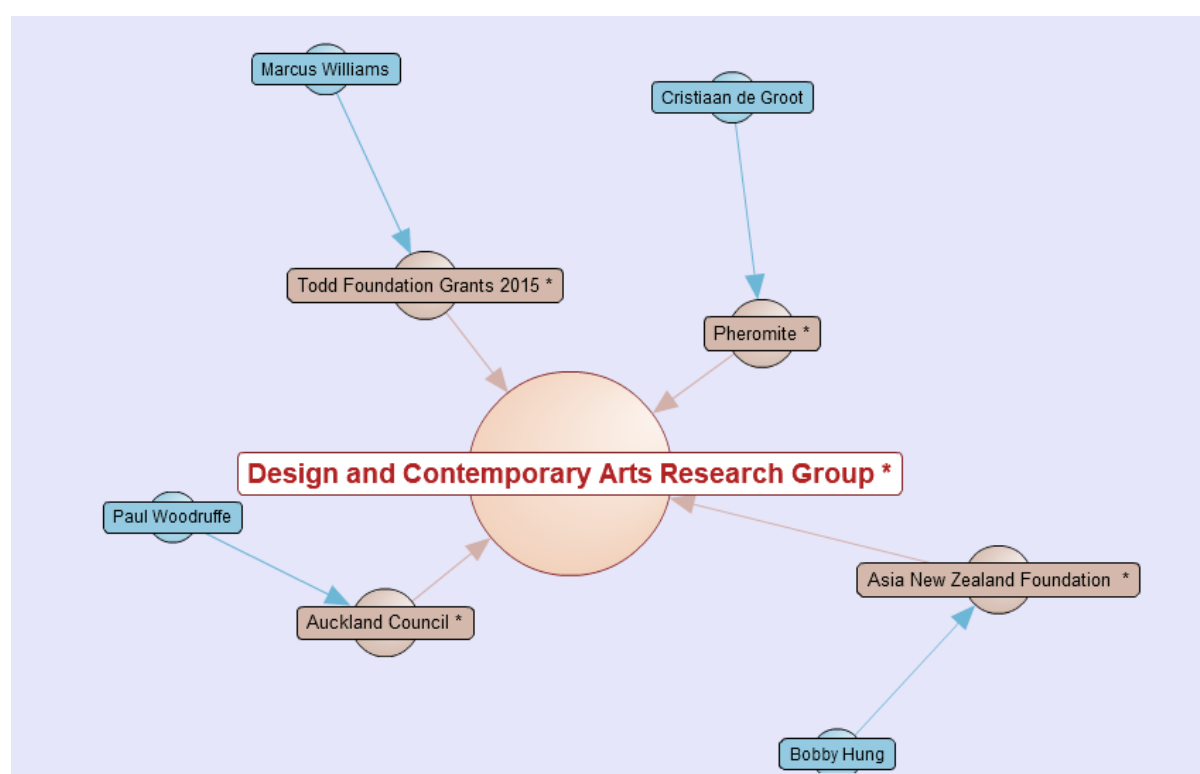


Figure 7: School of Creative Industries Design and Contemporary Arts research group externally funded research partners and lead researchers

Goal 1: Develop and support research capability Design and Contemporary Arts				
Action	Responsible	Deadline	Resources needed	Desired result
Initiate staff research support group	Research Leader	June 2020	RL time allocation	Monthly meetings
Prioritize PBRF ranked staff for research		May 2020	Tūāpapa Rangahau RDF	Maintain/increase PBRF participation and performance

dissemination funding				in the 2024 PBRF round
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Goal 2: Increase external research income in Design and Contemporary Arts				
Action	Responsible	Deadline	Resources needed	Desired result
Investigate external research funding opportunities with relevant agencies	Research Leader and Paul Woodruffe	November 3 rd	Brenda Massey	Funding for project secured for 2021
Investigate Royal Society humanities funding (fast start or standard)	Research Leader	December 2 nd	Brenda Massey	EoI draft completed in time for submission in Feb 2021

* Arts industry funding is generally structured in such a way that established artists and arts organisations are funded directly through a small number of key funding bodies on a project or long-term basis. For example Creative New Zealand (who fund a majority of significant projects in contemporary arts and crafts) are explicit in their policy not to support projects that are associated with the core business of an educational institution. Generating external funding as currently defined would require a shift in strategy and research activity for many of our staff.

4.2 Research Group Two – Performing and Screen Arts

Statement of purpose

Research in the area of Performing Arts and Screen Arts is directed towards:

- Building meaningful and collaborative relationships both within the performing and screen arts community, creative industries community and across other sectors;
- Contributing to new methods, modes of creating and delivery in the arts through live performance and screen-based practices;
- Promoting critical commentary, radical intervention and leadership in the arts as vital to contemporary society in Aotearoa, New Zealand and beyond;
- Developing innovative strategies for the sustainability of performing and screen arts; in community, health and welfare, commercial and professional projects;
- Expanding awareness and value of creative arts practices to enhance society;
- Fostering the integration of indigenous values and methodologies specific to the South Pacific region in creative practice-led research;
- Contributing to and enriching cultural life and recreation in Aotearoa, New Zealand

Goal 1: Develop and Support Research Capability in Performing and Screen Arts				
Action	Responsible	Deadline	Resources needed	Desired result
Initiate staff research support group	Research Leader	June 2020	RL time allocation	Monthly meetings and workshops for staff

Prioritize and support PBRF ranking amongst staff in PASA through research dissemination funding		May 2020	Tūāpapa Rangahau RDF	Increase funded PBRF ranks in the PASA disciplines in 2024 round (3 in the 2018 round; 5 in the 2024 round)

Goal 2: Increase external research income in Performing and Screen Arts				
Action	Responsible	Deadline	Resources needed	Desired result
Investigate external research funding opportunities with relevant external agencies	Research Leader & Sean Connelly	Scoping funding opportunities over 2020	Sean Connelly and staff or research assistant time allocation	Funding proposal for PASA archive database
*Identify key projects and plan for external funding opportunities for staff research projects	Research Leader with support from Tūāpapa Rangahau	December 2020	RL time allocation and Tūāpapa Rangahau	Seeding externally funded research projects in Performing and Screen Arts for 2021

* Performing and Screen Arts industry funding is generally structured in such a way that established artists and arts organisations are funded directly through a small number of key funding bodies on a project basis. For example Creative New Zealand (who fund a majority of significant projects in performing arts) are explicit in their policy not to support projects that are associated with the core business of an educational institution. This conflicts with the objective to increase external research income to Unitec in relationship with typical industry funding. Generating external funding as currently defined would require a shift in strategy and research activity for many of our staff.

4.3 Aspirational Research Group Three – Creative Praxis and Culture

Statement of purpose

Research in the area of Creative Praxis and Culture is directed towards:

- Understanding the nature and relationship of creativity and culture;
- Developing novel approaches to creative praxis and cultural development;
- Exploring and understanding different cultural approaches to (and histories of) creativity

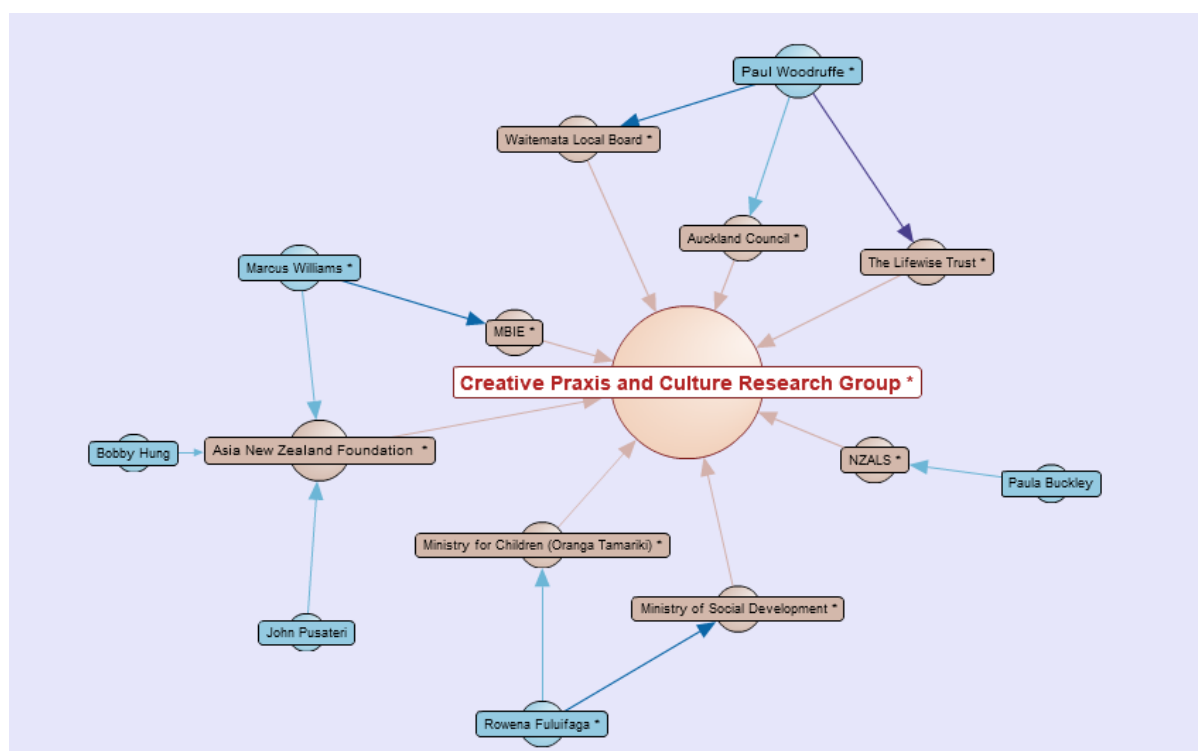


Figure 8: School of Creative Industries Creative Praxis and Culture research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Creative Practice and Culture					
Action	Responsible	Deadline	Resources needed		Desired result
Explore staff interest	Research Leaders	December 2020	RL Allocation	Time	Formation of formal group in 2021 with sufficient interest from 5 or more staff members
Develop staff cultural capability in mātauranga Māori and Pacific knowledge	APMs, Line Managers, Maia Māori Centre and Kaihautu, Pacific Centre	December 2020	Staff PD allocation	time	Staff achievement of parity badges

Goal 2: Increase external research income in Creative Practice and Culture					
Action	Responsible	Deadline	Resources needed		Desired result
Explore staff interest	Research Leaders	December 2020	RL Allocation	Time	Formation of formal group in 2021 with sufficient interest from 5 or more staff members

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last three years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Alexandra Whitham			Green lit	1-Conference Contribution- Abstract, 3- Performances	mātauranga māori and bicultural approaches to teaching & learning, karanga, pedagogy, voice & acting training
Allan McDonald			Green lit	2-Book Authored, 4- Exhibitions - Group, 2- Exhibitions - Solo, 1- Journal Article	photography and typologies of natural and built forms in New Zealand
Becca Wood			Green lit	1-Book Chapter, 2- Conference Contributions- Oral Presentation, 2- Journal Articles	choreography, social-choreography, somatic practice, participatory performance, site-based performance, practice-led research, performance art and interdisciplinary practice
Benjamin Jarrett			Green lit	2-Conference Contributions- Oral Presentation, 1- Design Output, 2- Presentations (non-conference)	design research, digital fabrication, product design, experience design, audio electronics, IoT, electronics design

Bobby (Wing-Tai) Hung	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	14-Artifact/ Object/ Craftwork, 1-Awarded Doctoral Thesis, 1-Conference Contribution- Oral Presentation, 1-Exhibition - Curatorial Exercise, 6-Exhibitions - Group, 1-Exhibition - Solo, 1-Film/video, 3-Presentations (non-conference)	education, pedagogy, visual arts, visual culture, knowledge, street art, graffiti, illustration, public art, arts based research and methodologies
Bronwyn Bradley			Green lit		acting – film, television and theatre, voice, directing, education
Charles Koroneho			Green lit	3-Performances, 2-Presentations (non-conference)	performance art, performance making, choreography, installation, contemporary practice, intercultural performance, contemporary dance practices
Claire O'Neil			Green lit	1-Book Chapter, 1-Conference Contribution- Oral Presentation, 1-Performance	choreography, improvisation, contemporary dance technique, somatically informed movement techniques, movement for well-being
Cris DeGroot	PI for 1 externally funded project	PI for 1 industry funded project	Green lit	3-Conference Contributions- Oral Presentation, 1-Design Output, 1-Presentation (non-conference)	product design, industrial design, business-focussed design, creativity, creative entrepreneurship
Daniel Nel			Red lit		production technologies, technical services for theatre and

					television, digital archive design and curation
Daniel (Dan) Wagner			Red lit	1-Awarded Masters Thesis, 2-Conference Contributions- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Film/video, 1-Journal Article	re-framing screen education for a constantly evolving digital landscape; curricular change
Elizabeth Hawthorne			Green lit	3-Film/videos, 10-Performance	acting for film and theatre, performance
Emma Smith			Green lit	1-Book Chapter, 1-Conference Contribution- Oral Presentation, 13-Exhibitions - Group, 1-Exhibition - Solo, 1-Journal Article	painting, visual art, contemporary art
Gina Ferguson			Green lit	2-Artifact/ Object/ Craftwork, 1-Exhibition - Curatorial Exercise, 11-Exhibitions - Group	sculpture, craft, installation practices, public art
Johanna Smith			Green lit	2-Conference Contributions- Oral Presentation, 1-Dramatic and Literary Texts, 1-Other	creative writing, screen writing, script writing
Katie Burton			Green lit	1-Conference Contribution- Oral Presentation, 4-Performances	choreography, collaborative performance making, feminist performance

Leon Tan			Green lit	3-Book Chapters, 1-Conference Contribution- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1- Edited Book/Volume, 1-Essay - Published (Unitec only), 1- Exhibition - Group, 2- Exhibitions - Solo, 1- Other, 4- Presentations (non-conference)	public art, participatory art, participatory design, art history, cultural history, interdisciplinary collaboration, psychoanalysis, psychotherapy, mental health, urbanism
Michael Miller			Red lit		directing, scriptwriting, creative, editing, composing, education
Paul Woodruffe	PI for 5 externally funded projects	PI for 2 industry funded projects	Green lit	2-Artifact/ Object/ Craftwork, 2-Conference Contributions- Oral Presentation, 2- Design Outputs, 3- Exhibitions - Curatorial Exercise, 5- Exhibitions - Group, 2- Exhibitions - Solo, 3- Journal Articles, 1- Other, 1-Presentation (non-conference)	visual art, public art, design for social innovation

Paul Young			Green lit	1-Composition, 1-Conference Contribution- Oral Presentation, 1- Exhibition - Curatorial Exercise, 1-Exhibition - Group, 2-Others, 1- Performance, 1- Presentation (non- conference)	contemporary dance and contemporary dance technique, choreography, performance,
Pedro Ilgenfritz			Green lit	3-Conference Contributions- Oral Presentation, 1- Journal Article, 6- Performances, 2- Presentation (non- conference)	theatre, performance, mask, movement for actors, acting, physical theatre, theatre pedagogy, improvisation, dramaturgy
Richard Fahey			Green lit	1-Book Chapter, 1- Exhibition - Curatorial Exercise, 1-Journal Article, 3-Others, 3- Presentations (non- conference)	New Zealand craft, ceramics, visual art, visual art education, curating
Samantha Sperlich			Green lit	9-Film/video	documentary, reality tv and drama editing, research and practice, cinéma vérité vs. direct cinema techniques, constructed reality

Samuel Holloway			Green lit	1-Artifact/ Object/ Craftwork, 3- Compositions, 1- Conference Contribution- Oral Presentation, 2- Performances, 3- Presentations (non-conference)	experimental sound/music, contemporary art, sound in moving image and visual art practices, music composition and theory, collaborative and interdisciplinary practices
Vanessa Byrnes			Green lit	1-Book Review (Unitec only), 8- Conference Contributions- Oral Presentation, 2- Film/video, 3- Performances, 2- Presentation (non-conference)	director studies; contemporary performance discourse; performances ecologies; acting; directing; production practice; creative practice; New Zealand arts practice
William Bardebes			Green lit	3-Artifact/ Object/ Craftwork, 1- Conference Contribution- Oral Presentation, 2- Design Outputs, 1- Exhibition - Group, 1- Presentation (non-conference)	graphic design, motion graphic design, animation and contemporary art

¹ See Candy and Edmonds (2018) for definitions of practice based and practice led research:

https://www.mitpressjournals.org/doi/pdf/10.1162/LEON_a_01471

² See <https://www.unitec.ac.nz/about-us/te-t-tai-o-matariki-exhibition-at-unitec-s-gallery-one-showcases-m-ori-graduate-work> and <http://www.artsdiary.co.nz/130/3126.html>

School Research Plan – School of Environmental & Animal Sciences

1 Introduction and current state

The School of Environmental & Animal Sciences was formed in 2008 as part of the Faculty of Social and Health Sciences. The School offers two degrees; the Bachelor of Applied Science (with majors in Biodiversity Management and Animal Management and Welfare), and a newly approved Bachelor of Veterinary Nursing. Researchers are grouped in four research groups: Biosecurity, Taxonomy and Applied Ecology, Animal Behaviour and Welfare, Veterinary Nursing and the Applied Molecular Solutions Research Centre.

Number of degree teaching staff	19
Total research FTE allocated	3.9
Current Research Traffic Light rating (Percentage of green lit staff)	79%
PBRF history (Number of PBRF rated staff in 2018)	12

Staff in the School are highly research-active. Twelve staff achieved ratings in the latest (2018) PBRF round (1A, 4 Bs, 4 Cs and 3 C(NE)s), and the Bachelor of Applied Science has been consistently green-lit in the Research Productivity Traffic Light. The Bachelor of Veterinary Nursing has been rated as green-lit in its first year of delivery.

Research is embedded within teaching and learning approaches and the curriculum, particularly at the degree level. Examples range from the inclusion of recently published research in taught content, teaching students practical research skills, helping students to develop a research-based mindset (critical and reflective thinking, ethics), including students in lecturer and stakeholder/industry-led research and supporting students to develop and carry out their own research projects. The success or otherwise of these activities is reviewed at the completion of every degree course in a moderation process which feeds into Course and Programme Evaluation and Planning Reports (CEPs and PEPs).

Examples of where research-active staff incorporate research outcomes into teaching include;

- Mel Galbraith: NSCI7104 *Restoration ecology* – socio-ecology;
- Peter de Lange: NSCI6735 *Concepts in biodiversity - Leptospermum* taxonomy;
- Glenn Aguilar: NSCI7736 *Applied GIS* – climate change modelling;
- Lauren Prior: NSCI5712 *Introduction to veterinary clinic practice* – vet nursing environment.

Staff/student collaboration is facilitated through the 30-credit level 7 research course (NSCI7731 *Negotiated research*), which is a core compulsory course for both the Bachelor of Applied Science and Bachelor of Veterinary Nursing.

Research is frequently a staff/student collaboration, particularly through NSCI7731 *Negotiated research*. Staff/student co-publishing may result from this collaboration; e.g.:

- Cooling V, Galbraith M. 2006. Mapping the risk of a pest snail. *Biosecurity* 69: 16-17;
- Jones G, Fraser D, Lallu U, Fenwick S-J. 2016. Perceptions and impacts: an observational pilot study of the effects of Argentine ants on honey bees in New Zealand. *Perspectives in Biosecurity* 1;
- Large M, Farrington L. 2016. The *Nephrolepis* Boston fern complex (including *Nephrolepis exaltata* [L.] Schott), Nephrolepidaceae, naturalised in New Zealand. *Perspectives in Biosecurity* 2.

Research-active staff have extensive industry links, some of which involve externally-funded research projects. Results of research collaborations with external industry partners are frequently incorporated into teaching; e.g.:

- NSCI6746 *Ecological Risk & Mitigation* - black-backed gull ecology (urban ecology); partners - Auckland Museum and NIWA;
- NSCI7736 *Applied GIS* – remote sensing; partner Reconnecting Northland.
- NSCI7107 *Biosecurity* – biological control of invasive plants; partner Auckland Council.

2 School of Environmental & Animal Sciences Goals and KPIs

The School of Environmental & Animal Sciences has the following current goals. The baseline figures represent 2018 data.

- Stretch goal: Increase external funding from \$43,530 to \$54,570 by 2022.
- Increase the annual number of quality assured (QA) research outputs from 42 to 60 by 2022.
- Increase the annual number of peer-reviewed journal articles to 25 by 2022 (School/discipline-specific goal).
- Maintain industry-funded projects at 20-25 projects per year.
- Maintain green traffic light with 80% or more for Bachelor of Applied Science; achieve green traffic light for Bachelor of Veterinary Nursing with 76% or more.
- Increase the number of EAS staff who have published peer-reviewed journal articles to 15 by 2022.

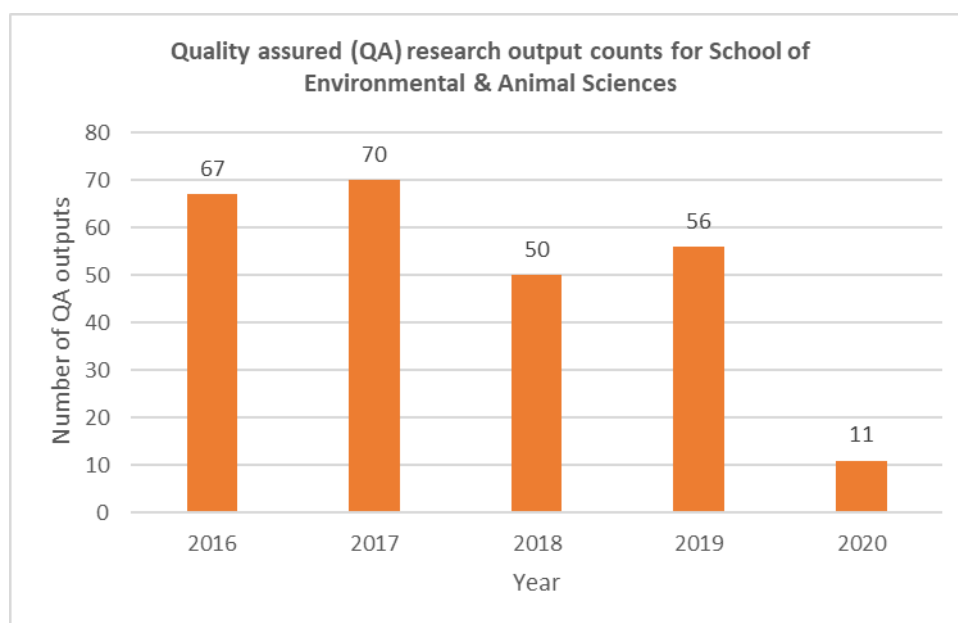


Figure 1: School of Environmental & Animal Sciences Quality Assured Research Outputs

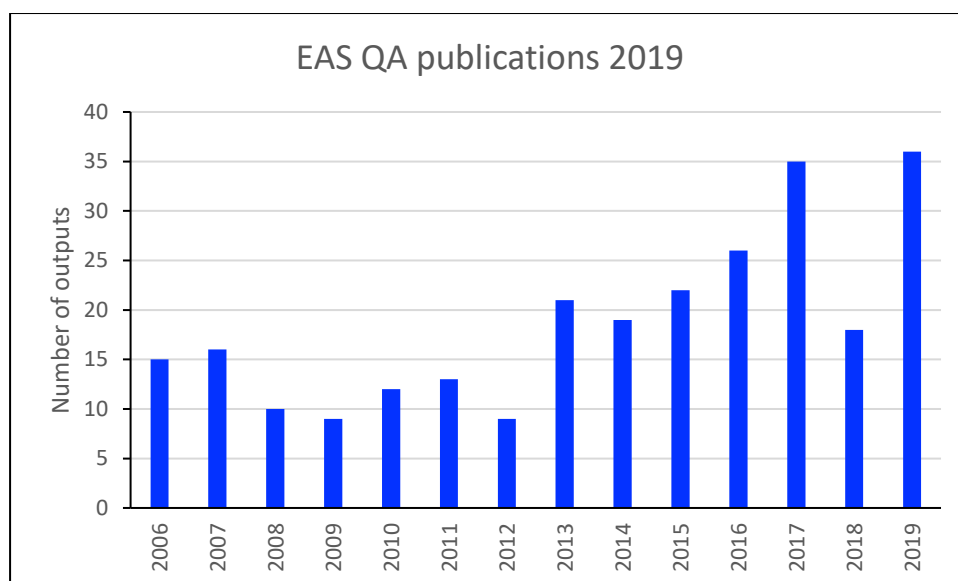


Figure 2: School of Environmental & Animal Sciences peer reviewed journal articles

Note: Peer reviewed journal articles, conference proceedings and book chapters are included here as a discipline-specific internal measure of research productivity for EAS researchers. The general target for EAS is to publish 20-25 peer-reviewed journal articles per year. The 2018 dip reflects changes in staffing during the year.

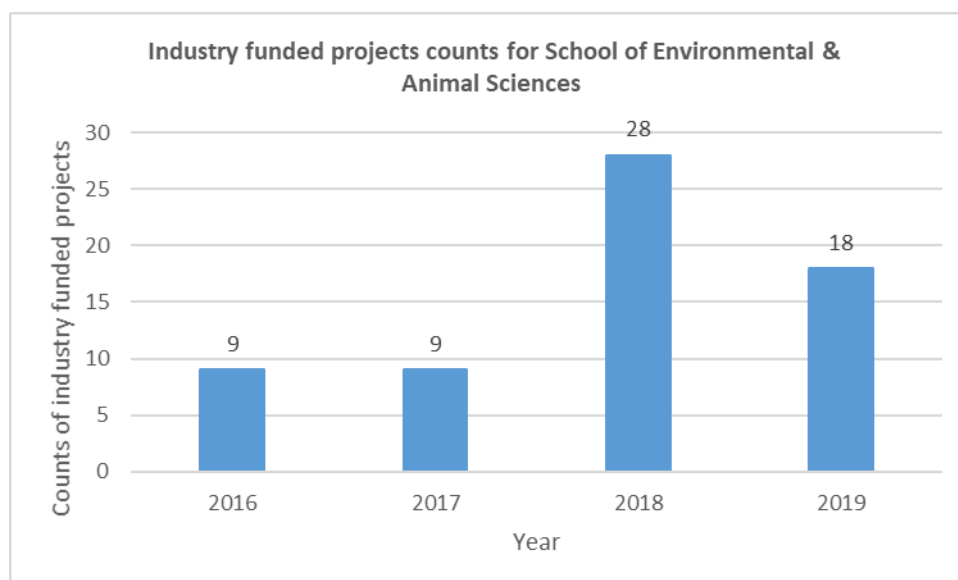


Figure 3: School of Environmental & Animal Sciences Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus the 2018 figures reported are comparatively higher than that of 2016 and 2017.

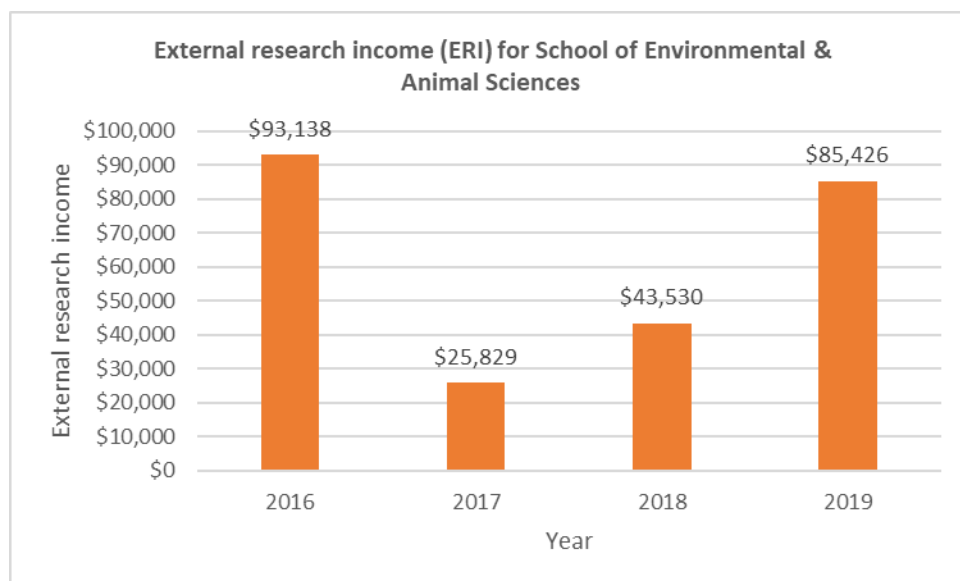


Figure 4: School of Environmental & Animal Sciences External Research Income

3 SWOT analysis for research in School of Environmental and Animal Sciences

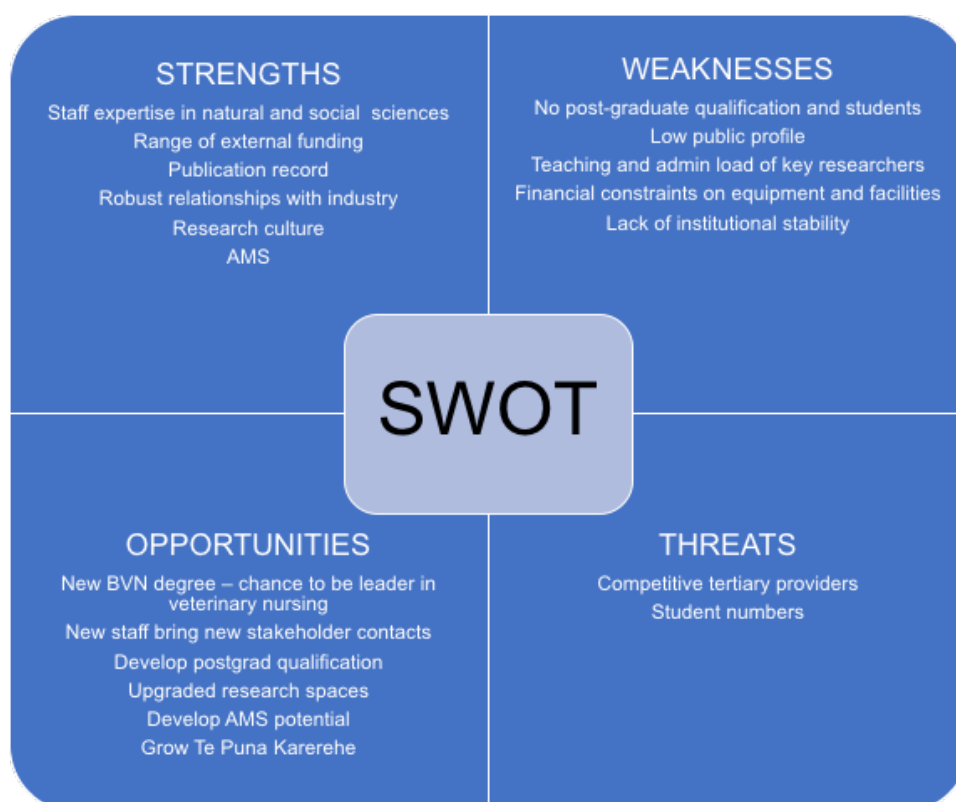


Figure 5: SWOT analysis for research in School of Environmental and Animal Sciences

4 Research Groups and projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes and this approach is equally unlikely to result in impactful research for our industries and communities.

The School of Environmental and Animal Sciences has three research groups (Animal Behaviour and Welfare; Biosecurity, Taxonomy and Applied Ecology; Veterinary Nursing) and hosts a research focus (Applied Molecular Solutions). In addition, a number of EAS staff are members of the newly created Environmental Solutions Research Centre (hosted by the School of Engineering and Applied Technology).

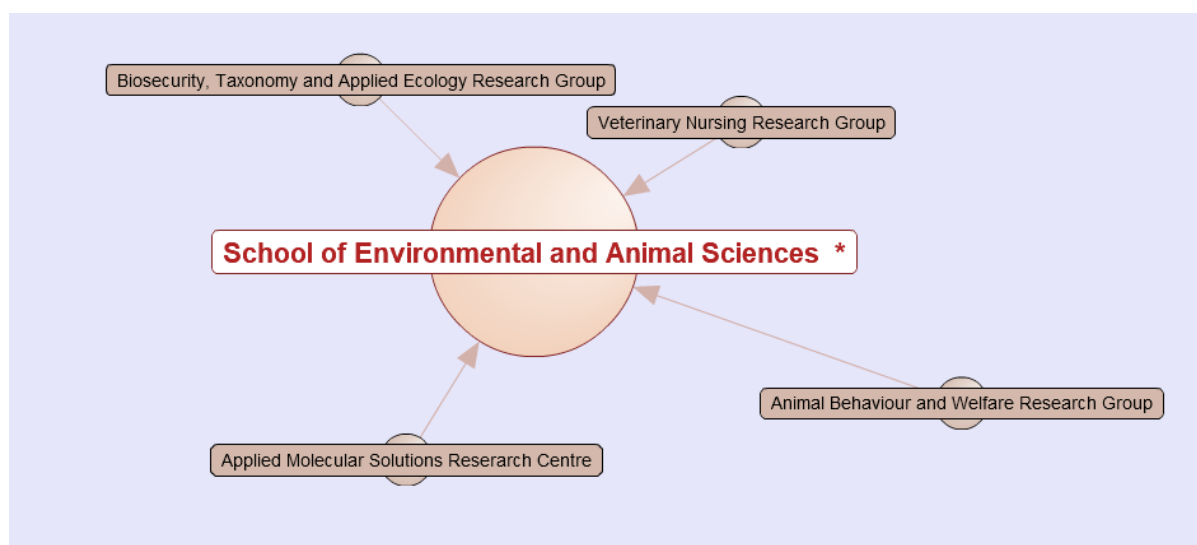


Figure 6: School of Environmental & Animal Sciences four research groups

The above research groups/centre partner with external funders and win funding/grants, which Unitec calls External Research Income (ERI). Below are the external research partners who funded projects over the last 3 years.

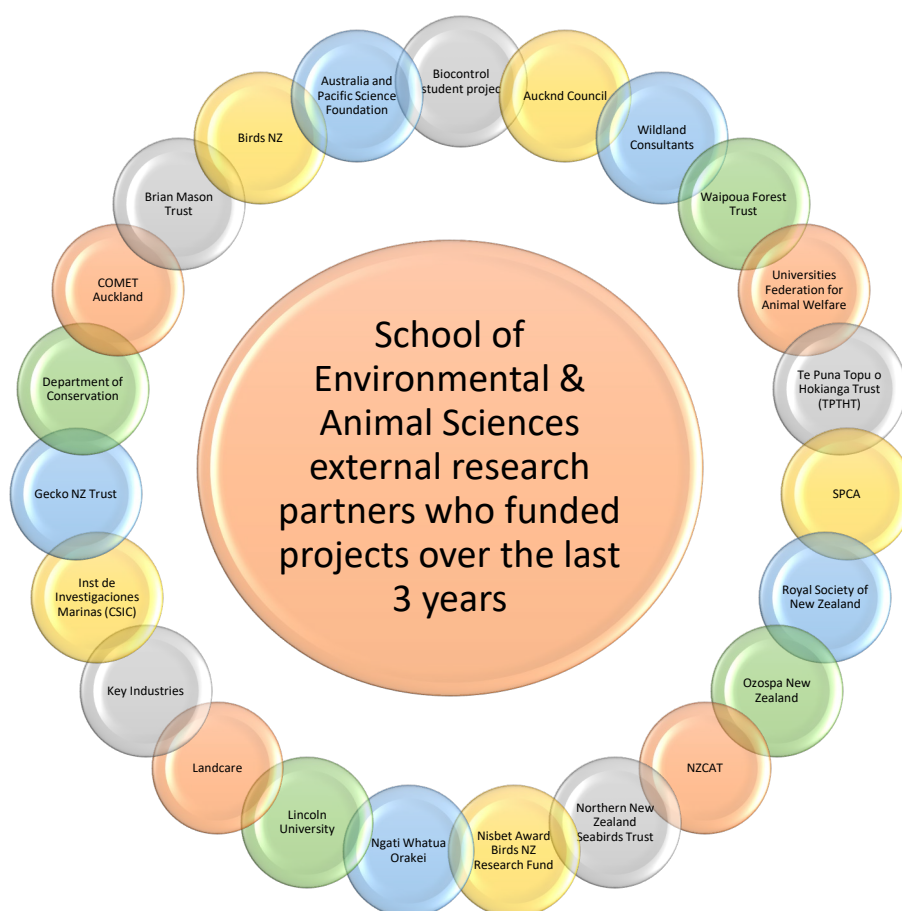


Figure 7: School of Environmental & Animal Sciences external research partners who funded projects over the last 3 years

Figure 8: School of Environmental & Animal Sciences external research partners who funded projects over the last 4 years, along with the three research groups and lead researchers

4.1 Research Group One - Animal Behaviour and Welfare

Statement of purpose

Research in the area of Animal Behaviour and Welfare is directed towards:

- Understanding the interaction between humans and animals;
- Developing physiological and behavioural measures of the welfare status of animals;
- Application of these measures to evaluate current and new husbandry and management systems;
- Developing an understanding of the natural ecological and behavioural requirements of captive wild animals to improve the management of captive vertebrates in zoo and other animal holding facilities.

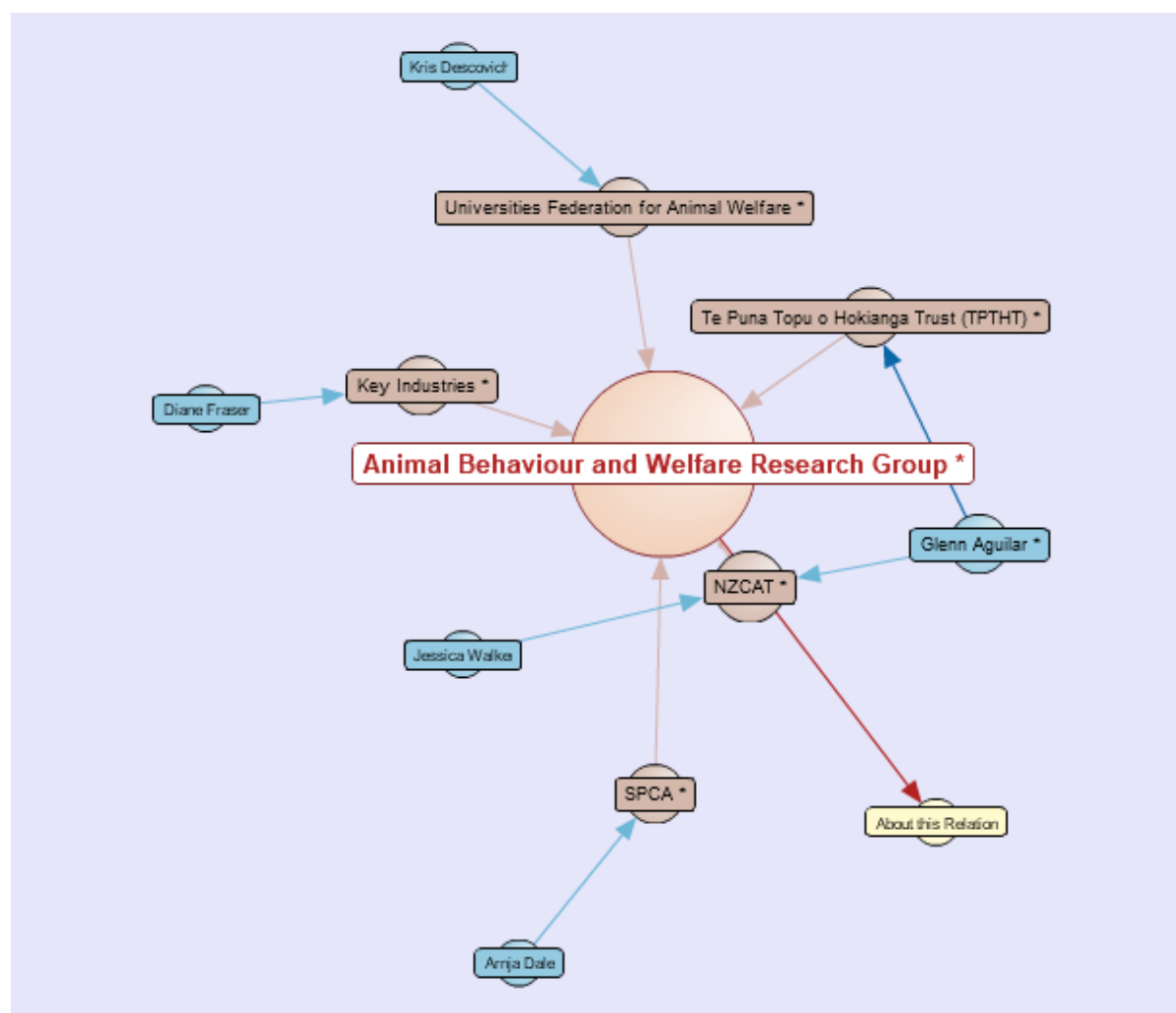


Figure 9: Animal Behaviour and Welfare research group externally funded research partners and lead researchers over the last 4 years

Goal 1: Increase number of research-active staff in Animal Behavior and Welfare				
Action	Responsible	Deadline	Resources needed	Desired result
Identify and appoint Research Fellow in this area to mentor and partner	Research Leader	September 2020	Application to URC	3 projects set up over semester 2
Maintain staff research support group	Research Leader and EASRC	April 2020	None	Fortnightly meetings
Support 2 staff to attend writing retreats	EASRC and Research Leader	July 2020	Tūāpapa Rangahau support	Two staff submit journal articles

Goal 2: Increase external research income in Animal Behaviour and Welfare				
Action	Responsible	Deadline	Resources needed	Desired result
Create database of potential external funds	Research Leader and Brenda Massey	September 2020	Brenda Massey (time)	Funding for project start in 2021
AB&W staff to identify projects which could apply for external funding	Research Leader, AB&W staff	November 2020	Brenda Massey	Funding for project start in 2021

4.2 Research Group Two – Biosecurity, Taxonomy and Applied Ecology

Statement of purpose

Research in the area of Biosecurity and Applied Ecology is directed towards:

- Contributing to the taxonomy of indigenous biota;
- Understanding the interaction between biota and the environment;
- Understanding the impact of anthropogenic change on indigenous biota, particularly in the area of biosecurity;
- Application of research to inform current management approaches.

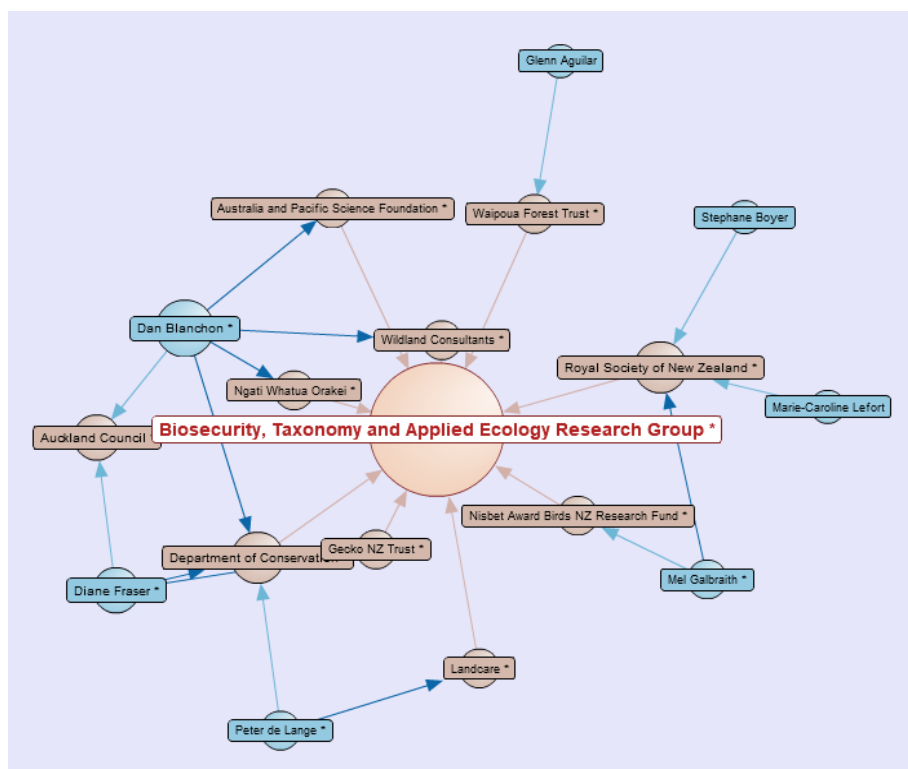


Figure 10: Biosecurity, Taxonomy and Applied Ecology research group externally funded research partners and lead researchers over the last 4 years

Note: This group's externally funded partners and/or researcher overlap with the other two research groups and these are visible on the graphs.

Goal 1: Increase number of research-active staff in Biosecurity, Taxonomy and Applied Ecology				
Action	Responsible	Deadline	Resources needed	Desired result
Partner less experienced team members with senior researchers	Research Leader and Research Group Two leader	September 2020	Dissemination Funding	Co-authored paper for each partnership
Maintain staff research support group	Research Leader, EASRC	April 2020	None	Fortnightly meetings
Support 2 staff to attend writing retreats	EASRC and Research Leader	July 2020	Tūāpapa Rangahau support	Two staff submit journal articles
Develop postgraduate programme	HoS, RL, EASRC	Proposal by October 2020	Tūāpapa Rangahau, IWC, TKK	Postgraduate programme submitted to NZQA
Support staff to publish QA papers in ePress <i>Perspectives in Biosecurity</i>	MG and DB	Ongoing	ePress editor, copy editor and layout	Regular journal editions, staff outputs.

Goal 2: Increase external research income in Biosecurity, Taxonomy and Applied Ecology				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Research Leader and EASRC	September 2020	Brenda Massey (time)	2-3 externals funding applications per year
Investigate contract research opportunities with environmental consultants and councils	Research Leader and BAE staff	Ongoing	Tūāpapa Rangahau contract advice and management	2-3 contracts per year
Support expansion of current subcontracting arrangements with CRIs and DoC	HoS, Research Leader, PdL	Ongoing	Tūāpapa Rangahau contract advice and management	

4.3 Research Group Three – Veterinary Nursing

Statement of purpose

Research in the Veterinary Nursing research group is mainly focused on exploring topics impacting on the veterinary nursing profession such as compassion fatigue and barriers to accessing professional development, but also clinical topics such as surveying for parasites in dogs in Tonga. The team is made up of early career researchers, but they collaborate closely with members of the Animal Behaviour and Welfare Research Group and Applied Molecular Solutions Research Focus. Staff are currently gaining postgraduate qualifications, mainly relying on internal funding, and moving from conference papers to journal articles.

Goal 1: Increase number of research-active staff in Veterinary Nursing				
Action	Responsible	Deadline	Resources needed	Desired result
Support all teaching staff with at least 0.1 research time	Research Leader, HoS and Tūāpapa Rangahau	November 2020 (for 2021 workload)	Time	All staff producing one QA output per year.
Support staff to gain	HoS and APM	2 staff enrolled in 2020	EAS PD budget	Three VN staff with Masters by 2022

postgraduate quals				
Partner staff with AB&W researchers and group into research teams	Research Leader, APM and AB&W staff	February 2020	Time and potentially ECR funding	All staff in at least one research project team by Feb 2020

Goal 2: Increase external research income in Veterinary Nursing				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key projects in need of external funding	Research Leader, APM and VN staff	September 2020	Time	Funding for project start in 2021
Identify possible sources of external funding and apply	Research Leader, APM, VN staff	November 2020	Brenda Massey (time)	Funding for project start in 2021

4.4 Research Group Four - Applied Molecular Solutions Research Centre

Statement of purpose:

The Applied Molecular Solutions Research Centre aims to use our ability to identify organisms or parts of organisms rapidly and efficiently from small amounts of biological or environmental material. The explosive growth in the availability of genetic data is transforming our understanding of the world around us. Genomic data unlocks opportunities for decision-making that relates to the protection of natural resources, animal health, human health and plant health. These genetic resources can be used, for example, to create rapid diagnostic tests for diseases that affect humans, crops, or livestock. They can also be used for more comprehensive studies that characterize whole communities of organisms, describe the physiology of an animal or understand how genes function in a given ecological situation. We aim to apply existing technologies and develop and validate new approaches such that they are suitable for addressing identified problems generated by the industries and communities we serve. We are currently involved in medium and small scale applied projects with stakeholder groups and industries such as councils, government departments, industry groups and private companies. Within Unitec there are opportunities for collaborative research with Computing (bioinformatics), Health (osteopathy, nursing), Landscape Architecture (landscape scale genetics, restoration genetics) and in the areas of environmental engineering and sustainability.

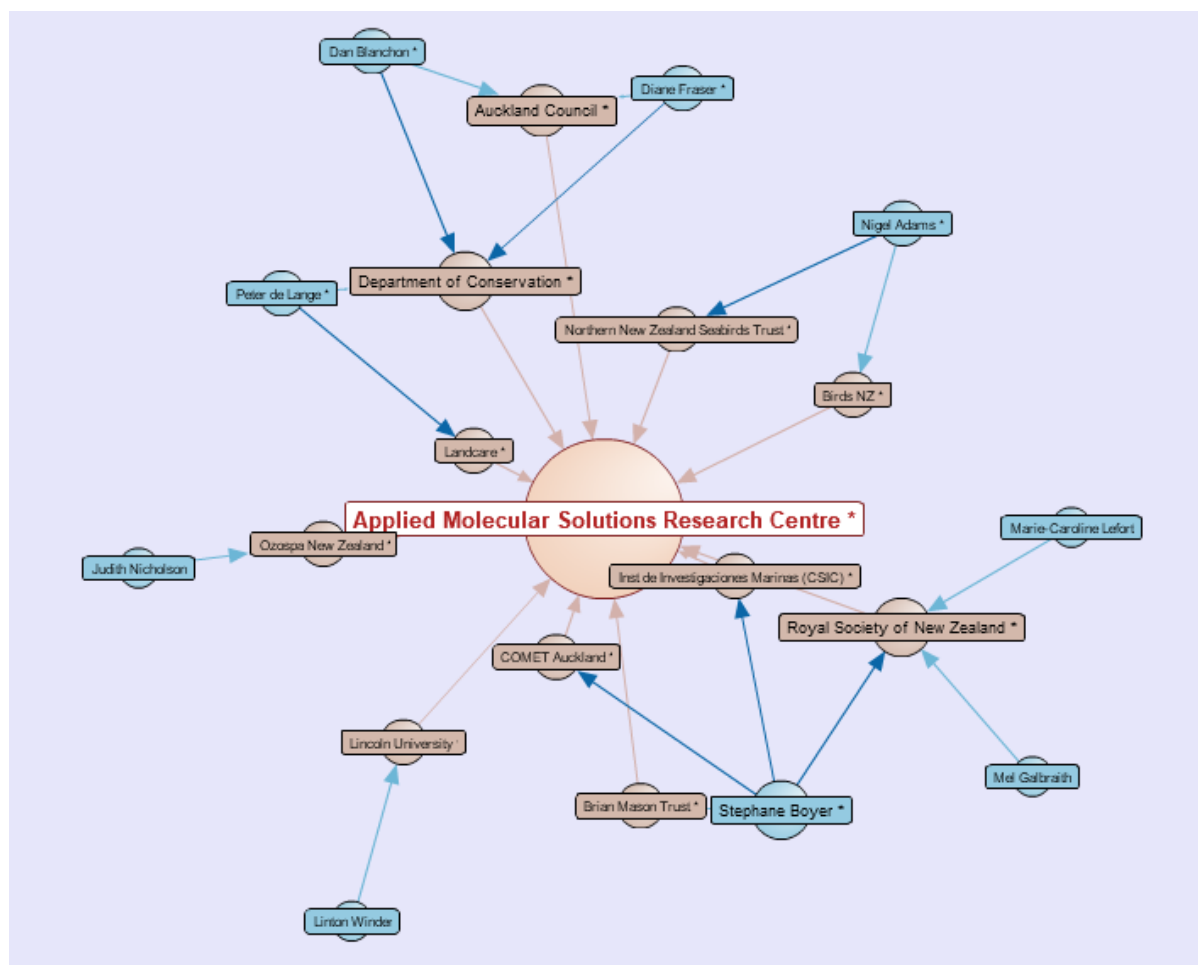


Figure 5: Applied molecular solutions research group externally funded research partners and lead researchers

Note: This group's externally funded partners and/or researcher overlap with the other two research groups and these are visible on the graphs.

Goal 1: To develop and apply appropriate technologies and analytical approaches to provide solutions for real problems in biodiversity, biosecurity, agriculture, animal welfare and health generated by industry and/or the community.

Action	Responsible	Deadline	Resources needed	Desired result
Develop novel methods for a better understanding of diet requirements of Gannets	Project leader: Nigel Adams	Ongoing	Continued external funding	Co-authored journal paper
Determine the potential impacts of invasive species (Mexican Daisy) and provide solutions	Project leader: Dan Blanchon Peter de Lange Erin Doyle Mark Large Hayley Nessia	Submit MD article by July 2020 Submit updated tender (Climbing)	Continued contract management and support Tender support	Two journal articles External funding Studentships

for their management (Mexican Daisy, African clubmoss, climbing asparagus)		Asparagus) to Auckland Council by Sept 2019 <i>Submit CA report May 2020</i>		
Utilise molecular methods to aid in the cataloguing of the native biota of New Zealand (lichens, native plants, birds, insects)	Project leaders: Peter de Lange, Dan Blanchon. Sarah Wells Marleen Baling Erin Doyle Andrew Marshall	Submit <i>Cladia</i> paper Nov 2020 Submit <i>Parmotrema</i> article Dec 2020	Technical support External funding Internal ops funding	Three journal papers
To develop new tools for the assessment of health and welfare in animals	TBA	TBA	TBA	TBA

Goal 2: To be a catalyst for the development of cross-campus interdisciplinary teams applying molecular solutions to research problems.

Action	Responsible	Deadline	Resources needed	Desired result
Support 2 major inter-disciplinary collaborative projects by 2020 (Asbestos, Erionite & Cannabis)	Dan Blanchon Erin Doyle Mark Large Peter de Lange	ongoing	Contract and external funding support	Co-authored paper for each partnership and external funding
Stretch goal: Generate \$40,000 of external research income annually by 2020	Dan Blanchon Peter de Lange Erin Doyle Nigel Adams	continuous	Contract and external funding support	External funding for main project programmes
Support the development of a postgraduate programme (2-3 EFTS by 2022)	Dan Blanchon, EAS staff, Tūāpapa Rangahau, etc.	Proposal by October 2020	Time, IWD support, programme writing support	Programme running by 2022
Increase Unitec research capacity and capability in molecular biology (5 staff actively researching, including 2	Dan Blanchon Tūāpapa Rangahau	ongoing	Funding	5 staff actively researching, including 2 emerging researchers by 2021

emerging researchers by 2021)				
Generate peer-reviewed publications, including journal articles, book chapters, conference proceedings (6 per annum by 2020).	Dan Blanchon Mel Galbraith Erin Doyle All AMS staff	ongoing	-	6 per annum by 2020
To establish a Centre in Applied Molecular Solutions (2020)	Dan Blanchon All AMS staff	Submit application March 2020	Tūāpapa Rangahau expertise	Successful application

Goal 3: To promote public awareness, increase knowledge and build capability in molecular biology and the issues around biotechnology.

Action	Responsible	Deadline	Resources needed	Desired result
To maintain and develop an effective online presence for Applied Molecular Solutions.	DB and ED	Ongoing	Time for ED, technical expertise for AMS website (Wordpress)	Monthly website posts, weekly FB posts, fortnightly tweets.
To have a strong presence at relevant New Zealand conferences and symposia.	All AMS staff, research leader	ongoing	Conference funding	2 conference attendances per annum
To engage in public outreach activities such as Bioblitz with field-based DNA analyses.	All AMS staff	As required	Event kit Volunteers List of potential events Bentolabs	TBA
To run short courses/workshops in Molecular analysis offered to industry and other stakeholders including schools	All AMS staff, Erin Doyle, UPC, IWD team	One per year	AMS lab Consumables	TBA

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last three years.

Staff Name	PI for External Research	PI for Industry Funded Projects	2020 RPTL Status	Research outputs (2016-2020)	Expertise
Caralyn Kemp			Green lit	1-Book Chapter, 3-Conference Contributions- Oral Presentation, 2-Journal Articles	Expertise in animal behaviour and welfare; statistics
Daniel Blanchon	PI for 9 externally funded projects	PI for 10 industry funded projects	Green lit	4-Conference Contributions- Oral Presentation, 3-Conference Contributions- Poster Presentation, 17-Journal Articles, 1-Report	Expertise in botany, lichenology, taxonomy, biosecurity molecular biology and microbiology
Diane Fraser	PI for 10 externally funded projects	PI for 10 industry funded projects	Green lit	6-Conference Contributions- Oral Presentation, 13-Conference Contributions- Poster Presentation, 5-Journal Articles, 1-Presentation (non-conference), 2-Reports	Expertise in biosecurity, animal nutrition, advocacy and public policy.
Glenn Aguilar	PI for 3 externally funded projects	PI for 4 industry funded projects	Green lit	1-Book Authored, 6-Conference Contributions- Oral Presentation, 5-Conference Contributions- Poster Presentation, 6-Journal Articles, 1-Report	Expertise in geographic information systems (GIS), marine fisheries, modelling.
Graham Jones			Green lit	4-Conference Contributions- Oral Presentation, 1-Journal Article	Expertise in ecology and ornithology
Judith Nicholson	PI for 1 externally funded project	PI for 1 industry funded project	Red lit	1-Conference Contribution- Oral Presentation, 2-Presentations (non-conference)	Expertise in microbiology and pathology
Kristie Cameron			Green lit	2-Conference Contributions- Oral Presentation, 9-Conference Contributions- Poster	Expertise in animal behaviour, nutrition and welfare; statistics.

				Presentation, 6-Journal Articles	
Kristina Naden			Green lit	4-Conference Contributions- Poster Presentation	Veterinary nursing
Laura Harvey			Green lit	2-Conference Contributions- Oral Presentation, 5-Conference Contributions- Poster Presentation, 3-Journal Articles, 1-Presentation (non-conference)	Expertise in veterinary nursing professional topics
Lauren Prior			Green lit	3-Conference Contributions- Poster Presentation	Expertise in veterinary nursing professional topics
Lorne Roberts			Red lit	4-Conference Contributions- Oral Presentation, 2-Presentations (non-conference)	Expertise in captive animal biology
Mark Large			Green lit	1-Book Chapter, 2-Edited Book/Volume, 4-Journal Articles, 4-Others	Expertise in botany, palynology, plant anatomy and histology; statistics
Marleen Baling			Amber lit	1-Awarded Doctoral Thesis, 1-Book Authored, 1-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 2-Journal Articles	Expertise in molecular ecology
Mel Galbraith	PI for 2 externally funded projects	PI for 1 industry funded project	Green lit	7-Conference Contributions- Oral Presentation, 2-Conference Contributions- Poster Presentation, 2-Journal Articles, 6-Presentations (non-conference)	Expertise in ecology, ornithology and socio-ecology
Nigel Adams	PI for 3 externally funded projects	PI for 3 industry funded projects	Green lit	2-Conference Contributions- Oral Presentation, 8-Conference Contribution- Poster Presentation, 4-Journal Articles, 1-Other, 1-Presentation (non-conference), 5-Reports	Expertise in ornithology (particularly seabirds), diet, vertebrate anatomy and physiology; statistics.

Peter De Lange	PI for 3 externally funded projects	PI for 3 industry funded projects	Green lit	3-Books Authored, 6-Book Chapters, 3-Conference Contributions- Oral Presentation, 1-Educational Material, 39-Journal Articles, 1-Monograph, 1-Presentation (non-conference), 2-Reports	Expertise in botany, biosecurity, geology, lichenology.
Robyn Gear			Green lit	1-Book Chapter, 2-Conference Contributions- Poster Presentation, 1-Journal Article	Expertise in veterinary science
Sarah Wells			Green lit	3-Journal Articles	Expertise in molecular ecology
Sofia Chambers			Red lit	1-Conference Contribution- Oral Presentation	Expertise in molecular biology

School Research Plan - School of Healthcare & Social Practice

1 Introduction and current state

The School of Healthcare & Social Practice was formed in 2019 from the Health Care and Social Practice Pathways, which evolved from the Faculty of Social and Health Sciences in 2016. The School offers degrees in Social Practice, Medical Imaging and Nursing, and researchers are grouped in six research groups: 'Indigenous Studies', 'Social Practice and Social Justice', 'Social Work, Community Development and Narrative Practice', 'Nurse Education and Future Workforce Development', 'Anatomy' and 'Medical Imaging Practice'.

	Social Practice Cohort	Health Care Cohort	Overall for the School
Number of degree teaching staff	13	17	30
Total research FTE allocated	2.48	2.06	4.54
Current Research Traffic Light rating (Percentage of green lit staff)	92%	53%	70%
PBRF history (Number of PBRF rated staff in 2018)	9	5	14

1.1 Health Care

The Department of Healthcare incorporates the distinct health specialties of Medical Imaging and Nursing. Both specialties offer undergraduate degrees (Bachelor of Science (Medical Imaging) and Bachelor of Nursing). Neither department offers any graduate programmes.

Academic staff in Healthcare are developing as researchers. Five staff achieved ratings in the 2018 PBRF round with 3 achieving C grades and 2 achieving R grades. More specifically, the Medical Imaging department showed a 57% change in the Research Productivity Traffic Light with 100% of staff being green lit. Nursing academic staff are also engaging in developing their research capability. In the last year the department has shown significant development in the Research Productivity Traffic Light with 11% more staff green lit and 30% more staff amber lit. A total of 41% of the staff who were red lit in 2019, moved to amber or green lit in 2020.

Research consumerism and the critique of available evidence for practice is embedded within teaching and learning on the Bachelor of Nursing and Bachelor of Science (Medical Imaging) curricula. Examples include investigating the relationship between exercise and alteration in vital signs; enquiry-based learning projects investigating health topics; analysis of research methodologies and data collection methods and journal article critique.

Nursing and medical imaging students are not required to carry out research as part of their level 7 courses. However, healthcare staff do role model as active researchers for example,

- Dr. Joseph Aziz (HEAL 5251) Morphological anatomy and rat studies
- Madhusudan Vyas (HEAL 7175) Lu177- PSMA treatment in the advanced stage of prostate cancer
- Dr. Dianne Roy (HCBN7101; HCBN 7103) Stroke family study – phenomenology;

- Dr. Samantha Heath (HCBN7101) Ongoing education for nurses –Mixed methods research
- Evelyn Hikuroa (HCBN6101) Cessation of smoking among Māori student nurses

Projects have been developed within a broad base for inquiry and the healthcare research clusters that have emerged over the past year reflect this. Projects like that set within the nursing department, 'Learning to Speak Nursing', have been developed from curiosity about adult literacy skills of students and its impact on successful academic outcomes in year 1 of the Bachelor of Nursing programme. Another research team is investigating the intentions of student nurses to work in aged care on registration. These projects are also intended to act as stepping stones to connect with industry and to develop collaborative research links. Other projects are collaborative between the two healthcare specialties and focus on developing student capability in learning about human anatomy and human biology. Clinical practice is also well represented.

Within the healthcare department, 7 staff have a doctoral qualification and there are 5 who are working towards completion. Two members of Healthcare staff have successfully partnered with external bodies in relation to their PhD studies. One staff member from nursing has received a grant for \$127,000 to complete her PhD investigating the use of a digital application to support the wellbeing of Pacific Youth. Another member of staff from Medical Imaging has secured \$27,500 from several funding sources including partnership with Prostate Cancer New Zealand to complete his PhD study investigating Lu177- PSMA Treatment in the advanced stage of Prostate cancer.

1.2 Social Practice

The Department of Social Practice sits within the School of Healthcare & Social Practice. It offers two degrees: The Bachelor of Social Practice (BSP), which has been taught since 2014, and the Master of Applied Practice – Social Practice, which has been taught within the Social Practice Department since 2019 (it was previously housed in Te Miro). Both of these degrees have replaced qualifications within Social Practice that are nearing teach-out completion.

Researchers in Social Practice are grouped in three major categories: 'Indigenous Studies', 'Social Practice and Social Justice', and 'Social Work, Community Development and Narrative Practice.'

Social Practice staff are highly research-active. All but one tenured teaching staff members hold a minimum of a Masters qualification (and soon all will meet this criterion); and seven staff members hold PhDs. In addition, four are currently pursuing PhDs. Nine staff achieved ratings in the latest (2018) PBRF round; three of these rated in the New and Emerging category, evidencing the Department's support for developing researchers. One staff member rated B. The BSP has been consistently and very highly green-lit in the Research Productivity Traffic Light, and for the past five years 100% of staff teaching at Masters level have been green-lit.

Research culture in the Department emphasizes the value of community and industry -engaged research. As a result, staff disseminate research outputs not only in high-impact international journals and conferences, but also via local hui and within organizations where research can impact professional practice immediately and directly. A number of research-engaged community and industry partnerships in Social Practice have involved externally-funded research projects, which are detailed towards the end of this document.

Research is embedded within teaching and learning approaches and the curriculum, particularly at postgraduate level. By mid-year 2020 the Department expects that 31 students will be engaged in a Level 9 research project (an increase of 15 since 2019). In 2020, BSP teaching staff will undertake an evaluation of research skill scaffolding across the BSP degree, and plan any necessary follow-up actions accordingly.

The Master of Applied Practice – Social Practice (MAP-SP) is exemplary in terms of its emphasis on innovative research that has significant potential to impact positively on a range of communities, particularly Māori communities and also Pasifika communities. A key strength of the MAP-SP is its exceptionally strong integration of Mātauranga Māori, building on strong Social Practice staff engagement with external Māori stakeholders, Māori organisations, and Iwi. Staff are also strongly engaged with external Pasifika stakeholders.

The majority of MAP-SP students are predominantly Māori and/or Pasifika, representing a significant Unitec investment in educational achievement for these key priority groups. Two current student projects are supported by external funding (noted just below).

Recent MAP-SP research topics with strong Māori themes include (but are not limited to):

- Kohikohia ngā taikākā o tea o pāpāho Māori: How to sustain kaupapa Māori in Māori language media
- Forensic mental health from a Kaupapa Māori perspective [what makes for effective outcomes for Māori engaging in mental health services (e.g., linking with whanau)]
- Purakau: Kaupapa Māori approaches to counselling practice in tertiary education
- Challenges and barriers that Māori and Pasifika woman are facing studying an automotive course at Unitec Institute of Technology. (Note relevance to Pasifika also)
- Exploration of the contribution and limits of non-Māori leadership within Māori communities
- The experiences of Māori Deaf who have had an episode of mental distress that resulted in the use of a mental health service (*Note: supported by funding from the Deaf Foundation via supervisor Geoff Bridgman*)
- Exploration of the application of treaty-based practice in government workplaces
- What is happening to Māori whānau when the state uplifts tamariki into state care? An examination of the government legislation and the effects on Māori parents who have had their tamariki uplifted and placed into state care
- The contribution of a youth-centred workplace to nurturing positive youth development with Māori and Pasifika youth. (Note relevance to Pasifika also)

Recent MAP-SP research topics with strong Pasifika themes include (but are not limited to):

- Exploring the views and possible impacts of euthanasia on elderly members of a Catholic church community in Papakura, and on their Catholic faith
- Fa'afitauli o loo feagai ma mātua o mātua o loo tausia fanau a latou fanau i totonu o Aukilani i Saute, Niu Sila. The challenges for Samoan elderly grandparents raising their grandchildren in South Auckland, New Zealand
- The ways telephone counselling helps in preventing suicide amongst Pacific Islanders residing in Auckland
- Assessing communication gaps between the Papua New Guinea National Volunteer Service, its network of skilled volunteers, and hosting rural communities in Kerea and Kintunu villages in Papua New Guinea
- How NZ Police policies on diversity are experienced by Pacific Island communications staff (*Note: funded by a Pacific Health Scholarship from the Ministry of Health*)
- An evaluation into the effectiveness of the Fauina O Le Fale Engagement Model into reducing re-offending
- The impact of kava on men and/vs. women

Engagements with Māori individuals and groups as well as Pacific individuals and groups are also reflected in a range of staff-led research projects, some of which involve bachelor students. These are detailed near the end of this document.

Beyond supervisory relationships in the MAP-SP, Social Practice staff have developed staff/student research collaborations, some involving co-authorship. With the Department now managing the MAP-SP, there will be increasing opportunities to do so (with MAP-SP graduates). Co-authored projects completed to date are listed at the end of this document.

Finally, staff members are recognized for their research expertise in relation to roles as policy advisors, academic journal reviewers, and committee members. Several hold leadership positions linked to research activity within local, national and international industry and professional bodies. A number of these activities involve PBRF-recognised Student Factors. Please see detailed examples near the end of this document.

2 School of Healthcare & Social Practice Goals and KPIs

The School of Healthcare & Social Practice has the current goals. The baseline figures represent 2018 data.

- Stretch goal: maintain external research funding at \$50,000 per year
- Increase the annual number of quality assured (QA) research outputs from 42 to 60 by 2020.
- Maintain industry-funded projects at 5-8 projects per year
- Work towards achieving and maintaining green traffic light status with 75% or more of eligible staff producing at least two outputs across any given two-year period

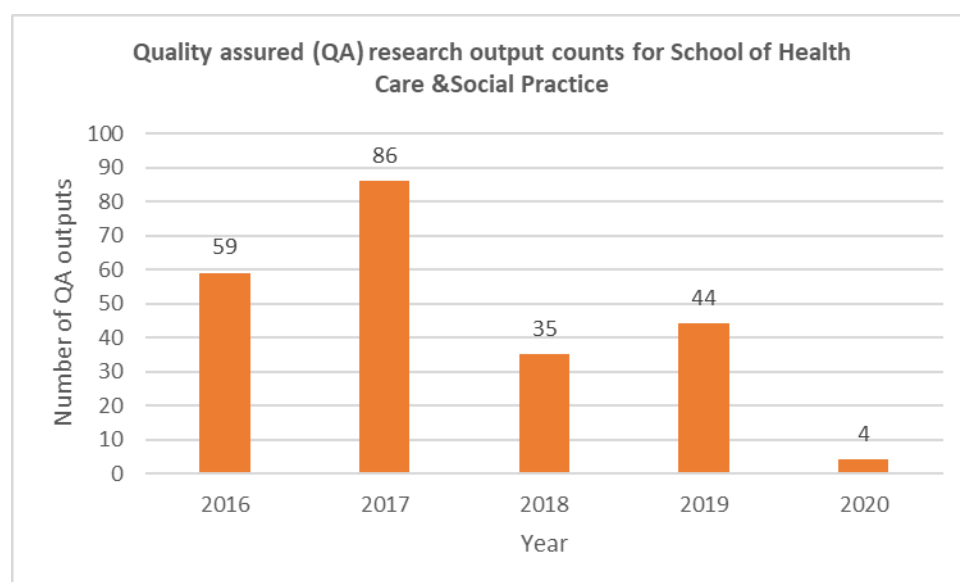


Figure 1: School of Healthcare & Social Practice Quality Assured Research Outputs

Note: 2020 quality assured output data are incomplete.

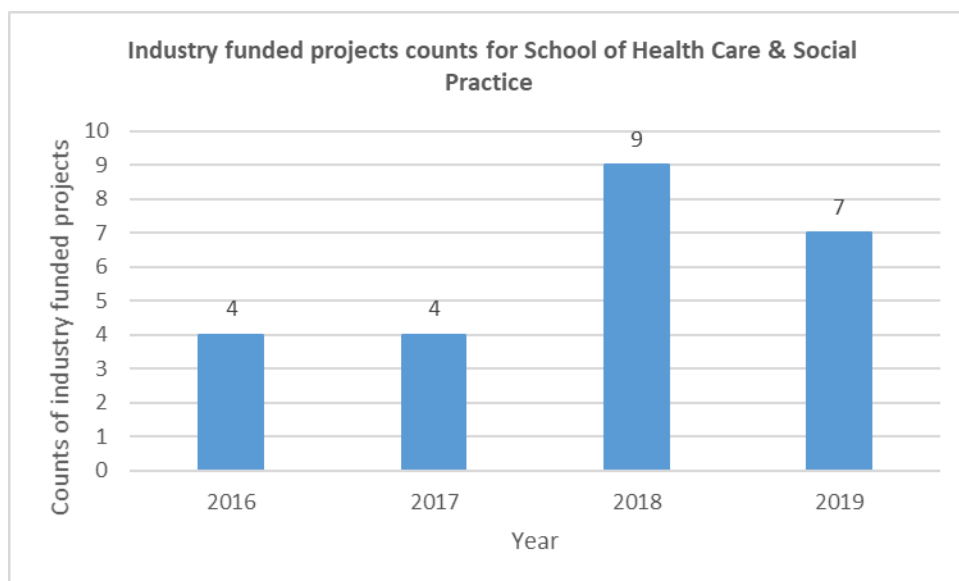


Figure 2: School of Computing & Information Technology Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and where the services Unitec is providing is applied contract research or consultancy. Prior to this only funding from private sector was included. Thus, the 2018 figures reported are comparatively higher than that of 2016 and 2017.

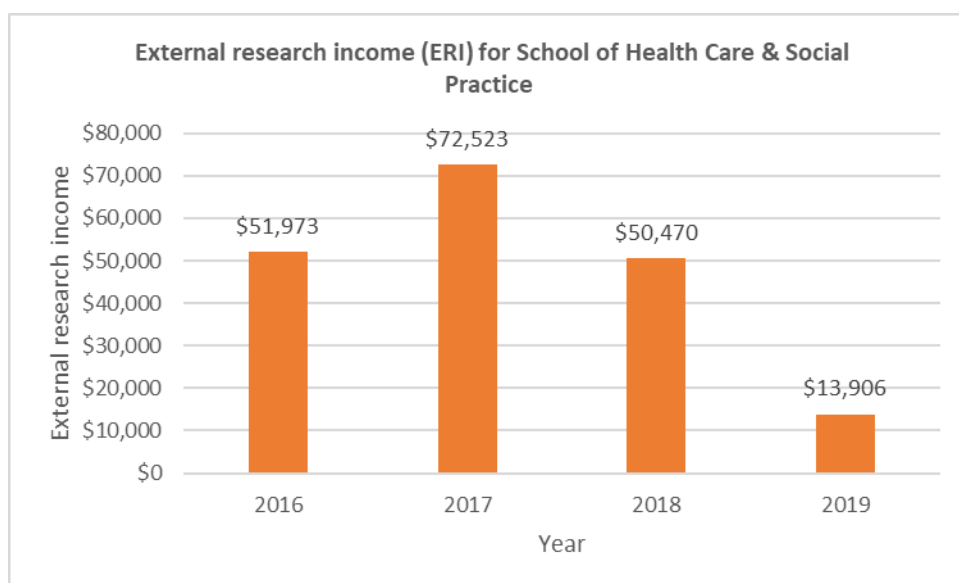


Figure 3: School of Healthcare & Social Practice External Research Income

3 SWOT analysis for research in School of Healthcare & Social Practice

The SWOT analysis for Healthcare & Social Practice has been split into two disciplines: HealthCare and Social Practice.

3.1 Health Care

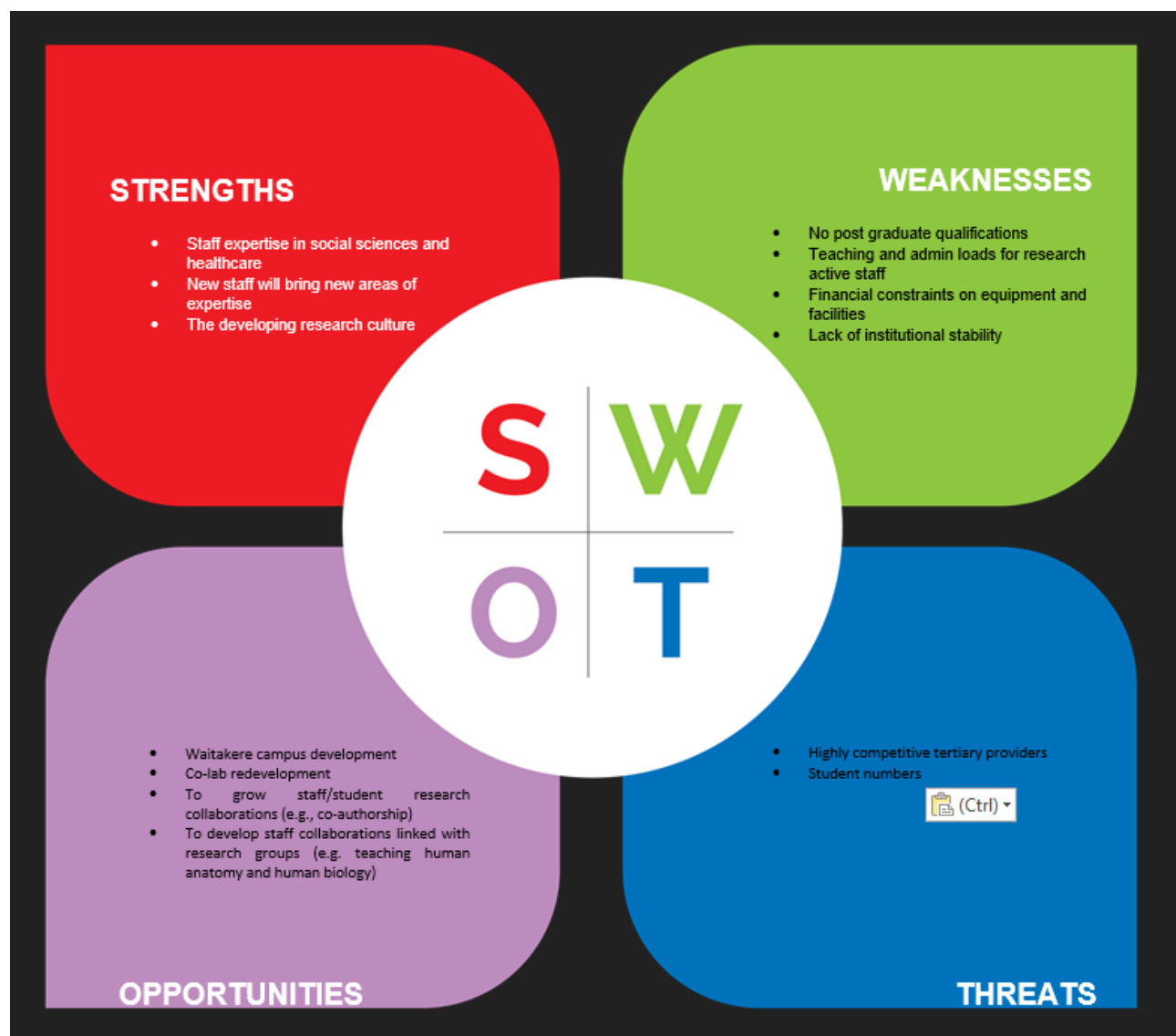


Figure 4: SWOT analysis for Health Care in School of Healthcare & Social Practice

3.2 Social Practice



Figure 5: SWOT analysis for Social Practice in School of Healthcare & Social Practice

4 Research Groups and projects

One of the key techniques for achieving goals and finding efficiencies while having fun along the way, is to work together. Unitec cannot afford to support discreet research trajectories for every individual teaching on degree programmes, and this approach is equally unlikely to result in impactful research for our industries and communities.

The School of Healthcare & Social Practice has six research groups ('Indigenous Studies', 'Social Practice and Social Justice', 'Social Work, Community Development and Narrative Practice', 'Nurse Education and Future Workforce Development', 'Anatomy' and 'Medical Imaging Practice').

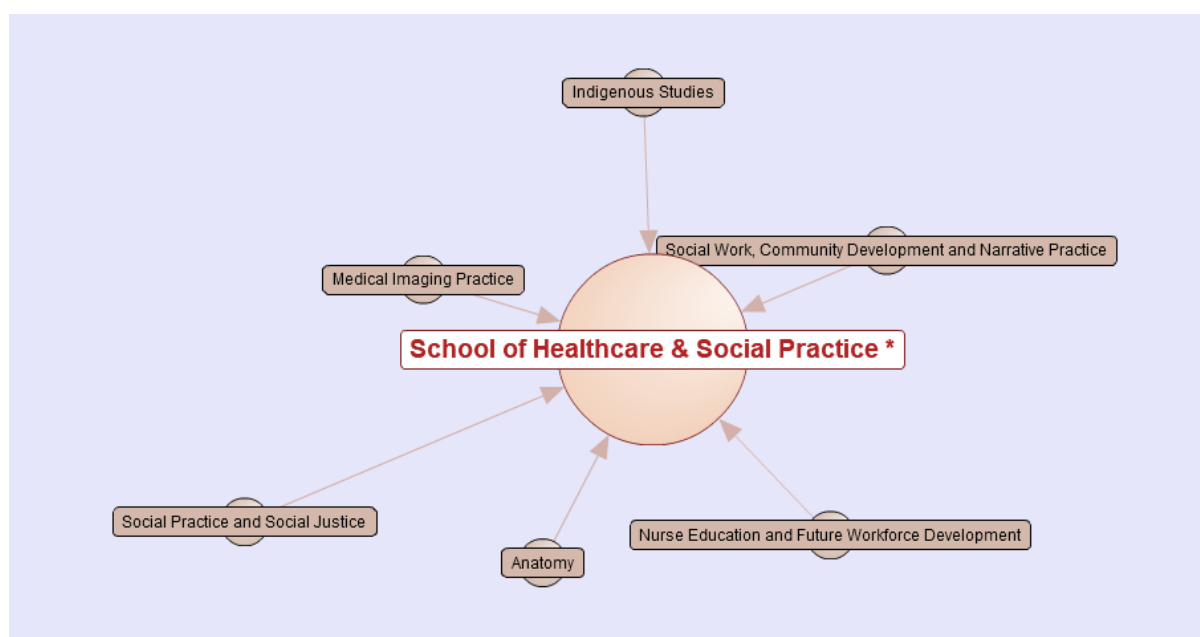


Figure 6: School of Healthcare & Social Practice research groups

The above research groups partner (or plan to partner) with external funders and win funding/grants, which Unitec calls External Research Income (ERI). Below are the external research partners who funded projects over the last 3 years.



Figure 7: School of Healthcare & Social Practice external research partners who funded projects over the last 4 years

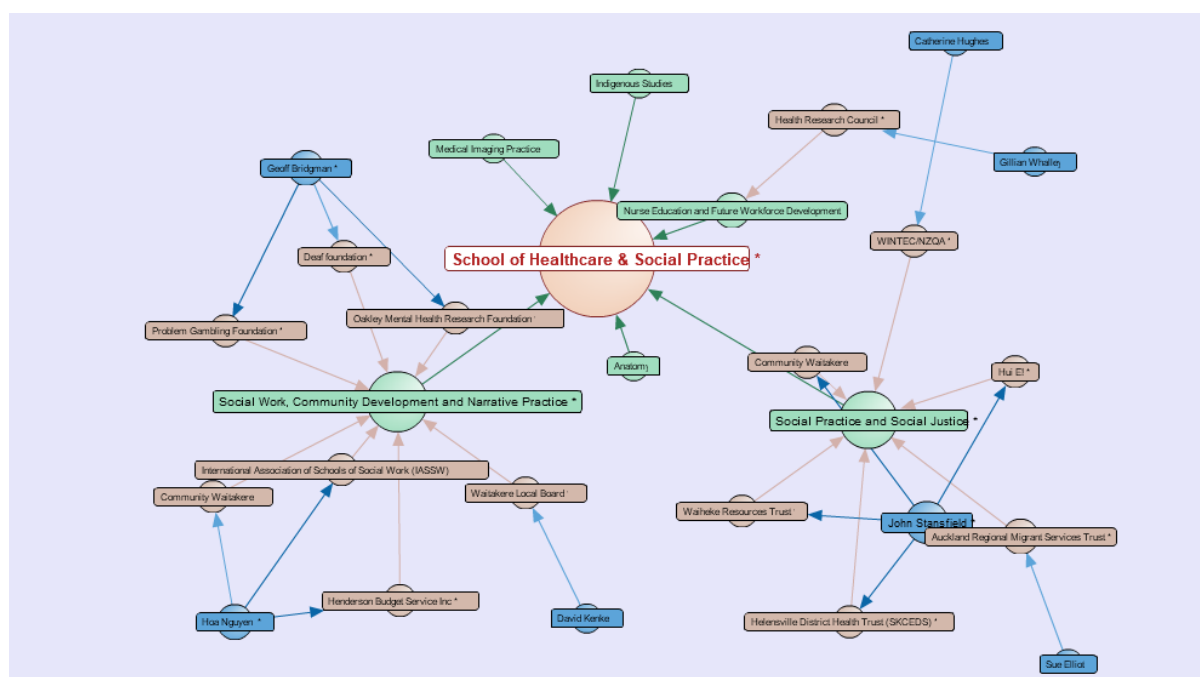


Figure 8: School of Healthcare & Social Practice external research partners who funded projects over the last 3 years, along with the six research groups and lead researchers

4.1 Research Group One – Indigenous Studies

Statement of purpose

Research in the area of indigenous studies is directed towards:

- Māori community development
- Pasifika community development
- Indigenous models of practice
- Indigenous methodologies

This research group will be developed and grown across 2020-2021, establishing specific goals and targets over time. It builds upon existing staff expertise and articulates with fast-growing foci within the MAP-Social Practice. See section 6.3 below for descriptions of recent Social Practice staff research projects partnering or engaging with Māori and/or Pacific groups and individuals.

The potential for collaborative projects with postgraduate students, and recruitment of students on that basis, will support the development of this group. Staff working in this group will partner as appropriate with Ngā Wai a Te Tūi to develop its strategic direction. Partnership with Unitec's Pacific Centre will also be sought.

Potential external funding sources include:

- Health Research Council
- Ministry for Pacific Peoples
- AKO Aotearoa
- Pasifika Futures
- Te Puna Kokiri

4.2 Research Group Two – Social Practice and Social Justice

Statement of purpose

Research in the area of Social Practice and Social Justice is directed towards:

- Transforming social policy and institutions towards equitable outcomes for a range of cultural groups
- Decolonising and democratizing educational and professional practices
- Critiques of discourse and practice leading to inclusive, sustainable and thriving communities

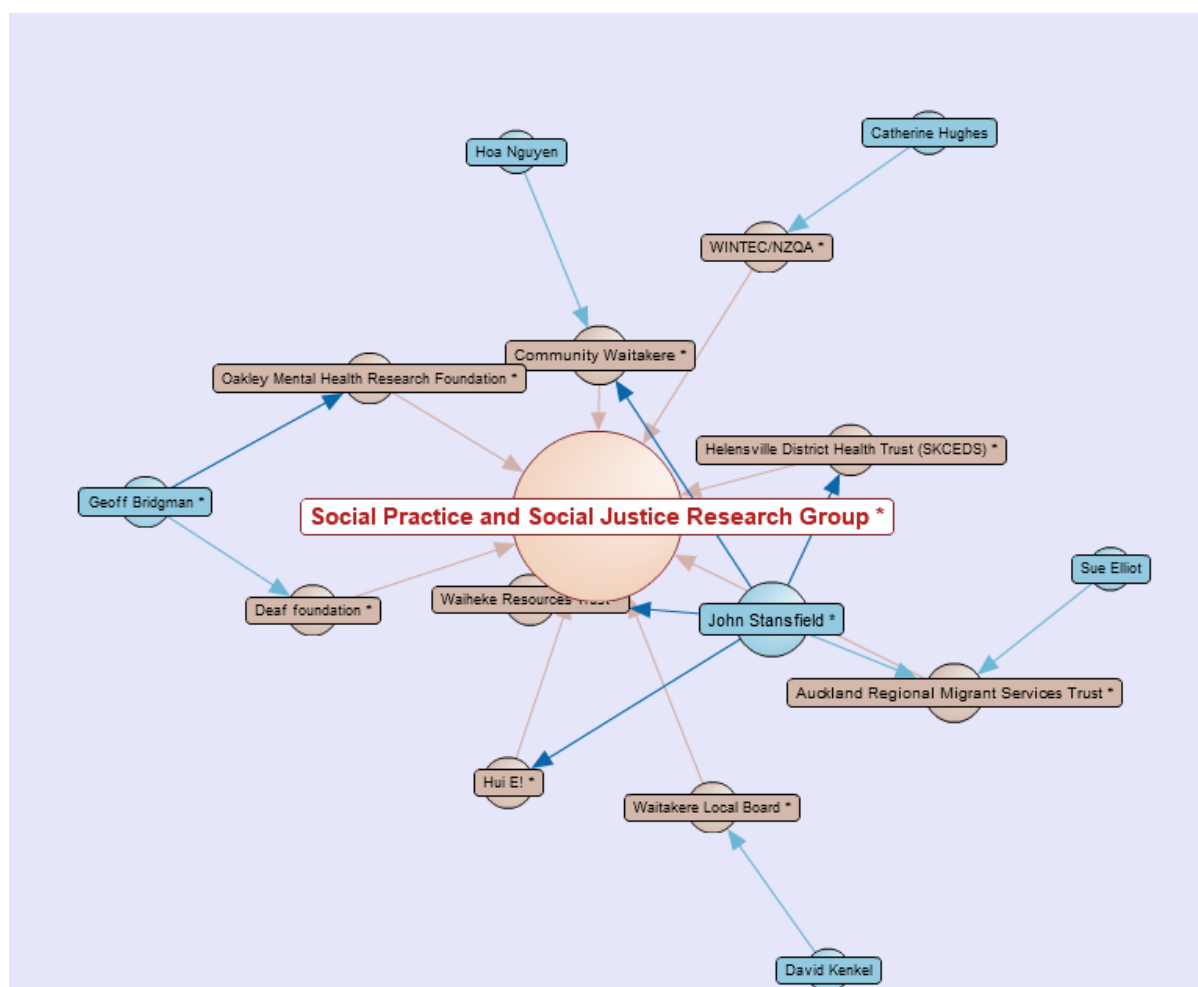


Figure 9: School of Healthcare & Social Practice: Social Practice and Social Justice research group externally funded research partners and lead researchers (2015-2019)

Goal 1: Increase staff/staff and staff/student collaborations in Social Practice and Social Justice				
Action	Responsible	Deadline	Resources needed	Desired result
Investigate possibility of appointing Research Fellow in this area to mentor and partner	TBC		Application to URC	2 projects set up by 2021, across Social Practice research groups 2 and 3
Maintain 0.2 research time allocation (or proportional equivalent) for all teaching staff	Research Leader, HoS and Tūāpapa Rangahau		Time	All staff continue to disseminate required outputs annually
Partner less experienced team members	Research Leader with staff support		Dissemination funding, possibly ECR funding	Co-authored paper for at least one partnership

with senior researchers				
Support at least one staff member to attend writing retreat	Research Leader		Tūāpapa Rangahau support	Attending staff members submit journal articles (goal of two annually across 2 Social Practice research groups)
Create fora for staff and MAP-SP students to network	MAP-SP Discipline Leader, core MAP teaching team, APM		Funding for catering and possibly advertising (if open to community /industry partners or members)	Two annual hui where research ideas are shared and/or developed
Support staff members to co-author with students	MAP-SP Discipline Leader		Potentially Tūāpapa Rangahau support (Marie Shannon)	Co-authored articles published, e.g. in ePress (goal of 2-3 every two years across 2 Social Practice research groups)

Goal 2: Increase external research income in Social Practice and Social Justice				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes, associated partners and external funding opportunities	Research Partners		Research Partners, Brenda Massey (time)	Funding for at least 1 project starts in 2021
Apply for external funding	Project PIs, Research Leader		Staff PD time (e.g. to complete Grant-writing course); Brenda Massey (time)	Funding for at least 1 project starts in 2021
Investigate contract research opportunities	Tūāpapa Rangahau		Tūāpapa Rangahau staff (time)	2-3 contracts per year

4.3 Research Group Three – Social Work, Community Development and Narrative Practice

Statement of purpose

Research in the area of Social Work, Community Development and Narrative Practice is directed towards:

- Te Tiriti –based Social Practice and training
- Best practices in social work and in narrative/community work
- Evaluation of professional and educational practices and programmes
- Needs and risk assessment, and associated interventions

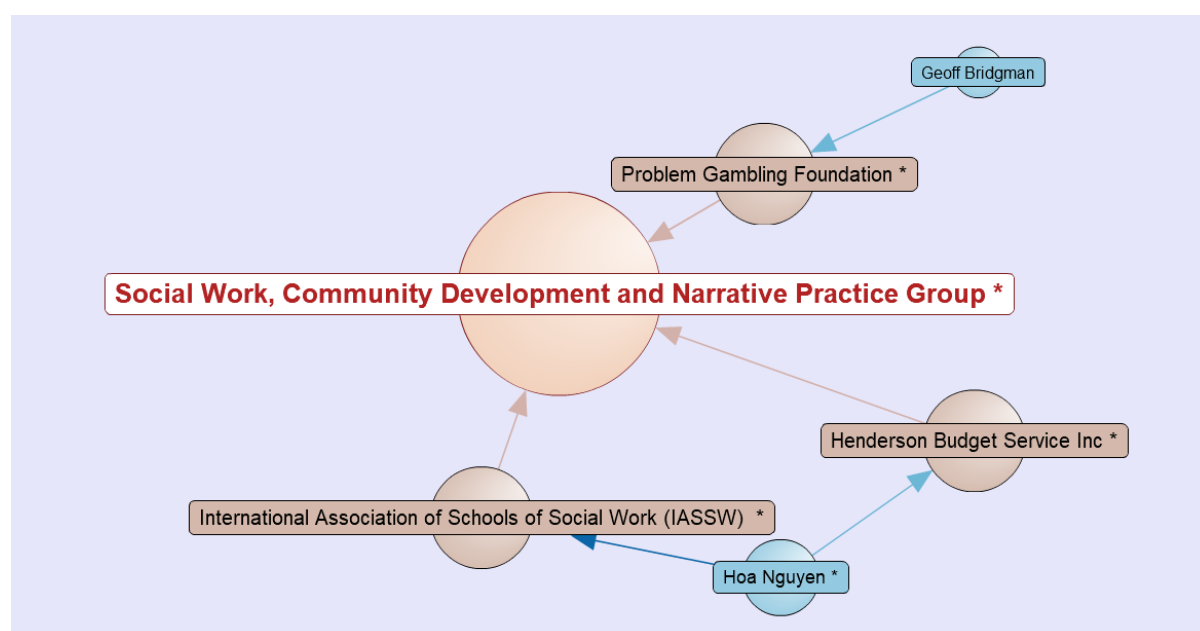


Figure 10: School of Healthcare & Social Practice: Social Work, Community Development and Narrative Practice research group externally funded research partners and lead researchers (2015-2019)

Goal 1: Increase staff/staff and staff/student collaborations in Social Work, Community Development and Narrative Practice				
Action	Responsible	Deadline	Resources needed	Desired result
Investigate possibility of appointing Research Fellow in this area to mentor and partner	TBC		Application to URC	2 projects set up by 2021, across Social Practice research groups 2 and 3
Maintain 0.2 research time allocation (or	Research Leader, HoS and Tūāpapa Rangahau		Time	All staff continue to disseminate

proportional equivalent) for all teaching staff				required outputs annually
Partner less experienced team members with senior researchers	Research Leader with staff support		Dissemination funding, possibly ECR funding	Co-authored paper for at least one partnership
Support at least one staff member to attend writing retreat	Research Leader		Tūāpapa Rangahau support	Attending staff members submit journal articles (goal of two annually across 2 Social Practice research groups)
Create fora for staff and MAP-SP students to network	MAP-SP Discipline Leader, core MAP teaching team, APM		Funding for catering and possibly advertising (if open to community /industry partners or members)	Two annual hui where research ideas are shared and/or developed
Support staff members to co-author with students	MAP-SP Discipline Leader		Potentially Tūāpapa Rangahau support (Marie Shannon)	Co-authored articles published, e.g. in ePress (goal of 2-3 every two years across 2 Social Practice research groups)

Goal 2: Increase external research income in Social Work, Community Development and Narrative Practice

Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes, associated partners and external funding opportunities	Research Partners		Research Partners, Brenda Massey (time)	Funding for at least 1 project starts in 2021
Apply for external funding	Project PIs, Research Leader		Staff PD time (e.g. to complete Grant-writing course); Brenda Massey (time)	Funding for at least 1 project starts in 2021

Investigate contract research opportunities	Tūāpapa Rangahau		Tūāpapa Rangahau staff (time)	2-3 contracts per year
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Research in the area of Nurse Education and Future Workforce Development is focused on exploring topics that impact on the success of nursing students and their ability to take their place as part of a modern workforce. Topics cover early literacy assessment as a pathway to introducing learning support and promoting student success, and the perception of aged care as legitimate option for registered nursing practice. This group also collaborates with a multi-school research project examining the impact of moving to online teaching during the Covid-19 emergency. This group is made up of novice and emerging researchers who are mentored by an experienced researcher. Funding is internal and will see outputs that are conference papers with opportunity to develop journal articles. The key areas of output will be:

- Best practices in nurse education
- Evaluation of professional and educational practices and programmes
- Needs and risk assessment, and associated interventions in the current healthcare context
- Development of Māori and Pacific nurses for the future workforce

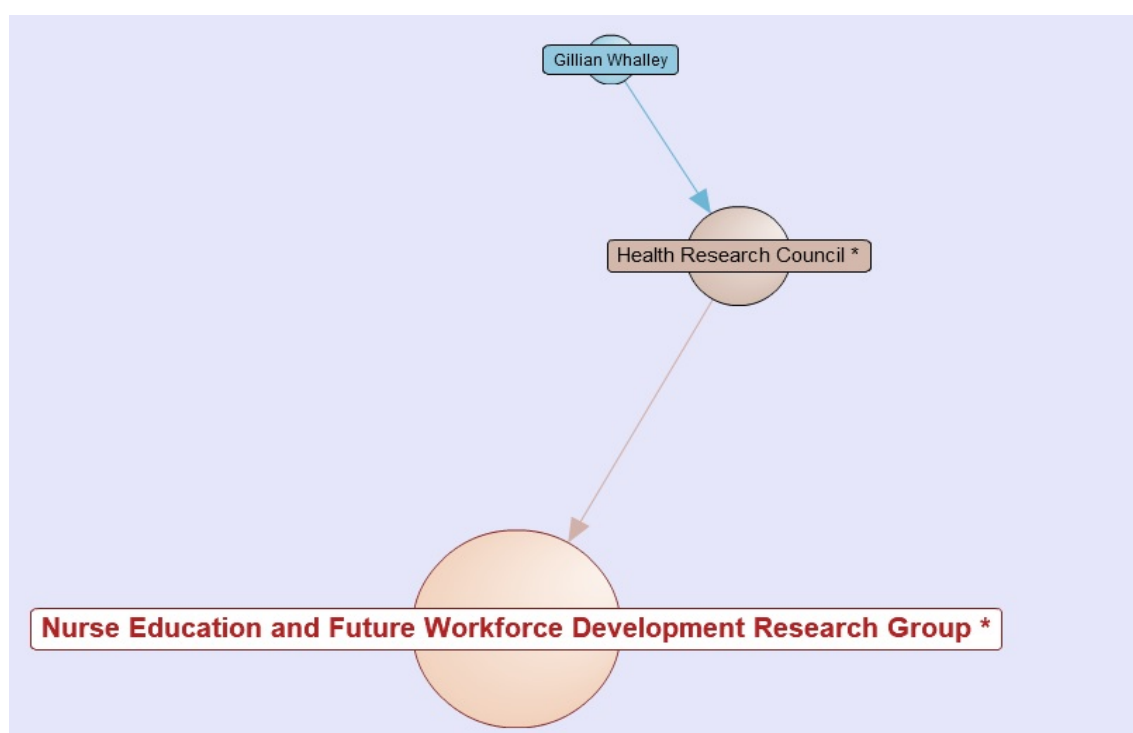


Figure 11: School of Healthcare & Social Practice Nurse Education and Future Workforce Development research group externally funded research partners and lead researchers

Goal 1: Increase number of research-active staff in Nurse Education and Future Workforce Development				
Action	Responsible	Deadline	Resources needed	Desired result
Identify and appoint Research	Research Fellow	2021	Implementation of Fellowship	Increased number of

Fellow in this area to mentor and partner				completed projects and outputs reflective of that work
Initiate staff research support group	Principal researcher	Semester 2, 2020	None	Development of research group collaborating on research and research outputs
Support 3 staff to attend writing retreats and research PD	Research Leader	Semester 2, 2021	Tūāpapa Rangahau support	Increased number of peer reviewed outputs and research capability within the healthcare team

Goal 2: Increase external research income in Nurse Education and Future Workforce Development				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Research Fellow	Semester 2, 2020	Research partners Gregor Steinhorn and Penny Thompson	Funding for project start in 2021
Investigate contract research opportunities with environmental consultants and councils	Principal researcher	Semester 1, 2021	Research partners Gregor Steinhorn and Penny Thompson	Funding for project start in 2020
Support 2 staff members 2 to attend Research PD	Principal researcher	Semester 2, 2021	Tūāpapa Rangahau support	Develop research capability within the healthcare team

4.4 Research Group Four – Anatomy

Statement of purpose

Research in the area of Anatomy takes notice that many healthcare students start their academic programmes with little experience of learning either human anatomy or human biology at entry level. In the context of courses offered within the school, those that relate to human anatomy or human biology are considered difficult by students and in some cases the courses are considered to be 'poor performing'. This group is a medical imaging and nursing collaboration which investigates the technologies associated with teaching anatomy and human biology because of their critical role in the education of future health professionals. At the moment, this is a small team who have some research experience. The purpose of the work is as follows:

- Development and implementation of best practices in teaching anatomy and human biology for healthcare students
- Evaluation of professional and educational practices and programmes

Goal 1: Increase number of research-active staff in Anatomy				
Action	Responsible	Deadline	Resources needed	Desired result
Initiate staff research support group	Principal researcher	Semester 2, 2020	None	Development of research group collaborating on research and research outputs
Support 1 staff member to attend writing retreats	Principal researcher	Semester 2, 2021	Tūāpapa Rangahau support	Develop research capability within the healthcare team

Goal 2: Increase external research income in Anatomy				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Principal researcher	Semester 2, 2020	Gregor Steinhorn and Penny Thompson	Identification of available funding options or internal funding sources

4.5 Research Group Five – Medical Imaging Practice

Statement of purpose

Research in medical imaging is focused on exploring topics related to the practice of medical imaging and includes activities like the use of radioactive isotopes as a treatment for prostate cancer in men, staff upskilling in relation to emerging digital technologies and the use of quantitative CT and artificial intelligence in assessment of chronic obstructive pulmonary disease (COPD). Researchers are mainly novices with one significantly experienced researcher within the group. Some external funding has been awarded, and there are applications in preparation for submission to contest for funding in other areas.

Goal 1: Increase number of research-active staff in Medical Imaging Practice				
Action	Responsible	Deadline	Resources needed	Desired result
Support 3 staff to attend writing retreats	Research leader	Semester 2, 2020	Tūāpapa Rangahau support	Develop research capability within the healthcare team and completion of research qualifications, funding

				applications and journal articles
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Goal 2: Increase external research income in Medical Imaging Practice				
Action	Responsible	Deadline	Resources needed	Desired result
Identify key research programmes and plan external funding applications	Principal investigator	Semester 2, 2020	Gregor Steinhorn and Penny Thompson	Funding for project start in 2021/2022

5 Current staff expertise

Below are the data of the current staff members in terms of their RPTL status, Principal Investigator (PI) for external grants, PI for Industry funded projects and research outputs over the last three years.

Name	PI for External Research	PI for Industry Funded Projects	RPTL Status (Total Outputs)	Research outputs (2016-2020)	Expertise
Dianne Roy			Green Lit	1-Book Chapter, 2-Conference Contributions- Oral Presentation, 2-Conference Contributions- Paper in published Proceedings, 5-Journal Articles, 1-Other1-Presentation (non-conference), 1-Report	Phenomenology; Chronic illness; Stroke
Evelyn Hikuroa			Amber Lit	1-Book Authored, 1-Journal Article, 1-Presentation (non-conference)	Kaupapa Maori research; smoking cessation
Joanna Thorogood			Green Lit	1-Conference Contribution- Abstract, 4-Conference Contributions- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Journal Article, 2-Presentations (non-conference)	PhD student

Joseph Aziz			Green Lit	1-Conference Contribution-Abstract, 2-Conference Contributions- Oral Presentation, 3-Journal Articles	Anatomy
Lee Yang			Red Lit		Clinical radiology
Leslie Kistan			Green Lit	1-Awarded Masters Thesis, 2-Presentations (non-conference)	PhD student
Lian Wu			Green Lit	2-Conference Contributions- Oral Presentation, 1-Conference Contribution-Poster Presentation, 1-Journal Article, 1-Report	Traditional Maori house building and its impact on respiratory disease. Applications of quantitative CT and artificial intelligence The use of mobile apps in smoking cessation
Madhusudan Vyas			Green Lit	1-Conference Contribution-Abstract, 5-Conference Contributions- Oral Presentation, 4-Conference Contributions-Poster Presentation, 1-Presentation (non-conference)	PhD student Use of radioactive isotopes in the treatment of end stage prostate cancer
Norberto Ricacho			Red Lit		Microbiology; anatomy and physiology
Pamela Williams			Red Lit		Nurse education; intensive care nursing; literacy among student nurses; future nursing workforce
Gilian Graham			Red Lit		Nurse education; infection control; therapeutic communication
Jillian Phillips			Red Lit		Nurse education; literacy among student nurses
Shadi Safavi			Red Lit		Nurse education; primary health nursing
Shobha Johnson			Red Lit		Nurse education; paediatric nursing
Ruth Jackson			Amber Lit	1-Presentation (non-conference)	Nurse education; intensive care nursing; literacy among student nurses; future nursing workforce

Samantha Heath			Green Lit	1-Awarded Doctoral Thesis, 4-Conference Contributions- Oral Presentation	Mixed methods research; Nurse education; Professional development; literacy of student nurses; future nursing workforce
Sharon Sitters			Green Lit	2-Conference Contributions- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Journal Article, 1-Other	Modern day slavery
Vimlesh Shukla			Green Lit	1-Awarded Masters Thesis, 2-Presentations (non-conference)	PhD student
Allan McEvoy			Green Lit	1-Conference Contribution- Oral Presentation, 1-Presentation (non-conference)	Critical incident stress debriefing for frontline mental health social workers
Aulola Lino			Green Lit	1-Book Chapter, 6-Conference Contributions- Oral Presentation, 1-Journal Article, 2-Other	Transforming Pacific communities through the study of: youth development, youth vulnerability, suicide prevention, social work education, and Pacific models of supervision practice
David Kenkel	PI for 1 externally funded projects	PI for 1 industry funded projects	Green Lit	5-Conference Contributions- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 7-Discussion/Working Paper (Published), 1-Journal Article, 1-Other, 1-Presentation (non-conference), 2-Reports	Community development; re-imagining social work in light of climate change; social justice and social work professional bodies; undocumented Tuvaluan immigrants in West Auckland
David McNabb			Green Lit	1-Book Chapter, 8-Conference Contributions- Oral Presentation, 7-Journal Articles, 1-Presentation (non-conference), 1-Report	Social Work education; Social Work profession and leadership; decolonising and democratising Social Work education

Geoff Bridgman	PI for 2 externally funded projects	PI for 2 industry funded projects	Green Lit	6-Conference Contributions- Oral Presentation, 3- Journal Articles, 1- Presentation (non-conference), 9- Reports	Violence prevention; community safety and resilience; Māori mental health; Deaf mental health; white fragility; mixed-methods research
Helen Gremillion			Green Lit	6-Conference Contributions- Oral Presentation, 7- Journal Articles	Gender studies; feminist theories; narrative therapy and community work; research ethics; constructionist theories of the body and of sexualities; gender and science; consumer culture; medical anthropology; qualitative research methodologies
Hoa Nguyen	PI for 3 externally funded projects	PI for 3 industry funded projects	Green Lit	1-Awarded Doctoral Thesis, 1- Book Authored, 5- Conference Contributions- Oral Presentation, 4- Journal Article	Young care leavers in Vietnam; undocumented Tuvaluan immigrants in West Auckland; cultural values and financial capability training for youth
Irene Ayallo			Green Lit	1-Book Chapter, 2- Conference Contributions- Oral Presentation, 1- Journal Article, 1- Other, 1-Report	Refugee and migrant communities; public theology; family violence; action research
Jason Hallie			Red Lit		The effectiveness of alcohol (and other substance) education in the workplace
Nigel Pizzini			Green Lit	2-Conference Contributions- Oral Presentation, 2- Journal Articles	School counselling (effectiveness, barriers, constraints); counsellor education (foci: collaborative approaches, centring Mātauranga Māori, clinical supervision); narrative therapy and community work; gender and sexualities; masculinity and male discourses; addiction; violence and relationships

Paula Bold - Wilson			Green Lit	1-Awarded Masters Thesis, 4-Conference Contributions- Oral Presentation, 1-Presentation (non-conference)	Kaupapa Māori research; Māori community development; critical analysis of the criminal justice systems in NZ (especially as it applies to Māori men)
Peter Matthewson			Green Lit	5-Conference Contributions- Oral Presentation	Action research to develop anti-poverty practice framework for social work in Aotearoa; impact of student placement in radical organisation

6 Appendix

6.1 Externally-funded research projects within Social Practice (2015-present):

- Evaluation research on a project to reduce violence in schools (the Violence Free Communities' [VFC] 'Jade Speaks Up' project: Geoff Bridgman is Research Director; Elaine Dyer at VFC is Project Leader). ACC has contributed approximately \$33K per year for three years to this project (2018-2020). Note: not recorded as ERI; work conducted on staff member's non-Unitec time.
- A project exploring community resilience in Waitakere (joint venture with industry partner and fund holder, Community Waitakere). \$60,000 awarded by the Lotteries Community Research Fund (John Stansfield [former staff member], Geoff Bridgman).
- A study of growth and gentrification in Glen Eden (David Kenkel and former staff members David Haigh and Kate Doswell). The Waitakere Ranges Local Board has contributed \$20,000; Unitec has contributed \$5,000.
- A project exploring the lived experiences of undocumented Tuvaluan immigrants in New Zealand (Hoa Nguyen and David Kenkel, in partnership with the Te Atatu Electoral Office). The intention is to influence change in immigration policy. The Te Atatu Electoral Office has contributed \$9,370; Unitec has contributed \$5,000. (2020-2021)
- A project exploring the lived experiences of young people after they leave care homes to live independently in Vietnam (Hoa Nguyen and external researchers), funded from Trinity College of Dublin (EUR \$2,000) and from the International Association of Schools of Social Work (US \$4,000).
- Research evaluating the South Kaipara Community Economic Development Scheme (John Stansfield and Susan Elliott, both former staff members – in partnership with external researchers). The Department of Internal Affairs and Helensville district Health trust have contributed \$10,000 to this project, and Unitec has contributed \$5,000.
- Evaluation of Henderson's Budgeting Services (HBSI) Financial Literacy Programme for youth and validation of a financial self-efficacy scale (Hoa Nguyen). Unitec is contributing \$5,000 (in addition to \$13,000 from its Early Career Researcher Fund); HBSI is contributing \$5000 plus staff time.
- Research on the effectiveness of interventions offered via the Problem Gambling Foundation, whose \$5,000 was matched by \$5,000 from Unitec (Geoff Bridgman).
- Two research projects on Deaf Mental Health (Geoff Bridgman, for one of these studies as project supervisor). For one project the Deaf Development Fund has contributed \$5,000, and

the New Zealand Sign Language Fund an additional \$5,000. For the second project, the Oakley Mental Health Research Foundation has contributed \$5,000, which was matched by \$5,000 from Unitec.

- Translation research to apply the findings of a national study on Tongan youth suicide prevention to an ethnic-specific resource (Aulola Lino). A Health Research Council Translation Grant of \$5,000 funded this work. Note: not recorded as ERI; managed via another institution prior to this staff member's arrival at Unitec.
- Research on strategies for developing social policy units within community based organizations (Hoa Nguyen). Unitec is contributing \$5,000, and the partner organization Community Waitakere is contributing \$1,000 plus \$4,000 in-kind.
- A study investigating community development principles involved in roadside fruit tree planting over 30 years on Waiheke Island (John Stansfield, former staff member). The Waiheke Resources Trust is contributing \$3,000, and Unitec \$5,000.

6.2 Key examples of PBRF-recognized research contributions within Social Practice:

- Aulola Lino's service on the Advisory Committee for Taulanga U Social Services, contributing to evaluative processes and research projects on a parenting programme (recently funded by Pasifika Futures).
- David McNabb's role as the Council for Social Work Education Aotearoa NZ representative to the Board of the International Association of Schools of Social Work, which oversees global social work research. David also chairs the CSWEANZ International Projects Committee which awards US \$15,000 in research grants annually. Also social practice staff liaise regularly with international academic visitors whom David hosts via his role within the Council for International Fellowship Aotearoa (an exchange programme for social workers and related professionals).
- Helen Gremillion's roles as Research Professional Development Liaison across Unitec and as an invited member of the New Zealand Ethics Committee
- Three Masters students receiving Dean's Awards for research excellence (topics: An exploration of Ngāi Tūhoe aspirations for self-determination in relation to statutory child welfare; An exploration of the contribution and limits of non-Māori leadership within Māori communities; Discrimination against persons diagnosed with borderline personality disorder).
- Geoff Bridgman's membership on the Health Research Council's College of Experts. Also Geoff was the only non-University member over a five-year period on HRC's Feasibility Study Application Assessment Committee. Geoff received a Unitec-wide award for Research Excellence in 2018.

6.3 Social Practice research projects engaging Māori and/or Pacific individuals and groups:

- The ACC-funded 'Jade Speaks Up' Project (Geoff Bridgman) – involving 17 mainly low decile schools from Auckland through to Dunedin – includes at least 500 Māori and 583 Pacific Island participants (2017 to May 2018).
- Paula Bold-Wilson and former staff member Eliza Wallace submitted Kaupapa Māori Masters theses informed by Māori communities. Both received first-class honours for their work, which was supported by Unitec Postgraduate Research Scholarships. Ongoing consultation with and participation of whānau and hapū are expected in relation to these projects. Social Practice staff member Geoff Bridgman and former staff member Catherine Hughes, respectively, were the thesis supervisors.

- Fifteen Māori and Pacific research partners are affiliated with Violence Free Communities and have been engaged in a major research project with Geoff Bridgman, on the topic of 'Banishing Bullying Together' in McLaren Park/Henderson South. Approximately 50 Bachelor of Social Practice students who were research assistants on this project were Māori or Pacific.
- Aulola Lino is collaborating with Dr Jemaima Tiatia-Seath on Heath Research Council funded projects designed to help prevent suicide amongst Tongan youth. Lino is also part of a National Pasifika Reference Group for ASIST and SafeTALK (Lifeline Aotearoa).
- A range of Māori and Pacific collaborators were involved in Geoff Bridgman's and former staff member John Stansfield's project, in partnership with Community Waitakere, on perceptions of community safety in West Auckland.
- The wananga sector and Pasifika staff at Whitireia were engaged in a CSWEANZ project assessing fit and proper criteria during admission processes for social work education programmes (former staff member Catherine Hughes, and current staff member David McNabb).
- Ten undergraduate students, six of whom are Māori or Pacific, have been involved in research practicum projects since 2017 (supervised by Geoff Bridgman), the majority of which involve mainly Māori and Pacific Island participants.
- A Pasifika staff member of Henderson's Budgeting Services Inc. (HBSI) is serving as a co-author on Hoa Nguyen's study involving HBSI's Financial Literacy Programme. In addition, two Māori advisors are involved in this study.

6.4 Research publications to date involving Social Practice staff co-authorship with students/graduates:

- Gremillion, H., & Powell, C. (2019). Evaluating Unitec's ALLY workshop on diverse sexuality and gender inclusivity. *Evaluation Journal of Australasia*, 19(3), 134-146. doi:10.1177/1035719X19875595
- Powell, C., & Gremillion, H. (2018). The experiences of diverse-gender tertiary students: Structural discrimination and microaggressions. Whanake: *The Pacific Journal of Community Development*, 4(2), 10-30.
- Connor, H., Bruning, J. & Napan, K. (2016). Positive women: A community development response to supporting women and families living with HIV/AIDS in Aotearoa New Zealand. *Whanake: the Pacific Journal of Community Development*, 2(2), 14–23.
- Woolson-Neville, D., & Gremillion, H. (2015). Experiencing women's advocacy: Connections with and departures from a feminist socio-political movement to end violence against women. *Unitec ePress Research Report Series*, 2, pp.1-15.
- Bruning, J., Connor, D. H., & Napan, K. (2015). HIV and AIDS policies globally: A New Zealand perspective. In J. Allen & A. Parrot (Eds.) *HIV/AIDS policies and their impact on women*. New York, USA: Routledge.

Te Komiti Rangahau o Unitec | Unitec Research Committee Self-Assessment

Purpose: NZQA requires the Committees of Unitec's Academic Board to provide evidence of self-assessment.

Te Komiti Rangahau o Unitec Self-Assessment Provocations

- Can we improve the way the committee is run?
- Is time well managed?
- Are issues under discussion well-handled and resolved?
- Are the agenda and minutes well handled?
- Are the perspectives of committee members respected and heard?
- Are actions completed and accounted for?
- Were there matters raised and dealt with in the meeting that were particularly helpful or unhelpful?
- Does the committee oversee and ensure compliance within its mandate?
- Does the committee show foresight and proactively engage in continuous improvement?
- Does the committee review and improve the relevant policies, guidelines and regulations?