agenda

Te Komiti Rangahau o Unitec | Unitec Research Committee

Date:	**2024-10-10**
Scheduled Start:	1300h
Scheduled End:	1500h
Location:	Microsoft Teams

SECTION 1 NGĀ KUPU ARATAKI | PRELIMINARIES

1. Karakia Tīmatanga | 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. 2025 URC Terms of Reference
2. 2025 ECR Contestable Fund Grants Advisory Committee (GAC) Membership

SECTION 4 WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

N/A

SECTION 5 NGĀ TUKUNGA | ITEMS TO RECEIVE

1. 2024-2025 School Research Plans
    a. School of Applied Business
    b. School of Architecture
    c. School of Building Construction
    d. School of Community Studies

e. School of Computing, Electrical and Applied Technology
f. School of Creative Industries
g. School of Environmental and Animal Sciences
h. School of Healthcare and Social Practice

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

Item 1.2 Mihi Whakatau | Welcome from the Chair

Item 1.3 Te Komiti Rangahau o Unitec Membership

Hadley Brown (Chair)	Nominee of Director Research & Enterprise
Daisy Bentley-Gray (Emerging)	Nominee of Interim Manager Pacific Success
Tanya White (Early Career)	Nominee of Taharangi | Director Māori Success
Dr Helen Gremillion (Professor)	Healthcare and Social Practice
Xinxin Wang	Architecture
Kambiz Borna	Building Construction
Dr Lian Wu (Associate Professor)	Healthcare and Social Practice
Dr Hamid Sharifzadeh (Professor)	Computing, Electrical and Applied Technology
Dr Leon Tan (Associate Professor)	Creative Industries
Dr Kristie Cameron (Associate Professor/ Early Career)	Environmental & Animal Sciences
Khaled Ibrahim	Applied Business
Vacant	Bridgepoint
Dr Norasieh Md Amin (Subject Librarian)	Library

Christine Fusio (Student President) Arun Deo (Research Advisor)	Nominee of Student Council Tūāpapa Rangahau
In attendance: Brenda Massey (Acting Secretary)	Tūāpapa Rangahau

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.

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 2024-09-12.

Section 2.3 Mahia Atu | Matters Arising

refer to pg14

SECTION 3 MEI HEI WHAKAAE | ITEMS TO APPROVE

Section 3.1 2025 URC Terms of Reference
refer to pg15

Section 3.2 2025 ECR Contestable Fund Grants Advisory Committee (GAC) Membership
refer to pg17

SECTION 4 WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

N/A

SECTION 5 NGĀ TUKUNGA | ITEMS TO RECEIVE

Section 5.1 School Research Plans
refer to pg18

a. *School of Applied Business pg20*
b. *School of Architecture pg35*
c. *School of Building Construction pg59*
d. *School of Community Studies pg88*
e. *School of Computing Electrical and Applied Engineering pg103*
f. *School of Creative Industries pg119*
g. *School of Environmental and Animal Sciences pg133*
h. *School of Healthcare and Social Practice pg159*

SECTION 6 KUPU WHAKAMUTUNGA | CLOSING

Section 6.1 Ētahi Kaupapa Anō | Any Other Business

Section 6.2 Komiti Self-Assessment
refer to pg183

Section 6.3 Karakia Whakamutunga | Closing Karakia

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

minutes

Te Komiti Rangahau o Unitec | Unitec Research Committee

Date:	2024-09-12
Scheduled Start:	1300h
Scheduled End:	1500h
Location:	Microsoft Teams

MEETING OPENED: 1300h

SECTION 1 – NGĀ KUPU ARATAKI | PRELIMINARIES

Item 1.1 Karakia Tīmatanga | Opening Prayer

Item 1.2 Mihi Whakatau | Welcome from the Chair

The Chair warmly welcomed members of the committee to the meeting including Mel Wong from MIT's School of Social Work, representing the MIT Research Committee.

SECTION 2 – STANDING ITEMS

Item 2.1 Ngā Whakapāha | Attendance, Apologies & Quorate Status

Members Present

1. Hadley Brown (Chair)
2. Arun Deo
3. Tanya White
4. Leon Tan
5. Christine Fusio
6. Lian Wu
7. Kambiz Borna
8. Daisy Bentley-Gray (from 1.10pm)

Total members represented: 8 members

Apologies

1. Kristie Cameron
2. Xinxin Wang
3. Helen Gremillion

4. Hamid Sharifzadeh
5. Nora Md Amin

Total apologies: 5 members

Absent

1. Khaled Ibrahim

Total absent: 1 member

MOTION

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

Moved: Arun Deo
Seconded: Lian Wu

MOTION CARRIED

Quorate Status

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

Hunga Mahi | Staff in Attendance

1. Brenda Massey, Acting Secretary
2. Mel Wong, MIT Committee Representative

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

MOTION

That the committee approves the minutes of the 2024-08-08 meeting as a true and accurate record.

Moved: Leon Tan
Seconded: Lian Wu

MOTION CARRIED

Item 2.3 Mahia Atu | Matters Arising

Agenda Item(s)	Action	Responsible	Outcome
2.3 (July URC meeting)	Provide an update to the committee on a draft submission to IT and Academic Committee on the difficulties Unitec's IT policies and procedures are posing to teaching and research endeavours.	Leon Tan	A memo has been submitted to TKM for consideration at their Sept meeting.
4.1 (July URC meeting)	Propose a new exclusion criteria for the RPTL to Te Komiti Mātauranga: that staff returning from extended medical leave be excluded from the RPTL for a period of one year following the sickness; extended leave being defined as a period of medical leave lasting three months or more. Ensure the RPTL guidelines are explicit that programmes have the option to exclude staff returning from maternity or extended medical leave, as some staff may still	Arun Deo	Complete. The request for RPTL criteria change has been approved by TKM. Marcus Williams

	produce outputs during these types of leave, and it would therefore be beneficial to include them in the RPTL.		wishes to thank committee members for their mahi. Arun has implemented the wording change into the terms of reference, and Marcus thanks him also for his work on this.
2.3	Present a memo to the committee on proposed revisions to the Actions under Priority One of the Unitec Research Strategy Action Plan.	Hadley Brown	Complete – on agenda
3.1	Distribute the 2023 Research Report once it has been approved by TKM as follows: Senior Leadership Team, Heads of School, Research Leaders, Academic Programme Managers. Recipients should be encouraged to distribute it as they see fit, with a note that it is a document produced predominantly for internal purposes.	Arun Deo	Complete
4.1	Summarise the committee's feedback on the UAG's consultation and supply it to Martin Carroll and Jamie Smiler.	Brenda Massey / Marcus Williams	Complete

SECTION 3 – MEA HEI WHAKAAE | ITEMS TO APPROVE

Section 3.1 Nomination for Appointment of an Honorary Research Fellow – Joanne Aley, Environmental & Animal Sciences

The nomination for the appointment of an Honorary Research Fellow within the School of Environmental and Animal Sciences for a term of three years was approved.

MOTION

That the committee approves the appointment of Joanne Aley as an Honorary Research Fellow within the School of Environmental and Animal Sciences.

Moved: Arun Deo
Seconded: Leon Tan

MOTION CARRIED

Action: Brenda Massey to advise the nominator, A/P Laura Harvey, of this outcome.

Section 3.2 Nomination for Appointment of an Honorary Research Fellow – Dr Pouroto Ngaropo, Creative Industries

Tanya White advised that this nomination is fully supported by the Maia marae whānau, including Matua Hare Paniora.

The nomination for the appointment of an Honorary Research Fellow within the School of Creative Industries was approved for a term of three years.

MOTION

That the committee approves the appointment of Dr Pouroto Ngaropo as an Honorary Research Fellow within the School of Creative Industries.

Moved: Leon Tan
Seconded: Tanya White

MOTION CARRIED

Action: Brenda Massey to advise the nominator, A/P Leon Tan, of this outcome.

SECTION 4 - WHAKAWHITI KŌRERO | ITEMS FOR DISCUSSION

Section 4.1 URC Representation on the MIT Research Committee

The committee discussed whether two URC committee members should join meetings of the MIT Research Committee as a way to socialise toward speculative integration. Two MIT Research Committee members have already been invited to attend URC meetings – today Mel Wong was in attendance.

A summary of the committee's discussion was as follows:

- This represents a good opportunity for knowledge exchange and to get an understanding of each other's research governance.
- There are issues of capacity within Unitec roles at the moment, however if the time commitment is only one hour per month, and if the load is spread between members, attendance should be achievable.
- With the VET reforms, we don't know where we're going to be, however a continuation of networking between the two organisations irrespective of what happens, could be valuable. Reciprocation like this can only be good for both institutions.
- Mel Wong has planned to join the next few URC meetings, after which the MIT Research Committee will consider who else might like to attend and who else might be available.

The committee was supportive of the initiative. Helen Gremillion (not in attendance today) has indicated availability to attend the final two MIT Research Committee meetings of the year. Tanya White and Daisy Bentley-Gray also indicated their interest in attending MIT meetings. Leon Tan is unavailable this year but may be in a position to attend meetings next year if the initiative continues.

Action: Brenda Massey to forward details of the committee's discussion to Marcus Williams to progress the initiative.

Section 4.2 Feedback from the VET Reform Unitec Kaimahi Workshop

The committee received an overview from the Chair of discussions and feedback from the VET Reform Unitec Kaimahi Workshop facilitated by Prof Martin Carroll on 26 August.

The VET consultation document outlines three new directions which were discussed at the workshop and are summarised in Appendix 1 of the consultation document:

1. A redesigned ITP network that retains access to ITP provision in all regions, through a combination of stand-alone and federated ITPs.
2. Options for an industry-led system for standards-setting and industry training.
3. Changes to vocational education funding from 2026 (in addition to those agreed for 2025) to better support the reformed system.

Direction One

Tertiary Education and Skills Minister Penny Simmonds' favoured option is that the non-financially viable ITPs would form a federation which would see core services such as programme development and online delivery provided by the Open Polytech. The Minister indicated in an RNZ interview last week that there are 1 or 2 ITPs that are financially viable at this point in time and 3-4 which are on the road to financial viability. These 5 or 6 ITPs would remain outside the federation. It was noted at the workshop that Unitec and MIT are both on the path to financial solvency.

Workshop attendees stressed the importance of Unitec remaining outside of the federation and strongly advocated for a merger between MIT and Unitec, the rationale being:

- Unitec and MIT have a lot of complementary programmes.
- Financially we're more viable as a merged organisation covering Tāmaki Makaurau.
- We have programmes that are distinct from each other's, and this would give us further reach and coverage of the student population in Tāmaki Makaurau.

Direction Two

Proposal 2B is the favoured option from Unitec's point of view as this would ensure that Unitec would have access to, and/or be able to continue or coordinate some elements of work-based learning, e.g., the coordination and execution of apprenticeship training.

Direction Three

There was strong endorsement for a return to the pre-2020 funding model which was more advantageous to ITPs.

The Chair also provided an overview on discussions and feedback from Tūāpapa Rangahau. The team favour Unitec being independent of the federation of ITPs, and the integration of Unitec and MIT. With regards to Direction Two, the team also supported Proposal 2B. The team did not offer an opinion on Direction Three.

A summary of the committee's discussions is as follows:

- Consolidated debt was reported as being $50m in Te Pūkenga's Annual Report. However, Minister Penny Simmonds has argued the debt is actually much higher, at $250m, and may increase as the ITPS untangle themselves from Te Pūkenga.
- Many staff are against the federation model because it will jeopardise institutions' autonomy. However, is there an alternative? It seems like the Minister and the Government are in favour of the federation model, and when TEC presented at the Mt Albert campus, they didn't appear to provide alternatives to that model.
- Another sentiment that's being voiced is that Unitec does not merge with MIT, but rather operates as a stand-alone institution.

- The MoE has presented a model which is a variation of the Te Pūkenga model, and would give more autonomy to the regions in terms of academic delivery. This model allowed for some centralised services, e.g., purchasing, HR, finance, and would potentially deliver cost savings for all the ITPs across the motu, in that each ITP wouldn't have to provide all these back-office services in-house.
- It is good that the TEC and MOE are leading the consultation process. This means that none of the ITP or WBL ELTs will yield undue influence over the outcome.
- There are concerns about Unitec potentially losing its autonomy in terms of its branding, its values, and its principles. Te Noho Kotahitanga (TNK) is our partnership document and the foundation on which our institution stands. If we merge with MIT, what will happen to those pou? It remains to be seen if we can continue to maintain our distinct ethos and values. Currently, TNK is embedded in the way we live and function as kaimahi. There is a concern that we could lose our mana and whakapapa without any in-depth discussion.
- If Unitec and MIT did merge there would be some effort to maintain Unitec's culturally distinct values. If your branding has strong resonance with your student market or community, why would you do away with that?
- When the Minister visited Unitec, it was raised that our TNK values are embedded right throughout what we do at Unitec. The Minister responded that there wouldn't be an expectation of values being compromised and that work will be done to ensure that the values we have will be maintained and continue to be core to what we do at Unitec. It was reassuring to hear that the effect of the changes that are coming should not have any impact on individual ITPs' values, including Unitec's.

SECTION 5 - NGĀ TUKUNGA | ITEMS TO RECEIVE

Section 5.1 Outcome of Review of Unitec Research Strategy Action Plan

The committee received the outcome of the review of the Unitec Research Strategy Action Plan. The Chair explained that the purpose of the review wasn't to change the actions, rather the purpose was to tighten them up and make them more specific than they were. The action summaries and the actions haven't been radically altered, rather they have been made more specific, so they are more achievable. There was some vagueness in the original actions, and the review exercise aimed to make it clearer who is responsible for doing what.

All but one of the one of the improvements the committee recommended have been *adopted*. (**NB:** it was requested that the recommendation in the covering memo be changed from "…all but one of the research strategy action plan improvements have been *fully implemented"* to "…all but one of the research strategy action plan improvements have been *adopted*". The way the recommendation reads currently could make it appear that all the actions have been implemented, when in fact there is quite a bit of work still required to fully implement all the actions).

This is the recommendation that was not adopted:

Review capability and plan for institutional research co-governance and leadership	- consult with Ngā Wai a te Tūī 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

Instead, the Action has been amended as follows:

Review capability and plan for institutional research co-governance and leadership	- Ngā Wai a Te Tūī leads the development of a research governance model in line with Te Tiriti o Waitangi. - Consider resourcing requirements in line with the above.

The rationale provided for the amendment is that "It is not appropriate to expect a Research Centre to lead the design of governance structures. All centres, including Ngā Wai a Te Tūī, must strive for financial sustainability through external funding, which is a challenging goal. The executive will determine the governance structure, receiving advice from appropriate quarters, as indicated in the existing Action Plan".

It was felt that the original recommendation and the adopted recommendation are very similar, and the committee did not understand the rationale provided for the amendment.

Action: Brenda Massey and Hadley Brown to obtain further details from A/P Marcus Williams, Director Research and Enterprise, on the rationale for the original recommendation being amended.

Section 5.2 2024 Early Career Researcher Funding Progress Reports

The committee received progress reports from the recipients of 2024 Early Career Researcher (ECR) Funding. Feedback was provided as follows:

Dr Caralyn Kemp

- The 2024 project was a continuation of a 2023 funded project.
- Wet weather, issues with the trackers, and research assistant issues have hampered the project.
- UREC approval has been obtained to collect data over spring/summer 2024/25.
- The research has been presented at a number of forums.
- Connections have been made with Animates (potential for external funding) and an Auckland Council animal shelter.
- Potential to work with Computing to develop an app mapping all Auckland dog parks.
- Expenditure on track.

A/P Kristie Cameron

- The project is on track according to the listed milestones.
- The PI is working with A/P Iman Ardekani in Computing on AI software to code animal behaviour data. This should lead to publications and the development of software that could be used for other types of animals.
- Expenditure on track.

Dr Mary Yan

- Strong collaboration with GMP Ltd.
- Developed potential formulas which include milk powder.

- The project will take a little longer than anticipated as GMP is very busy.
- Cedenco Foods have provided pumpkin powder for free to the project.
- Expenditure on track.

Tanya White

- The project is focussed on kaitiakitanga of the wāhi tapu at Te Noho Kotahitanga (TNK) marae. Why and how we look after our wāhi tapu, what we are already doing with regards to kaitiakitanga, mātauranga Māori, tikanga Māori, what our role is as an extended community of TNK marae, and how all these things are related to the wellbeing of our ākonga.
- The project is on track. The team is working towards conducting a series of interviews and a website.
- The PI has had approval from Tūāpapa Rangahau to transfer some of the budget to purchase new camera equipment so they can interview kaumātua and kuia with quality gear, starting with Matua Hare Paniora, Dr Pouroto Ngaropo, and Tā Haare Williams. The intention is to document their pūrākau (narratives) and the connections we have as a Unitec whānau to the whenua that we are a part of and that our institution is a part of.

These projects really illustrate where ITPs sit in the tertiary education sector. We connect into community and industry so well.

Action: Brenda Massey to write to all the PIs thanking them for their reports.

Section 5.3 2023 Early Career Researcher Funding Final Reporting

The committee received a final report from Madhusudan Vyas and an article co-authored by Dr Irene Ayallo who both received 2023 ECR Funding.

Madhusudan Vyas

- This was a more time consuming and complicated project than was originally envisaged.
- The team did create a prototype to locate lesions of active PSMA.
- The PI is working with international researchers to progress the kaupapa - some of the international team visited Unitec earlier in the year.
- The project was regrettably underspent; a joint application for external NZ/China health funding has been submitted which if approved will enable the continuation of the project.

Dr Irene Ayallo

- Irene left Unitec before final reports were due, however she has provided a copy of a publication which clearly demonstrates that the goals of the project that she received funding for were achieved. Unitec's funding was acknowledged in the publication.

The breadth of research being undertaken at Unitec is outstanding.

Action: Brenda Massey to write to Madhu Vyas thanking him for his report.

Section 5.4 2025 MBIE Endeavour Fund Smart Ideas – Triaging Process

The committee received details of the 2025 MBIE Endeavour Fund Smart Ideas opportunity, including that Tūāpapa Rangahau is operating a triaging (selection) process this year due to Unitec now being restricted to submitting only one Smart Ideas application.

Tanya White acknowledged the support that Tūāpapa Rangahau provides for PIs that are applying for external grants.

SECTION 6 - KUPU WHAKAMUTUNGA | CLOSING

Section 6.1 Ētahi Kaupapa Anō | Any Other Business

N/A

Section 6.2 Komiti Self-Assessment

A comment was made that the meeting went well and achieved a lot. There was a great breadth and depth of agenda items.

Mel Wong thanked the committee for having her at the meeting. She commented that she learned a lot, and that the URC operates quite differently from the MIT Research Committee. Mel and the Chair jointly reflected that both committees could learn a lot from each other. If a couple of URC members start attending MIT Research Committee meetings, then it will be good that these members bring their learnings back to the rest of the URC.

Section 6.3 Karakia Whakamutunga | Closing Karakia

MEETING CLOSED: 1420 h

SUMMARY OF ACTIONS

Agenda Item(s)	Action	Responsible	Outcome
3.1 & 3.2	Advise A/P Laura Harvey and A/P Leon Tan of the approval of the appointment of their nominees for Honorary Research Fellows.	Brenda Massey	
4.1	Appraise Marcus Williams of the committee's discussions around URC representation on the MIT Research Committee.	Brenda Massey	
5.1	Change the recommendation in the covering memo on the outcome of the review of the Unitec Research Strategy Action Plan from "…all but one of the research strategy action plan improvements have been *fully implemented"* to "…all but one of the research strategy action plan improvements have been *adopted*".	Brenda Massey	
5.1	Obtain further details from A/P Marcus Williams, Director Research and Enterprise, on the rationale for the amendment to the recommended change to the Actions under Action Summary 'Review capability and plan for institutional research co-governance and leadership' of the Research Strategy Action Plan.	Brenda Massey / Hadley Brown	
5.2	Write to all the 2024 ECR Funding PIs thanking them for their reports.	Brenda Massey	
5.3	Write to Madhu Vyas thanking him for his final 2023 ECR Funding report.	Brenda Massey	

MATTERS ARISING

Agenda Item(s)	Action	Responsible	Outcome
2.3	Provide an update to the committee on the submission to TKM on the difficulties Unitec's IT policies and procedures are posing to teaching and research endeavours.	Leon Tan / Hadley Brown	A memo was submitted to TKM's Sept meeting. Prof Martin Carroll, Chair of TKM, invited James Meyer, Digital Operations Lead, Rohe 1, Te Pūkenga to attend the TKM meeting during the discussion of this agenda item to respond to the concerns expressed in the memo. James articulated the challenges he has faced in his role in navigating the regulatory framework around software licenses within Te Pūkenga, within which we remain implicated, and strongly expressed a willingness to co-design some solutions, especially now that Te Pūkenga is being devolved. James has been invited to attend a future URC hui for this purpose.
3.1 & 3.2	Advise A/P Laura Harvey and A/P Leon Tan of the approval of the appointment of their nominees for Honorary Research Fellows.	Brenda Massey	Complete
4.1	Appraise Marcus Williams of the committee's discussions around URC representation on the MIT Research Committee.	Brenda Massey	Complete. Marcus has been provided with the names of those committee members who have expressed an interest in attending MIT meetings.
5.1	Change the recommendation in the covering memo on the outcome of the review of the Unitec Research Strategy Action Plan from "…all but one of the research strategy action plan improvements have been fully implemented" to "…all but one of the research strategy action plan improvements have been adopted".	Brenda Massey	Complete
5.1	Obtain further details from A/P Marcus Williams, Director Research and Enterprise, on the rationale for the amendment to the recommended change to the Actions under Action Summary 'Review capability and plan for institutional research co-governance and leadership' of the Research Strategy Action Plan.	Brenda Massey / Hadley Brown	In progress
5.2	Write to all the 2024 ECR Funding PIs thanking them for their reports.	Brenda Massey	Complete
5.3	Write to Madhu Vyas thanking him for his final 2023 ECR Funding report.	Brenda Massey	Complete

Unitec New Zealand Limited

Meeting of Te Komiti Rangahau o Unitec | Unitec Research Committee

Date of Meeting: 10 October 2024

Title	2025 URC Terms of Reference
Provided by:	Brenda Massey, Acting Secretary
For:	**Approval**

Recommendation

That the committee approves a roll-over of its current Terms of Reference into 2025.

Purpose

The Terms of Reference define the powers, functions and purpose of the committee. As per the Conduct of Research Policy they shall be outlined to Te Komiti Mātauranga | Academic Committee each year.

Information/Background

In December 2020 the committee reviewed and approved revised Terms of Reference. These are as follows:

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.

Next Steps

The approved Terms of Reference will be outlined to Te Komiti Mātauranga | Academic Committee.

Contributors

A/P Marcus Williams, Director Research & Enterprise

Unitec New Zealand Limited

Meeting of Te Komiti Rangahau o Unitec | Unitec Research Committee

Date of Meeting: 10 October 2024

Title	2025 ECR Contestable Fund Grants Advisory Committee (GAC) Membership
Provided by:	Brenda Massey, Senior Grants Advisor
For:	**APPROVAL**

Recommendation/s

That the committee approves the membership of the 2025 Early Career Researcher (ECR) Fund Grants Advisory Committee (GAC), a sub-committee of the Unitec Research Committee, as follows:

GAC membership who will consider every application:

A/P Marcus Williams, Director Research and Enterprise

Jamie Smiler, National Research Director, Te Pūkenga

Dr Evangelia Papoutsaki, Tūāpapa Rangahau

GAC membership who will consider specific applications:

2 x academics specifically selected for each applicant, chosen from outside of the applicant's school where possible, but with relevant discipline or transdisciplinary expertise. Bespoke members will be selected by Tūāpapa Rangahau.

Purpose

Nine early career researchers submitted 10 registrations of interest for 2025 Early Career Research Funding. They have each been invited to submit full applications before 5pm on Monday, 21 October 2024. The full applications will need to be assessed by members of the GAC.

The committee should note that allocations of funding are subject to confirmation (pending) that budget is available.

Next Steps

GAC members will read, consider, and provide feedback on the applications, convening on Monday, 25 November 2024 to decide whether the applications should be funded. Applicants will be notified of the outcome of their applications on or before Friday, 13 December 2024.

Unitec New Zealand Limited

Meeting of Te Komiti Rangahau o Unitec | Unitec Research Committee

Date of Meeting: 10th October 2024

Title	2024-2025 School Research Plans
Provided by:	Arun Deo, Research Advisor
For:	**INFORMATION**

Recommendation

That the committee receives School Research Plans for the period 2024-2025 and the visual schematic of research groups at Unitec.

Purpose

The Committee asks that Schools report annually against the Research Plans they originally developed in 2020. Because we are more than halfway through the year, the attached plans cover the period 2024-2025.

A visual schematic of all Unitec's research groups has been created from information contained in each of the Research Plans.

Information/Background

Rather than creating fresh plans each year, Tūāpapa Rangahau asks Schools to add to and/or edit their original Research Plans as a way of updating the committee on progress towards their goals and KPIs. Extra fields/rows/columns, with annotated prompts, are added to Schools' current Research Plans for this purpose. Tūāpapa Rangahau does, where it can, pre-populate some of the sections of the Plans in order to minimise the effort required of Schools.

Attachments

- Summary of Unitec Research Groups 2024-2025
- 2024-2025 School of Applied Business Research Plan
- 2024-2025 School of Architecture Research Plan
- 2024-2025 School of Building Construction Research Plan
- 2024-2025 School of Community Studies Research Plan
- 2024-2025 School of Computing Electrical and Applied Engineering Research Plan
- 2024-2025 School of Creative Industries Research Plan
- 2024-2025 School of Environmental and Animal Sciences Research Plan
- 2024-2025 School of Healthcare and Social Practice Research Plan

Unitec Research Groups by School

School of Building Construction

- Sustainability in the Architecture, Engineering and Construction Sector (AEC)
- Construction and Engineering Technology
- Environmental Engineering
- Construction Management & Economics
- Digital Technologies
- Lean and Waste Management
- Industry & Academia Collaborations
- Construction and Engineering Education

School of Computing, Electrical & Applied Technology

- Electromagnetic Measurements and Non-Destructive Sensing
- Automotive
- Cyber Security and Networking
- Power Systems
- Intelligent Systems and Data Science
- Software Engineering
- Internet of Things (IoT) and Sensor Networks

School of Healthcare & Social Practice

- Nurse Education and Future Workforce Development
- Medical Imaging Practice
- Indigenous Studies
- Social Practice and Social Justice
- Social Work, Community Development and Narrative Practice

School of Environmental & Animal Sciences

- Animal Behaviour and Welfare
- Taxonomy and Applied Ecology
- Veterinary Nursing
- Biosecurity

School of Architecture

- Te Hononga & Māori Housing
- Environment & Sustainability
- Conservation & Heritage
- Technology & Fabrication
- Urban & Housing
- Social
- Art & Culture

School of Creative Industries

- Creativity and Culture
- Design and Contemporary Arts
- Performing and Screen Arts

School of Community Studies

- Student ECE Kaiako Hauora Collaborative Research Project
- Culturally Inclusive Pedagogy and Equity in Early Childhood
- Using GenAI for learning and teaching

School of Applied Business

- Applied Learning
- Accounting
- Supply chain
- Marketing, Consumer Behaviour, and Tourism

School Research Plan – School of Applied Business

1 Introduction and current state

The School of Applied Business offers degrees in two main areas: Business and Accounting. Researchers are grouped in four research groups: 1. Supply Chain 2. Applied Learning 3. Marketing, Consumer Behaviour, and Tourism, and 4. Accounting.

Number of degree teaching staff (as at July 2024)	26
Total research FTE allocated	2.2
Current Research Traffic Light rating (Percentage of green lit staff)	77%
PBRF history (Number of PBRF rated staff in 2018)	13

The School of Applied Business offers a suite of undergraduate and postgraduate programmes from level 4 to level 9 as follows: New Zealand Certificate in Real Estate (Salesperson), New Zealand Certificate in Business (Level 4), New Zealand Diploma in Business (Level 5), Bachelor of Business (Accounting, Marketing, Management), Graduate Certificate and Graduate Diploma in Professional Accountancy, Graduate Diploma in Business (Marketing, Human Resource Management, Operations Management), Postgraduate Certificate and Postgraduate Diploma in Applied Business (Digital Marketing, Advanced HR, Business Analytics, Leadership and Supply Chain & Logistics), Master of Applied Business (Digital Marketing, Advanced HR, Business Analytics, Leadership and Supply Chain & Logistics) and Master of Professional Accounting.

The School of Applied Business actively promotes research-led teaching by providing time allocation in workloads and the appointment of research leaders to support and mentor research activities. This includes the 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 ADEP meetings, where research plans are discussed and developed in a proactive manner. These processes contributed to 69% of the degree teaching staff being research active in 2023. The School reaffirms its commitment to academic research, which is evidenced by the data in table above.

The School also teaches research practice courses (BSNS6371 and BSNS8004) and engages in the supervision of a wide range of research projects associated with the various programmes. Lecturers also share their research whilst teaching research practice. For example, in the ACTY9045 course, students are asked to critique the peer reviewed published papers authored by their lecturer.

Research findings are used in classroom teaching as case studies and reading resources. An example is the published case study projects used to develop assessments for BSNS6162. This use of recent research ensures that cases are current and authentic, describing contemporary New Zealand projects. Developing a database of research outputs that could be used as teaching materials could help share these resources within the School (refer to action 1).

Research undertaken by lecturers also enables the introduction of emerging concepts and theories into the curriculum. This ensures currency of discipline and enables the application of emerging theory to examine contemporary issues, which in turn enriches classroom teaching. For example, impact of AI innovations in process improvement discussed in BSNS6350.

A cluster of staff is researching authentic assessment and applied learning, which has a direct impact on pedagogy and teaching methods. The findings are also shared through research seminars and

internal workshops and help improve teaching practices within the School. This is illustrated under the research clusters and projects section.

Research in collaboration with industry creates networking opportunities and connections useful for both research and teaching. For example, in BSNS7350, students' group projects fed into research ideas, and research collaboration fed into further student projects. A further example is the School's continuous collaboration with industry partners, resulting in two real-time projects for our Master of Applied Business. In addition, staff from the School have worked as consultants on "developing a corporate social responsibility (CSR) strategy" for a multi-national corporation in a New Zealand organisation. This project also resulted in research contributions for Unitec. Such collaboration will be more productive as newly formed clusters progress in their projects.

Research also enhances programme development. Continuous research activities within the School have grown the skills required to systematically investigate market needs and stakeholders' expectations for future courses and programmes. Programme development activities also expose staff to ideas and opportunities for future research projects. New research capability within the School resulted in the development of two new Master's specialisations; Business Analytics and Supply Chain & Logistics and the embedding of applied research into their curriculum. This encourages students to engage with the research and provides opportunities for student/staff applied research collaborations, including industry-partnered research.

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

There are trainings and workshops for lecturers to learn about and be aware of the bicultural context in which businesses operate. The majority of staff have been working on the Te Rito (Mātauranga Māori) Suite of badges. Student research courses at the postgraduate level include kaupapa Māori methodology and guest speakers with knowledge and experience in Mātauranga Māori.

1.2 What the school is planning in the area of research to achieve the goal (leadership roles, recruitment, prioritisation, opportunity and partnership development)?

The School would like to appoint Māori staff, however has not attracted applications from suitably qualified Māori candidates in recent recruitment.
Staff intend to partner with Māori organisations and key Māori individuals on research projects in relevant disciplines.

2 School of Applied Business Goals and KPIs

There are six KPIs for research:

1. Quality Assured (QA) Research Outputs - recognised research outputs that have been peer reviewed or have been specifically commissioned. This is presented as a ratio of the number of QA outputs to FTE of degree teaching staff.
2. 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 of research active staff to the total number of staff on a degree programme.
3. 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.
4. Industry Funded Projects - research and enterprise projects Unitec is receiving funding for, where the services provided are applied contract research or consultancy, excluding any governmental contestable funding sources. This is measured as a count of the number of projects.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori Rangahau professional development achievements and Rangahau Māori research stories in the media.

The School of Applied Business has the following current goals.

- → Quality Assured Research Outputs: Maintaining the quality assured research outputs to at least 1.5 output per research active FTE[1].
- → Research Productivity: Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- → External Research Income: The School will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- → Industry Funded Projects: Maintain industry-funded projects at 1-3 projects per year
- → Student Integrated Research: The School will strive to develop research Student Integrated Research projects in line with the definition of this KPI.
- → Rangahau Māori Productivity: The School will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

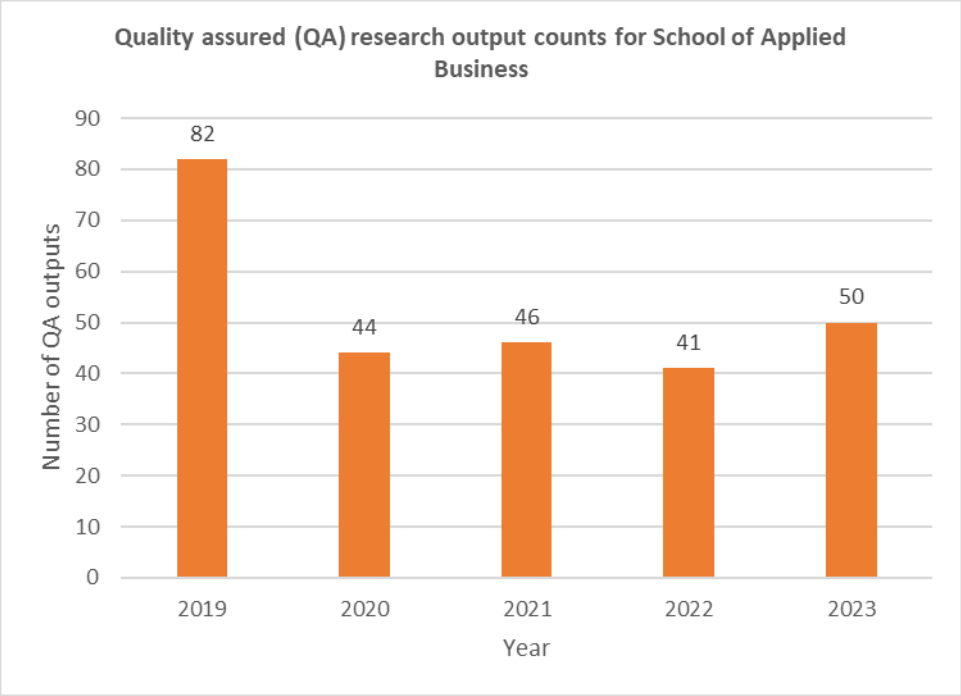


Figure 1: School of Applied Business Quality Assured Research Outputs

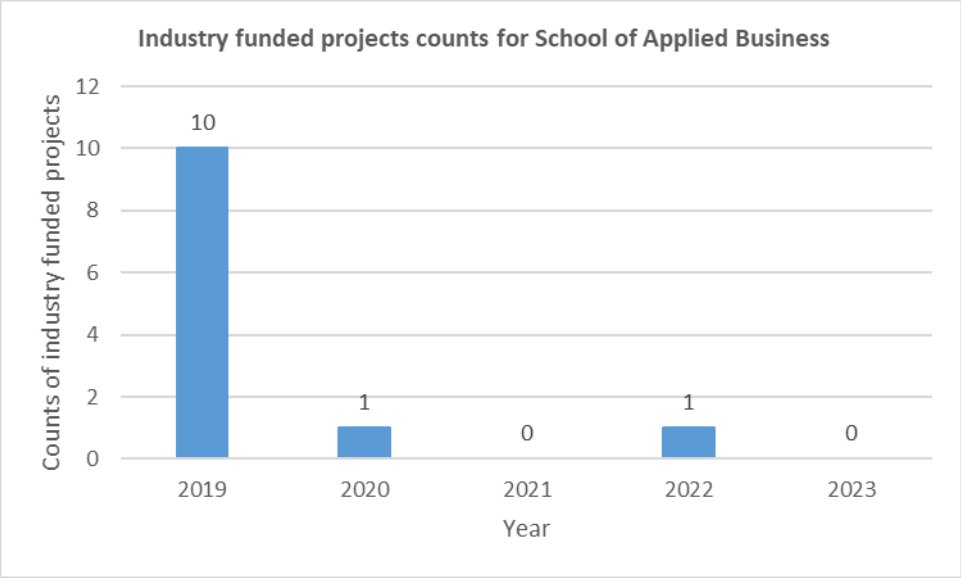


Figure 2: School of Applied Business Industry Funded Projects

Note: There was a slight change in the definition of industry funded projects in 2018 to include public sector and applied contract research or consultancy. Prior to this only funding from private sector was included.

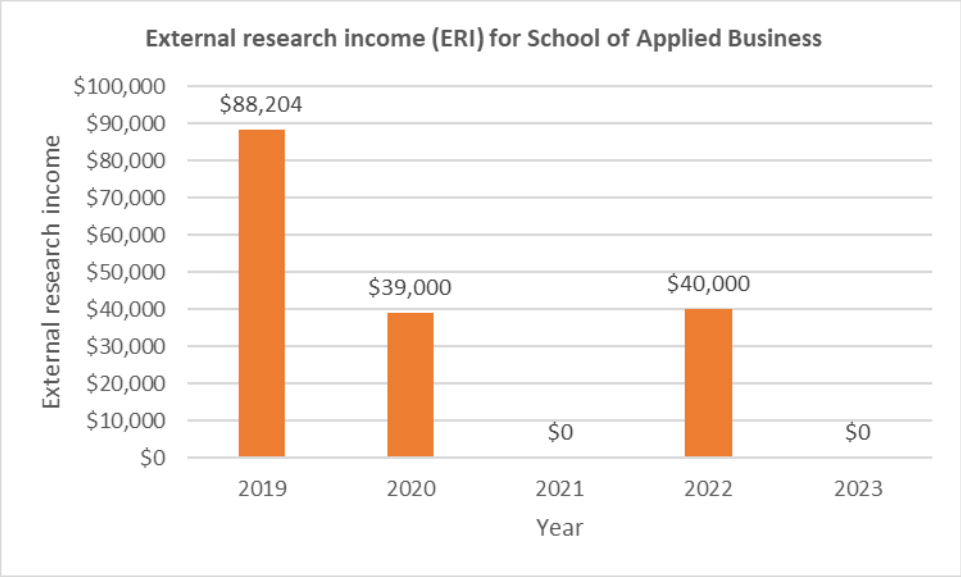
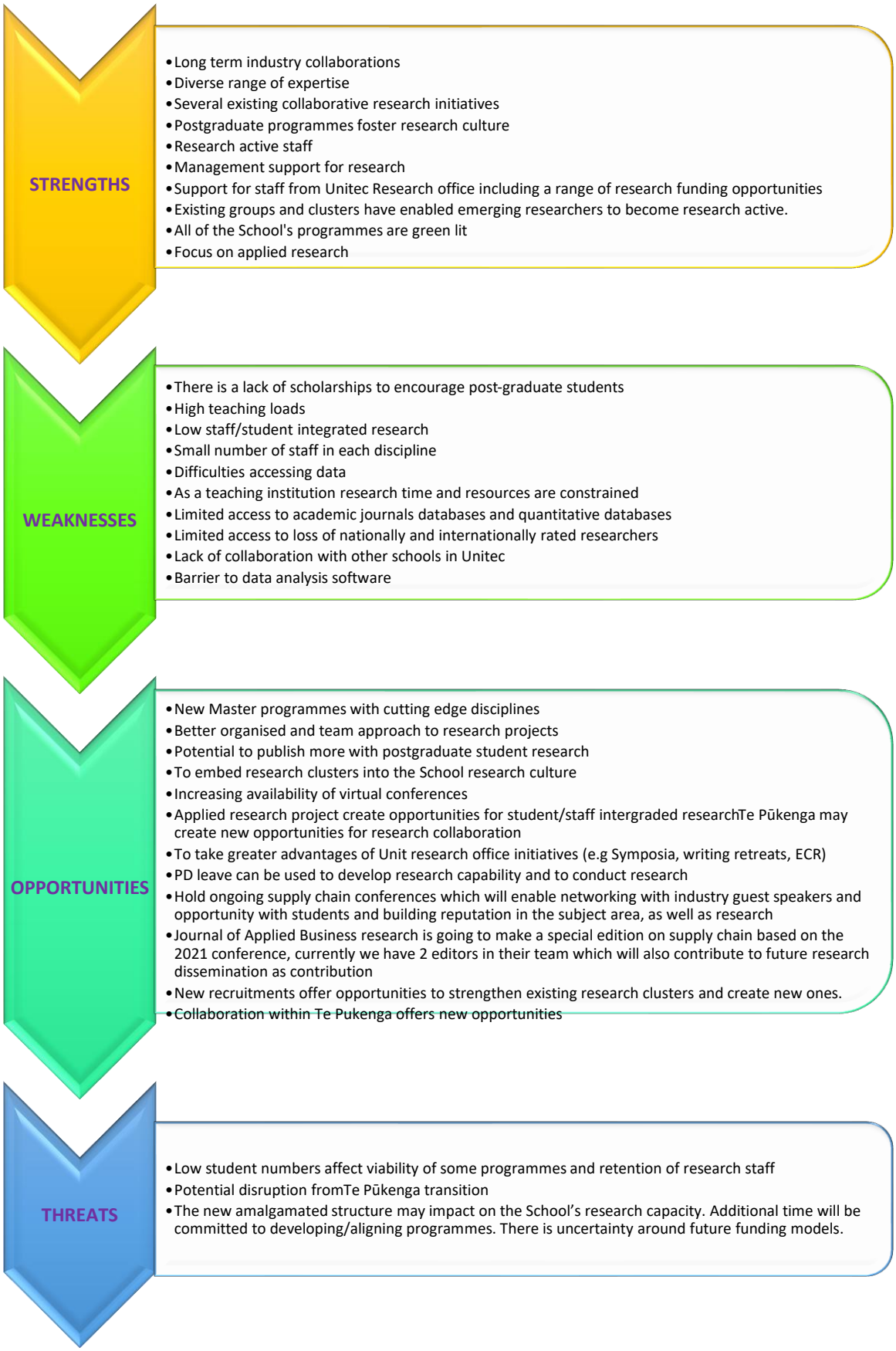


Figure 3: School of Applied Business External Research Income

3 SWOT analysis for research in School of Applied Business

Figure 4: SWOT analysis for School of Applied Business



4 Research Groups and projects (consider the Te Tiriti Priority One goal in the Research Strategy)

A successful technique for achieving goals and efficient utilisation of resources is working in synergistic collaboration. Unitec supports group projects and encourages the development of research clusters between and across School by prioritizing funding for collaborative endeavours.

The School of Applied Business has a number of research groups who partner with external funders to win funding/grants (External Research Income (ERI). Below are the external research partners who funded projects over the last 5 years.

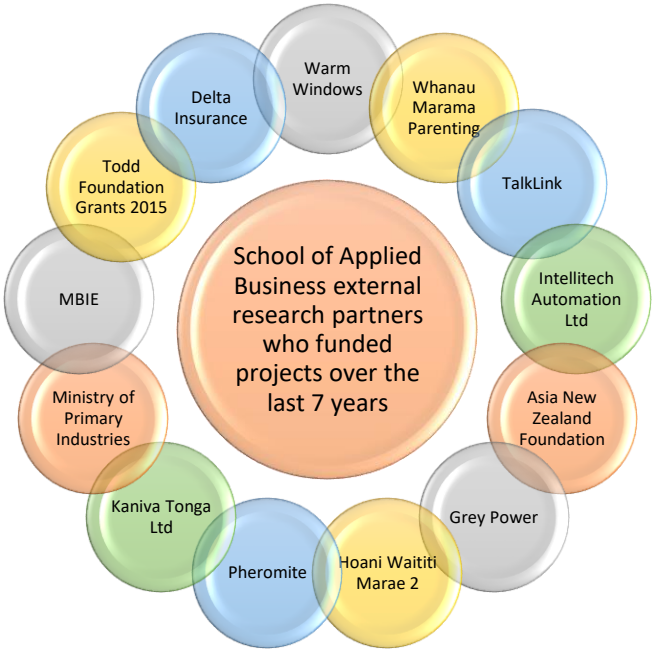


Figure 4: School of Applied Business external research partners who funded projects over the last 7 years

In 2023/24, the School merged with MIT's Business School. Research productivity in the MIT School is very low and many of the lecturers are not well equipped to undertake independent research. Unitec Research Leaders and lecturers are supporting MIT lecturers to undertake research. Some MIT lecturers have been invited to join Unitec research projects and all are encouraged to contact Unitec colleagues in their discipline areas for support.

4.1 Research Group one – Supply chain

Statement of purpose

Research in this group is directed towards topics including:

- Supply chain analytics
- Future of supply chain
- Change management and technology adoption in supply chains

Members of this group include:

- Alan Lockyer
- Sanjeev Ranganathan (Principal Lead)
- Mohammad Heydari

2024-2025 Goals

Goal 1: Motivate and maintain the number of research-active staff					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Establish Research Mentorship Program	Research Leaders and Senior Researchers	March 2025	Time allocation for mentors, training resources for mentorship	Increased engagement of early-career researchers, leading to sustained research activity	Planning phase, with initial mentor-mentee pairs identified.
Facilitate Access to Research Resources	RL and Group Principal lead to liaise on with Research Office	January 2025		Improved research output quality by providing easier access to necessary research tools	Ongoing negotiations with vendors for database access.
Support Research Time Allocation	APMs, HoS	Annually	Adjustment in workload allocation to 0.2	Enhanced productivity by allowing staff more dedicated research time	Initial discussions held during the staff meeting in August 2024.

Goal 2: Increase external research income					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Identify and Apply for Grant Opportunities	Supply Chain Research Cluster	Ongoing, with quarterly reviews	Grant writing workshops, access to grant databases	Secure at least one external research grant by the end of 2025	Two potential grant opportunities identified, proposals being drafted.
Build Strategic Industry Partnerships	Research Leaders and Cluster Members	June 2025	Networking opportunities, industry engagement	Establish at least one industry-funded research project	Initial contacts made with key industry partners.
Collaborate with International Research Institutions	Research Cluster Members	December 2025	Support for travel and collaboration	Increase external research income	Partnership discussions underway with institutions in

				through collaborative international projects	China, NZ and Australia.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will this group develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Develop Community-Engaged Research Projects	Research Cluster Members	Ongoing	Address local supply chain challenges while increasing community involvement	One community project in the initial phase, with discussions with local NGOs or SMEs.

4.2 Research Group Two – Applied Learning

Statement of purpose

Research in the area of Applied Learning is directed towards topics including:

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

Members of this group include:

- Nicholas Kearns
- James Prescott
- Liz Rainsbury (Principal Lead)
- Sanjeev Vellore Ranganatha

2024-2025 Goals

Goal 1: Motivate and maintain the number of research-active staff					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Increase research time allocation to 20% for research-active staff	APMs, HoS	Annually	Adjustment in workload allocation	Sustain green-lit KPIs for research-active staff	Proposal to be submitted for workload adjustment for all staff.
Implement regular research seminars and workshops	Research Leaders and Research Group	Every two months	Scheduling coordination and time during staff meetings	Create a collaborative environment to boost engagement	Four research seminars held by November 2024.

	Principal Lead			and research output	
Lobby for increased research funding	Research Leaders, APMs, HoD	Ongoing	Advocacy within the institution	Secure additional funding to support research initiatives	Initial discussions held with Research Office.
Secure subscription to Refinitiv/LSEG or equivalent database	Research Leaders, APMs, HoD, Library Services	June 2025		Facilitate access to essential research tools for both students and staff	Subscription proposal to be submitted by December 2024

Goal 2: Increase external research income					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Evaluate the feasibility of generating external research income	Research Office, Cluster Members	March 2025	Feasibility study, consultation with stakeholders	Determine realistic targets and strategies for external research income generation	Feasibility study in planning phase.
Explore collaborative research projects with external partners	Research Cluster Members	Ongoing	Networking opportunities, industry engagement	Identify and initiate at least one collaborative research project	Initial meetings with potential partners held.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Develop community-focused research and internship projects	Research Cluster Members	Annually	Collaboration with community organisations, project funding	Enhance community engagement through research and internships
Additional Goal 1: Improve Māori and Pacific postgraduate	APMs, HoS	December 2025	Advocacy within the institution, collaboration with Māori and Pacific	Increase Māori and Pacific student enrolment and success in

student engagement			communities	postgraduate programmes

4.3 Research Group Three – Marketing, Consumer Behaviour, and Tourism

Statement of purpose

Research in the area of **Marketing, Consumer Behaviour, and Tourism** is directed towards topics including:

- Digital Marketing
- Media communications
- Consumer behaviour
- Artificial intelligence-based marketing
- Tourism
- eSports

Members of this group include:

- Khaled Ibrahim (Principal Lead)
- Canan Sertkaya
- Mitra Etemaddar
- Aldrich Rasco
- Sung Ho Woo
- Suh-Young (Irene) Park

2024-2025 Goals

Goal 1: Motivate and maintain the number of research-active staff					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Develop a mentorship program for early-career researchers	Research Leaders	August 2025	Time allocation, senior researcher support	Increased engagement and retention of research-active staff	Initial mentor-mentee pairs identified
Provide workshops on advanced research methods in digital marketing and consumer behaviour	External Experts, Research Office	July 2025		Enhanced research skills and output	Workshops to be scheduled for mid-2025
Increase access to research resources and databases	APMs, Library Services	January 2025		Improved research output and quality	Database subscriptions under development

Goal 2: Increase external research income					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Identify grant opportunities in AI-based marketing and tourism	Research Leaders, Grant Office	Ongoing, quarterly reviews	Grant writing support, access to databases	Secure at least one external research grant	Initial grants identified, proposals being drafted
Partner with industry to co-fund research projects	Research Cluster Members, Industry Liaison	December 2025	Networking events, partnership agreements	Establish at least one industry-funded research project	Initial contacts made with potential partners

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Host an annual Marketing and Tourism Summit to engage with industry and community stakeholders	Research Leaders, Event Committee	November 2025		Increase visibility and impact of research, strengthen ties with industry and community
Develop community-focused research projects in tourism and consumer behaviour	Research Cluster Members	Ongoing	Collaboration with community organisations, project funding	Enhance community engagement and apply research to address local challenges

4.4 Research Group Four – Accounting

Members of this group include:

- Arfian Zudana
- James Prescott
- Liz Rainsbury
- Gayani Hewagama (Principal Lead)
- Lakshan Attanayake
- Saman Bandara
- Wajira Dassanayake
- James Stewart

Statement of purpose

Research in the area of Accounting is directed towards:

- Sustainability reporting: e.g. Carbon Disclosure Quality, Carbon emission reporting, Carbon Reporting Trends
- Financial reporting

The School of Applied Business research seminar series will be used as an incubator for developing this potential cluster by inviting accounting staff to present their current research projects. We anticipate this will promote discussions between staff and lead to joint research projects. The departure of key research active staff in 2022 has enabled the recruitment of several new hires in 2023 and 2024.

Accounting staff have undertaken collaborative research projects, including the impact of COVID19 on student engagement, the impact of key audit matters and sustainability. These projects have included Associate Professor Liz Rainsbury, who is leading the teams in the pursuit of research outputs. Given the small number of academic staff and limited time to conduct research it is important that collaborative projects are initiated with new staff members to maintain outputs. Sustainability research will be a popular area for academics as New Zealand moves to mandate climate-related disclosures in financial reports.

Currently, there are ongoing mini-research projects among the accounting staff related to the quality of carbon disclosures, carbon reporting, and other relevant topics. Additionally, some staff members are collaborating with academics from other universities and educational institutions.

2024-2025 Goals

Goal 1: Motivate and maintain the number of research-active staff					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Implement regular research seminars and workshops.	Research Leaders and Research Office.	Every two months	Scheduling, coordination, and time during staff meetings	Create a collaborative environment where staff can share ideas and receive feedback, boosting engagement and research output.	Four research seminars have been held by August 2024
Increase the research time in the workload	APMs, HoD	Annually	Allocation of time within workloads	Encourage active participation in research by providing sufficient time for research.	

Access to external databases via the library (also available for postgraduate student research).	Library Services & Research Office	Ongoing, with annual reviews		Facilitate data collection by providing access to external databases, addressing one of the major challenges faced by researchers.	
Develop a Mentorship Program	Senior Research Staff and through mini research collaborative projects	Ongoing, with quarterly reviews	Allocation of mentoring time within workloads, additional training for mentors	Increased retention and motivation of new research staff through guidance and support, leading to sustained research activity.	Research leaders have provided guidance for new staff on preparing research plans and facilitating collaboration.

Goal 2: Increase external research income					
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**	**Progress on the goals**
Identify and Pursue Grant Opportunities	Research Office & Accounting Staff	Annually, with a review after each grant application cycle	Access to grant databases, grant writing workshops	Secure funding through successful grant applications, increasing the department's research income.	
Form Strategic Partnerships with Industry	Research Leaders & Accounting Staff	Ongoing, with annual evaluations	Networking opportunities, e.g., attending conferences, workshops, and engaging with other universities, etc.	Collaborations with industry partners to co-fund research projects, bringing in additional external income.	A major collaborative project (based in Tonga) is underway involving a senior member of the accounting team.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Hosting Auckland Regional Accounting (ARA) Conference at Unitec	Conference Chair and the Accounting Staff	December 10, 2024		The ARA conference will enhance community engagement by offering accessible public events that showcase the department's research and provide opportunities for postgraduate students to present their work.
Establish Industry Advisory Panels	APMs, HoD and Industry Liaison	Annually, with quarterly meetings	Recruitment of industry professionals, meeting coordination	Provide regular feedback and guidance on aligning research with industry needs, fostering stronger connections.
Create Community-Focused Research Projects	Accounting Staff	Annually	Collaboration with community organisations, project funding	Engage with local communities through research projects that address relevant social issues, enhancing the department's visibility and impact.

School Research Plan – School of Architecture 2024/25

Contents

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, when faculty structures were created at Unitec, Architecture and Landscape Architecture were separated again under departments into the Faculty of Creative Industries and Business. In 2016, Unitec adopted Network and Pathway structures. 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 School's researchers are currently grouped across seven research groups. These groups are closely aligned to help the Master of Architecture (Professional) students identify areas of expertise for their ARCH 9111 year-long Research Projects.

[1] Te Hononga & Māori Housing, [2] Art & Culture, [3] Environment & Sustainability, [4] Conservation & Heritage, [5] Social Topics, [6] Technology & Fabrication and [7] Urban & Housing.

This grouping is undergoing revision in the School at the moment. By early 2025, we will have a new and updated set of groups.

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. This is often directly incorporated with teaching, for example by Min Hall, Renata Jadresin-Milic, Yusef Patel, Christoph Schnoor and Graeme McConchie.

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 (as at July 2024)	26
Total research FTE allocated	4.17
Current Research Traffic Light rating (Percentage of green lit staff)	88%
PBRF history (Number of PBRF rated staff in 2018)	21

Notes from external examiners of the School of Architecture include:

Staff noted higher outputs in 2020 due to online presentation opportunities; but looking ahead, the landscape for ongoing research outputs was uncertain and with staff being time-poor the means for them to continually generate high-quality research needed to be identified and thorough. A clear research strategy would therefore:

- include a peer-to-peer benchmarking process for staff research outputs and ensure staff are supported in terms of time and resources to maintain competitive, relevant alignment with University peers. This is also critical for staff retention and development and staff recruiting.
- Include support for external research grants to extend research at a higher level. While it is done, it does not always seem clear how it is accessed or prioritised.
- ensure the polytechnic management overlay does not inhibit discipline-specific research.
- identify a useful scaffold/roadmap for early career staff.

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 and in Architectural Theory 1 and Urban Design; they are also taught in Studio (precedent studies, site investigations, issue of plagiarism). 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 staff[1] apply their own experience of having supervised many MARCP Research Projects to foster students' understanding of methods and approaches to diverse research questions.

Professional Business Management (ARCH 8511), critically examines issues of ethics and professionalism. Architectural Theory (ARCH 8311) continues to develop students' capability in researching and formulating complex theories while linking these 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

[1] Dr Christoph Schnoor (course-coordinator), with Kerry Francis, Dr Yusef Patel, Rau Hoskins, Semisi Potauaine and Graeme McConchie as supporting staff.

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 Diane 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 Master of Landscape 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 received funding and begun 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:

- Te Hononga is our Māori Design Research Lab, led by Rau Hoskins. The mātauranga gained here over more than 20 years feeds across several aspects of the programme, from first year (Architecture and Context) to post-graduate supervision (Research Project).
- Semisi Potauaine is a Pacific researcher and practitioner teaching first year Design Studio and Architectural Technology 1. He provides specific teaching and support for our large Pacific cohort of ākonga, ensuring that their attention is captured at the outset of their studies with concepts of the Pacific introduced and developed in their work from first year to post-graduate Research Projects. Specific examples of research-led teaching include Maui's Catch in 2023 which explores Matariki through a bicultural lens, and results in students designing and fabricating large-scale installations for public display.
- Dr Cesar Wagner and Dr Lucia Melchiors on Urban Housing. Auckland Council research into Urban Housing elective.
- Dr Christoph Schnoor on Ernst Plischke (SAHANZ 2011, 2014, 2015, 2020) 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.
- Peter McPherson on digital technologies into his elective.
- Dr Yusef Patel on digital fabrication (CNC) into his elective.
- 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 Lizori, June 2018).

1.3 Research through teaching:

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

- Dr Renata Jadresin-Milic – digital scanning elective ARCH7624 Digitalisation of Heritage (funded with ECR grant in 2020/21). ARCH 7611 Negotiated Studies: *Digitalisation of Heritage* (funded with ECR grant; Auckland Council grant; MHUD grant). Establishment of Research Centre based on this research.
- Dr Christoph Schnoor in ARCH 7626 New Zealand Architectural History; publications: *The Vertical Picturesque* (2019), *Southern Modern: Six Houses by Ted McCoy* (2023) – 2023 research on Paul Pascoe in Christchurch, currently preparing publication.
- Rau Hoskins, in particular through Te Hononga Māori Studio, and externally funded research projects. Discussions underway with MIT Tech Park to produce Tiny Homes for Papatūānuku Marae, part of a Ngā Wai a te Tui project.
- Dr 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).
- We also have a profession/industry-edited edition of Asylum published in 2023.

1.4 Industry-connected research

A series of industry connected projects related to digital fabrication, run by Dr 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 prefabricated, modular dwelling. In 2024 this has developed to a 120m2 two-story prefabricated house with a range of industry partners and private client. This house is being used as a teaching tool for first year students (ARCH 6411) to compare and contrast standard and non-standard solutions to building, as well as providing a hands-on opportunity to be involved in the building process themselves.
- 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, and recently won, with Magda Garbarczyk,

2 School of Architecture Goals and KPIs

The School of Architecture has set itself a number of 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.
- Increase externally funded income.
- Steadily increase the higher degrees of staff. Ten staff currently hold a PhD degree (Matthew Bradbury, Hugh Byrd, Hamish Foote, Lucia Melchiors, Renata Jadresin-Milic, Yusef Patel, Christoph Schnoor, Bin Su, Cesar Wagner, Sameh Shamout), while Annabel Pretty, Xinxin Wang and Gina Hochstein are enrolled into a PhD programme and/or recently held their examination.
- Encouraging staff to produce more collaborative co-authored research outputs and generate outputs like *Asylum* and books like *The Vertical Picturesque* and similar.
- Encouraging staff to publish more research outputs like journal articles and book chapters.
- Looking at the possibility of establishing another research centre or two.

There are six KPIs for research:

1. 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.
2. 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.
3. 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.
4. 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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.

The School of Architecture has the following current goals.

- → Quality Assured Research Outputs: Maintaining the quality assured research outputs to at least 1.5 output per research active FTE[2].
- → Research Productivity: Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- → External Research Income: The school will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- → Industry Funded Projects: Maintain industry-funded projects at 1-3 projects per year
- → Student Integrated Research: The school will strive to develop research Student Integrated Research projects in line with the definition of this KPI.
- → Rangahau Māori Productivity: The school will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

[2] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

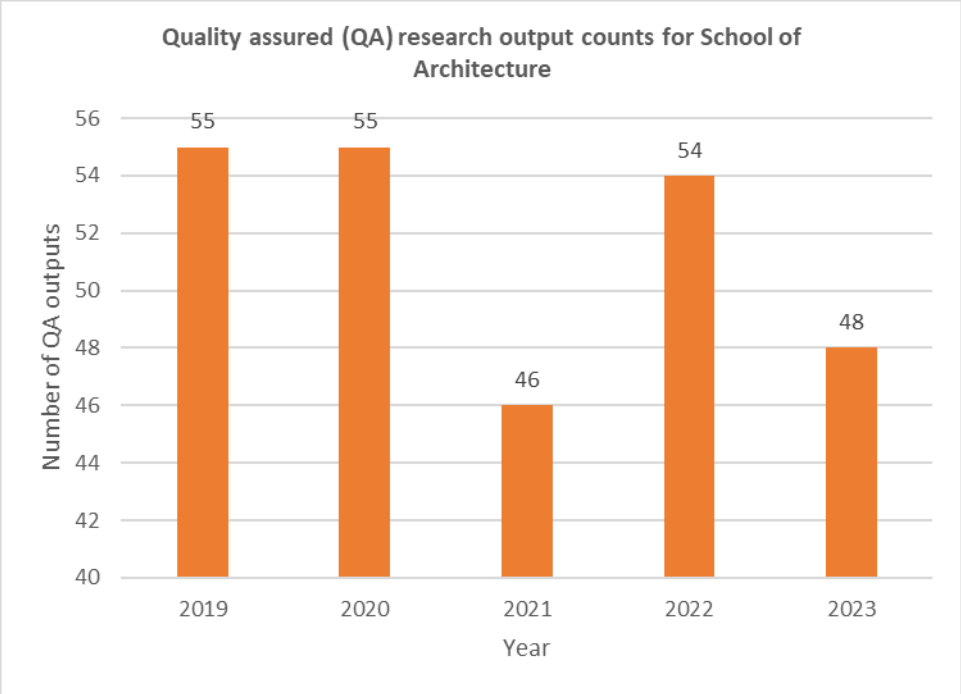


Figure 1: School of Architecture Quality Assured Research Outputs

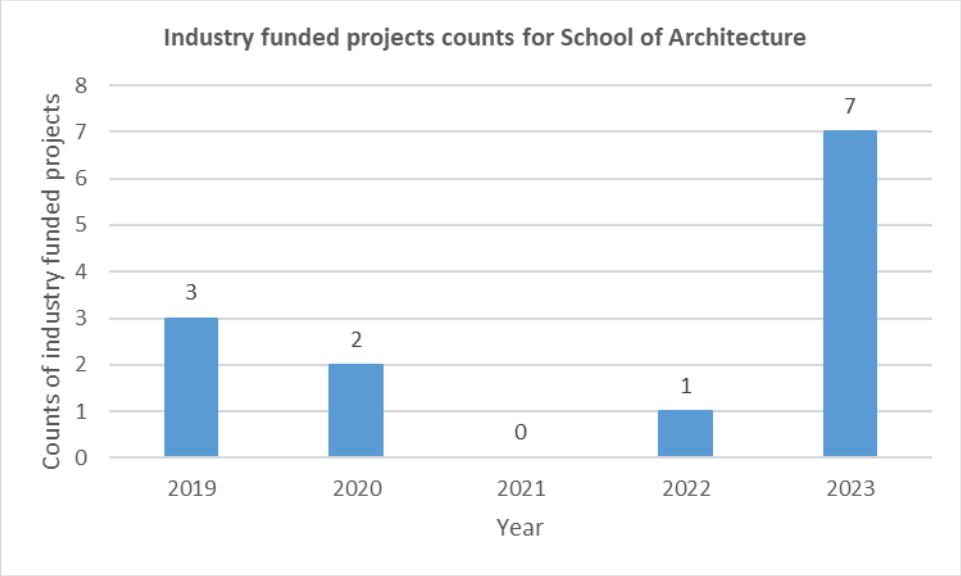


Figure 2: School of Architecture Industry Funded Projects

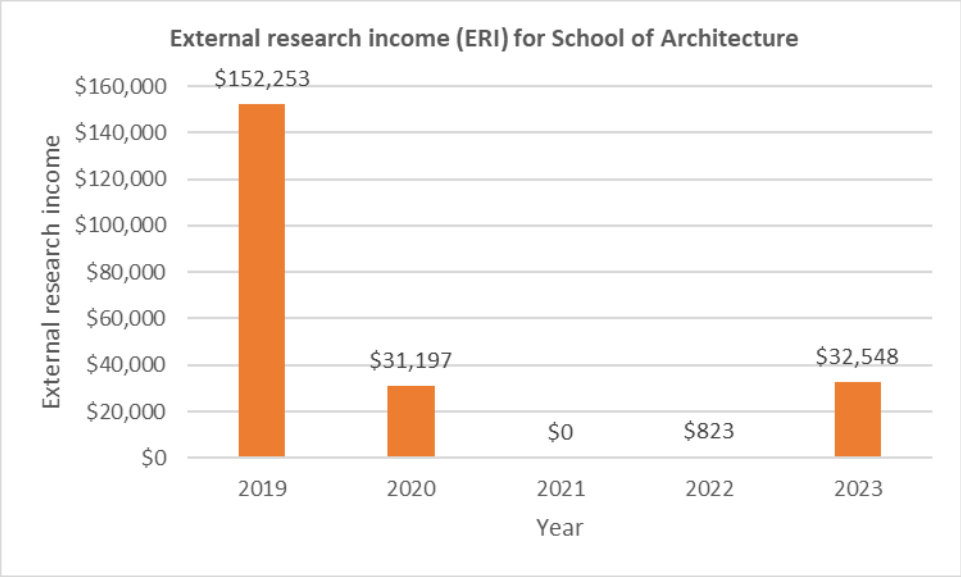


Figure 3: School of Architecture External Research Income

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.

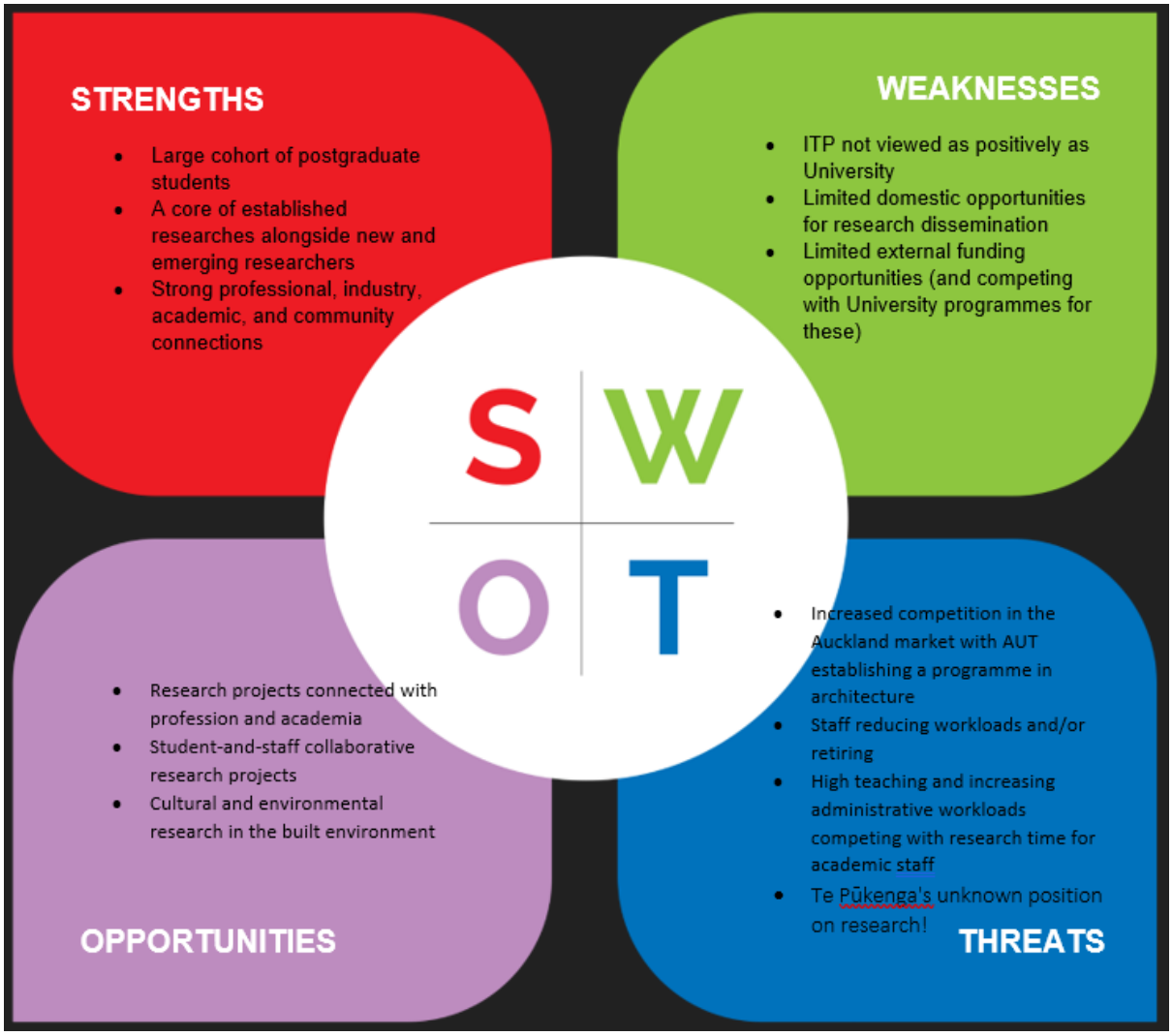
2.1 What is the school planning to increase research diversity?

On a School level, the next generation of Māori researchers are being fostered and helped to grow into roles of responsibility. Two recent graduates of the Master of Architecture programme, Maia Ratana and Kelsey Metcalfe, are examples of this.

The School also give a high priority to the development of capability in the area of Pacific research. To mention here are architect, artist and lecturer Semisi Poutaouine and 'next generation' - recent graduates Venus Mataia and Tuputau Lela'ulu.

We are also collaborating with others, such as Professor Regan Potangaroa (Massey University), to give breadth to other research projects such as the Digital Heritage work and work into community projects.

3 SWOT analysis for research in School of Architecture



4 Research Groups and projects

The School of Architecture currently has seven research groups [1] Te Hononga & Māori Housing [2] Art & Culture, [3] Environment & Sustainability, [4] Conservation & Heritage, [5] Social, [6] Technology & Fabrication, [7] Urban & Housing. These groups – or clusters – have been defined to help students in the Master's degree programme to identify their area of focus in line with the staff research expertise.

Since the staff setup has changed significantly over the last few years, the School is currently undertaking a re-evaluation and will have re-organised the research groups by early 2025. This will also be done to give other/new staff the opportunity to be the lead of a research group or cluster, to give opportunity to more fully define a research group or hub, and to consider the efficacy of groups based on external feedback.
Because of this imminent change, we have asked the lead staff members of the research groups to provide a brief statement about the activities of their respective groups. New comprehensive plans will be developed for next year.

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.

Technology and Fabrication have been establishing funding mechanisms on projects in 2022 with a view to establishing a research centre in 2023. Research Groups have been shared nationally as part of Te Pūkenga, particularly with respect to Otago Polytechnic's school of architecture and aligning and developing their research culture.

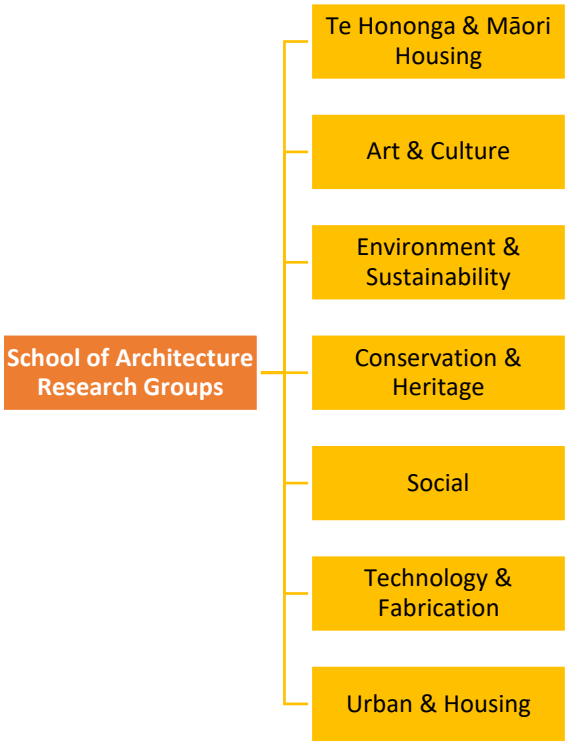


Figure 4: School of Architecture seven research groups

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 Architecture external research partners who funded projects over the last 7 years

4.1 The School of Architecture overall

Research in the School of Architecture aligns with the Unitec Research Strategy 2020 – 2024, Te Tiriti priority. On an individual level, numerous research projects are being undertaken with iwi, for Māori community groups etc.

On a School level, the next generation of Māori researchers are being fostered and helped to grow into roles of responsibility. Two recent graduates of the Master of Architecture programme, Maia Ratana and Kelsey Metcalfe, are examples of this. They have provided pastoral care to students and Maia has moved to the level of primary supervisor for post-graduate students in 2023. Maia has enrolled into PhD studies and continues as a researcher with Jenny Lee-Morgan.

The School also gives a high priority to the development of capability in the area of Pacific research. To mention here is architect, artist and recently tenured lecturer Semisi Poutauaine. Semisi brings a broad understanding of the Pacific to all areas of the architecture programme. In addition, the school has cultivated and supported the development of graduates for several years and is proud to see the establishment of MAU Studio, a Pacific architecture and design practice co-founded by Unitec graduate and part-time lecturer Tuputau Lela'ulu and comprising several Unitec architecture graduates. MAU has provided pastoral support for ākonga, and taught are various levels across the programme (eg. Venus Mataia).

Research happens within the clusters, but equally across the clusters.

We have worked to establish Research Groups in the School with the dual aim to focus student research in areas aligned to academic staff research interests, and to increase the quality of outputs and collaboration between researchers. The Research Groups bring a focus to areas to attract research funding and additionally create opportunities for collaboration across the groups where specialist knowledge and skills can enhance research outcomes.

The biggest new development is the establishment of a Research Centre at the School of Architecture, the Digital Heritage Research Centre (see below) – involving Dr Renata Jadresin-Milic, Graeme McConchie (Heritage) and Peter McPherson (Technology) on the Building 1 Digitisation project (where technical knowledge helps to inform outcomes of a heritage/conservation focused project.

Further examples of this can be seen in the work of Dr Yusef Patel and his work with Panuku Development Auckland which has recently seen external funding and cross-School collaboration with Dr Bobby Hung for student-led and community-based research.

These Research Groups are not considered as definitive for the location of individual's research interests and indeed interests and expertise may occur across groups. They exist as a place to guide and organise research in the School with the intention to develop research capability and higher level outputs.

Future plans for the School include focusing on research outputs that contribute to the professional architecture environment.

These can be considered in a number of ways, including recent examples such as:

- Dr Christoph Schnoor and Graeme McConchie's series of NZ Architecture History publications that incorporate student-led research examining the work of significant but underrated NZ architects.

The *Asylum Design Research Journal* is a further example of this that has the intention to support the publication and dissemination of non-traditional (non-written) research outputs. This type of publication can enable the examination of broader architectural ideas such as, for example, drawing practice, which has the potential to attract input from students, academics, and practitioners alike. In 2023, *Asylum* is publishing a profession-led editor edition in collaboration with The Urban Advisory and Dr. Natalie Allen.

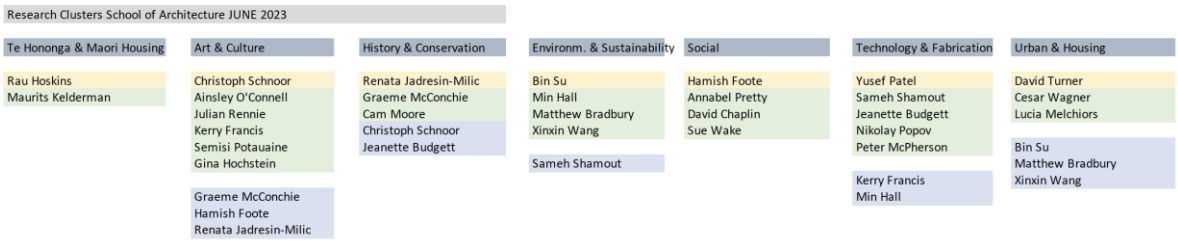
Several prominent graduates from the programme operating at a high level of practice are interested in contributing to a 30-year programme anniversary edition of *Asylum*.

Opportunities exist for deeper engagement with the profession to create research centres of excellence that support practice-focused research and development to explore issues facing the profession. These include topics such as urban housing, climate and ecological change, zero carbon building and the issue of construction waste. Issues of social and cultural change cannot be underestimated either for their impact on how we consider our built environment. The School is well placed to develop leadership in this area which can already been seen in the work of Rau Hoskins in collaboration with Ngā Wai a Te Tui.

The School is exploring the possibility of recording and publishing the history of Te Hononga, Māori Studio, led by Rau Hoskins and Carin Wilson, with the assistance of Jade Kake.

The transition to Te Pūkenga under RoVE has created opportunities for collaboration with other architecture programmes across ITPs. The first element to this is providing support and guidance to develop post-graduate programme(s) at those already offering undergraduate architecture programmes (Otago Polytechnic and Ara), with Otago Polytechnic now approved with the first students enrolled in 2023. Support is continuing as Otago prepare for their initial professional accreditation visit from the NZRAB in April 2025.

The intention here is to support the programme across Unitec and Otago Polytechnic, including supporting the development of research supervision capability. Additionally, the current Unitec SoA Research Groups have been proposed as part of a national research group aligned to construction and architecture. For Otago this means that their staff can begin to align their research and contribute to these areas. It also means that they can contribute to Unitec established research dissemination forums such as the *Asylum Design Research Journal*. This journal is something others like colleagues at Wintec are also keen to contribute to.



4.2 Research Group One – 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 research, 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). He is 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.

Rau Hoskins has signalled a potential shift in his engagement to support the broader programme and move away from the Māori Studio paradigm, with others like Maia Ratana and Kahurangi Eruera moving into that space. This will be worked on throughout 2024 to establish a five-year plan.

2024-2025 Goals

Update from Rau Hoskins:

Te Hononga o Whaihanga ki Wairaka

Te Hononga are this year continuing our focus on supporting Marae communities and are engaging with Te Āwhina Marae in Motueka to complete a comprehensive master plan for their expanded 10ha marae site.
The current project asks students to research the cultural landscape and history of Ngāti Rārua and Te Atiawa as a precursor to developing their masterplans and preliminary designs for an arts / STEAMM hub at the marae. Students will return to the marae in Crit week to both present their designs and build an outdoor cooking facility to compliment a recently completed community house at the marae.
The course is being run in parallel with Min Hall's Resource matters elective where students are exploring the use of earth, straw bale and other natural fibre construction techniques particular to Te Tauihu / Nelson area.

4.3 Research Group Two – 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.
Engaged in this group: Graeme McConchie and Kerry Francis

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.

Three areas of research have been established:

1) the role of modernist architecture in post-war New Zealand
2) Research on indigenous architecture in Samoa (and Tonga)
3) Research on (pre- and post-) colonial architecture in the Pacific, particularly Samoa

2024-2025 Goals

As with the other groups, we will investigate possibilities for re-grouping to account for changes in staff and in staff's research focus.

For 2024, three areas of focus:

AASA Symposium on Modern Architecture in New Zealand and Australia: Symposium was held in Adelaide in February 2024. 17 papers presented; participants from Unitec: Kerry Francis and Sinead McClay (1st yr MARCP). Book publication is underway, edited by Dr Stuart King (University of Melbourne) and Christoph Schnoor.

Outcomes – student essays – of the 2023 elective New Zealand Architectural History are being edited and brought together into book form. Publication planned for late 2024/early 2025.

As indicated below, project to survey, record and restore the former Head of State's Residence in Apia, Samoa is now underway. Christoph Schnoor will be travelling to Samoa with five 3rd year BAS students to assist Auckland-based firms archifact ltd. And Recon in their survey, and to undertake additional historical research in Samoa. The project is co-lead by CS, Dr Christian Reepmeyer (German Archaeological Institute in Bonn (DAI) and Dr Matiu Matuvai Tautunu (NUS).

4.4 Research Group Three – Environment & Sustainability

Statement of purpose

This cluster promotes research towards environment and sustainability. The lead staff member is Prof Bin Su.

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.

2024-2025 Goals

Update from Bin Su:

Over the last two years (2022-2023), we focused on studies of indoor thermal environment related to Auckland school building design. We published two journal papers in *Buildings* and *International Journal of Environment Research and Public Health*. In 2024, we focused on indoor allergy related to indoor microclimate of New Zealand housing. We published one journal paper in *Architectural Science Review*. We are continuously focusing on studies of indoor thermal environments related to occupants' health of local housing and Māori housing, and arming to apply for an external research funding.

4.5 Research Group Four – 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:

1. ARCH7624 (2020) and ARCH7611 (2021) Digitalisation of Heritage – teaching and research project.
2. ARCH8629 Building Conservation (2016-2021) – teaching and industry connections (Adam Wild, Archifact – architecture & conservation; Pip Cheshire, Cheshire Architects; Robin Byron, Heritage NZ; Pamela Dziwulska, Salmond Reed Architects and ICOMOS NZ Chair).

Industry partners in the "Digitalisation of Heritage in NZ" research project in 2020 and 2021 - national and international professionals in the field:

- Salmond 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, developed in 2021:

- Pt Chev Social Enterprise Trust
- Auckland Council, Heritage Unit, Plans and Places Department, Chief Planning Office (Albert Eden Local Grant in 2020)
- Ministry of Housing and Urban Development (Grant in 2021)
- 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.

2024-2025 Goals

In the timeframe available, no update was received on this research group. This may still be pending.

4.5.1 How are you embedding Mātauranga Māori in your research group?

In the research project proposals for national funding applications for contestable funds from the central government organisation the Research Group and the Digital Heritage Research Centre have developed so far, we demonstrated that our diverse team is always co-led by a Māori scientist, Prof Regan Potangaroa (Massey University), who directly contributes his tangata whenua knowledge, expertise, and advocacy for preserving Māori architectural heritage. In our work, we will be guided by a Kāhui Māori who will ensure the projects' aspirations around Vision Mātauranga are realised. If our proposals are successful and we are approved to continue our work, the tools that will be developed will assist with the Raetihi community's aspirations for the future of their town and its heritage. This aspect of the project will involve engagement with Ngāti Uenukumanawawiri of Ngāti Uenuku and Ngāti Rangi hapu. The hapū will be supported to actively co-design the creation of augmented reality heritage stories, allowing them to store their traditional knowledge and utilise and securely share their mātauranga in an online space.
Appropriate management of all mātauranga is an integral component of our work. Agreements will be sought from the outset, ensuring the IP and cultural safety of our Māori knowledge holders is recognised and protected. The team will abide by the Nagoya Protocol (2011) and acknowledge that sharing biological, ecological, and environmental data in support of innovation and generative economic opportunities must address the rights of Indigenous peoples.
Jadresin-Milic and Potangaroa (Ngāti Kahungunu ki Wairarapa) work closely together and have co-developed the project proposals. They operate as equal partners under pre-agreed values. The whole Research Centre team is committed to honouring and upholding Māori perspectives and knowledge systems with profound reverence for Te Ao Māori, particularly as it relates to heritage and te taiao.
With Maia Ratana initially in 2021 and 2022, and with Regan Potangaroa gradually in 2022 and 2023, we continued to explore/discuss/draft papers and proposals, and find opportunities for Māori postgraduate students to engage with topics such as:

- Mātauranga Māori and digital storytelling;
- Analyse the ways in which digital technologies can be used in the representation and preservation of Māori heritage sites and buildings.

4.5.2 What mentoring and/or support for new and emerging researchers is occurring?

- Mentoring new research associates and research assistants: Viola Vadász, Iman Khan, Rohan Sadhu.

- Mentoring for new and emerging researcher in his application for the 2023 Marsden Fund: Sameh Shamout.
- Permanent support for researchers working on the same and different research projects: Cameron Moore, Maia Ratana.
- Permanent support and mentoring for young researchers: Jaspreet Kaur, Samuel Vivian, Sian Singh, Thomas Reutlinger, Elise Alexander.

4.5.3 What opportunities for student partnered dissemination and/or scholarships, including Industry Parter Scholarships are being undertaken?

Students have been actively involved in this work. Postgraduate students have always been coordinating with industry partners while working on their research projects: 2021: Laura Action, engagement with DPA Architects, Auckland – Dave Pearson and Geometria. 2021: Lorraine Kapurubandara, engagement with asBuilt Digital and Pt Chev Social Community Trust. 2021: Rimo Ribechini, engagement with asBuilt Digital and Survis Ltd. 2021: Dilukshi Thurairajah, engagement with Survis Ltd – Malcolm Archbold and Auckland Airport. 2022: Julia Hamilton, engagement with Ōtākaro Limited, Christchurch – Olivia Thompson. 2023: Rohan Sadhu, Samuel Vivian and Hannah Adolph.

One recent example is a joint contribution for the Resilient & Responsible Architecture and Urbanism (RRAU) – 5th Edition (our student Xingru Song is the first author):

- Xingru Song, Paul Baragwanath, Sameh Shamout, Renata Jadresin-Milic. The power of communities as a Means of Preserving Heritage - The case of St. David, Auckland, New Zealand.

4.6 Research Group Five – 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.

2024-2025 Goals

The diminishing of the ADHB collaboration due to factors outside our control, and external feedback on post-graduate research projects, has given rise to consider the emphasis and focus on this group. The larger question is related to whether the themes emerging as an architectural focus are sufficient in and of themselves, or if the broader topics coming through this group are more appropriately aligned to other clusters.

4.7 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.

2024-2025 Goals

This group will continue to explore external connections and build opportunities, along with collaborative projects to broaden the dissemination of its research outcomes. #
In progress is a book/textbook on the subject of community building that has been accepted by Routledge to progress. This is a collaboration across three institutions.
The Research House has developed to a full sized four-bedroom, two-story house. Opportunities to link teaching to this building are underway, as are further industry opportunities with a further house project being discussed for 2025/26.

Update by Yusef Patel:

This year, we will be continuing to make progress in the fabrication space with a variety of projects. Semisi Potauaine, Peter McPherson and Yusef Patel are working on their next research house with Tama Toa construction and industry Partners such as Pro Clima NZ, Resene and Outright insulation.
Lecturers Gina Hochstein, Carl Salas and Yusef Patel are working on digital fabrication displays centred on 3D printing for Build NZ and Architecture week. The work will require the lecturers to work with Autux Group and Alistair Munro workshops.
Yusef Patel is continuing to work with Abodo Wood to complete Hearts Roadshow project. A large amount of work has been completed for the Avondale Association using Abodo Wood offcuts last year. It is the hope this work will be completed this year.
There will be a focus on working to embed the work into teaching such as ARCH 6112 (Studio 2nd year) with the Matariki Project; and a focus on writing academic papers.

4.7.1 How you are embedding Mātauranga Māori in your research group;

The following projects embedded Matauranga Maori into the research:

1. Toutai-à-Maui: Maui's Catch for Whau Arts Festival – The project celebrated Maui's journey from a Pacific and Maori world view.

2. We plan to complete the Ngākōroa School Feature Piece, South Auckland – The project embedded themes of Awa into its design.
3. Digitally produced sculpture out of recycled Abodo wood to be produced for the Avondale Business Association – the design and research reviews the themes of Matariki.
4. We are developing a design build project with the Avondale Business Association's Woven Festival. The project is to review Māori, Pacific and Asian themes.

4.7.2 What mentoring and/or support for new and emerging researchers is occurring;

Senior lecturers are mentoring younger lecturers and students on the following:

1. Conference/journal/Book chapters
2. Developing skills to enable design-process lead research
3. Exhibiting/curation opportunities
4. Set up of research goals, aims and projects
5. Setting up industry collaborations

4.7.3 What opportunities for student partnered dissemination and/or scholarships, including Industry Partner Scholarships are being undertaken;

The projects planned for this year lead to the following scholarships:

6. Abodo Studentship (potential for multiplate)
7. BRANZ studentship
8. Laminex/ Ngākōroa Studentship

4.7.4 What the plans are for externally funded research income;

See notes above.

4.7.5 What community/professionally partnered research activity is occurring:

- Moller Architects
- Holmes consulting
- Made group
- Laminex Group
- Abodo wood
- BRANZ
- AUT University
- Oculus engineering
- Alistair Munro Design
- SwiftPro
- Eke Panuku & Auckland Council
- Whau The People
- Avondale business association
- Takapuna beach Association

4.8 Research Group Seven – Urban & Housing

Statement of purpose

This cluster promotes architectural research towards Urban and Housing. The lead staff member was Dr David Turner who sadly passed away in September 2023. The future of this group is in capable hands with Cesar Wagner and others that can contribute in this domain.

2024-2025 Goals

This Research Cluster will need further consideration as to its future, the leadership of it, and what, if any, changes in direction might be appropriate.

Update on activities and planning from Cesar Wagner:

Resilient Agro Pontina, Italy: Managed retreat workshop in collaboration with Politecno de Milano.
Urban Housing Electives Research: Urban Housing (ARCH7617, BAS) and Housing in Cities (ARCH8614, MARCP) electives investigation into living at higher density in two residential developments on the fringes of central Auckland; Beaumont Quarters and Vinegar Lane Precinct respectively.
Master's student research on the implementation of apartment typologies in the suburb of Henderson.
Collection and archiving (with the assistance of Liz Turner), for current and future studies, of Dr David Turner's work on post-2016 developments regulated by the Auckland Unitary Plan (AUP). This documentation consists of a folder of background material (photos, notes, AC records where available online, agent brochures) and a single summary data sheet detailing numbers, density, typology, and developer, illustrated with plans and key photos.

5 Appendix

5.1 Appendix – Staff Interests

Staff Name	Research outputs (2018-2024)	Research Interests
Ainsley O'Connell	2-Artifact/ Object/ Craftwork, 17-Exhibition – Group, 1-Exhibition – Solo, 1-Presentation (non-conference)	Sculpture
Annabel Pretty	1-Awarded Doctoral Thesis, 1-Book Review (Unitec only), 6-Conference Contribution- Abstract, 6-Conference Contribution- Oral Presentation, 8-Conference Contribution- Paper in published Proceedings, 1-Exhibition - Curatorial Exercise, 4-Journal Article, 1-Other, 1-Presentation (non-conference)	Follies-Pavilions, speculative/paper architectural representation/s, social architecture
Bin Su	2-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 2-Conference Contribution- Poster Presentation, 3-Journal Article, 2-Report	Architectural science and technology, Building indoor thermal and health conditions, Building passive design and energy efficiency

Cameron Moore	1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 6-Journal Article	Urban planning for housing, neo-classical architecture
Carl Salas		Digital technologies for manufacture and their incorporation in design process.
Cesar Wagner	1-Awarded Doctoral Thesis, 1-Book Chapter, 3-Conference Contribution-Paper in published Proceedings, 2-Journal Article	Sustainable urban development; urban and regional planning; metropolisation; gentrification; urban morphology; housing policies; community development projects
Christoph Schnoor	3-Book Authored, 7-Book Chapter, 3-Conference Contribution- Abstract, 7-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 4-Edited Book/Volume, 3-Journal Article, 3-Presentation (non-conference)	History/ theory of modern architecture: perception and design of arch./urban space (Le Corbusier), architecture and emigration (Ernst Plischke); cultural transfer (Samoa)
David Chaplin		Design process
Gina Hochstein	3-Conference Contribution- Abstract, 7-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Exhibition – Group, 2-Exhibition – Solo, 5-Journal Article, 3-Other, 1-Presentation (non-conference)	Gina's PhD by creative practice combines research and written scholarship with a creative project output investigating the complex intersection of craft practices and architecture that results in items of adornment on the female form for an exhibition.
Graeme McConchie	2-Book Chapter, 1-Conference Contribution- Abstract, 2-Conference Contribution- Oral Presentation, 2-Edited Book/Volume, 3-Journal Article, 1-Presentation (non-conference)	History of New Zealand architecture, heritage conservation in NZ
Hamish Foote	1-Conference Contribution- Oral Presentation, 1-Discussion/Working Paper (Published), 4-Exhibition – Group, 2-Journal Article, 1-Other	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
Jeanette Budgett	2-Book Chapter, 1-Conference Contribution- Oral Presentation, 2-Edited Book/Volume4, -Journal Article	Pacific Architecture, Urban Heritage, Architectonics, architectural pedagogy
Julian Rennie	6-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 1-Edited Book/Volume, 3-Journal Article	Architectural Pedagogy, NZ Coloured Light, Christchurch Earthquake temporalities, Venetian temporalities, NZ Architectural Details

Keith Mann		Construction and architecture
Kerry Francis	4-Conference Contribution- Oral Presentation, 4-Conference Contribution- Paper in published Proceedings, 1-Journal Article	Design pedagogy; creative work: drawing; New Zealand architecture
Lucia Melchiors	1-Awarded Doctoral Thesis, 1-Book Authored, 3-Book Chapter, 4-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 4-Journal Article, 2-Presentation (non-conference)	Urban design: metropolitan governance
Margot Hall	1-Book Chapter, 1-Book Review (Unitec only), 2-Conference Contribution- Oral Presentation, 6-Conference Contribution- Paper in published Proceedings, 1-Exhibition - Curatorial Exercise	History of earth building in Aotearoa, Low carbon construction techniques
Matthew Bradbury	1-Awarded Doctoral Thesis, 2-Book Authored, 1-Book Review (Unitec only), 9-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 2-Journal Article, 1-Other, 2-Presentation (non-conference)	Climate change and urban design
Nikolay Popov		Digital landscape design
Peter McPherson	2-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 5-Conference Contribution- Paper in published Proceedings, 1-Edited Book/Volume, 5-Journal Article, 1-Other, 1-Report	Design education (of architects) and the influence of technology on architectural practice, including BIM, design and manufacture, descriptive geometry
Rau Hoskins	2-Book Authored, 3-Book Chapter, 1-Conference Contribution- Oral Presentation, 1-Other, 1-Report	Māori architectural practice / guidelines for bi-cultural planning and building practice
Renata Jadresin-Milic	2-Book Chapter, 7-Conference Contribution- Abstract, 10-Conference Contribution- Oral Presentation, 9-Conference Contribution- Paper in published Proceedings, 1-Edited Book/Volume, 16-Journal Article, 5-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
Sameh Shamout	1-Awarded Doctoral Thesis, 1-Book Authored, 2-Book Chapter, 5-Conference Contribution- Abstract, 3-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 1-Design Output, 1-	Engineering and architecture for resilience in the era of climate change?

	Journal Article, 7-Performance, 1-Presentation (non-conference)	
Susan Wake	2-Book Chapter, 2-Conference Contribution- Oral Presentation, 5-Conference Contribution- Paper in published Proceedings, 2-Journal Article, 2-Presentation (non-conference)	Children environments
Xinxin Wang	2-Book Chapter, 6-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Edited Book/Volume, 5-Journal Article, 1-Presentation (non-conference), 1-Report	Urban Design: integrated green-grey infrastructure / the intersection of landscape and urban design
Yusef Patel	6-Artifact/ Object/ Craftwork, 1-Awarded Doctoral Thesis, 2-Conference Contribution- Abstract, 2-Conference Contribution- Oral Presentation, 6-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 4-Design Output, 5-Journal Article, 1-Other	Digital Fabrication, Social enterprise, prefabrication, Industry and community design

School of Building Construction Research Plan 2024-25

1. Introduction and current state (or executive statement)

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 eight research focus groups: Sustainability in the Architecture, Engineering and Construction, (AEC) sector; Construction and Engineering Technology; Industry & Academia Collaboration; Construction Management & Economics; Construction and Engineering Education; Lean and Waste Management; Environmental Engineering and Digital Technologies.

This Research Plan reports on the current research status of the School as at August 2024 and reports on 2023 and looks forward to the next 12 months. The Head of School (HOS) Paul Jeurissen is responsible for the leadership and management of the School of Building Construction (which is an alliance between the School of Construction and School of Civil Engineering & Surveying, since 2019) 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 regards 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 yet collaborating 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 Building Construction and Engineering research investigations and outputs. The success of this centre after two years of its inception was apparent from the academic, commercial and industry partnerships, external research income won , publications, and student opportunities it has provided, and achieved so far. This Centre has not been so active though since January 2024 due to staffing changes. The majority of the degree delivery academic 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 have to be research active).

	Construction Cohort	Engineering Cohort	Overall
Number of degree teaching staff as at July 2024	10	11	21
Total research FTE allocated as at February 2022	1.51	1.1	2.61
Current Research Performance Traffic Light (RPTL) rating (Percentage of green lit staff -2022)	90%	73%	81%
PBRF history (Number of PBRF rated staff in 2018 round)	6	3	9

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

Research in the school is focused and guided by the value of Kaitiakitanga- Guardianship.
Whakauria te mahi tahi: ukaukatia te matauranga. He kaitiaki katoa tatau:

" Everyone is a kaitiaki (guardian) tasked with maintaining beneficial relationships / work methods and sustaining the knowledge we work with."

Guardianship of all aspects of what we do, particularly knowledge/ processes we are sharing and how we deliver them.

Through our school research team, we provide authentic applied research which enhances our teaching and learning practice for our tauira as well as contributing to the technical communities of practice we serve.
At the centre of our research we acknowledge papatuenuku and its natural resources air, water, energy and the importance of caring for the whenua.

Extensive examples of how the school its staff and students align our research with the Treaty of Waitangi are demonstrated in the research outputs documented from 2019 through to 2023- see Appendices
The School draws on the extensive knowledge of our maori staff at Unitec and Marae Ngakau Mahaki to help direct us in our journey in honouring our commitment with Te Tiriti o Waitangi

1.2 What the school is planning in the area of research to achieve the goal and key projects

- Appoint staff with Māori research expertise (mātauranga, Kaupapa Māori etc) wherever possible
- Work to partner with a Māori organisations, iwi or key Māori individuals in a discipline relevant to the School on research projects
- Encourage and support student integrated research with a Māori focus
- To continue to build and expand our applied research with impact on the industry and wider communities

School of Building Construction Goals and KPIs

1. **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. Refer Appendices for ROMS report(s) 2019 to 2024 (so far)
2. **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- Refer Section 1 of this Research Plan
3. **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. **Info/graphs be supplied by Tuapapa Rangahau- see appendices**
4. **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. **Info/graphs be supplied by Tuapapa Rangahau- see appendices**

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). This is measured and evidenced in ROMS as part of the number of research outputs during 2021 /2022/2023 and into 2024
6. **Rangahau Māori Productivity** - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.
   We have one Māori academic staff member and a range of Pacifica staff – but no level 9 or 10 Māori staff supervisors or post grad students as we have no post-grad programmes in the School as yet.

1.3 What the school is planning for increasing research diversity

This will depend on Te Puukenga's plans for the professoriate, all academic researchers and for research foci going forward with resultant research activity outputs and diversity.

1.3.1 SWOT analysis for research in School of Builidng Construction]

Strengths = Applied industry impactful research

Weaknesses = No post grad programmes in the SOBC

Opportunities = Co research collaborations with other Schools at Unitec and with established External Industry partners and External tertiary academic researchers

Threats= Research Grants often preferably awarded to /won by Universities (nothing new there SWOT wise)

1.4 Research Groups – Aspirational and already informally active in some cases

After such a challenging 3 years of the covid pandemic teaching and research environment here in Auckland in particular -at Unitec - it has been important to collaborate and support each other to do research by furthering and supporting groups and their projects. This is an essential strategy when it comes to achieving goals and finding efficiencies. Currently, the School of Building Construction has eight active and/or aspirational research groups:

- Sustainability in the Architecture, Engineering and Construction Sector (AEC)
- Construction and Engineering Technology
- Industry & Academia partnered Collaborations
- Construction Management & Economics
- Construction and Engineering Education
- Lean and Waste Management
- Environmental Engineering
- Digital Technologies

All of these areas are highly relevant to the New Zealand economy and society. These Research Groups partner (or have already partnered) with external funders to win funding/grants (External Research Income (ERI). Below are the external research partners who funded projects over the last four years

1.4.1 2023/2024 School Research Group Goals

- Promote Te Tiriti alignment.
- Promote Pacific research, diversity and inclusiveness.
- Promote collaborative research.
- Assist with the alignment of learning and research.
- Increase student integrated research.
- Increase industry and community partnership.
- Focus research (potentially toward Research Centre).
- Increase research impact.

Appendices 1-3

1. SOBC Staff and their Research Topics and Expertise
2. SOBC ROMS Report 2018-July 2024
3. SOBC Research KPI Data

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
Aurora Chen	Pre Construction Estimation and Tendering inaccuracies' mitigation
Babar Mahmood	Stream Health Assessments and treatment for fats, oils and greases in wastewater
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
Intan Bahri	Geotechnical engineering, Geoenvironmental engineering, Traffic and highway engineering, Engineering education
Jonathan Leaver	Energy-economic systems analysis and modelling
Kambiz Borna	Bridging the Visualization Gap in Time Series Analysis through Spatialization, Developing a Web Map Application for Educational Use: A Case Study in Geotechnical Engineering
Linda Kestle	Academia/Industry partnerships; Sustainable design construction & development in AEC sector; Productivity; Risk, Lean ; Waste Management Minimisation; Digital Technologies
Luban Chen	BIM; Structural Steel Construction; Prefabrication and Property Management

Lusa Tuleasca	Detailed Seismic Assessment Reports, building structural performance (earthquakes), concrete performance
Lydia Kiroff	Property and Urban Development, Urban Regeneration, Adaptive Reuse of Buildings, Housing affordability, Pre Fabrication and Digital Technologies in Construction Education.
Malachy McGarrigle	Virtual Desktop Infrastructure for Architects & Engineers,
Michael Grey	Construction methods to reduce operational and sequestered carbon; sustainability in construction projects
Rashika Sharma	Education and Professional Development, Employment Issues
Roger Birchmore	Research Houses-Impacts of MVHR energy consumption, IEQ; Science and Building Physics
Roger Gibb	Not active researcher anymore
Sadegh Aliakbarlou	Value Management; Prefabrication Construction Procurement; Productivity; Disaster reconstruction
Sam Bahmani	DEM modelling of highly crushable particles, Slope stability FEM/LEM, Retaining walls, Liquefaction, Settlement
Taija Puolitaival	Digital technologies for competence in industry, BIM; VDC; CPD (left unitec June '22) but still co researching and publishing with Linda Kestle
Wei Yuen Loo	Detailed Seismic Assessment Reports, building structural performance (earthquakes), concrete performance

School of Building Construction Research Outputs from 2018-2023 as at 22-07-2024

2018

Awarded Doctoral Thesis

» Aliakbarlou, Sadegh. (2018). Determinants of Client Values and Satisfaction in Post-Disaster Reconstruction Projects (Unpublished Doctoral Thesis). Ads The University of Auckland, Auckland, New Zealand.

Awarded Masters Thesis

» Wilson, H. (2018). How could micro-credentials be used to improve the success of construction workers transitioning to technical education? (Unpublished Master Thesis). Massey University, New Zealand.

Book Chapter

» Mahmood, B. (2018). Field Scale Simulation of Nitrogen Dynamics Using LEACHN and OVERSEER® Models. In Amanullah & Fahad, S. (Eds.), Nitrogen in Agriculture - Updates First published in February, 2018 ed. (pp. 113-130). Printed in Croatia: Published by InTech Janeza Trdine 9, 51000 Rijeka, Croatia.

Conference Contribution- Abstract

» Shafiei, E., Davidsdottir, B., Fazeli, R., Stefansson, H., Asgeirsson, E. I., & Leaver, J. (2018, August). Simulating the impact of fiscal incentives on electro-mobility transition and prospects for Icelandic energy-economic systems. Paper presented at 36th International Conference of the System Dynamics Society, Reykjavík, Iceland.

» Watabe, A., & Leaver, J. D. (2018, June). Economic Costs of Rapid Transitioning to Hydrogen Fuel Cell Light Vehicle Fleets in Japan and New Zealand. Paper presented at World Hydrogen Energy Conference, Rio De Janeiro, Brazil.

Conference Contribution- Oral Presentation

- Leaver, J. D. (2018, Feb). Bridging the knowledge gap from Technologist to Professional Engineer. Paper presented at the NZDE/BEngTech Forum, Petone.
- Loo, W. Y. (2018, April). Rebuilding Public Education: Lessons from Unitec's 'Transformation' Experience. Paper presented at the QPEC (Quality Public Education Coalition) 2018 Forum, St Columba, Vermont St, Ponsonby.
- Robinius, M., Linssen, J., Mansilla, C., Mihai, B., Dolci, F., Dickinson, R., Funez, C., Rupert, G., Grand-Clement, L., Hillard, S., Iskov, H., Proost, J., Leaver, J., Quarton, C., Samsati, S., Olfa, T., Valentin, S., Weidener, E., & Lucchese, P. (2018, July). Techno-economic Potentials and Market Trends for Power-to-Hydrogen and Hydrogen-to-X based on a Collaborative and International Review. Paper presented at the 22nd World Hydrogen Energy Conference, Rio de Janeiro - Windsor Expo and Convention Center, Rio de Janeiro, Brazil.

Conference Contribution- Paper in published Proceedings

- Aliakbarlou, Sadegh., Wilkinson, Suzanne., Costello, Seosamh., Jang, Hyounseung., & Aliakbarlou, Hamid. (2018). Producing Work-Ready Graduate for the Construction Industry. SASBE 2018 Sydney: 6th CIB International Conference Proceedings, 4th – 6th December 2018, Sydney, Australia. (pp. 469-477). Retrieved from https://www.irbnet.de/daten/iconda/CIB_DC31556.pdf
- Doan, D., Ghaffarianhoseini, A., Naismith, N., Zhang, T., Rehman, A., & Tookey, T. (2018). What is BIM? A Need for a Unique BIM Definition. IConBEE2018 (pp. 88).
- Kestle, L., & Laing, N. (2018). Learnings from a collaborative academia –construction sector bespoke study programme – a reflective case study. Educating building professionals for the future in the globalised world. 42nd AUBEA CONFERENCE 2018 , Vol. 1 (pp. 77-86).
- Kestle, L., & Laing, N. (2018). Learnings from a collaborative academia-construction sector bespoke study programme - a reflective case-study. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O (Ed.), 42nd Australasian Universities Building Education Association (AUBEA) Conference: Educating building professionals for the future in the globalised world, , Vol. 1: Innovation (pp. 77-86).
- Kestle, L., & McKernan, A. (2018). Learnings for construction project management personnel about offshore projects: a case study. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O (Ed.), 42nd Australasian Universities Building Education Association (AUBEA) Conference: Educating building professionals for the future in the globalised world , Vol. 1: Innovation (pp. 48-58).
- Kiroff, L., & Parris, S. (2018). Adaptive reuse and repurposing of industrial buildings to residential dwellings in Auckland City. APO Analysis and Policy Observatory, 8th State of Australian Cities National Conference (pp. 1-12). doi:10.4225/50/5b2c6e61935bd
- Lipsham, T., Davies, K., & Kestle, L. (2018). The impact of fatigue on workforce sustainability in the construction industry. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O. (Ed.), 42nd Australasian Universities Building Education Association (AUBEA) Conference: Educating building professionals for the future in the globalised world , Vol. 3: Sustainability (pp. 73-82).
- McGarrigle, M. J. (2018). Improving Student Understanding of Construction Terms and Techniques using Annotated Digital Models. In R. Amor, J. Dimyadi (Ed.), CONVR2018 Evolving Construction: Towards a technological revolution (pp. 20-29). Retrieved from https://www.cs.auckland.ac.nz/research/conferences/convr2018/
- Puolitaival, T., Kestle, L., & Kahkonen, K. (2018). What's the real story around digital technologies in construction management ?. In Do,K., Sutrisna,M., Cooper-Cooke,B & Olatunji,O. (Ed.), 42nd AUBEA (Australasian Universities Building Education Association) Conference , Vol. 2: Technology (pp. 251-260).
- Puolitaival, T., Kestle, L., & Kähkönen, K. (2018). What's the real story around digital technologies in construction management?. In Do, K., Sutrisna, M., Hammad, A. & Ramanayaka (Ed.), 42nd Australasian Universities Building Education Association (AUBEA)

Conference: Educating building professionals for the future in the globalised world , Vol. 2: Technology (pp. 251-260).

» Rajan, A., Kuang, Y.C., Ooi, M.P-L., Demidenko, S., & Egbelakin, T. (2018). Application of moment-based measurement uncertainty evaluation to reliability analysis of structural systems. 2018 IEEE International Instrumentation and Measurement Technology Conference (pp. 1-6). doi:10.1109/I2MTC.2018.8409598

» Rehman, A., Puolitaival, T., McMullan, R., & Kestle, L. (2018). Competence development in advanced and emerging construction technologies. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O (Ed.), 42nd Australasian Universities Building Education Association Conference: Educating building professionals for the future in the globalised world , Vol. 2: Technology (pp. 58-67).

» Rehman, A., Puolitaival, T., McMullan, R., & Kestle, L. (2018). Competence development in advanced and emerging construction technologies. In Do, K., Sutrisna, M., Hammad, A. & Ramanayaka (Ed.), 42nd Australasian Universities Building Education Association Conference: Educating building professionals for the future in the globalised world , Vol. 2: Technology (pp. 58-67).

» Samorow, D., Davies, K., Puolitaival, T., & Kestle, L. (2018). Last Planner System: Views of main contractors and subcontractors within the New Zealand construction industry. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O. (Ed.), 42nd Australasian Universities Building Education Association (AUBEA) Conference: Educating building professionals for the future in the globalised world , Vol. 1: Innovation (pp. 269 - 278).

» Samorow, D., Davies, K., Puolitaival, T., & Kestle, L. (2018). Last Planner System: Views of main contractors and subcontractors within the New Zealand construction industry. In Do, K., Sutrisna, M., Cooper-Cooke, B. & Olatunji. O. (Ed.), 42nd Australasian Universities Building Education Association (AUBEA) Conference: Educating building professionals for the future in the globalised world , Vol. 1: Innovation (pp. 269-278).

» Zhang, R., Rajan, A., Kuang, Y.C., Ooi, M.P-L., & Demidenko, S. (2018). Towards implementing uncertainty propagation in probabilistic floating-point computation error bounding. 2018 IEEE International Instrumentation and Measurement Technology Conference (pp. 1-6). doi:https://doi.org/10.1109/I2MTC.2018.8409672

» Zhang, T., Ghaffarianhoseini, A., Ghaffarianhoseini, A. H., Naismith, N., Rehman, A. U., Lovreglio, R., Doan, D., Nwadigo, O., & Tookey, J. (2018). Developing an EEG-Based Building Management System to Enhance Built Environment Accessibility for Disabled Users. International Conference on Architecture, Landscape & Interior Design (ALI 2018) (pp. 40-42). Retrieved from http://www.nzaar.com/ali2018/

» ZHANG, T., GhaffarianHoseini, A., GhaffarianHoseini, A. H., Naismith, N., Rehman, A., Lovreglio, R., Doan, D., Nwadigo, O., & Tookey, J. (2018). Establishing a Knowledge-Base System (KBS) for Post-Construction Building Facility Maintenance. International Conference on Architecture, Landscape & Interior Design (ALI 2018) (pp. 43-48).

» Zhimin, Z., & Mahmood, B. (2018). Application of Artificial Neural Network model to forecast runoff for Waikato river catchment. In Stormwater Conference Committee (Ed.), Proceedings of Stormwater Conference 2018 – Wai Ora – Rising to the Challenge (pp. Online). Retrieved from https://www.waternz.org.nz/Article?Action=View&Article_id=1464

Design Output

» Phillips, D. J. (2018). Environment Court Hearing and Decision for Large-scale Aged Care Development. On-site Wastewater Design. [Design Output]. Environment Court: Auckland, NZ.

Discussion/Working Paper (Published)

» Birchmore, R. (2018). Medium Density Dwellings in Auckland and the Building Regulations. 2. Medium-density dwellings in Auckland and the building regulations. New Zealand: Unitec ePress.

http://www.buildingbetter.nz/publications/contestable_research_projects/Birchmore_2018_medium-density-dwellings.pdf.

» White, D., Winchester, N., Atkins, M., Ballinggall, J., Coates, S., De Miguel Mercader, F., Greenhalgh, S., Hogan, J., Kerr, A., Kerr, S., Leaver, J., Leining, C., Monge, J., Neale., J., Philpott, A., Smart, V., Stroombergen, A., & Suomalanien, K. (2018). Energy- and multi-sector modelling of climate change mitigation in New Zealand: current practice and future needs. Motu's Shaping New Zealand's Low-Emission Future programme. New Zealand: Motu Economic and Public Policy Research.

Journal Article

» Aliakbarlou, S., Wilkinson, S., & Costello, S. B. (2018). Rethinking client value within construction contracting services. International Journal of Managing Projects in Business, Earlycite, Earlycite. doi:10.1108/IJMPB-07-2017-0076

» Ohueri, C C., Enegbuma, W I., & Kenley, R. (2018). Energy efficiency practices for Malaysian green office building occupants. Built Environment Project and Asset Management, 8(2), 134-146. doi:10.1108/BEPAM-10-2017-0091

» Ohueri, C C., Enegbuma, W I., Wong, N H., Kuok, K K., & Kenley, R. (2018). Labour productivity motivation framework for Iskandar Malaysia. Built Environment Project and Asset Management, 8(3), 294-304. doi:10.1108/BEPAM-09-2017-0070

» Paul, S., Rajan, A., Chang, J., Kuang, Y.C., & Ooi, M.P-L. (2018). Parametric design analysis of magnetic sensor based on model order reduction and reliability-based design optimization. IEEE Transactions on Magnetics, 54 (3), 1-4. doi:10.1109/TMAG.2017.2754286

» Puolitaival, T., & Kestle, L. (2018). Teaching and learning in AEC education – the building information modelling factor. Information Technology in Construction, 23, 195-214.

» Puolitaival, T., & Kestle, L. (2018). Teaching and Learning in AEC Education - the Building Information Modelling Factor. ITcon, 23, 195-214.

» Rajan, A., Garg, A., Vijararaghavan, V., Kuang, Y.C., & Ooi, M.P-L. (2018). Parameter optimization of polymer electrolyte membrane fuel cell using moment-based uncertainty evaluation technique. Journal of Energy Storage, 15, 8-16. doi:https://doi.org/10.1016/j.est.2017.10.014

» Rajan, A., Kuang, Y.C., Ooi, M.P-L., Demidenko, S., & Carstens, H. (2018). Moment-constrained maximum entropy method for expanded uncertainty evaluation. IEEE Access, 6, 4072-4082. doi:10.1109/ACCESS.2017.2787736

» Rajan, A., Vijayaraghavan, V., Ooi, M.P-L., Garg, A., & Kuang, Y.C. (2018). A simulation-based probabilistic framework for lithium-ion battery modelling. Measurement, 115, 87-94. doi:https://doi.org/10.1016/j.measurement.2017.10.033

» Shafiei, E., Davidsdottir, B., Fazeli, R., Leaver, J., Stefansson, H., & Asgeirsson, E. (2018). Macroeconomic effects of fiscal incentives to promote electric vehicles in Iceland: Implications for government and consumer costs. Energy Policy, 114, 431-443. doi:10.1016/j.enpol.2017.12.034

» Tey, W.K., Kuang, Y.C., Ooi, M.P-L., & Khoo, J.J. (2018). Automated quantification of renal interstitial fibrosis for computer-aided diagnosis: A comprehensive tissue structure segmentation method. Computer methods and programs in biomedicine, 155, 109-120. doi:https://doi.org/10.1016/j.cmpb.2017.12.004

Other

» Birchmore, R. (2018). Medium Density Dwellings in Auckland and the Building Regulations. BRANZ. (pp. 1-11). Auckland, New Zealand: Auckland's housing supply challenge: A Unitec response to the Mayoral Housing Taskforce Report. http://www.buildingbetter.nz/research/contestable.html.

Presentation (non-conference)

- Chai, E. (2018, February). The use of narrated screen captured video (screencast) for Highway Engineering projects. Presentation conducted at the 2018 Joint NZDE/BEngTech Tutors Forum, Petone, Wellington.
- Leaver, J., Shafiei, E., Davidsdottir, B., Watabe, A., & Ishida, H. (2018, May). Capability and application of the UniSyD and UniTrac techno-economic models. Presentation conducted at the Motu researcher workshop on cross-sectoral climate change mitigation modelling: 1 May 2018, Te Wharewaka o Pōneke, Wellington.

Report

- Wilson, H., & Hay, M. (2018). Using microcredentials to enable the use of the NZDE (Civil) to provide more flexible and focused response to industry requirements. Auckland: Engineering E2E.

2019

Awarded Doctoral Thesis

- Sharma, R. (2019). Creating a Green Culture in TVET: A New Zealand Perspective (Unpublished Doctoral Thesis). Deakin University, Melbourne, Australia.

Awarded Masters Thesis

- Etherington, P. M. (2019). Closing the Perfromance Gap (Unpublished Master Thesis). Massey University, Auckland.

Book Chapter

- 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.

Conference Contribution- Abstract

- Mahmood, B. (2019, November). Use of Socrative Tool to Effectively Engage & Assess Diverse Learners – Sharing an Experience. Paper presented at Talking Teaching, Unitec Institute of Technology, Mt Albert Campus, Auckland.
- 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.

Conference Contribution- Oral Presentation

- Aliakbarlou, Sadegh. (2019, 16 - 18 October). Modular Construction and Prefabrication for Post Disaster Reconstruction Projects: Case Studies and Clients' Perspectives http://claridenglobal.com/conference/modcon-nz/agenda/. Paper presented at the Search Results Web results 4th NZ Modular Construction and Pre-Fabrication 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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.
- Leaver, J. D. (2019, May). International Energy Agency (IEA) strategic initiatives and activities for hydrogen. Paper presented at the NZ Hydrogen Association Workshop, Wellington.
- 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.
- 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.
- McGarrigle, M J. (2019, November). Augmenting industry collaboration with architectural practices through design and development of productive internship schemes. Paper presented at the Ako Aotearoa Academy of tertiary teaching excellence, Unitec- Auckland.
- 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.
- 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.
- 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.
- 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.
- Wilson, H. (2019, February). What Civil Engineering Graduates actually do. Paper presented at the NZBED Forum, Christchurch.

Conference Contribution- Paper in published Proceedings

- 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).
- 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
- 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).
- 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).
- 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).
- 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).
- 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).
- 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/
- 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/
- 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).
- 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).
- 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/
- 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).
- Wilson, H., & Hay, M. (2019). Use of online on-demand microcredentials to provide an alterrnative learning pathway for an engineering diploma programme. Proceedings of the AAEE 2019 30th Annual Conference (not yet published) (pp. 1-7).
- 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).

Conference Contribution- Poster Presentation

- 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.

Journal Article

- Atkin, E. A., Mead, S.T., & Phillips, D. (2019). Investigations of Offshore Wave Preconditioning. Journal of Coastal Research, SI 87, 78-90.

- 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 Geomechanics News, 98, 78-81.
- 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
- 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
- Quarton, CJ., Tlili, O., Welder, L., Mansilla, C., Blanco, H., Heinrichs, H., Leaver, J., Samsatli, NJ., 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
- 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
- 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. Atmoshpheric Environment X, 2, 1-11. doi:10.1016/j.aeaoa.2019.100026
- 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
- 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., 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
- 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

Presentation (non-conference)

- 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.

» Wilson, H. (2019, October). Microcredentials: meeting the needs of learners and employers. Presentation conducted at the Unitec Teaching and Learning Symposium, Auckland.

2020

Book Chapter

» Aliakbarlou, Sadegh., Wilkinson, Suzanne., Costello, Seosamh., Jang, Hyounseung., & Aliakbarlou, Hamid. (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.

Composition

» Leaver, JD. (2020). Challenges for the Use of Hydrogen. [Composition]. Auckland: Unitec.

Conference Contribution- Abstract

» Puolitaival, T. (2020, November). BIM education: Balancing act of multiple factors. Paper presented at New Zealand BIM Education Symposium, online.

Conference Contribution- Oral Presentation

» 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.

» Borna, K., & Alshadli, D. (2020, December). Automating Image Classification: a Geometry-led Data Structure. Paper presented at the Unitec Research Symposium, Auckland.

» 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 GISience, United States.

» Borna, Kambiz., & Alshadli, Duaa. (2020, December). Automating Image Classification: a Geometry-led Data Structure. Paper presented at the Unitec Research Symposium, Auckland.

» 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.

» Kerai, U., Kiroff, L., & Sharma, R. (2020, 7 December). The response of the Auckland construction industry to recent technological changes. Paper presented at the 2020 Unitec Research Symposium, Unitec Institute of Technology.

» Kerai, U., Kiroff, L., & Sharma, R. (2020, December). The response of the Auckland construction industry to recent technological changes. Paper presented at the UNITEC RESEARCH SYMPOSIUM 2020, Auckland.

» Kestle, L., Berry, T-A., Hernandez, G., Day, A., & Burden, S. (2020, December). Plastic Minimisation Construction Project. Paper presented at the Unitec Research Symposium, Unitec.

» Kiroff, L., & Puolitaival, T. (2020, 7 December). Construction students' experiences and engagement with digital technologies. Paper presented at the 2020 Unitec Research Symposium, Unitec Institute of Technology.

» Kiroff, L., & Puolitaival, T. (2020, December). Construction Students' Experiences and Engagement with Digital Technologies. Paper presented at the Unitec Research Symposium, Auckland, New Zealand.

» 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, February). ExCo Member Update: New Zealand. Paper presented at the 82nd IEA Hydrogen Executive Committee Meeting, Paris.

» Leaver, JD. (2020, July). Hydrogen Focussed Research: A Unitec Update. Paper presented at the Hydrogen R&D Strategy Meeting, Wellington and Zoom.

- Loo, W. Y., & Tuleasca, L. (2020, December). The performance of a diverse cohort of civil engineering students at Unitec Institute of Technology (2015-2019]. Paper presented at the Whaowhia te kete mātauranga – Fill the basket of knowledge UNITEC RESEARCH SYMPOSIUM 2020 PROGRAMME – Day Two, Unitec Institute of Technology, Mt Albert, Auckland.
- Loo, W., & Tuleasca, L. (2020, December). The performance of diverse cohort of civil engineering students at Unitec Institute of Technology (2015-2019). Paper presented at the Unitec Research Symposium, Auckland - Mt Albert.
- McGarrigle, M.J. (2020, December). Digital poverty and other watchpoints for consideration when teaching with software applications across Unitec's Virtual Desktop Infrastructure. Paper presented at the Unitec Research Symposium 2020, Unitec- Auckland.
- McGarrigle, M.J. (2020, November). WATCHPOINTS FOR CONSIDERATION WHEN UTILISING "ArchiCAD "BIM SOFTWARE ACROSS A VDI NETWORK. Paper presented at the New Zealand BIM Education Symposium 2020 (online), Zoom link: https://auckland.zoom.us/j/98998404250.
- Rishna, B., & Mahmood, B. (2020, December). Assessment of Grease Traps Used in Food Services Sector in Auckland. Paper presented at the Unitec Research Symposium, Mt Albert Campus of Unitec, Auckland, New Zealand.
- Wallis, S.L. (2020, October). Disposal or Treatment: Future Considerations for Solid Waste from the Construction and Demolition Industry. Paper presented at the Annual Unitec Research Symposium, Unitec Institute of Technology, New Zealand.
- Wilson, H. (2020, February). Microcredentials - now and in the future. Paper presented at the NZDE/BEngTech Forum, Hamilton.

Conference Contribution- Paper in published Proceedings

- 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
- Brown, G., Sharma, R., & Kiroff, L. (2020). Insights into the New Zealand prefabrication industry. In Ali Ghaffarianhoseini, et al (Ed.), Imaginable Futures: Design Thinking, and the Scientific Method. 54th International Conference of the Architectural Science Association (ANZAScA) 2020, Auckland University of Technology (pp. 630-639). Retrieved from https://www.asa2020.net/
- 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
- 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

- 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
- 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
- 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 ttp://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
- 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., 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 and the Environment X, Transactions on Ecology and the Environment , Vol. 247 (pp. 170-183).

Conference Contribution- Poster Presentation

- Aliakbarlou, SA., & Chan, LC. (2020, December). Determining the way by which clients perceive value from procured services. Poster presented at Unitec Research Symposium, Mt Albert Campus, Auckland.
- Chan, LC., & Aliakbarlou, SA. (2020, December). Exploring and Categorising Construction Client Values and Qualities. Poster presented at Unitec Research Symposium, Mt Albert Campus, Auckland.
- Hernandez, G., Low, J., Wallis, S., Birchmore, R., Ramirez Prado, G., de Groot, C., Gremillon, H., Lee Morgan, J., Blanchon, D., Bayling, M., Doyle, E., & Berry, T-A. (2020, October). The Development of a Transdisciplinary Team to Investigate Indoor Air Quality Issues in New Zealand. Poster presented at Unitec, Mt Albert, Auckland.
- Hernandez, G., Low, J., Wallis, S., Birchmore, R., Ramirez-Prado, G., de Groot, C., Gremillion, H., Lee-Morgan, J., Blanchon, D., Baling, M., Doyle, E., & Berry, T. (2020, November). The development of a transdisciplinary team to investigate indoor air quality issues in New Zealand. Poster presented at Unitec Research Symposium, Mount Albert Campus, Unitec.
- Hernandez, G., Low, J., Wallis, S., Birchmore, R., Ramirez-Prado, G., De Groot, C., Gremillion, H., Lee-Morgan, J., Blanchon, D., Baling, M., Doyle, E., & Berry, T-A. (2020, October). The Development of a Transdisciplinary Team to Investigate Indoor Air Quality Issues in New Zealand. Poster presented at Unitec Research Symposium, Mount Albert Campus, Unitec.

- Hernandez, G., Low, J., Wallis, S., Birchmore, R., Ramirez-Prado, G., De Groot, C., Gremillion, H., Lee-Morgan, J., Blanchon, D., Baling, M., Doyle, E., & Berry, T-A. (2020, October). The Development of a Transdisciplinary Team to Investigate Indoor Air Quality Issues in New Zealand. Poster presented at Unitec Research Symposium, Unitec Institute of Technology.
- Lapwood, T., Alshadli, D., & Borna, K. (2020, December). Cartographic whakapapa: a case study from the Port Waikato region. Poster presented at Unitec Research Symposium, Auckland.
- Lapwood, T., Alshadli, D., & Borna, K. (2020, December). Cartographic whakapapa: a case study from the Port Waikato region. Poster presented at Unitec Research Symposium, Mount Albert Campus, Unitec.
- Phillips, D.J., Berry, T.A., Wairepo, D., Edmonds, T., Myre, R., & Hynds, A. (2020, October). Ō-Tara Kia Kotahi Tau - Ōtara We Are One. Otara Waterways and Lake Restoration Feasibility Study. Unitec NZ Environmental Research Solutions Centre. Auckland. Poster presented at Unitec Research Symposium, Mt Albert, Auckland.
- Phillips, D.J., Mead, S.T., & Emeny, M. (2020, October). Options for Lyall Bay Coastal and Stormwater Remediation. Poster presented at Unitec Research Symposium, Mt Albert, Auckland.
- Rehan, Masood., Don, Samarsinghe., & Sadegh, Aliakbarlou. (2020, September). MAKING A CASE FOR UPSKILLING THE NEW ZEALAND WORKFORCE FOR OFFSITE CONSTRUCTION. Poster presented at IPT Research Symposium, Online.
- Wallis, S., Blanchon, D., De Lange, P., Doyle, E., & Berry, T-A. (2020, October). Remediation of Asbestos Contaminated Soil: An Alternative to Landfill Disposal. Poster presented at Unitec Research Symposium, Unitec Institute of Technology.
- Wallis, S.L., Blanchon, D., De Lange, P., Doyle, E., & Berry, T-A. (2020, December). Remediation of Asbestos Contaminated Soil: An Alternative to Landfill Disposal. Poster presented at Unitec Research Symposium, Unitec Institute of Technology.

Discussion/Working Paper (Published)

- 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).
- Lucchese, P., Mansilla, C., Tilli, O., Prost, J., Samsatli, S., Leaver, J., Dickinson, R., Grand-Clement, L., & Funez, C. (2020). Power-to-Hydrogen and Hydrogen-to-X: System Analysis of the techno-economic, legal, and regulatory conditions. Paris: IEA Hydrogen Technology Programme. https://www.ieahydrogen.org/task/task-38-power-to-hydrogen-and-hydrogen-to-x/.

Journal Article

- 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 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.
- Hernandez, G., Graves, I., Birchmore, R., Wallis, S.L., Narain, S., & 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.
- Hernandez, G., Wallis, S.l., Graves, I., Narain, S., Birchmore, R., & Berry, T.A. (2020). The effect of ventilation on volatile organic compounds produced by new furnishings in residential buildings. Atmospheric Environment: X, 6, 1-10. doi:https://doi.org/10.1016/j.aeaoa.2020.100069

- 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.
- 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
- 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
- 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 Citie, 2(35), 1-7. doi:10.3389/frsc.2020.00035
- 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, 2(35), 1-7. doi:10.3389/frsc.2020.00035
- 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.
- 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
- 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
- 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
- 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

Presentation (non-conference)

- Berry, T-A., & Wallis, S.L. (2020, November). Asbestos and Asbestiform Research. Presentation conducted at the Asbestos Awareness Week by New Zealand Demolition and Asbestos Association (NZDAA), Unitec.
- Berry, T-A., & Wallis, S.L. (2020, November). Asbestos and Asbestiform Research. Presentation conducted at the Asbestos Awareness Week: Asbestos Forum 2020, Unitec Institute of Technology.
- 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.

- Berry, T-A., Wallis, S.L., & Tohill, S. (2020, October). Asbestos Risks: from cradle to grave. Presentation conducted at the University of Auckland, Environmental Course ENVSCI303, University of Auckland.
- Leaver, JD. (2020, Septemeber). Task 41: Analysis and Modelling of Hydrogen Technologies: A Personal Perspective. Presentation conducted at the Task 41 Analysis and Modelling of Hydrogen TechnologiesOnline Meeting, MS Teams Online.

Report

- Wilson, H.B. (2020). Microcredentials Pilot Project - Final Report. Auckland: Unitec.

2021

Conference Contribution- Abstract

- Davies, K., & Vaiire, M. (2021, May). Pathways to success within the construction management profession. Paper presented at AUBEA 2021: Construction Education – Live the Future, Virtual Conference, Deakin University, Australia.
- Leaver, J.D. (2021, November). System Dynamics Integrated Assessment Modelling with UniSyD: Keynote address. Paper presented at 15th OERC Symposium 2021 – The Challenge of Net Zero by 2050,- 18-19 November, Dunedin.

Conference Contribution- Oral Presentation

- Berry, T.A., Steinhorn, G., Massey, B., Hernandez, G., Low, J., & Wallis, S.L. (2021, December). The highs and lows of developing a transdisciplinary Research Centre and the importance of applied research. Paper presented at the MIT/Unitec Research Symposium - Rangahau Horonuku Hou - New Research Landscapes., Unitec, Auckland.
- Berry, T-A., & Wallis, S.L. (2021, May). Hazardous Mineral Wastes and Options for Bioremediation: New Zealand Research. Paper presented at the New Zealand Land & Groundwater Conference 2021, Online.
- Berry, T-A., Steinhorn, G., Massey, B., Hernandez, G., Low, J., & Wallis, S.L. (2021, December). The highs and lows of developing a transdisciplinary Research Centre and the importance of applied research. Paper presented at the MIT/Unitec Research Symposium, Unitec, Auckland.
- Berry, T-A., Steinhorn, G., Massey, B., Hernandez, G., Low, J., & Wallis, S.L. (2021, December). The highs and lows of developing a transdisciplinary Research Centre and the importance of applied research. Paper presented at the Paper presented at the MIT/Unitec Research Symposium - Rangahau Horonuku Hou, Unitec, Auckland.
- Berry, T-A., Steinhorn, G., Massey, B., Hernandez, G., Low, J., & Walllis, S.L. (2021, December). The highs and lows of developing a transdisciplinary Research Centre and the importance of applied research. Paper presented at the MIT/Unitec Research Symposium, Unitec.
- Birchmore, R., Berry, T., Wallis, S.L., Hernandez, G., & Tsai, S. (2021, December). Thermal Performance and Indoor Air Quality in New, Medium Density Houses. Paper presented at the MIT-UNITEC Research Symposium 2021, On line.
- Chen, J. (2021, December). Forecasting Public Housing Tender Price in Auckland Market. Paper presented at the 2021 MIT/Unitec Research Symposium, Auckland, New Zealand.
- Hernandez, G., Low, J., Wallis, S.L., Lador, C., & Berry, T-A. (2021, December). Inconsistencies and Inequalities: Why the World Needs a More Unified Approach to Air Pollution. Paper presented at the MIT/Unitec Research Symposium, Unitec.
- Hernandez, G., Low, J.K., Wallis, S.L., Lador, C., & Berry, T-A. (2021, December). Inconsistencies and Inequalities: Why the World Needs a More Unified Approach to Air Pollution. Paper presented at the Unitec-MIT Symposium, Unitec, Mt Albert Campus.
- Leaver, J.D. (2021, November). International hydrogen community needs from Policymakers and Public and Private Investors. Paper presented at the Project Progress Meeting: Hydrogen Production and CO2 Capture from Biomass Gasification– 16 November 2021, Online.
- Low, J., Hernandez, G., Kestle, L., Wallis, S., & Berry, T-A. (2021, December). Understanding the Plastic Component of Construction and Demolition Waste to Increase Landfill Diversion.

Paper presented at the MIT - Unitec Research Symposium 2021 - Rangahau Horonuku Hou New Research Landscapes, Unitec.

- Low, J., Hernandez, G., Kestle, L., Wallis, S.L., & Berry, T-A. (2021, December). Understanding the Plastic Component of Construction and Demolition Waste to Increase Landfill Diversion. Paper presented at the MIT/Unitec Research Symposium, Unitec.
- Phillips, D.J. (2021, December). Taupaki Aged Care Facility On-site Wastewater Treatment and Disposal. Paper presented at the MIT-Unitec, Auckland.
- Waidyartne, B., & Phillips, D. (2021, December). Analysing and Forecasting Daily Water Level Fluctuations in Water Supply Dams. Paper presented at the MIT-Unitec, Auckland.
- Wallis, S.L., Lemckert, C., Hardy, R., & Berry, T-A. (2021, December). Pilot Bioengineered Treatment Processes for Hazardous Waste. Paper presented at the MIT/Unitec Research Symposium, Unitec.
- Wallis, S.L., Pau, F., Blanchon, B., & Berry, T-A. (2021, December). Processes for Low-Level Asbestos Contamination in Occupied Workplace Buildings. Paper presented at the MIT/Unitec Research Symposium, Unitec.

Conference Contribution- Paper in published Proceedings

- Karia, N., Sharma, R., & Aliakbarlou, S. (2021). Improving Productivity of Construction Labour in the Republic of Kiribati. Construction Education: Live the Future, Australasian Universities Building Education Association Conference (pp. 285-296).
- Karia, Nnakina., Sadegh, Aliakbarlou., & Rashika, Sharma. (2021). Improving Productivity of Construction Labour in the Republic of Kiribati. AUBEA 2021 Melbourne: Construction Education – Live the Future' (pp. 285-295).
- Kestle, L., Hernandez, G., Berry, T-A., Low, J., & Wallis, S. (2021). "Plastic Minimisation in Construction: A Pilot Study identifying and quantifying the composition of C&D plastic in construction waste". In Imriyas Karmadeen & Anthony Mills (Ed.), AUBEA 2021- 27-29 October 2021 (pp. 316-325).
- Kestle, L., Hernandez, G., Berry, T-A., Low, J., & Wallis, S. (2021). Plastic Minimisation in Construction: A Pilot Study identifying and quantifying the composition of C&D plastic in construction waste. In Deakin University (Ed.), Australasian Universities Building Education Association (AUBEA) Annual Conference (pp. 1-10).
- Kestle, L., Hernandez, G., Berry, T-A., Low, J., & Wallis, S.L. (2021). Plastic Minimisation in Construction: A pilot study identifying and quantifying the composition of C&D plastic in construction Waste. In Deakin University (Ed.), Proceedings of the 44th AUBEA conference, 27-29th October (pp. 1-10).
- Kestle,, linda., Hernandez, German., Berry, T-A., Low, J., & Wallis, S.L. (2021). Plastic Minimisation in Construction: A pilot study identifying and quantifying the composition of C&D plastic in construction Waste. In Imriyas Karmadeen & Anthony Mills (Ed.), AUBEA 2021- 27-29 October 2021 (pp. 316-325).
- Loo, W., & Tuleasca, L. (2021). The performance of diverse cohort of civil engineering students at Unitec Institute of Technology (2010-2019). In ePress (Ed.), Unitec Research Symposium 2020 9 October and 7 December , Vol. 1 (pp. 54-72). doi:ISBN 978-0-473-59389-6 Retrieved from https://www.unitec.ac.nz/epress/index.php/unitec-research-symposium-proceedings-2020/
- Loo, W.Y., & Tuleasca, L. (2021). The Performance of a Diverse Cohort of Civil Engineering Students at Unitec Institute of Technology (2010 to 2019). In Evangelia Papoutsaki and Marie Shannon (Ed.), Unitec Research Symposium Proceedings 2020. Auckland, New Zealand (pp. 54–72). Retrieved from https://www.unitec.ac.nz/epress/index.php/unitec-research-symposium-proceedings-2020/
- Mahmood, B., & Bogati, R. (2021). Assessment of Grease Traps Used in the Small-scale Food Industry: A Pilot Study. Unitec Research Symposium Proceedings 2020 (pp. 6-21).

- Massod, R., Samarsinghe, D., Moradibistouni, M., & Aliakbarlou, S. (2021). Identification of Offsite Construction Skills and Profiles. OPSITARA Research Conference. (pp. 40).
- Puolitaival, T., & Kiroff, L. (2021). Digital technologies in construction management education: A digital natives' perspective. In Sylvain Kubicki (Ed.), Proceedings of the 38th International Conference of CIB W78, Luxembourg, 13-15 October (pp. 650-658).

Discussion/Working Paper (Published)

- Berry, T-A., & Kestle, L. (2021). BUILD 188 magazine article - December 2021 edition " Cutting Construction Waste". 74-75. New Zealand: BUILD.
- Kerai, U., Kiroff, L., & Sharma, R. (2021). The response of Auckland construction firms to recent technological changes. 1-22. Unitec ePress Occasional and Discussion Papers Series, ISSN 2324-3635: 2021(1).
- Kerai, U., Kiroff, L., & Sharma, R. (2021). The Response of Auckland Construction Firms to Recent Technological Changes. Occasional and Discussion Papers Series (2021:1). Auckland: Unitec ePress. http://www.unitec.ac.nz/epress.

Journal Article

- Aliakbarlou, S., Wilkinson, S., Costello, S.B., & Jang, H. (2021). Comparing Client Values between Business-as-Usual Construction and Postdisaster Reconstruction. Natural Hazards Review, 22(3), 04021017. doi:10.1061/(ASCE)NH.1527-6996.0000463
- Borna, Kambiz., Moore, Tony., Azadeh, Noori Hoshyar., & Pascal, Sirguey. (2021). Using Vector Agents to Implement an Unsupervised Image Classification Algorithm. Remote Sensing, 13, 4896. doi:https://doi.org/10.3390/rs13234896
- Ibrahim, A., Zukri, N.A.Z.M., Ismail, B.N., Osman, M.K., Yusof, N.A.M., Idris, M., Rabian, A.H., & Bahri, I. (2021). Flexible Pavement Crack's Severity Identification and Classification using Deep Convolution Neural Network. Journal of Mechanical Engineering, 18(2), 193-201.
- Kiroff, L., & Puolitaival, T. (2021). Fun is serious business: Digital natives and digital technologies in construction education. Journal of Higher Education Theory and Practice, 21(1), 75-90.
- Osman, M.K., Mohammed Zamree, M.E.A., Idris, M., Ahmad, K.A., Mohamed Yusof, N.A., Ibrahim, A., Hasnur Rabiain, A., & Bahri, I. (2021). Pavement Crack Classification using Deep Convolutional Neural Network. Journal of Mechanical Engineering, 10(1), 227-244.
- Watabe, A., & Leaver, J. (2021). Comparative economic and environmental benefits of ownership of both new and used light duty hydrogen fuel cell vehicles in Japan. International Journal of Hydrogen Energy, Volume 46, Issue 52, 26582-26593. doi:10.1016/j.ijhydene.2021.05.141

Presentation (non-conference)

- Berry, T.A., Day, A., & Roberts, J. (2021, April). Building Out Waste- taking on plastic waste in construction. Presentation conducted at the Building Out Waste, Unitec, Auckland.
- Berry, T-A., & Wallis, S.L. (2021, April). Asbestos Awareness. Presentation conducted at the Asbestos Awareness Webinar, Online.
- Kestle, L., Berry, T-A., Hernandez, G., Day, A., Burden, S., & Roberts, J. (2021, April). Plastic Minimisation Construction Project. Presentation conducted at the Building Out Waste Symposium 2021 - Auckland City Council, Auckland.
- Mahmood, B. (2021, February). Online Collaborative Moderation – A Futuristic Approach. Presentation conducted at the Diplomas Joint Engineering Forum/Conference, Manukau Institute of Technology, Auckland, NZ.

2022

Awarded Masters Thesis

- Wilson, H.B. (2022). Use of public transportation systems for package delivery services. (Unpublished Master Thesis). Tech Futures, Auckland.

Book Chapter

- Birchmore, R., Blakeley, J., Chai, E., Leaver, J., Loo, W., McMullan, R., Phillips, D., Tuleasca, L., & Wilson, H. (2022). Collaboration Across New Zealand ITPs: The BEngTech Three-Year Engineering Degree Programme as an Exemplar. In Chan S. & N. Murray (Eds.), Innovations in Aotearoa-NZ VET: Vocational education and training (VET) 1 ed. (pp. 1-20). Switzerland: Springer.
- Birchmore, R., Blakely, J., Chai, E., Leaver, J., Loo, W., McMullan, R., Phillips, D., Tuleasca, L., & Wilson, H. (2022). Collaboration Across Aotearoa New Zealand ITPs: The Bachelor of Engineering Technology Three-Year Engineering Degree Programme as an Exemplar. In Chan, S., Huntington, N. (Eds.), Reshaping Vocational Education and Training in Aotearoa New Zealand Vol 34 ed. (pp. 251-277). Cham: Springer.
- Leaver, J., Blakely, J., Loo, W., Tuleasca, L., Phillips, D., Chai, E., McMullan, R., Wilson, H., & Birchmore, R. (2022). Collaboration Across New Zealand ITPs: The Bachelor of Engineering Technology Three-Year Engineering Degree Programme as an Exemplar. In Chan S. (Eds.), Innovations in Aotearoa-NZ vocational education and training (VET) 1st ed. (pp. 1-20). NZ: Springer.

Conference Contribution- Abstract

- Rehan, M., Sadegh, A., Luban, C., & Jess, T. (2022, July). Uptake of Offsite Construction in NZ – A Non-Supplier viewpoint. Paper presented at OPSITARA Research Conference, Otago Polytechnic.

Conference Contribution- Oral Presentation

- Berry, T.A., Low, J., Wallis, S.L., Birchmore, R., Gremillon, H., Rameirez Prado, G., Blanchon, D., Baling, M., Doyle, E., Tang, T., & Hernandez, G. (2022, December). Assessing the impact of mechanical ventilation on indoor air quality in homes in subtropical New Zealand. Paper presented at the MIT-Unitec Reserach Symposium, Online.
- Berry, T.A., Thomson, P., Low, J., & Hernandez, G. (2022, August). Keynote Presentation: Developing a circular economy for plastic in the construction sector. Paper presented at the Building for the Future: SARNZ Conference and Trade Show, Queenstown.
- Berry, T-A. (2022, February). Keynote Presentation: Creating Capacity and Capability for the Future of the Built Environment: The Importance of Applied Research. Paper presented at the 7TH NEW ZEALAND BUILT ENVIRONMENT RESEARCH SYMPOSIUM 2022, Massey University.
- Berry, T-A., Low, J.K., Wallis, S.L., Kestle, L., Day, A., & Hernandez, G. (2022, November). Determining the Feasibility of a Circular Economy for Plastic Waste from the Construction Sector in New Zealand. Paper presented at the SBEfin 2022 – Emerging Concepts for Sustainable Built Environments, Helsinki.
- Berry, T-A., Roberts, M., & Benton, N. (2022, August). Reducing Construction Plastic Waste to Landfill: making gold from straw. Paper presented at the Masterbuilders Annual Constructive, Rotorua.
- Berry, T-A., Thomson, P., Low, J., & Hernandez, G. (2022, August). Keynote Presentation: Developing a circular economy for plastic in the construction sector. Paper presented at the Paper presented at the Building for the Future: SARNZ Conference and Trade Show, Queenstown.
- Borna, K. (2022, August). A THREE-DIMENSIONAL MAPPING OF FINANCIAL TIME SERIES DATA USING SPATIALISATION. Paper presented at the GeoCart'2022, Wellington.
- Borna, K., & Alshadli, D. (2022, June). Interpolation of Financial Time Series Data in a Virtual Geographic Environment. Paper presented at the NZAE2022/the New Zealand Association of Economists, Wellington.
- Borna, Kambiz. (2022, August). INTERPOLATION OF FINANCIAL TIME SERIES DATA IN A THREE-DIMENSIONAL SPATIALISATION. Paper presented at the NZGRC 2022, Wellington.
- Chen, A. (2022, December). Factors Leading to The New Zealand Housing Bubble: A Structural Equation Modeling Approach. Paper presented at the 2022 MIT/Unitec Research Symposium, Auckland, New Zealand.

- Kambiz, B., & Alshadli, D. (2022, June). Representation of Financial Time Series Data in a Virtual Geographic Environment. Paper presented at the New Zealand Association of Economics (nzae), Auckland.
- Khodabakshian, A., Puolitaival, T., & Kestle, L. (2022, November). Deterministic and Probabilistic Risk Management Methods in Construction Projects. Paper presented at the 45th AUBEA Conference, Western Sydney University Australia.
- Low, J.K., Boyes, R., Benton, N., Hernandez, G., Thomson, P., Wallis, S., & Berry, T-A. (2022, December). Zero Waste Initiative for Plastics Generated from a New Build Residential Construction Site. Paper presented at the MIT - Unitec Research Symposium 2022, Unitec, Mt Albert.
- Mahmood, B. (2022, December). Use of Modern Teaching Equipment for Understanding Principles of Hydraulics – Sharing an Experience. Paper presented at the MIT - Unitec Research Symposium 2022, Online Webinar.
- Masood, R., & Aliakbarlou, S. (2022, December). Skill Matrix for Prefabricated Construction. Paper presented at the ITP Research Symposium, Invercargill, Southern Institute of Technology.
- Masood, R., Aliakbarlou, S., Chan, L., & Teo, J. (2022, July). Uptake of Offsite Construction in NZ –A Non-Supplier viewpoint. Paper presented at the OPSITARA Research Conference, Otago Polytechnic.
- McGarrigle, M J. (2022, February). Consideration Watchpoints When Using " Archicad" Software Across a VDI Network. Paper presented at the 7th NZBERS Symposium 17-18 Feb. 2022, Massey University , Auckland , New Zealand.
- Sreymom, U., Sadegh, A., Rehan, M., & Luban, C. (2022, November). Skills Shortage in New Zealand prefabricated construction. Paper presented at the ITP Research Symposium, Southern Institute of Technology.
- Sreymom, Um., Aliakbarlou, S., Masood, R., & Chan, L. (2022, December). Skills Shortage in New Zealand prefabricated construction. Paper presented at the ITP Research Symposium, Invercargill, Southern Institute of Technology.
- Tuleasca, L. (2022, July). The Training and Education of Civil Engineering Students at New Zealand's Largest Technical Institute. Paper presented at the EDULEARN22, Proceeding of EDULEARN22 Conference.
- Tuleasca, L., & Loo, Y. W. (2022, December). Managing Disasters in New Zealand from a Civil/Structural Engineering Perspective. Paper presented at the MIT/Unitec Te Pukenga Research Symposium, Auckland.
- Wilson, H.B., & Sledmore, M. (2022, July). New VEENZ Structure. Paper presented at the VEENZ Forum 2022, Wintec, Hamilton.

Conference Contribution- Paper in published Proceedings

- Berry, T-A., Low, J., Hernandez, G., Kestle, L., & Wallis, S. (2022). Determining the feasibility of a circular economy for plastic waste from the Construction Sector in New Zealand. Helsinki Finland SBeFin Conference 2022 (pp. 205-213).
- Berry, T-A., Low, J., Wallis, S.L., Kestle, L., Day, A., & Hernandez, G. (2022). Determining the Feasibility of a Circular Economy for Plastic Waste from the Construction Sector in New Zealand. In International Council for Research and Innovation in Building and Construction (CIB). SBEfin 2022 – Emerging Concepts for Sustainable Built Environments (pp. 205-213).
- Berry, T-A., Low, J.K., Wallis, S.L., Kestle, L., Day, A., & Hernandez, G. (2022). Determining the Feasibility of a Circular Economy for Plastic Waste from the Construction Sector in New Zealand. In IOP Publishing (Ed.), IOP Conf. Series: Earth and Environmental Science. SBEfin2022 Emerging Concepts for Sustainable Built Environment (SBEfin2022), International Council for Research and Innovation in Building and Construction (pp. 1-8). doi:doi:10.1088/1755-1315/1122/1/012002

- Berry, T-A., Low, J.K., Wallis, S.L., Kestle, L., Day, A., & Hernandez, G. (2022). Determining the Feasibility of a Circular Economy for Plastic Waste from the Construction Sector in New Zealand. International Council for Research and Innovation in Building and Construction (CIB) (Ed.), SBEfin 2022 – Emerging Concepts for Sustainable Built Environments 23-25 November, 2022 Helsinki (pp. x).
- Chen, A., Domingo, N., & Rotimi, J. (2022). New Zealand Public-Housing Project Tender Price Forecast: Preliminary Findings. In Evangelia Papoutsaki and Marie Shannon (Ed.), Rangahau Horonuku Hou – New Research Landscapes, Unitec/MIT Research Symposium 2021, December 6 and 7 (pp. 177-188). doi:ecember 6 and 7 (pp. 177–188). Auckland: ehttps://doi.org/10.34074/proc.2206012
- Chen, J., Domingo, N., & Rotimi, J. (2022). Understanding the Factors Affecting Accuracy of New Zealand Public Housing Project Tender Price. In Wajiha M. Shazad, Eziaku O. Rasheed, James O. B. Rotimi (Ed.), 7th New Zealand Built Environment (NZBERs) Symposium (pp. 226-236).
- Khodabakshian, A., Puolitaival, T., & Kestle, L. (2022). Deterministic and Probabilistic Risk Management Methods in Construction Projects: A Systematic Literature Review and Comparative Analysis. In Srinath Perera and Mary Hardie (Ed.), GLOBAL CHALLENGES IN A DISRUPTED WORLD:Smart, Sustainable and Resillent Approaches in the Built Environment, AUBEA Conference 2022 (pp. 317-327). doi:10.26183/a6pq-mg06
- Mahmood, B., & Beer, J. (2022). Assessment of Stormwater Sand Filter Media for a Ready-Mix Concrete Plant – A pilot study. Stormwater 2022 (pp. 6-21). Retrieved from https://www.waternz.org.nz/Article?Action=View&Article_id=2213
- Mohammad Afjalur, Rahman. (2022). BIM-LEAN RELATIONSHIP ASSESSMENT FRAMEWORK: A CONCEPTUAL ESTABLISHMENT. In In: Sandanayake, Y.G., Gunatilake, S. and Waidyasekara, K.G.A.S. (eds). (Ed.), Proceedings of the 10th World Construction Symposium, 24-26 June 2022, Sri Lanka. [Online]. (pp. 185-197). doi:https://doi.org/10.31705/WCS.2022.16. Available from: https://ciobwcs.com/2022-papers/ Retrieved from https://ciobwcs.com/downloads/papers22/WCS2022_Proceedings_16.pdf
- Tuleasca, L., & Loo, W. (2022). The Training and Education of Civil Engineering Students at New Zealand's Largest Technical Institute. Proceeding of EDULEARN22 Conference , Vol. 1 (pp. 3503-3513). Retrieved from https://library.iated.org/publications/EDULEARN22
- Waidyartne, P., & Phillips, D. (2022). Forecasting Water Level Fluctuation in Water Supply Dams of the Auckland and Waikato Regions. In Marie Shannon and Evangelia Papoutsaki (Ed.), Proceedings Rangahau Horonuku Hou New Research Landscapes , Vol. 1 (pp. 131-160). doi:10.34074/proc.2206010
- Wilson, L., & Kestle, L. (2022). “The cost-benefit implications of low-emissions’ concrete for exterior concrete works”-. In Wajiha Mohsin Shahzad, Eziaku Onyeizu Rasheed, James Olabode Bamidele Rotimi (Ed.), 7th NZBERS 2022- Creating capacity and capability for the future of the built environment (pp. 432-436). doi:ISBN 8978-0-473-62031-8

Journal Article

- Bennett, J., Shorter, C., Kvalsvig, A., Telfar Bernard, L., Wilson, N., Crane, J., Douwes, J., Cunningham, C., Taptiklis, P., Phipps, R., Trompetter, B., Plagmann, M., Boulic, M., Summers, J., Berry, T-A., Baker, M.G., & Howden-Chapman, P. (2022). Indoor air quality, largely neglected and in urgent need of a refresh. New Zealand Medical Journal, August 5;135(1559), 136-139.
- Berry, T-A., Belluso, E., Vigliaturo, R., Giere, R., Emmett, E.A., Testa, J.R., Steinhorn, G., & Wallis, S.L. (2022). Asbestos and Other Hazardous Fibrous Minerals: Potential Exposure Pathways and Associated Health Risks. International Journal of Environmental Research and Public Health, 19(7), 1-17.
- Berry, T-A., Belluso, E., Vigliaturo, R., Giere, R., Emmett, E.A., Testa, J.R., Steinhorn, G., & Wallis, S.L. (2022). Asbestos and Other Hazardous Fibrous Minerals: Potential Exposure

Pathways and Associated Health Risks. International Journal of Environmental Research and Public Health, 19:4301, 1-17.

» Birchmore, R.C., Berry, T-A., Wallis, S.L., Tsai, S., & Hernandez, G. (2022). Thermal Performance and Indoor Air Quality in New, Medium Density Houses – Auckland, New Zealand. International Journal of Building Pathology and Adaptation, 1, 1-22. doi:https://www.emerald.com/insight/content/doi/10.1108/IJBPA-08-2021-0110/full/html
» Birchmore, Roger., Wallis, Shannon L., Hernandez, German., Tsai, Steve., & Berry, Terri-Ann. (2022). Thermal Performance and Indoor Air Quality in New, Medium Density Houses – Auckland, New Zealand. International Journal of Building Pathology and Adaptation, 1, 11. doi:10.1108/IJBPA-08-2021-0110
» Blanco, H., Leaver, J., Dodds, PE., Dickinson, R., Garcia-Gusano, D., Iribarren, G., Lind, A., Wang, C., Danesbergs, J., & Baumann, M. (2022). A taxonomy of models for investigating hydrogen energy systems. Renewable and Sustainable Energy Reviews, 167(112698), 1-30. doi:10.1016/j.rser. 2022.112698
» Castro, Jhulimar., Leaver, Jonathan., & Pang, Shusheng. (2022). Simulation and Techno-Economic Assessment of Hydrogen Production from Biomass Gasification-Based Processes: A Review. energies, 15(8455), 1-38. doi:10.3390/en15228455
» Hernandez, G., Low, J., Nand, A., Bu, A., Wallis, S., Kestle, L., & Berry, T-A. (2022). “Quantifying and Managing Plastic Waste Generated from Building Construction in Auckland, New Zealand”. Waste Management & Research : the journal for a sustainable circular economy, 3(7), 42-54. doi:https://journals.sagepub.com//doi.org/10.1177/0734242X221105425
» Hernandez, G., Low, J.K., Nand, A., Bu, A., Wallis, S., Kestle, L., & Berry, T-A. (2022). Quantifying and Managing Plastic Waste Generated from Building Construction in Auckland, New Zealand. Waste Management and Research, 1, 1-9. doi:https://doi.org/10.1177/0734242X221105425
» Hernandez, G., Low, J.K., Nand, A., Bu, A., Wallis, S.L., Kestle, L., & Berry, T-A. (2022). Quantifying and Managing Plastic Waste Generated from Building Construction in Auckland, New Zealand. Waste Management and Research, 1, 1-9. doi:https://doi.org/10.1177/0734242X221105425
» Md Zain, N.H., Mohd Salim, N.A., Saiful Bahri, I.S., & Md Yusof, Z. (2022). Experimental Study using Recycled Waste Tyre as Sustainable Clay Soil Stabilisation. The International Journal of Integrated Engineering, 14(5), 122-129.
» Puolitaival, T., Kahkonen, K., & Kestle, L. (2022). The framing of construction management responsibilities in job advertisements in the UK and the USA. CME (Construction Management and Economics), 11(1), 16ps awaiting vol and issue as only published15dec'2222. doi:DOI: 10.1080/01446193.2022.2156569
» Singh, S., Kiroff, L., & Sharma, R. (2022). Brownfield land redevelopment strategies in urban areas: Criteria contributing to the decision-making process. International Journal of Environmental Science & Sustainable Development, 7 (2), 1-17. doi:10.21625/essd.v7i2.919
» Singh, S., Kiroff, L., & Sharma, R. (2022). Brownfield land redevelopment strategies in urban areas: Criteria contributing to the decision-making process. International Journal of Environmental Science and Sustainable Development (ESSD), 7(2), 1-17. doi:https://doi.org/10.21625/essd.v7i2.919

Presentation (non-conference)

» Berry, T-A. (2022, July). Finding solutions for plastic waste materials generated from the C&D sector in New Zealand. Presentation conducted at the US/Australia/New Zealand Virtual Roundtable on Circular Polymer Systems, Online.
» Leaver, J., Jack, M., & Abdulwahid, A. (2022, August). Techno-Economic Modelling of Hydrogen Potential in the New Zealand Energy Economy: A System Dynamics Approach. Presentation conducted at the Green Hydrogen Alliance: Low cost hydrogen production and storage systems for NZ, Online.

2023

Conference Contribution- Abstract

- Sharma, R. (2023, 26-28 November). Performance management in team projects: Preparing work-ready graduates. Paper presented at The 46th Australasian Universities Building Education Association (AUBEA) Conference, Massey University, Auckland, New Zealand.

Conference Contribution- Oral Presentation

- Ali Abdulwahid, A., Jack, M., & Leaver, J.D. (2023, Feb). Techno-Economic Modelling of Hydrogen's Role in the New Zealand Energy System: A System Dynamics Approach. Paper presented at the Inaugural New Zealand Hydrogen Symposium, Otago University, Dunedin.
- Berry, T-A., Low, J.K., Blanchon, D., Wallis, S.L., & Steinhorn, G. (2023, March). Keynote Speech: Innovation-Environmental Exposure to Asbestos: Assessing and Managing Risks in New Zealand. Paper presented at the FAMANZ Asbestos 2023: Collaboration is key, Auckland.
- Berry, T-A., Steinhorn, G., Low, J.K., Wallis, S.L., & Blanchon, D. (2023, July). Diagnostic Procedures for Low-Level Asbestos Contamination in Occupied Tertiary Institutional Buildings. Paper presented at the Goldschmidt 2023, Lyon, France.
- Birchmore, Roger. (2023, August). The Embodied Carbon of Building Services Systems in Houses. Paper presented at the CIBSE ANZ seminar Series 6 Minutes to Midnight, https://www.cibse.org/get-involved/regions/2023-anz-seminar-series.
- Chai, Edward. (2023, February). A peer mentoring programme supporting learners from the School of Civil Engineering. Paper presented at the VEENZ joint tutors forum 2023, Christchurch.
- Chen, J., Domingo, N., & Rotimi, J. (2023, November). Practices and shortfalls in accurate public housing project cost estimate in New Zealand: an exploratory study. Paper presented at the AUBEA 2023 Conference, Auckland, New Zealand.
- Kestle, L. (2023, June). Sustainable green, lean and collaborative construction industry practices – the myths, and the future normal ?". Paper presented at the NZIQS Conference 7-9 June 2023 Building Toward the Future- Transformation Growth and Sustainability, Hamilton, NZ.
- Kestle, L. (2023, October). Collaborative design and delivery of integrated design and construct projects is value-adding for the client- really?- how?". Paper presented at the ADNZ Conference 26-28 October 2023 – Pushing Boundaries, Igniting Change, Wellington, NZ.
- Masood, R., Flanders, J., Raina, P., Aliakbarlou, S., & Afzal, M. (2023, November). Root causes of Request for Information (RFI) on commercial construction projects. Paper presented at the Presented at OPSITARA 2023 (Te Pūkenga Region 4 Research Symposium), 30 Nov - 1 Dec, Southern Institute of Technology Invercargill Campus., Invercargill.
- Masood, R., Raina, P., Menike, S., Aliakbarlou, S., Bistouni, M., Mazharuddin, SA., Adam, AJ., Finnie, D., Ali, R., Landage, N., Altaf, O., Piri, I., Flanders, J., & Wilson, N. (2023, November). RCoP Meeting: Construction & Infrastructure. Paper presented at the Presented at OPSITARA 2023 (Te Pūkenga Region 4 Research Symposium), 30 Nov - 1 Dec, Southern Institute of Technology Invercargill Campus., Invercargill.
- Mukunthan, R., Aliakbarlou, S., Massod, R., Shaheed, R., & Matafeo, R. (2023, November). Improving Prefabrication Supply Chain to Alleviate the Housing Shortage. Paper presented at the Presented at OPSITARA 2023 (Te P0kenga Region 4 RE, Invercargill.
- Mukunthan, R., Aliakbarlou, S., Massod, R., Shaheed, R., & Matafeo, R. (2023, November). Improving Prefabrication Supply Chain to Alleviate the Housing Shortage. Paper presented at the Presented at OPSITARA 2023 (Te Pūkenga Region 4 Research Symposium), 30 Nov - 1 Dec, Southern Institute of Technology Invercargill Campus., Invercargill.
- Wilson, H.B. (2023, February). Developing a collaborative and cooperative delivery network. Paper presented at the VEENZ Forum 2023, Ara, Christchurch.

- Xu, Y., Aliakbarlou, S., Masood, R., Chan, L., & Kimaro, A. (2023, November). Skill requirements for Low-Prefabricated Timber Building Technologies. Paper presented at the Te Pūkenga Region 4 Research Symposium (OPSITARA 2023), Invercargill.
- Xu, Y., Aliakbarlou, S., Massod, R., Chan, L., & Kinaro, A. (2023, November). Skill Requirements for Low-Prefabricated Timber Building Technologies. Paper presented at the Presented at OPSITARA 2023 (Te Pūkenga Region 4 Research Symposium), 30 Nov - 1 Dec, Southern Institute of Technology Invercargill Campus., Invercargill.

Conference Contribution- Paper in published Proceedings

- Loo, W. Y., & Tuleasca, L. (2023). THE ACADEMIC PERFORMANCE OF CIVIL ENGINEERING STUDENTS UNDER COVID-19 DISRUPTIONS. 15th International Conference on Education and New Learning Technologies (pp. 0938 to 0945).
- Loo, W., & Tuleasca, L. (2023). THE ACADEMIC PERFORMANCE OF CIVIL ENGINEERING STUDENTS UNDER COVID-19 DISRUPTIONS. In EDULEARN23 (Ed.), Proceeding of EDULEARN23 Conference (pp. 938-945). Retrieved from https://library.iated.org/publications/EDULEARN23
- Ly, L., & Kiroff, L. (2023). BIM use in Green Building Certification processes. In Karatas, A., Iranmanesh, A., Gurgun, A.P., Yazdani, S., Singh, A. (Ed.), Proceedings of International Structural Engineering and Construction , Vol. 10 (1) (pp. 1-6). doi:10.14455/ISEC.2023.10(1).AAE-22
- Rahman, M.A., & Belayuthum, S. (2023). A conceptual framework to enable sustainability through lean and BIM integration: A conceptual establishment. In Mohd Reza Esa, Mohd Ashraf Mohd Fateh, Farrah Zuhaira Ismail, Juliana Brahim, Ani Maslina Salh, Siti Rashidah Hanum Abd Wahab and Nurul Asra Abd Rahman (Ed.), 3RD INTERNATIONAL CONFERENCE ON THE BUILT ENVIRONMENT AND ENGINEERING (IConBEE) 2022: Fostering a Transpicuous Construction Industry , Vol. 2881(1) (pp. 1-9). doi:https://doi.org/10.1063/5.0168611

Conference Contribution- Poster Presentation

- Castro, J., Pang, S., & Leaver, J. (2023, October). Process Modelling and Evaluation of Energy Efficiency of a Hydrogen Production Pathway from Biomass Gasification and Gas Processing with CO2 Capture. Poster presented at Chemeca 2023, Auckland.
- Xu, Yan., Aliakbarlou, Sadegh., Masood, Rehan., Chan, Luban., & Kimaro, Anna. (2023, November). Skill requirements for Low-Prefabricated Timber Building Technologies. Poster presented at Te Pūkenga Region 4 Research Symposium (OPSITARA 2023), Te Rau o te Huia (Southern Institute of Technology Centre for Creative Industries).
- Discussion/Working Paper (Published)
- McGarrigle, M.J. (2023). Watchpoints for Consideration When Utilising a VDI Network to Teach Archicad BIM Software Within an Educational Programme. ISSN 2324-3635. Occasional and Discussion Paper Series- Unitec. New Zealand: ePress- Unitec, Te Pukenga. https://doi.org/10.34074/ocds.099.

Journal Article

- Doyle, E., Blanchon, D., Wells, S., de Lange, P., Lockhart, P., Waipara, N., Mansfield, M., Wallis, S., & Berry, T-A. (2023). Internal Transcribed Spacer and 16S Amplicon Sequencing Identifies Microbial Species Associated with Asbestos in New Zealand. Genes 2023, 14(729), 1-12.
- Khodabakhshian, A., Puolitaival, T., & Kestle, L. (2023). Deterministic and Probabilistic Risk Management Approaches in Construction Projects: A Systematic Literature Review and Comparative Analysis. Buildings Journal, vol 13, 1-26. doi:doi: 10.3390/buildings13051312
- Watabe, Akihiro., & Leaver, Jonathan. (2023). Transitioning to battery electric vehicles in Japan: Impact of promotion policy, battery performance and carbon neutrality on greenhouse gas emissions reduction. Journal of Cleaner Production, 430, 14. doi:10.1016/j.jclepro.2023.139680

Presentation (non-conference)

- Berry, T-A., Thomson, P., Hernanadez, G., Low, J.K., & Benton, N. (2023, March). Reducing Construction Plastic Waste to Landfill. Presentation conducted at the New Zealand Certified Builders (NZBC), Auckland Region Education Day, 2023, Auckland.

Report

- Phillips, D.J. (2023). 1126 Kaipara Coast Highway, Kaukapakapa Flooding S92 response. (2023). Auckland: eCoast.
- Phillips, D.J. (2023). 45 Mill Rd Coastal Flooding Review and Engineering Design response for Interim Sea Level Rise Guidance. eCoast: Auckland.
- Phillips, D.J. (2023). Flood Assessment. Muriwai Golf Course New Toilet Facility. (2023-1). Auckland: D. Phillips.

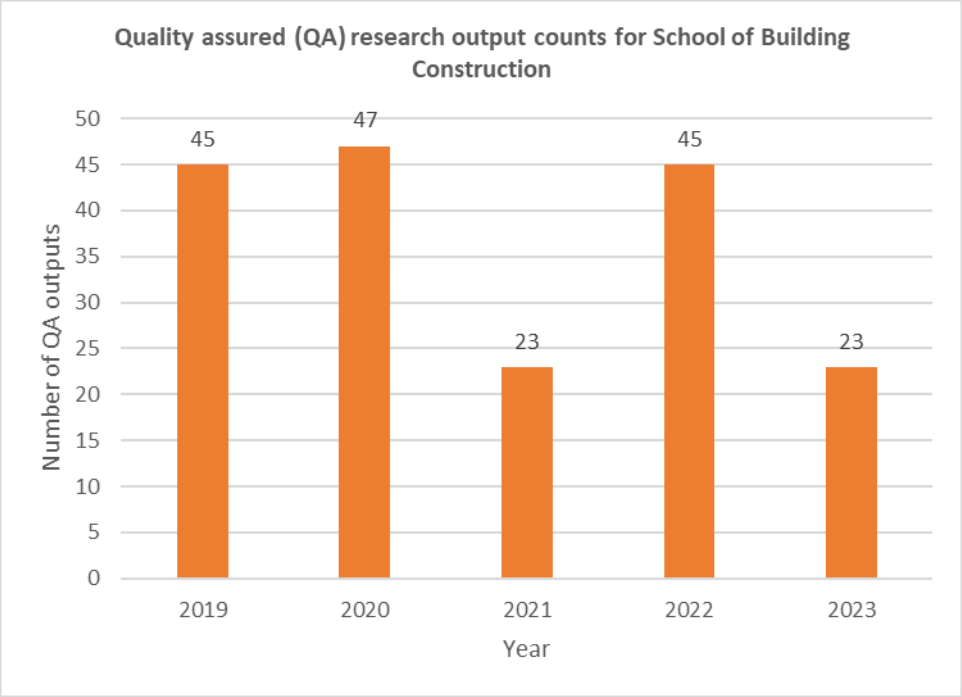
2024

Can you add in the ROMS entries so far till now Arun please
Or do we add those in by Deecember I think you suggested ?

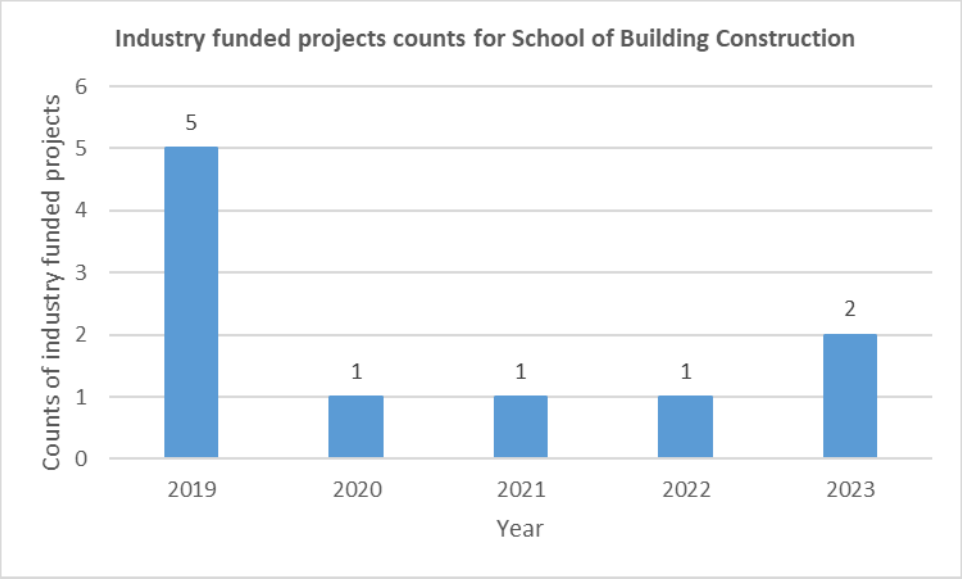
I for one have 3 publications either published or about to be for example and cannot access ROMS for Construction staff which is unfortunate being the Research Leader and meant to be monitoring and mentoring their research work .

SOBC Research KPI Data

Quality assured (QA) research output counts for School of Building Construction

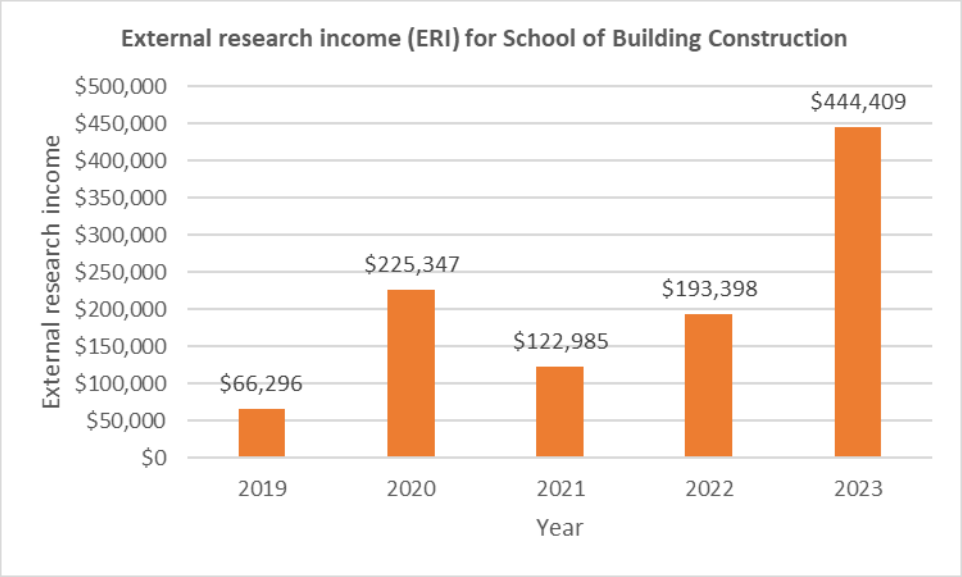


Industry funded projects counts for School of Building Construction



External research income (ERI) for School of Building Construction

Note: The ERI figures also include the ERI from the ESRC.


External research income (ERI) for School of Building Construction
External research income
$500,000
$450,000
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
$66,296
$225,347
$122,985
$193,398
$444,409
2019
2020
2021
2022
2023
Year

School Research Plan – School of Community Studies

Ko te manu e kai ana i te miro nōnā te ngahere
Ko te manu e kai ana i te mātauranga nōnā te ao

The bird that consumes the miro berry owns the forest
The bird that consumes knowledge owns the world

1 Introduction and current state

The School of Community Studies offers qualifications in Sport, Recreation & Exercise and Bridging Education and degree in Bachelor of Teaching (ECE). The plan primarily covers the research narratives of one degree program in the school: Early Childhood Education Program. Researchers are grouped into three research groups [1] Culturally Inclusive Pedagogy and Equity in Early Childhood, [2] Student ECE Kaiako Hauora Collaborative Research Project, [3] Using GenAI for learning and teaching.

.

Unitec is now a part of Te Pūkenga, New Zealand's national network of polytechnics, and institutes of technology. There are many challenges and some opportunities as the current government delivers on its plans for vocational education. This is also reflected in the field of research.

Number of degree teaching staff	10
Total research FTE allocated	1.15
Current Research Traffic Light rating (Percentage of green lit staff)	80%
PBRF history (Number of PBRF rated staff in 2018)	6

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes, and governance.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

A distinctive feature of school of community Studies is our commitment to Mātauranga Māori. Teaching team are guided by the principles of Te Noho Kotahitanga and the use of Te Whare Tapa Wha model of wellbeing to support hauora.

Staff and students are encouraged to undertake research that aligns to Te Tiriti o Waitangi and has transformative outcomes for the communities in Aotearoa. The school continues to embed a flourishing, diverse and sustainable research culture, weaving strong, enduring community partnership.

The school guided by its values has a priority to recruit Māori lecturers whenever possible. We are fortunate to have three Māori kaiako on our Early Childhood Education (ECE)teaching team, led by our kaiārahi, with the use of a Whare Tapere (specialist learning classroom) for our kete courses and Mātauranga Māori content and tikanga.

Staff have also collaborated with colleagues in other institutions and established collaborative research projects. For example, the Student ECE Kaiako Hauora Collaborative Research Project targeting early childhood kaiako and tauira at present.

The school supports the development and capability of our people by empowering them toward transformative outcomes for our communities by encouraging research independence. Guided by Te Tiriti and Te Noho Kotahitanga principles, school provides inclusive opportunity for the diverse cultures and individuals from our school.

Furthermore, our staff prioritise te reo Māori as a living language, and te ao Māori as a living and relevant culture. Our teaching practice and work with students is founded on the principles and values of whanaungatanga. Mātauranga Māori is woven throughout the learning, sitting on a kaupapa of Te Noho Kotahitanga, Unitec's values. Staff have set up their own goals in learning Matauranga Māori and are actively working towards achieving them.

Staff in the School are research-active and enjoy a variety of focuses. 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.

During the curriculum development, a conscious effort is made to weave Mātauranga Māori and Pacific content in each course. This is informed by research into the field. The team are committed to continue their te reo me ngā tikanga journey and guide each other through sharing new knowledge and finding opportunities to enhance their pedagogy and practice.

1.2 What the school is planning in the area of research to achieve the goal and key project (leadership roles, recruitment, prioritisation, opportunity and partnership development)

- Prioritising Mātauranga Māori capability in recruiting new staff
- ECE Rautaki team supporting team capability with regards to Mātauranga Māori principles.

Unitec's Te Tīpare Strategy and our new programme Rautaki have been a further focus of kaiako professional development, some of this through the professional development badges. This has helped kaiako to weave in Mātauranga Māori content into all courses.

- Appointment of Māori Champion for the school: Chantal Baker.
- Building staff capability to undertake research aligned with the principles of Te Tiriti o Waitangi: Staff are supported to complete different badges to build staff capability and understanding of the principles of Te Tiriti o Waitangi. A number of our staff completed the Te Noho Kotahitanga badge in 2022. Staff have also completed Te Rito - Te Tīpare - Embedding Mātauranga Māori badge. Staff continue to engage in this area.
- A flourishing, collaborative research culture with other Institutes in Te Pūkenga for example with MIT and Open Polytechnic. This has created new research opportunities and collaboration within ITPs.

Staff in the School are research active. Teaching is "research-informed" and is embedded into the curriculum. 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 cultural diversity and curriculum in ECE 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. This helps students to develop a research-based mindset and to be critical and reflective thinkers.

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

- Galina Stebletsova: EDUC 7004 Policy & Discourse in Context of ECE Professional experience and other Practicum Courses
- Yvonne Culbreath: EDUC 6004 Māori and Pacific Learners in ECE Contexts
- Andrew Lenton SPOR5105 Coaching in Action

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 strength each display. For example, the Student ECE Kaiako Hauora Collaborative Research Project targeting early childhood kaiako and tauira. The research aims and questions are as follows:

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

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 initiated 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, Yo Heta-Lensen AUT, Kiri Gould UoA, Jacoba Matapo UoA, Justine O'Hara Gregan UoA, Mary-Liz Broadley Open Polytechnic, Pauline Bishop Unitec Te Pūkenga and Cathie Powell.

2 School of Community Studies Goals and KPIs

There are six KPIs for research:

1. 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.
2. 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.
3. 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.

4. 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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori Rangahau professional development achievements and Rangahau Māori research stories in the media.

The School of Community Studies has the following current goals.

- → Quality Assured Research Outputs: Maintaining the quality assured research outputs to at least 1.5 output per research active FTE[1].
- → Research Productivity: Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- → External Research Income: The school will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- → Industry Funded Projects: Encourage and maintain industry-funded projects at 1 project per year.
- → Student Integrated Research: The school will strive to develop research Student Integrated Research projects in line with the definition of this KPI.
- → Rangahau Māori Productivity: The school will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

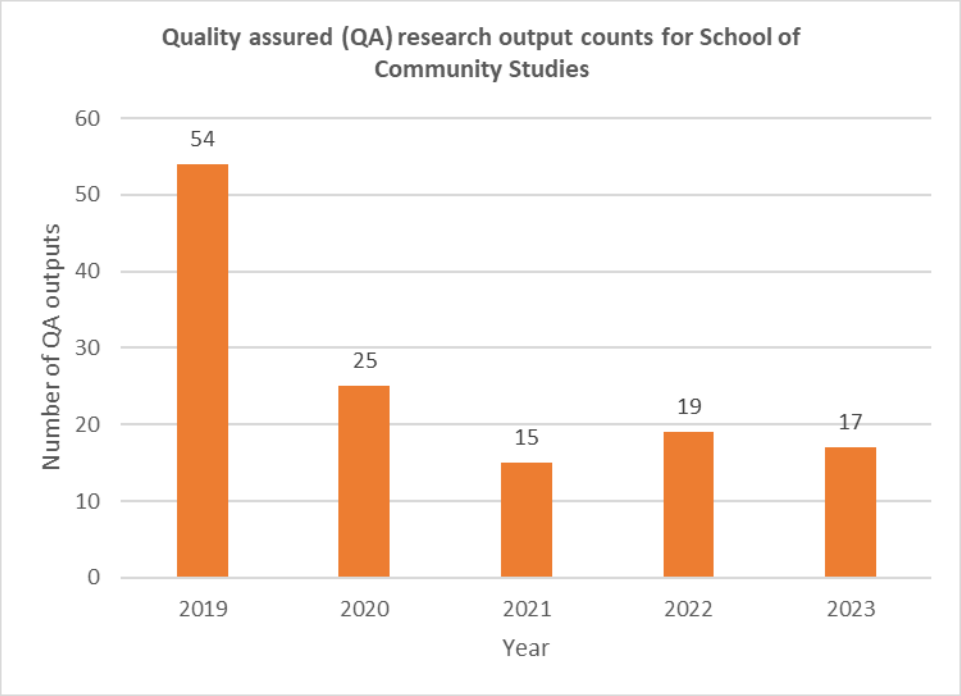


Figure 1: School of Community Studies Quality Assured Research Outputs

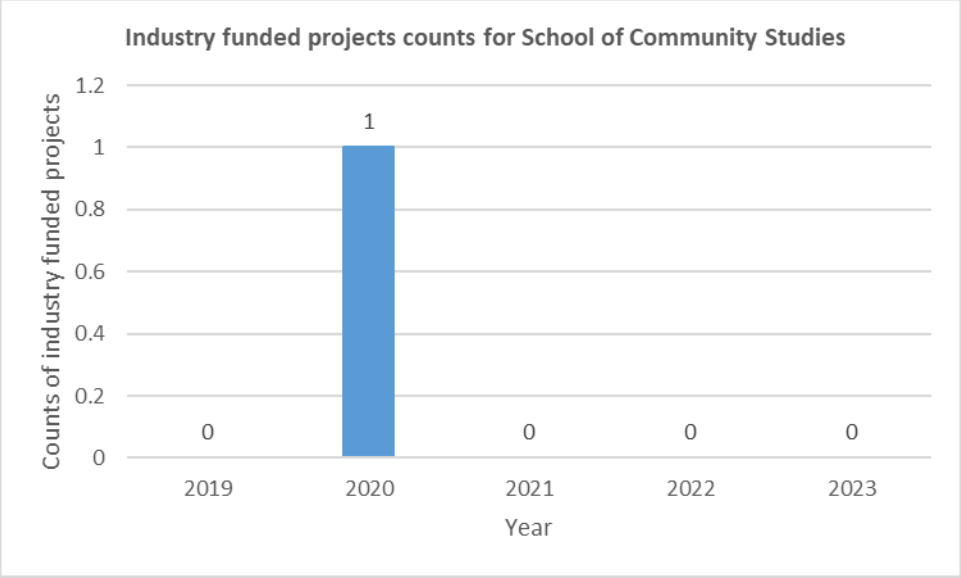


Figure 2: School of Community Studies Industry Funded Projects

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.

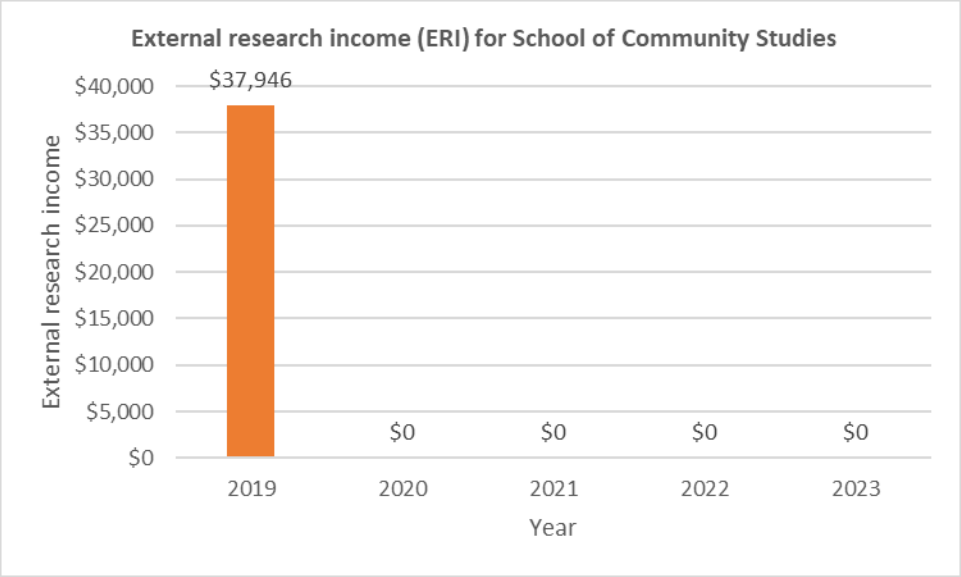


Figure 3: School of Community Studies External Research Income

2.1 What the school is planning for increasing research diversity?

School is exploring to collaborate with Supportive learning team at Bridgepoint around the area of neurodiversity. School is guided by the value of strengths-based approach to create learning opportunities that allow students to experience success and develop confidence in their diverse abilities. School hopes to encourage staff whose research interest focuses on diversity. For example, Tahera Afrin from Early Childhood Education program is looking at exploring a research project: 'Special or additional needs of tamriki in the context of teacher education programmes in Aotearoa New Zealand'. She has recently started on her PhD to explore this further.

Researchers from diverse background are research active and contributing to the body of knowledge in Teaching and Learning. For example, Yvonne Culbreath a Pacific nations lecturer and Lata Rana researcher from India are researching in their area of interest. Yvonne's research interest are: Indigenous cultures; inclusive pedagogies. Lata is focusing on: Cultural diversity; culturally responsive and inclusive pedagogy; teacher education; globalisation and developments in Education; indigenous identities and culture.

Another researcher, Chantal Baker from Sports program has contributed to community sport and New Zealand rugby and touch rugby scenes for two decades, as a player, coach, and facilitator at provincial and national level.

In 2023 Chantal was contracted by NZ Rugby in a research project called "The Future of Club Rugby' New Zealand Rugby (NZR) and the Provincial Unions (PUs) were interested in understanding:

1. the current state of rugby clubs,
2. the future state (what the code needs clubs to be in 10-20 years' time),
3. and how rugby might support transformation towards this future state.

The scope of areas to be addressed in this project has been categorised under seven broad headings:

1. Strategic,
2. Environment,
3. Financial,
4. Experience/Offerings,
5. Capability and Capacity,
6. Compliance,
7. Facilities

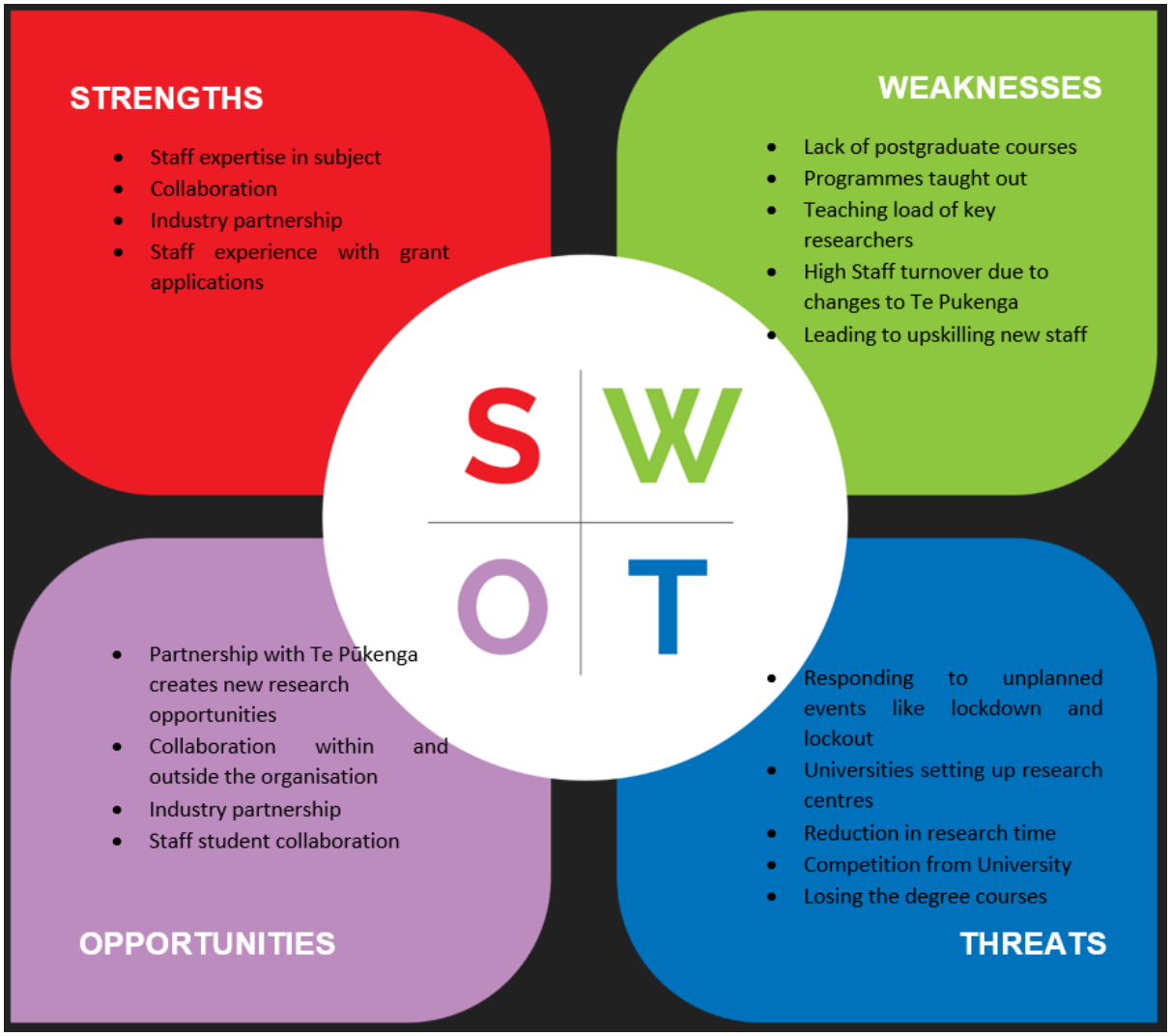
The final report was presented to NZR in Nov 2023 with this information made available to the public this May 2024. This will inform teaching and learning about current circumstances in the industry.

Report link: https://www.nzrugby.co.nz/get-involved/clubs/the-future-of-rugby-clubs

Researcher John MacFarlane (PhD) is a sport management lecturer for the Te Pūkenga Community Studies: Sport, Recreation and Exercise programme. His research focuses on sport governance, organisational and network legitimacy, networks and federations, and the sportisation and institutionalisation of informal sports. John's previous research has focused on the governance of the fitness industry and action/lifestyle sports. John's current research project explores the current governance, structure, and funding challenges experienced by New Zealand Downhill Skateboarding and its elite skaters.

The ECE team in the school is working with Epress on an E- book for publication. The purpose of this book is to address and reveal various perspectives and aspects of early childhood education in Aotearoa, New Zealand. The book presents a critical lens to different issues related to teaching and learning in Early childhood with specific focus on changing identities, well-being, Hauora and professional teaching practice and pedagogy of Early Childhood. The book will also provide an in-depth analysis of relevant political, historical, and socio-cultural issues relating to the context of early childhood education in Aotearoa and internationally. Early Childhood education in New Zealand is guided by the principles of Treaty of Waitangi and *Te whāriki* the New Zealand early childhood curriculum document. The book recognises the values and principles of the treaty and the curriculum document. Staff have submitted chapters to Epress attached to Tuapapa Rangahau/ Research office. Epress is in the process of editing the chapters to send for peer review. Staff have collaborated with other staff/academics in the school and other tertiary institutes/university. Researchers from Tātai Aho Rau CORE Education, Open Polytechnic and Auckland University of Technology have also contributed to the e-book.

3 SWOT analysis for research in School of Community Studies



4 Research Groups and projects (consider the Te Tiriti Priority One goal in the Research Strategy)

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 is guided by strong Māori research capability to tell stories of Māori research projects, outcomes and success. Students and staff are guided by these projects and success to incorporate Vision Mātauranga Māori. Staff are also supported to incorporate the values of the Te Tiriti in their research and teaching through professional development opportunities and being involved in badges.

The School of Community Studies has three research groups [1] Culturally Inclusive Pedagogy and Equity in Early Childhood, [2] Student ECE Kaiako Hauora Collaborative Research Project, [3] Using GenAI for learning and teaching.

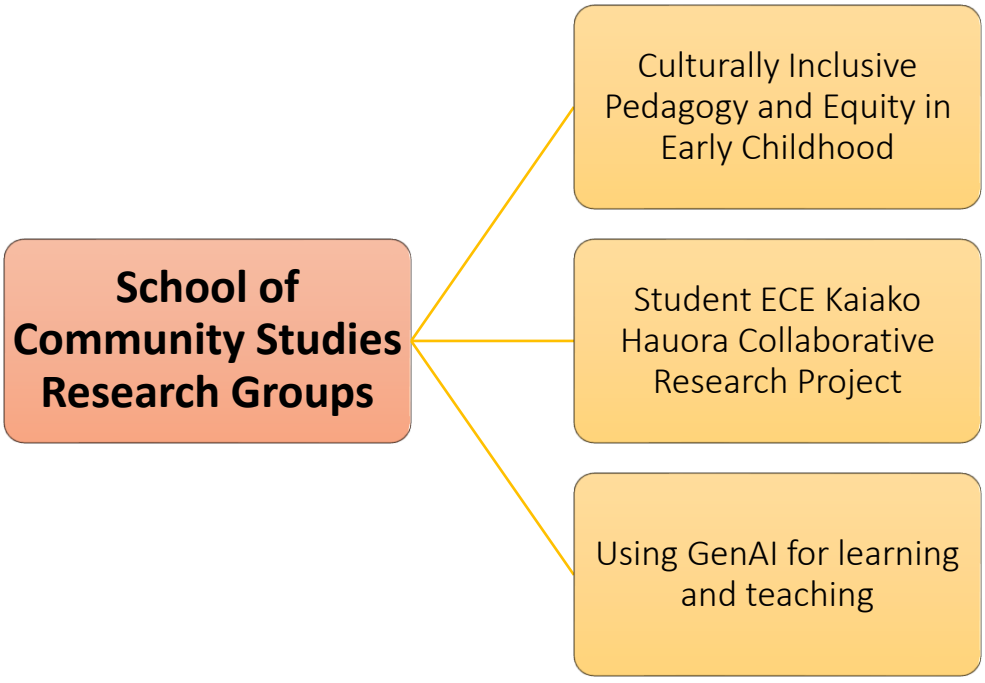


Figure 4: School of Community Studies research groups

The above research groups hope to partner with external funders and win funding/grants, which Unitec calls as External Research Income (ERI).

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 lecturers (Pasifika and Indian origin teachers) from ECE team at Unitec and Manukau Institute of Technology, and two Early childhood centres in Auckland region. The team has collected the data and is analysing the data and disseminating the findings.

The aim is to explore our experiences as teachers (Pacific and other cultures) in a diverse and multi-ethnic city in New Zealand. The findings related to culturally inclusive pedagogies will build the resilience of Maori, Pacific and other communities in New Zealand. The research thus, ***promotes Pacific research, diversity and inclusiveness.***

This project recognizes the importance of engaging with teachers' cultural identities and how they engage with children while acknowledging the importance of holding consultation with Maori to ensure that Maori principles are being considered in accordance to the Treaty of Waitangi.

Research team: Lata Rana; Yvonne Culbreath (Lecturers Unitec); Anamua (MIT Lecturer); Rose Penn (Independent researcher); Taokia Gill (ECE centre manager); Amy Fraser (ECE centre manager).

This research speaks to the following purpose of Unitec Research groups:

- Promotes Te Tiriti alignment.
- Promotes Pacific research, diversity and inclusiveness.
- Promotes collaborative research.
- Assist with the alignment of learning and research.
- Increase industry and community partnership.
- Focus research (potentially toward Research Centre).
- Increase research impact.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Further connections with ECE centres	Yvonne Culbreath and Dr Lata Rana		Funds to hold meetings and network	Connecting and contributing to the ECE sector.

Goal 2: Develop research opportunity in [Culturally Inclusive Pedagogy and Equity in Early Childhood] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Exploring the next step based on Findings of the initial research	Yvonne Culbreath and Dr Lata Rana	Feb. 2025	Research Funds	Journal article publication

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Connecting with the ECE sector	Research team	ongoing	Funds for meetings	Research informed contribution to the curriculum.

4.2 Research Group 2 – Student ECE Kaiako Hauora Collaborative Research Project

Statement of purpose:

Research in the area of Hauora and wellbeing in Early childhood is directed towards:
Evaluating the impact of weaving wellbeing strategies into delivery of teacher education curriculum.
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 initiated 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, Yo Heta-Lensen AUT, Kiri Gould UoA, Jacoba Matapo UoA, Justine O'Hara Gregan UoA, Mary-Liz Broadley Open Polytechnic, Pauline Bishop Unitec, and Cathie Powell.

The first phase of the project where a survey was conducted from early childhood student teachers has been completed in 2020. Phase two was modified to include a survey of students from Early childhood Education Course at Unitec Te Pūkenga. Currently the research team is focusing on dissemination of their research findings.

This research speaks to the following purpose of Unitec Research groups:

- Promotes Te Tiriti alignment.
- Promotes diversity and inclusiveness.
- Promotes collaborative research.
- Assist with the alignment of learning and research.
- Increase student integrated research.
- Increase industry and community partnership.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Complete Chapter	Research Team	Sept 2024	Research Time	Quality assured Publication

Documentary Analysis	PB	Aug 2025	Research Time	Presentation Publication
Journal Article	PB & Team	Sept 2025	Research time	Peer reviewed Publication

Goal 2: Develop research opportunity in Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Presentation	PB	Oct 2025	Research Time	output

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Journal Article	PB	Dec 2025	Research Time	Peer reviewed quality assured output

Research team is cross institutional, developing courses for Initial Teacher Education (ITE) program on Hauora.

4.3 Research Group 3 – Using GenAI for learning and teaching: ECE Collaborative Research

Statement of purpose:

This is a collaborative research project between six academic staff members of the ECE programme and the Academic Advisor for the programme. With the anticipation that the use of Gen AI will be more frequent and widespread over time, the project aims to identify the engagement and growth of the teaching team in relation to the effective use of Gen AI in classroom teaching and learning.

Research group includes: Karen Haines; Lee-Anne Turton, Pauline Bishop, Dr Lata Rana; Tahera Afrin; Katie Farrimond; Siobhan Nathan

Data collection will be done through weekly journals, and monthly reflections, alongside an audio-recorded focused group discussion from monthly hui, with possible individual semi-structured interviews if required for more in-depth perspectives.

Research questions-:

1. How could the use of GenAI support our own critical thinking processes (as teachers)?
a. What is the value of Gen AI for me? For my teaching?
b. Thinking about our thinking processes – what do we need to consider when using Gen AI?
2. How could the use of GenAI support critical thinking of our students?
a. How do my learners use Gen AI? What do they need to know?
b. How do we use Gen AI as a tool to enact critical thinking with our learners?

3. How can we ensure that the use of GenAI doesn't exacerbate existing educational inequity for priority learners?
4. How do we uphold and honour our commitment to Tiriti and to Te Whariki in our use of GenAI?
5. What kind of support helps tertiary level teachers to integrate effective use of Gen AI into their classrooms?

The research upholds and honours our commitment to Tiriti and to *Te Whariki* in our use of GenAI and is guided by the principles of Te Noho Kotahitanga with special reference to Rangatiratanga and Ngākau Māhaki. Siobhan Nathan Kaiarahi in the programme is a researcher in this group.

This research speaks to the following purpose of Unitec Research groups:

- » Promotes Te Tiriti alignment.
- » Promotes Pacific research, diversity and inclusiveness.
- » Promotes collaborative research.
- » Assist with the alignment of learning and research.
- » Increase industry and community partnership.
- » Increase research impact.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Data collection through weekly journals & monthly reflections	Research team (those interested in furthering their use of Gen AI)	July 2024	Research time	Exploring effective use of Gen AI in teaching and learning.
Data Analysis	Karen Haines	Nov. 2024		Engagement and growth of the teaching team in relation to effective use of Gen AI in teaching and learning.

Goal 2: Develop research opportunity in Research Group *This could be to develop a project, a funding application or a studentship programme* .				
Action	Responsible	Deadline	Resources needed	Desired result

AI research informing teaching & learning across the ECE programme	Lee-Anne; Karen & the Research team	Ongoing		All teachers in programme will feel more confident/competent to explore the use of Gen AId, with concrete ideas of how it can support their teaching.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Sharing aspects arising out of research with the institutional community at Unitec and other institutes.	Whole research team	On-going	Dissemination funds Writing support through ePress	Sharing with wider audience good practice with Gen AI
Informing institutional practice by sharing activities designed to support learners' critical thinking.	Lee-Anne	Aug 28, 2024		Teaching community will be challenged to incorporate similar activities with their own students.

5 Appendix

Below are the data of the current staff members in terms of their research outputs over the last seven years and their research interests.

Staff Name	Research outputs (2018-2024)	Research Interests
Galina Stebletsova	1-Conference Contribution- Oral Presentation, 7-Journal Article	Global citizenship; Perceptions of Play in ECE; Children's hauora.
Katie Farrimond	1-Conference Contribution- Poster Presentation	Professional practice in ECE
Kim Perez	1-Conference Contribution- Oral Presentation	Inclusive education

Lata Rana	1-Conference Contribution- Abstract, 14-Conference Contribution- Oral Presentation, 3-Journal Article	Cultural diversity; culturally inclusive pedagogies, globalisation and developments in higher education; indigenous identity and cultures.
Lee-Anne Turton	6-Conference Contribution- Oral Presentation, 1-Journal Article, 1-Other, 2-Presentation (non-conference)	ECE visual arts pedagogy; Digital Technologies in Education
Michelle Johnson	2-Conference Contribution- Oral Presentation, 1-Presentation (non-conference)	Literacy theory and practice in Early childhood; whanaungatanga
Pauline Bishop	9-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 1-Presentation (non-conference)	Student ECE Kaiako Hauora
Siobhan Nathan		Te Reo and Mātauranga Māori
Tahera Afrin	4-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 3-Journal Article, 2-Presentation (non-conference)	Diverse needs of tamariki; cultural diversity
Yvonne Culbreath	10-Conference Contribution- Oral Presentation, 1-Journal Article	Indigenous cultures; inclusive pedagogies; Early childhood education
Andrew Lenton	5-Journal Article	Sports Management; Retirement experience of athletes
John MacFarlane	1-Awarded Doctoral Thesis, 1-Book Chapter, 1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Journal Article, 1-Presentation (non-conference)	Authentic and Legitimate forms of organisation and governance for actions/lifestyle sports
Rangi Nathan		Mātauranga Māori, bicultural practice
Chantal Baker		Community Sport (NZ Rugby)

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 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.

	Computing Cohort	Engineering Cohort	Applied Technology Cohort	Overall
Number of degree teaching staff	15	5	5	25
Total research FTE allocated	2.46	0.7	0.7	3.86
Current Research Traffic Light rating (Percentage of green lit staff)	87%	100%	60%	84%
PBRF history (Number of PBRF rated staff in 2018)	14	0	0	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 Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

In addition to items in 1.2, the School of Computing, Electrical, and Applied Technology is aligned with Te Tiriti o Waitangi by:

- Providing equal opportunity for research for Maori students and staff
- Ensuring Unitec policy of Living Te Noho Kotahitanga
- Computing school has research projects for last year's Bachelors Maori/Pacific students, they will also get support, for research projects if they choose to do Postgrad study. Currently, one Pacific student completing his Masters's research work.

1.2 What the school is planning in the area of research to achieve the goal and key project (leadership roles, recruitment, prioritisation, opportunity and partnership development)

To achieve the goal, whenever there is the opportunity, the School of Computing, Electrical, and Applied Technology is:

- » Encouraging and involving Māori students in research
- » Encourage staff to partner with a Maori organisation
- » Planning to professionally develop Māori staff into leadership roles
- » Planning to offer studentships or other student integrated research with a Māori focus
- » Encouraging staff to include Maori related research
- » Encouraging Māori students to do research related post-grad courses

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

There are six KPIs for research:

1. **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 countsf the number of QA outputs to FTE of degree teaching staff.
2. **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.
3. **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.
4. **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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.

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.

→ Quality Assured Research Outputs: Maintaining the quality assured research outputs to at least 1.5 output per research active FTE[1].

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

- **Research Productivity:** Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- **External Research Income:** The school will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- **Industry Funded Projects:** Maintain industry-funded projects at 1-3 projects per year
- **Student Integrated Research:** The school will strive to develop research Student Integrated Research projects in line with the definition of this KPI.
- **Rangahau Māori Productivity:** The school will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

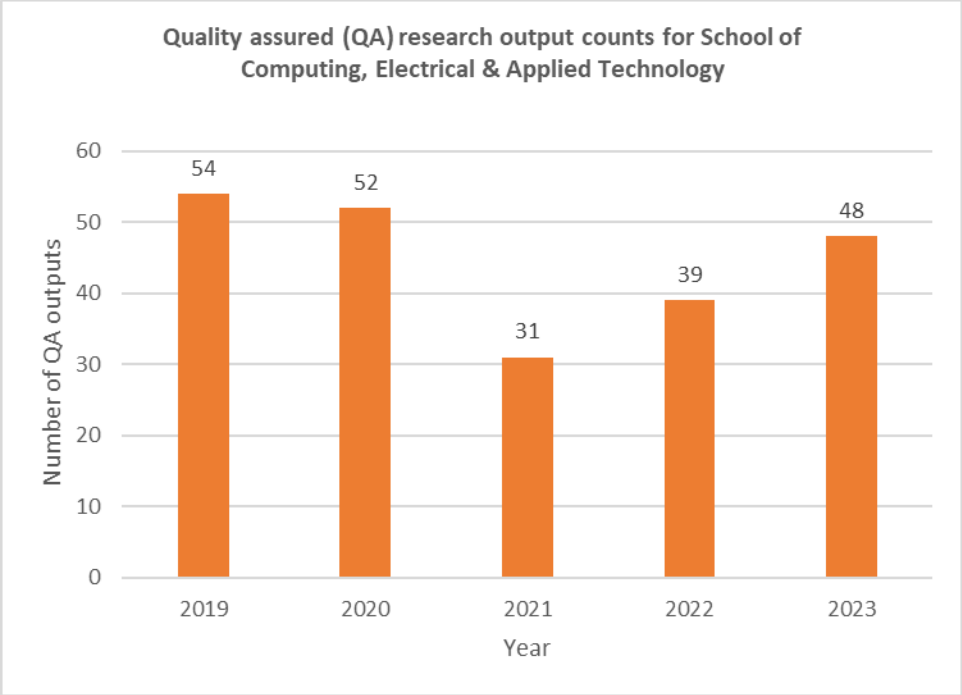


Figure 1: School of Computing, Electrical & Applied Technology Quality Assured Research Outputs

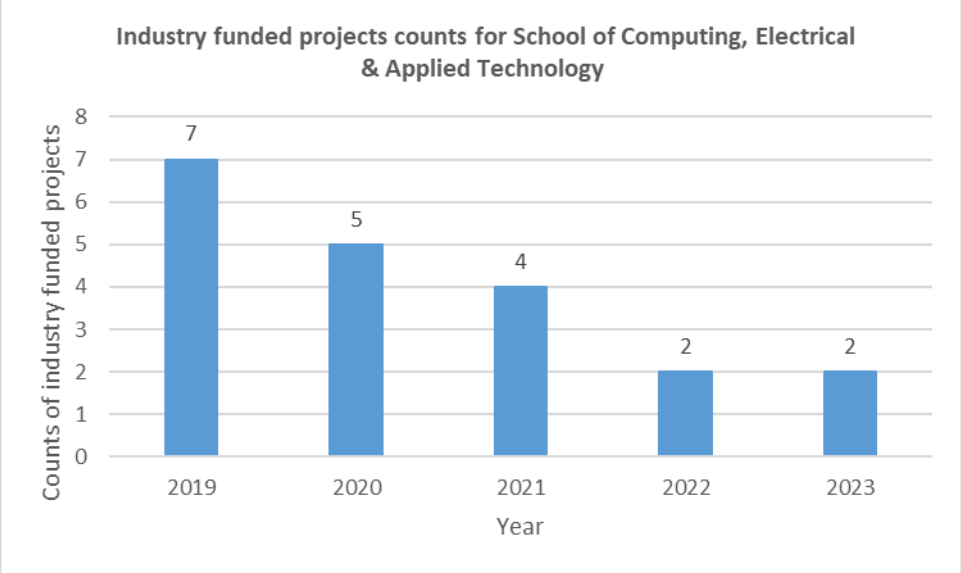


Figure 2: School of Computing, Electrical & Applied Technology Industry Funded Projects

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.

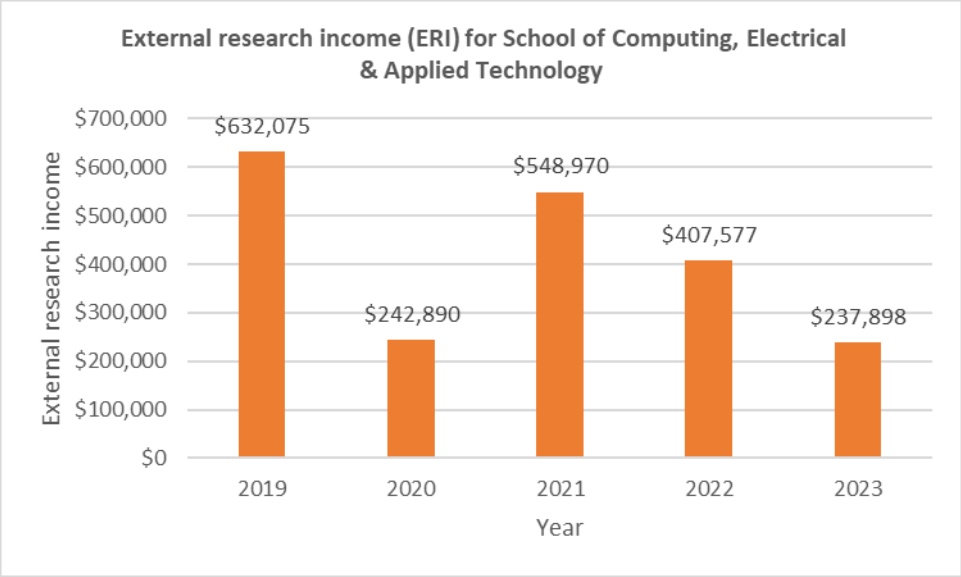


Figure 3: School of Computing, Electrical & Applied Technology External Research Income

2.1 What the school is planning for increasing research diversity

The school is increasing research diversity. The school encourages Maori and pacific islanders to do post-graduate research. Many Maori and Pacific students have been part of teams doing research as part of their final year capstone projects. School currently, has a Pacific researcher doing his Master's degree in wireless communications.

The school has many Pacific, Maori, Chinese, Indian, Middle eastern, and students from other ethnicity doing post-graduate study that has research as an integral part of it. Although most of our other ethnicity postgraduate students are Indian and Chinese students.

The school also liaises with the International office to attract more international students.

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

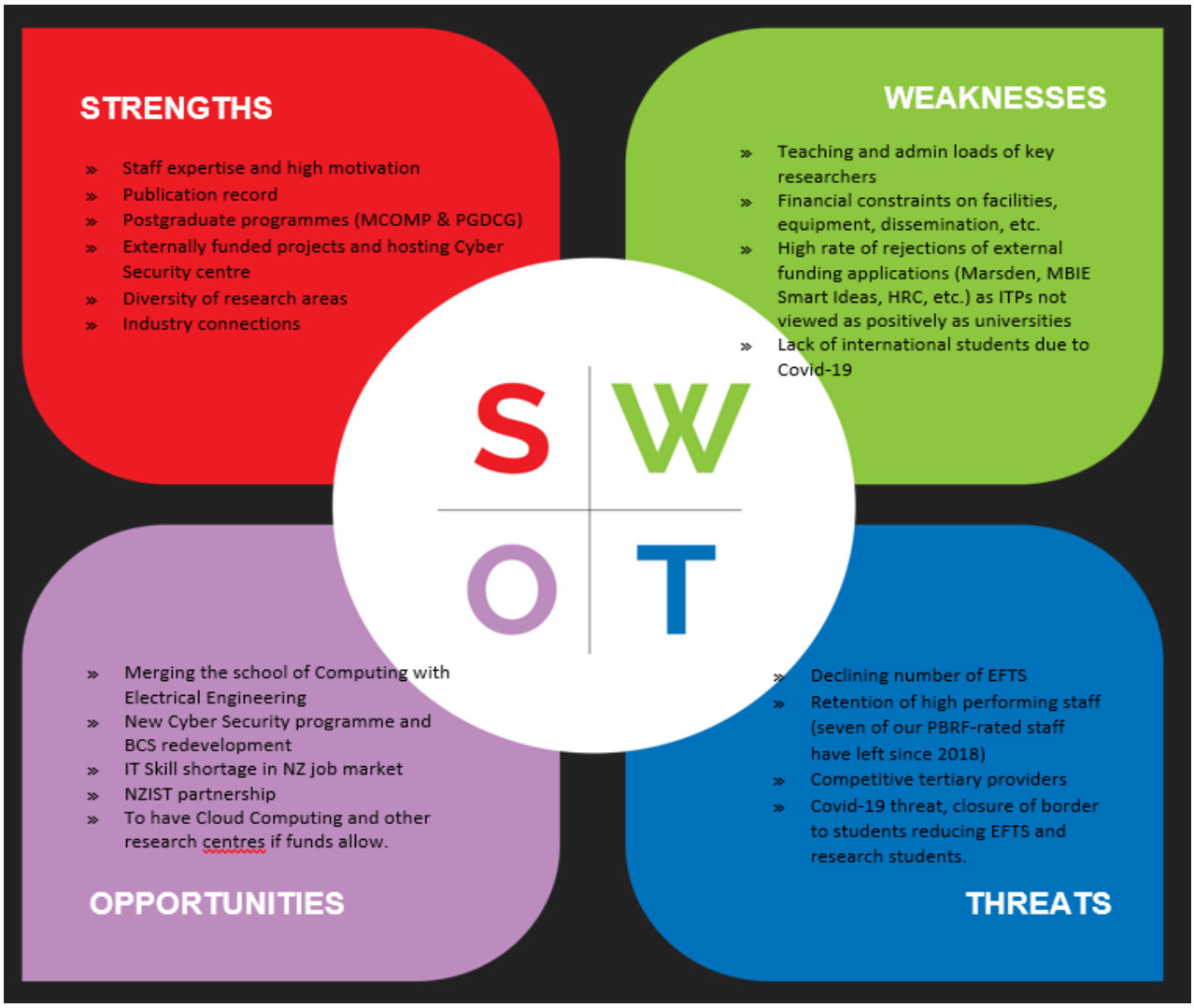


Figure 4: SWOT analysis for School of Computing, Electrical, and Applied Technology

4 4. Research Groups and projects (consider the Te Tiriti Priority One goal in the Research Strategy)

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] Internet of Things (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).

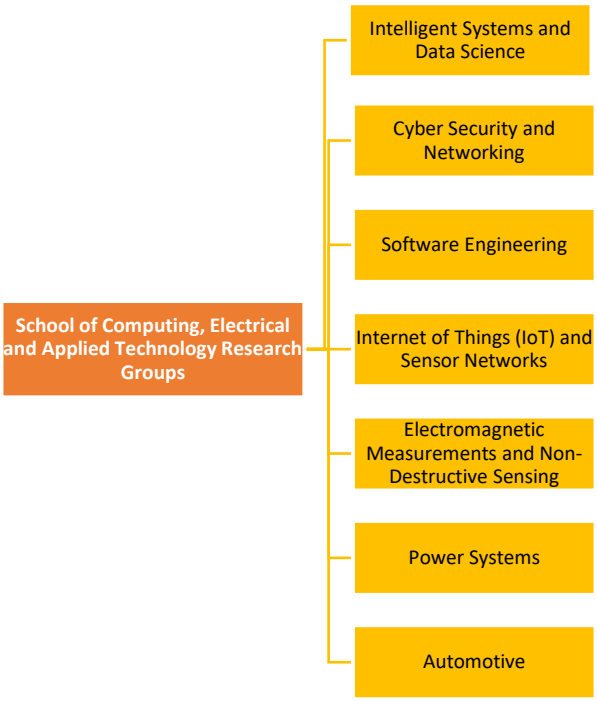


Figure 4: School of Computing, Electrical & Applied Technology seven research groups

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 6 years.

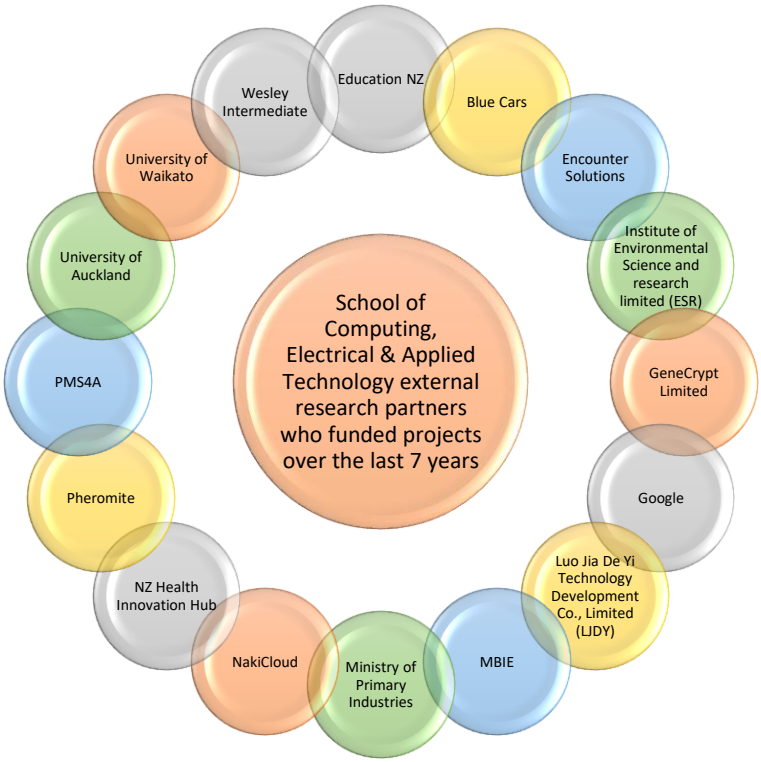


Figure 5: School of Computing, Electrical & Applied Technology external research partners who funded projects over the last 7 years

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

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga, (Internet of Things and Sensor Networks)				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.
Increase joint research outputs	Research Focus Lead, RL	30/12/2024	Staff	More outputs

Goal 2: Develop research opportunity in [Internet of Things and Sensor Networks] Research Group
This could be to develop a project, a funding application or a studentship programme.

Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities.	Research Focus Lead, RL	1/12/2024	Finance, Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness, (Internet of Things and Sensor Networks) *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
The industry liaison person to discuss with industry	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Industry liaison person , discussed the possibilities, and actions.
Group to meet to discuss industry and community project opportunities. The liaison person to suggest industries	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Staff have met, and discussed the possibilities, and actions.

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.
Increase joint research outputs	Research Focus Lead, RL	30/12/2024	Staff	More outputs

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities.	Research Focus Lead, RL	1/10/2024	Finance, Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
The industry liaison person to discuss with industry	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Industry liaison person , discussed the possibilities, and actions.
Group to meet to discuss industry and community project opportunities. The liaison person to suggest industries	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Staff have met, and discussed the possibilities, and actions.

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research	Research Focus	30/12/2024	Finance	Outputs, all staff are

outputs.	Lead, RL			research active and green-lit.
Increase joint research outputs	Research Focus Lead, RL	30/12/2024	Staff	More outputs

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities.	Research Focus Lead, RL	1/10/2024	Finance, Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
The industry liaison person to discuss with industry	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Industry liaison person , discussed the possibilities, and actions.
Group to meet to discuss industry and community project opportunities. The liaison person to suggest industries	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Staff have met, and discussed the possibilities, and actions.

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.
Increase joint research outputs	Research Focus Lead, RL	30/12/2024	Staff	More outputs

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities.	Research Focus Lead, RL	1/10/2024	Finance, Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
The industry liaison person to discuss with industry	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Industry liaison person , discussed the possibilities, and actions.
Group to meet to discuss industry and community project opportunities. The liaison person to suggest industries	Research Focus Lead, Industry liaison person, RL	1/12/2024	Staff	Staff have met, and discussed the possibilities, and actions.

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities	Research Focus Lead, RL	1/10/2024	Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities	Research Focus Lead, RL	1/10/2024	Staff	Staff have met, and discussed the possibilities and actions.

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.
Investigate merger with IoT group	RL, Leadership team	30/12/2024	NA	If beneficial to reduce number of research groups in dept.

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities	Research Focus Lead, RL	1/10/2024	Staff	Staff have met, and discussed the possibilities and actions.
Strengthen relationship with UoW,MIT,UoA and AUT	Research Focus Lead, RL	1/12/2024	Staff	Joint MBIE fund bid

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Investigate contract research opportunities with industry	Wayne Holmes Gregor Stienhorn	1/12/24	Staff time	New Projects scoped
Strengthen relationship with Maori owned Businesses	Wayne Holmes Gregor Stienhorn	1/12/24	Staff time	Further research porojects

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Increase research outputs.	Research Focus Lead, RL	30/12/2024	Finance	Outputs, all staff are research active and green-lit.

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities	Research Focus Lead, RL	1/10/2024	Staff	Staff have met, and discussed the possibilities and actions.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Group to meet to discuss projects and funding opportunities	Research Focus Lead, RL	1/10/2024	Staff	Staff have met, and discussed the possibilities and actions.

5 Appendix

Below are the data of the current staff members in terms of their research outputs over the last seven years and their research interests.

Staff Name	Research outputs (2018-2024)	Research Interests

Andrew David	4-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings	Computer networks
Anura Bakmeedeniya	4-Conference Contribution- Oral Presentation, 3-Report	Emission Treatment, Vehicle Control
Bahman Sarrafpour	9-Conference Contribution- Paper in published Proceedings, 3-Journal Article	Cyber security, AI, Computer Architecture, IoT
Bashar Barmada	3-Conference Contribution- Oral Presentation, 10-Conference Contribution- Paper in published Proceedings, 5-Conference Contribution- Poster Presentation, 2-Journal Article	Networking, Security and IoT applications
Deepinder Sidhu	7-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Discussion/Working Paper (Published)	Machine learning, Image processing, Robotics
Eltahir Kabbar	11-Conference Contribution- Oral Presentation, 6-Conference Contribution- Paper in published Proceedings, 4-Conference Contribution- Poster Presentation, 3-Journal Article, 1-Presentation (non-conference), 1-Report	Smart government, qualitative research, Structured Equation Modelling (SEM)
Farnaz Mehr	1-Awarded Doctoral Thesis, 1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings	
Guillermo Ramirez-Prado	1-Book Chapter, 5-Conference Contribution- Oral Presentation, 4-Conference Contribution- Paper in published Proceedings, 5-Conference Contribution- Poster Presentation	Networking and security, Smart homes, Control systems
Hamid Sharifzadeh	2-Conference Contribution- Abstract, 2-Conference Contribution- Oral Presentation, 26-Conference Contribution- Paper in published Proceedings, 2-Conference Contribution- Poster Presentation, 1-Discussion/Working Paper (Published), 8-Journal Article, 3-Presentation (non-conference)	Machine Learning, Digital Signal Processing (Speech and Image Processing), Embedded Operating Systems
Hooman Zarrah	2-Conference Contribution- Oral Presentation	Power systems Modelling
Iman Ardekani	1-Awarded Doctoral Thesis, 1-Conference Contribution- Abstract, 2-Conference Contribution- Oral Presentation, 22-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 9-Journal Article, 1-Presentation (non-conference)	Digital Signal Processing, Statistical Optimisation, Adaptive Systems
Jone Tawaketini	5-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published)	Educational Practices, Vehicle Service and Support
Lei Song	3-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published	Cloud, Data Analysis, Sensor networks

	Proceedings, 1-Conference Contribution- Poster Presentation, 2-Journal Article	
Maryam Erfanian	2-Conference Contribution- Oral Presentation, 4-Conference Contribution- Paper in published Proceedings	Acoustic Measurements, Databases and Data Mining, Human Computer Interactions
Masoud Shakiba	5-Conference Contribution- Oral Presentation, 2-Presentation (non-conference)	RFID Technology, IoT
Momen Bahadornejad	8-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Journal Article, 2-Presentation (non-conference)	Integration of Distributed Generation, Electricity Market, Protection, Automation and Control, Innovative Teaching
Nigel Yee	4-Conference Contribution- Oral Presentation, 1-Design Output1-Report	Integration of Distributed Generation, Application of Digital Signal Processing, Energy Management Systems (Smart Homes)
Niranjan Singh	4-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 1-Journal Article	Educational Practices, Vehicle Dynamics
Paul Oke	2-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 2-Journal Article	Control Systems, Automation and Mechatronics
Roman Kudin	2-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 2-Report	Engineering Material, Failure Analysis
Sachin Sen	1-Conference Contribution- Oral Presentation, 6-Conference Contribution- Paper in published Proceedings, 2-Journal Article	Computer networks
Samad Kolahi	1-Book Chapter, 2-Conference Contribution- Oral Presentation, 4-Conference Contribution- Paper in published Proceedings, 2-Journal Article	Performance evaluation of networks Wireless networks Cyberattack and defences
Shiu Ram		Ergonomics, Moderation, Information Systems
Soheil Varastehpour	1-Awarded Doctoral Thesis, 1-Book Chapter, 2-Conference Contribution- Oral Presentation, 15-Conference Contribution- Paper in published Proceedings, 1-Discussion/Working Paper (Published), 2-Journal Article	Machine Learning, Image Processing
Wayne Holmes	5-Conference Contribution- Oral Presentation, 5-Conference Contribution- Paper in published Proceedings, 2-Conference Contribution- Poster Presentation, 3-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 2024-2025
School of Creative Industries - Te Kura o Ngā Mahi Auaha

'He toi whakairo, he mana tangata.'
'Where there is artistic excellence, there is human dignity'.

1 Introduction and current state

The School of Creative Industries/Te Kura O Ngā Mahi Auaha was formed in 2016 to merge the already-established Departments of Design & Contemporary Arts and Performing & Screen Arts. The School offers a suite of programmes from levels 5 to 9; the Bachelor of Design and Contemporary Arts (BDCA: with pathways in Design, Visual Art and Digital Media), the Bachelor of Performing and Screen Arts (BPSA: with pathways in Acting, Dance and Screen) and the Master of Creative Practice Suite (MCP, PGDCP, PGCCP). Researchers belong to one or more of the following research clusters: [1] Design & Contemporary Arts, [2] Performing & Screen Arts and [3] Creativity & Culture.

The School promotes research focusing on applied practice within the creative arts (acting, dance, screen and contemporary art) and design (graphic, product and digital), contributing to and enriching cultural life in Aotearoa, New Zealand. The School is committed to supporting and developing creative research relevant to Māori and Pacific peoples. It is well-networked in the local region, being the only tertiary provider currently involved with the Creative West Precinct development in Auckland. In partnership with Te Pūkenga's network of creative providers, the School advances research into creative success to better define vocational pathways in the sector.

Number of degree teaching staff	20
Total research FTE allocated	3.09
Current Research Traffic Light rating (Percentage of green-lit staff)	100%
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 and expert researchers across the various disciplines. Twelve staff achieved funded ratings in the 2018 PBRF round (1A, 3Bs, 8Cs). Research across the School aims to:

- *Generate new thinking and practice through local, national, and international collaboration to move our creative industries disciplines forward;*
- *Challenge pre-existing notions of value through creative research;*
- *Achieve impact through innovation and excellence.*

The Unitec Research Strategy 2020 – 2024 prioritises research that is aligned with Te Tiriti o Waitangi. Goal One: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

The School actively engages with Te Tiriti o Waitangi through teaching and research. Staff complete parity badges as part of their professional development, including courses on "Living Te Noho Kotahitanga" and "Te Tīpare - Embedding Mātauranga Māori" and through this learn to embed Māori knowledge and tikanga within programmes. Staff actively seek out and take up opportunities to support

Māori research, for example, collaborating with MAIA and the marae team and Te Kura Kaupapa Māori o Ngā Maungarongo on Puna Kōrero – Unitec's public Matariki celebration in 2024, and with Ngā Kaitiaki and Ngāti Awa ki Te Awa o Te Atua (descendants of Wairaka) on a public art trail highlighting Te Wai Unuroa o Wairaka as a culturally significant ecological feature of the campus in 2022.

1.2 What the School is planning in the area of research to achieve the goal and key projects (leadership roles, recruitment, prioritisation, opportunity and partnership development)?

The School employs Māori MCP students and graduates in undergraduate teaching and postgraduate supervision, building on a tuakana-teina model for teaching and learning. School staff are currently engaged in inter- and trans- disciplinary research in partnership with Ngā Wai a Te Tūī and MAIA staff, and have mentored a Māori MCP graduate and MAIA staff member to successfully apply for the Early Career Project Fund in 2024. A cluster of staff are developing placemaking projects for 2025 with community collaborators. In these ways, the School contributes to developing Māori academics and researchers in the Creative Industries. School staff actively partner with organisations such as Awhina Mai Tatou Katoa Trust, Lifewise and Auckland City Council in applied research addressing homelessness among Māori in the CBD. In 2022, the School also partnered with Ngā Kaitiaki and Ngāti Awa ki Te Awa o Te Atua on Te Pātaka Art Trail.

1.3 Research Informed Teaching and Learning

Most of the research in the School takes the form of practice-based or practice-led[1] 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 digital 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, 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;

- Photography lecturers Allan McDonald and Yvonne Shaw work with BCE (ICIB 7002, 7012) and MCP students (ICIB 8005, 9003) to realise 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, NZ Arts Foundation Award, Best Design Awards) and gallery representation, e.g. at the Auckland Art Gallery, Two Rooms, Trish Clark Gallery, Anna Miles, Object Space and Föenander Gallery;
- Performing and screen arts staff mentor students (PASA 7223, 7213, 7214, 7304, 8005 and 9003) in the development of 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, Tautai Pacific Art Trust, ATEED and Power

Rangers, New Zealand International Film Festival, Atamira Dance Company, New Zealand Dance Company, Dance Aotearoa NZ, etc.

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

- Leon Tan: DCAD 6202, DCAD 7104, ICIB 8071 and 8072 – decolonizing art, craft and visual culture education.
- Becca Wood: PASA 5903 and 6903, ICIB 8071 and 8072 social and site-based choreography – choreoauratics.

1.4 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 commissioning organisation pays the cost of realising and publicising a performance or exhibition. Researchers in this field are typically curated or commissioned based on 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 from 2023;

Byrnes, V.K., Miller, M., Whitham, A., Wallace, W., Hawthorne, E., & Ilgenfritz, P. (2023, January). Tertiary Education Reforms Challenge the Conservatory: Actor Training at Unitec and the Creative Agency of Change. Paper presented at the AusAct Australasian Actor Training Conference, Ballarat, Australia and online.

Byrnes, V.K. (2023, 5 September). 'ART IS NOT SNATCHED, BUT WON BY STUDY': WHY ART(S) EDUCATION MATTERS. Public Lecture at Dunedin Public Art Gallery. Presentation conducted at the Dunedin Public Art Gallery, Dunedin, Otago.

Fahey, R. (2023, May). Tear down the wall — The tumult of craft practice in tempestuous times. Presentation conducted at the Objectspace - Ockham Lecture, Auckland.

Ferguson, GC. (Exhibitor), & Cotton, DW. (Exhibitor). (2023). Shaping Hamilton. [Wai Moving image with sound (installation): Duration 16 mins]. Group exhibition. Curated by Nadia Gush, The Waikato Museum , Te Whare o Taonga Waikato, Hamilton.

Ferguson, GC. (2023). Snug, (Installation) recycled army blankets, wool covering a large army utility structure. approx 7800 x 6600 x 540. Fort Takapuna, Auckland as part of Sculpture onShore 2023 (large outdoor public art exhibition). Fundraising for NZ Women's Refuge. Curated by Sally Lush. [Artefact/Object/Craftwork]. Auckland, New Zealand: Fort Takapuna.

Gorman, K. (contributing artist). (2023). And/Or. ['Panne' Ink on paper, framed 475x385mm 2023 'Dimity' Ink on paper, framed 475x385mm 2023 'Coutil' Ink on paper, framed 475x385mm 2023]. Group exhibition. Curated by Anna Miles, Anna Miles Gallery, Auckland.

Madhukaillya, M., Bogdan, C., & Tan, L. (2023). The Question Concerning Technology in Northeast India. Trends in Teaching-Learning Technologies - Proceedings of NERC 2022 (pp. 121-124). doi:https://doi.org/10.1007/978-981-99-4874-1_10

Tan, L., & White, T. (2023). Raranga and Tikanga Pā Harakeke – An Indigenous Model of Socially Engaged Art and Education. In Sharma, M. & Alexander, A. (Eds.), The Routledge Companion to Decolonizing Art, Craft, and Visual Culture Education (pp. 269-279). New York: Routledge.

Tan, L., Madhukaillya, M., & Bogdan, C. (2023). Assembling Desire. In Sharma, M. & Alexander, A. (Eds.), The Routledge Companion to Decolonizing Art, Craft, and Visual Culture Education (pp. 39-43). New York: Routledge.

Tan, L., Ferguson, G., Hung, W., Lamwilai, P., Ngaropo, P., Renata, H., White, T., Wood, R., & Woodruffe, P. (2023). From Urban Development to the Pluriverse – Ontological Design for Natural and Cultural Heritage. In D., Galluzzo, L., Rizzo, F., Spallazzo, D. (Ed.), IASDR 2023: Life-Changing Design. (pp. 4-12).

Valentine, J P. (2023). Mark Cleverley, 1933 - 2022. GSM magazine, 21, 8-21.

Wagner, D. (Creator). (2023). "False Flag Promises" - Video Poem. [Film/Video]. New Zealand: Ukrainian Dream Film Festival. https://udff.webflow.io/.

White, T. (Artist), Lamwilai, P. (Artist), & Kaulima-Panapa, J. (Artist). (2023). Pohewa Pāhewa: a Māori design kaupapa. ['Raranga taura kūtai', taura (mussel ropes) and photography series.]. Group exhibition. Curated by Whaanga-Schollum, D., Ohia, T., Tipene, G., Witehira, J., Black, Z., Objectspace, Auckland, 1 July - 3 September.

White, T. (Artist), Lamwilai, T. (Artist), & Wihongi, H. (Artist). (2023). Wai-Rua-Ono-Rua. ['Digital Raranga', Digital moving image projection on raranga weaving.]. Group exhibition. Curated by Rikihana, L., Nelson, S., Te Whare Taonga o Waiheke (Waiheke Community Art Gallery), Waiheke, New Zealand, 3 February - 19 March.

White, T., Tan, L., Blanchon, D., Toki, L., & Renata, H. (2023, April). Toitū te Whenua – Working Together for the Wellbeing of Te Taiao. Paper presented at the Resilient and Responsible Architecture & Urbansim (RRAU) Conference, Auckland.

Wood, B. (2023). Stories in the Landscape 2022. [We Carry Stones - interactive sound work and live performance]. Group exhibition. Curated by Gina Ferguson, Waitakaruru Sculpture Park, Tauwhare, Hamilton, New Zealand.

Wood, B., & Mullen, M. (2023, December). Unearthing Frequencies: An echo of an echo of an echo. Paper presented at the Australasian Association for Theatre, Drama and Performance Studies 2023 - Archives, Artists & Absences, Adelaide.

Wood, B., & Wood, M. (2023, June). Online roundtable: Panel discussion of an echo of Unearthing Frequencies: Stone Stories. Paper presented at the Modes of Capture - University of Limerick/Liz Roche Company., University of Limerick, Ireland.

Wood, B. (Participant). (2023). a series of distributed site-based choreographic wanderings. Johannesburg: PSi #28: Uhambo Luyazilawula (Embodied Wandering Practices).

Wood, B., & Mullen, M. (2023). Echoes of Unearthing Frequencies - Stone Stories. [Performance]. Limerick, Ireland, June, 10th June 2023 - IntraSpaces, at The Irish World Academy, University of Limerick/Liz Roche Company.

Woodruffe, P., & Raine, T. (2023). Anton Ren, works on paper. [Curatorial Exercise]. Ockham Collective at the Nix.: Auckland. https://ockhamcollective.org.nz/.

Woodruffe, P. (2023). Artists in Eden Day. [Artists in Eden day, 2023. Pastel and Acrylic pigment on paper.]. Group exhibition. Curated by Maungawhau/Eden Arts Trust Board., Mt Eden Village Center.

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 organisations and venues (e.g. Creative West Precinct, Women in Film and Television, Dance Aotearoa NZ, The NZ Writers Guild. The Actors Guild, Tautai, NZ Institute of Architects, Design Assembly, Designers Institute of NZ, Auckland Art Gallery, Wellington Art Gallery, WeCreate, CreaTer, CUMULUS, Routledge, Taylor & Francis, Public Art Dialogue). The School aspires to become a hub of creative arts and design leadership and research excellence in Tāmaki Makaurau.

1.5 Programme Development and Review

Programme development and review are informed by the interconnection of advanced practice, research and teaching in the School. Specifically, this means that due consideration is 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 live briefs and clients, in a staggered process that introduces complexity and raises the stakes incrementally. Student progression into postgraduate research is facilitated by including different pathways at level 7, one orienting students towards employment and the other towards postgraduate research.

2 School of Creative Industries Goals and KPIs

There are six KPIs for research at Unitec/ Te Whare Wānanga O Wairaka:

1. 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.
2. 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.
3. 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.
4. 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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity – productivity in this context would be aggregated as – QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.

The School of Creative Industries has the following current goals:

- **Quality Assured Research Outputs:** Maintaining the quality assured research outputs to at least 1.5 outputs per research active FTE[1].
- **Research Productivity:** Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- **External Research Income:** The School will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- **Industry Funded Projects:** Maintain industry-funded projects at 1-3 projects per year
- **Student Integrated Research:** The School will strive to develop research Student Integrated Research projects in line with the definition of this KPI.
- **Rangahau Māori Productivity:** The School will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

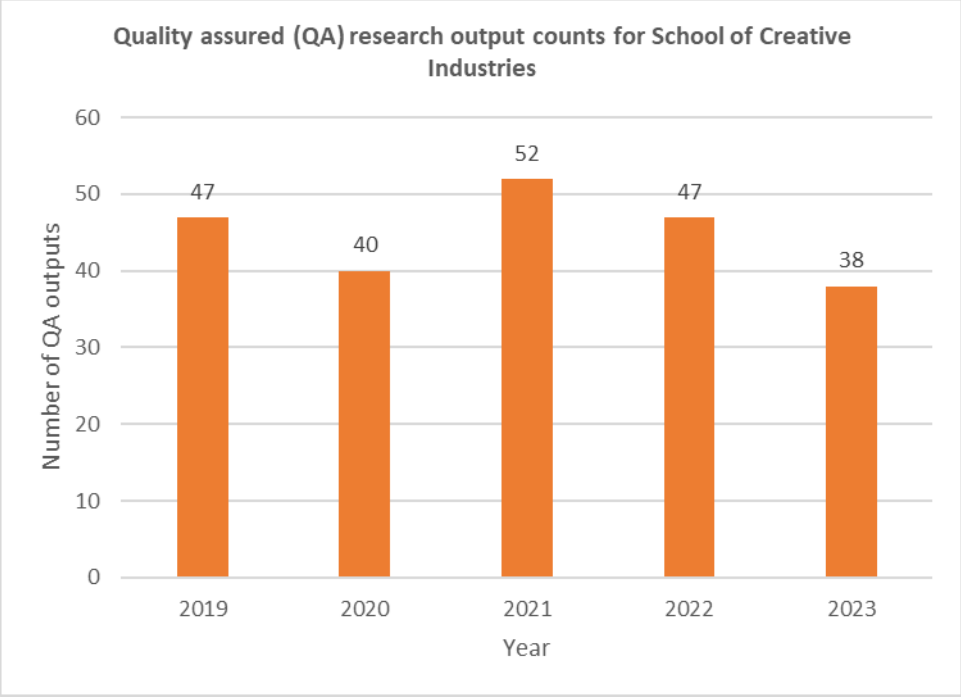


Figure 1: School of Creative Industries Quality Assured Research Outputs

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

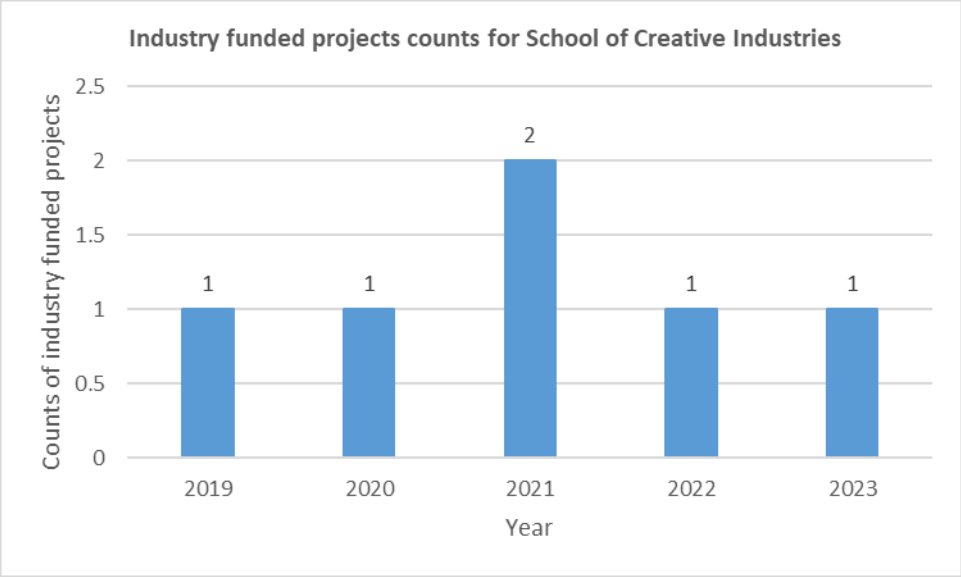


Figure 2: School of Creative Industries Industry Funded Projects

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.

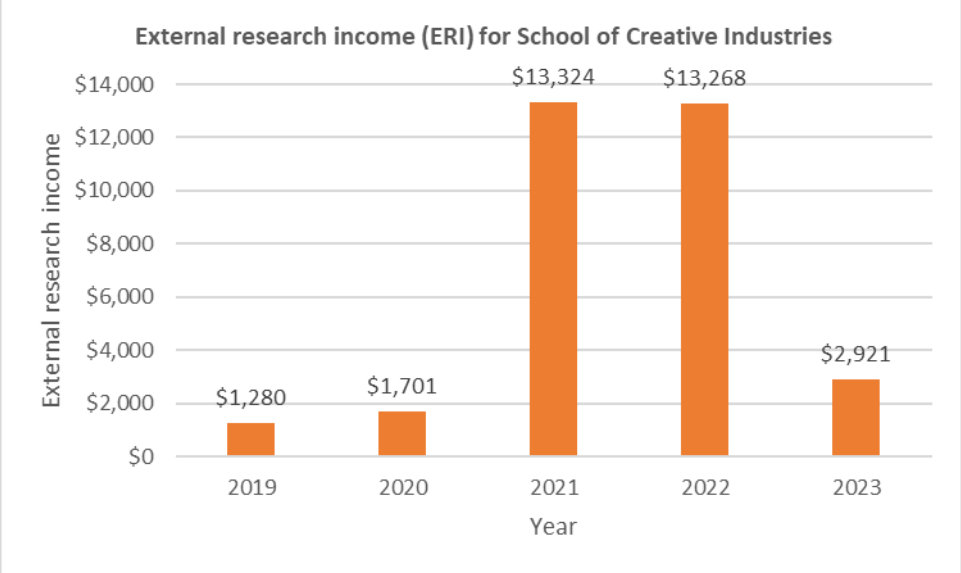


Figure 3: School of Creative Industries External Research Income

2.1 What the School is planning for increasing research diversity?

The School plans for increasing research diversity in a number of ways. Firstly, this is done by supporting Māori and Pacific students to progress into postgraduate research. The Master of Creative Practice programme has mentored and advanced the practice-led research of numerous graduates. For e.g., a Pacific MCP graduate recently secured a position at the Auckland Museum as Manager of the Pacific Collection while a Māori MCP graduate received the Art Foundation's Springboard Award (2022). Secondly, increasing research diversity is achieved by partnering on collaborative research with diverse communities and organisations as detailed earlier in the plan.

Thirdly, the School supports a growing International postgraduate community, including students from Russia, China, Philippines and Iran, whose MCP projects contribute to increasing research diversity.

3 SWOT analysis for research in School of Creative Industries

Figure 4: SWOT analysis for School of Creative Industries

4 Research Groups and projects (consider the Te Tiriti Priority One goal in the Research Strategy)

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 three research groups [1] Design and Contemporary Arts and [2] Performing and Screen Arts, and a third group that captures interdisciplinary projects across Creative Industries [3] Creativity and Culture.

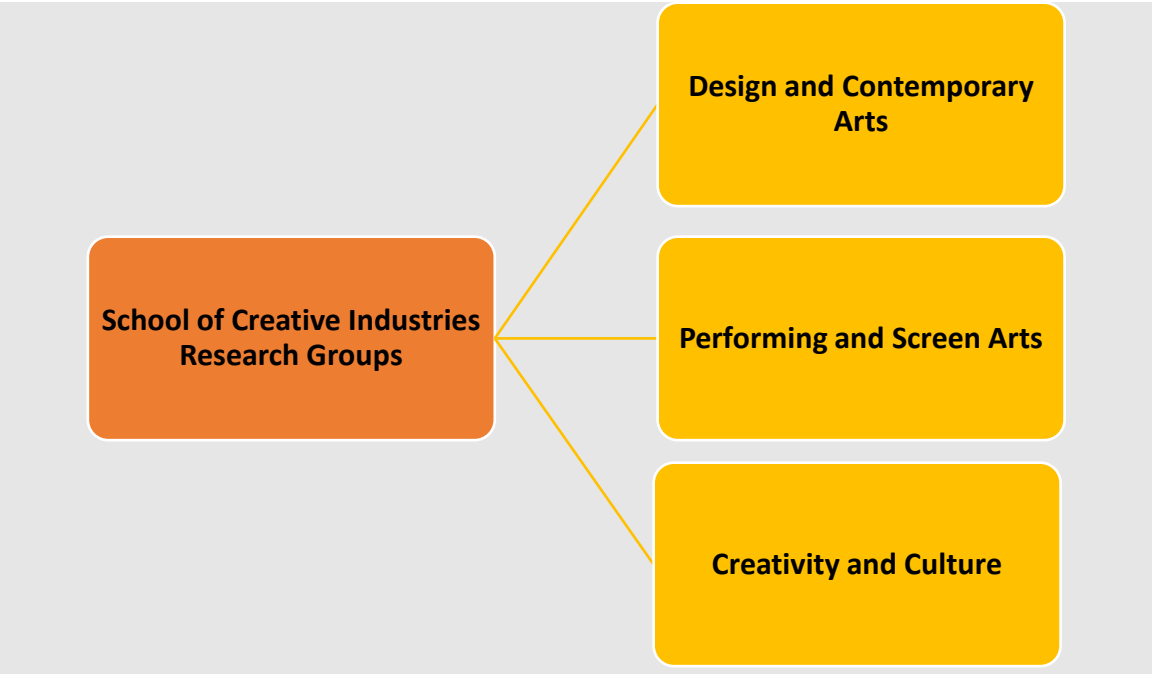


Figure 5: School of Creative Industries research groups

The above research groups 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 5 years.

Figure 6: School of Creative Industries external research partners who funded projects over the last 7 years

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 creative arts and design and its impacts on society;
- Developing or contributing to new methods and modes of production, distribution and reception in the creative arts and design;
- Applying artistic and design processes to create impact by solving community or commercial problems;
- Promoting Te Tiriti alignment through the integration of indigenous (Māori) 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.

2024-2025 Goals

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Support industry/community responsive research	RLs and HoS	May 2025	RDF and other funds as relevant	Impactful research outputs achieved

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:

- Develop meaningful and collaborative relationships both within the performing and screen arts community, creative industries community and across other sectors;
- Contribute to the alignment of research and learning through new methods and modes of creating and delivery in performance and screen arts.
- Promoting critical commentary, radical intervention and leadership in arts education as vital to contemporary society in Aotearoa, New Zealand and beyond;
- Innovation 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 through impactful research;
- Fostering alignment with Te Tiriti and 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
- Developing student integrated research.

2024-2025 Goals

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Support industry/community responsive research	RLs and HoS	May 2025	RDF and other funds as relevant	Impactful research outputs achieved

4.3 Research Group Three - Creativity, Culture and Collaboration

Statement of purpose

Research across the School of Creative Industries is directed towards:

- Building meaningful and collaborative partnerships across the Creative Industries and other sectors;
- Applying creative and cultural methodologies towards community, health and welfare, commercial and sustainable development goals;
- Promoting Te Tiriti alignment, cultural diversity and inclusiveness.

2024-2025 Goals

Goal 2: Develop research opportunity in Creativity and Culture Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result

Support research in the interdisciplinary space of creativity and culture	RLs	May 2025	Time allocation and seek external funding	Externally funded creative/placemaking project

5 Appendix

5.1 Appendix – Staff Interests

Below are the data of the current staff members research outputs over the last seven years and their research interests.

Staff Name	Research outputs (2018-2024)	Research Interests
Allan McDonald	1-Edited Book/Volume, 2-Exhibition - Curatorial Exercise, 4-Exhibition – Group, 2-Exhibition - Solo	Photography and typologies of natural and built forms in New Zealand.
Becca Wood	2-Book Chapter, 7-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Design Output1-Edited Book/Volume, 2-Exhibition - Curatorial Exercise, 1-Exhibition – Group, 2-Journal Article, 1-Other, 5-Performance	Choreography, social-choreography, somatic practice, participatory performance, site-based performance, practice-led research, performance art and interdisciplinary practice.
Bobby (Wing-Tai) Hung	14-Artifact/ Object/ Craftwork, 1-Awarded Doctoral Thesis, 1-Book Authored, 1-Book Chapter, 2-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Discussion/Working Paper (Published), 7-Exhibition - Curatorial Exercise, 10-Exhibition – Group, 2-Film/video, 2-Journal Article, 1-Other, 3-Presentation (non-conference)	Education, pedagogy, visual arts, visual culture, knowledge, street art, graffiti, illustration, public art, arts based research and methodologies.
Cris DeGroot	4-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 3-Design Output, 1-Exhibition - Curatorial Exercise, 1-Presentation (non-conference)	Product design, industrial design, business-focussed design, creativity, creative entrepreneurship.
Daniel (Dan) Wagner	1-Book Chapter, 2-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 1-Film/video	Re-framing screen education for a constantly evolving digital landscape; curricular change.
Elizabeth Hawthorne	2-Conference Contribution- Oral Presentation, 6-Film/video, 1-Performance	Acting for film and theatre, performance.
Emma Smith	1-Book Chapter, 1-Conference Contribution- Oral Presentation, 2-Exhibition - Curatorial Exercise, 13-Exhibition – Group, 1-Exhibition – Solo, 1-Journal Article, 1-Other	Painting, visual art, contemporary art.
Gina Ferguson	5-Artifact/ Object/ Craftwork, 2-Conference Contribution- Oral Presentation, 1-Conference	Sculpture, craft, installation practice, public art.

	Contribution- Paper in published Proceedings, 1-Exhibition - Curatorial Exercise, 10-Exhibition - Group	
Jonty Valentine	3-Book Chapter, 2-Design Output, 1-Exhibition – Group, 1-Journal Article	Graphic design, publication design, design history.
Katie Burton	2-Conference Contribution- Oral Presentation, 6-Performance	Choreography, collaborative performance making, feminist performance
Kristy Gorman	2-Exhibition – Group, 2-Exhibition - Solo	Gorman's work focuses on abstract form and investigates how luminosity and space can influence perception. I am interested in how painting might embody stillness while simultaneously invoking notions of the transitory
Larry Justice	1-Film/video	Screen production
Leon Tan	6-Book Chapter, 4-Conference Contribution- Oral Presentation, 3-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Design Output, 1-Edited Book/Volume, 1-Essay - Published (Unitec only), 2-Exhibition - Curatorial Exercise, 1-Journal Article, 1-Other, 1-Presentation (non-conference)	Public art, participatory art, participatory design, art history, cultural studies, interdisciplinary collaboration, psychoanalysis, psychotherapy, mental health, urbanism.
Michael Miller	3-Conference Contribution- Oral Presentation, 1-Film/video	Directing, scriptwriting, creative, editing, compositing, education.
Paul Woodruffe	3-Artifact/ Object/ Craftwork1-Book Authored, 4-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 3-Design Output, 5-Exhibition - Curatorial Exercise, 8-Exhibition – Group, 4-Exhibition – Solo, 2-Journal Article, 1-Other, 1-Performance, 1-Presentation (non-conference)	Visual art, public art, design for social innovation.
Peeti Lamwilai	1-Awarded Masters Thesis, 1-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 1-Exhibition - Curatorial Exercise, 2-Exhibition – Group, 2-Film/video	Graphic Design; Digital Design; Motion Graphics; Animation and Visual Effects
Richard Fahey	1-Essay - Published (Unitec only), 3-Exhibition - Curatorial Exercise, 11-Other, 2-Presentation (non-conference)	New Zealand craft, ceramics, visual art, visual art education, curating.
Tamsin Russell	1-Exhibition - Curatorial Exercise, 3-Performance	Choreography, Contemporary dance performance, practice-led research, Interdisciplinary practice, performance.

Vanessa Byrnes	1-Book Authored, 9-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Exhibition – Group, 3-Film/video, 2-Journal Article, 1-Other, 2-Performance, 3-Presentation (non-conference)	Director studies; contemporary performance discourse; performances ecologies; acting; directing; production practice; creative practice; New Zealand arts practice.
Will Wallace	2-Conference Contribution- Oral Presentation, 7-Film/video	Acting, performance for screen

[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

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. It is now an independent School. The School offers three degrees: Bachelor of Applied Science (with majors in Biodiversity Management and Animal Management and Welfare), Bachelor of Veterinary Nursing and Master of Applied Sciences (Biodiversity Management). Researchers are grouped in four research groups: Biodiversity, Applied Ecology and Taxonomy, Animal Behaviour and Welfare, Veterinary Nursing and the Applied Molecular Solutions Research Centre.

Number of degree teaching staff (BASCI, BVN and MASCI)	23
Total research FTE allocated	3.35
Research Traffic Light rating (Percentage of green lit staff) BASCI 2024	94%
Research Traffic Light rating (Percentage of green lit staff) BVN 2024	62%
Research Traffic Light rating (Percentage of green lit staff) MASCI 2024	100%
Current Research Traffic Light rating (Percentage of green lit staff)	74%
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 and the Bachelor of Veterinary Nursing are green-lit in the Unitec Research Productivity Traffic Light.

1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

Many EAS staff are associated with Māori communities engaged in protection and restoration of te taiao, the natural world. School researchers actively seek out and take up opportunities to support Māori research and researchers in order to uphold commitments under Te Tiriti. All research groups in the School have the goal of fostering the integration of indigenous values and methodologies specific to the South Pacific region in creative practice research.

The appointment of a Mātauranga Māori champion staff member was made in 2023 with former Bachelor of Applied Science graduate and recent Masters of Science graduate (Fisher).

1.1 Research Informed Teaching and Learning

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 student involvement in lecturer and stakeholder/industry-led research, and student supporting 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;

- Peter de Lange: *NSCI6735 Concepts in biodiversity* – plant taxonomy;

- Glenn Aguilar: *NSCI7736 Applied GIS* – climate change modelling;
- Diane Fraser: *NSCI6746 Environmental risk management* – invasive species spread in NZ;
- Laura Harvey: *NSCI 7101 Global Issues in Animal Welfare Science* – compassion fatigue;
- Lauren Prior: *NSCI5712 Introduction to veterinary clinic practice* – vet nursing environment;
- Caralyn Kemp: *NSCI7106 Applied Animal Behaviour Science* – animal communication.

Research is frequently a staff-student collaboration, particularly 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. Staff/student co-publishing may result from this collaboration; for example (staff in **bold**, students in **blue**):

2024

- **Harder, K.**, **England, S.**, & Naden, K. (2024). Canine hookworm presence in Tongatapu, Tonga. *Journal of Parasitology*, *110*(1), 49–53. https://doi.org/10.1645/23-5
- **Kerrigan, M.,** Brill. S., **Baling, M.** (2024). Arboreal behaviour and habitat use in the Nationally Critical Kapitia skink (*Oligosoma salmo*). *Perspectives in Biodiversity*, 2(1): 11–20. https://doi.org/10.34074/pibdiv.002103

2023

- **Baling M**, **McKenzie DJM**, **Scott RK**, Chisholm HT, **van Vugt LH**, **de Lange PJ** (2023). Observations of avifauna on Rēkohu / Wharekauri / Chatham Island, Chatham Islands group, in February 2023. *Perspectives in Biodiversity*, *1*(1): 1-24. https://doi.org/10.34074/pibdiv.001102.
- **Briden KA**, **Adams NJ, Cameron KE**. (2023). Hierarchical structure and feeding behaviours of free-range hens (*Gallus gallus domesticus*). *International Journal of Comparative Psychology*, 36.
- **Cameron, K.E., Hoult, C. & Walker, T.** (2023). Keep Calm and Cavy on: Measuring Demand in Guinea pigs. *Annual New Zealand Association of Behavioural Analysis*, Wellington, NZ, September 2023.
- **de Lange PJ**, Blanchon DJ, Marshall AJ, **Schmid LMH.** (2023). *Lepra erythrella* (Pertusariaceae) – a new addition to the lichenized mycobiota of the Aotearoa / New Zealand archipelago. *Ukrainian Botanical Journal 80*(1): 94–97. https://doi.org/10.15407/ukrbotj80.01.094
- **de Lange PJ**, **Schmid LMH**. (2023). *Lithothelium australe* Aptroot et H.Mayrhofer (Pyrenulaceae) rediscovered on the Chatham Islands. *Trilepidea* 227: 6-9.
- **Fraser DL**, **Alach JM**, **Adams NJ**, **Aguilar GD**. (2023). Day-time roost patterns of new and previously translocated North Island brown kiwi (*Apteryx mantelli*). *Diversity 15*(2):190. https://doi.org/10.3390/d15020190
- **Reveentharan S**, **Kemp C.** (2023). Popularity and public perceptions of companion animal content on Instagram. *UFAW Annual Conference*, Online (UK-based), June, 2023.
- **Weschler, S**, **Kemp C.** (2023). Benefits and use of dog parks. *Unitec-Te Pukenga School of Environmental and Animal Science research symposium*, Auckland, NZ, November 2023.

2022

- **de Lange PJ**, Marshall AJ, **Schmid LMH,** Graham S. (2022). The biota and geology of Ngārango Otainui: A mixed indigenous / naturalised vegetation association of the Māngere Inlet, Manukau Harbour. *Perspectives in Biosecurity 7*. pp. 5–33. https://doi.org/10.34074/pibs.00702
- **de Lange PJ**, **Schmid LMH. (**2022). New combinations in *Pentapogon* R.Br. for Aotearoa / New Zealand taxa earlier placed in *Deyeuxia* Clarion ex P.Beauv. (Poaceae). *Ukrainian Botanical Journal, 79*(2): 73–76. https://doi.org/10.15407/ukrbotj79.02.073
- **Sadler, H.**, **Harvey, L. C., & Prior, L.** (2022). Identifying the prevalence and implications of bullying in the Aotearoa New Zealand veterinary nursing industry. *Perspectives in Animal Health and Welfare*, 1 (1), 5-18. doi:https://doi.org/10.34074/piahw.001102

2021

- **Beetham L**, **Cameron KE**, **Harvey LC**. (2021). Compassion fatigue, compassion satisfaction and burnout during a pandemic. *The Veterinary Nurse 12(9)*: 426-443. https://doi:10.12968/vetn.2021.12.9.436
- **Da Silva J**, **Prior L**. (2021). Availability and utilisation of a range of anaesthetic monitoring devices by veterinary nurses in New Zealand. Poster presented at MIT-Unitec Research Symposium. Online, December 2021.

- Dyson N, Fraser D, Page N, Thorne J, Parsons T, Zangger C. (2021). The knowledge, behaviour and motivations of people walking dogs on Te Henga / Bethells Beach. Presentation at MIT-Unitec Research Symposium. Online, December 2021.
- Fajardo W, Naden, K, van Winkel, D, Baling M. (2021). *Diversity of endoparasites in exotic herpetofauna.* Presentation at Society for Research on Amphibians and Reptiles in New Zealand conference, Auckland. Online, February 2021.
- Page A, Gear R. (2021). The current involvement, desire for involvement, self-assessed knowledge and competence of veterinary nurses in the care of diabetic patients in New Zealand. Poster presented at MIT-Unitec Research Symposium. Online, December 2021.
- Prasad M, Schmid LMH, Marshall AJ, Blanchon DJ, Renner MAM, Baba Y, Padamsee M, de Lange PJ. (2022). Ecological communities of Aotearoa / New Zealand species threatened by myrtle rust (*Austropuccinia psidii* (G. Winter) Beenken): The flora and mycobiota of the endemic genus *Lophomyrtus* Burret. *Perspectives in Biosecurity 7*. pp. 34–70. https://doi.org/10.34074/pibs.00703
- Schmid L, Large M, Galbraith M, de Lange P. (2021). Observation of western honeybee (*Apis mellifera*) foraging urediniospores from myrtle-rust infected maire tawake (*Syzygium maire*), Ōwairaka/Mt Albert, Tāmaki Makaurau/Auckland, New Zealand. *Perspectives in Biosecurity 6*: 1–7.

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

- NSCI7736 *Applied GIS* – remote sensing; partner Reconnecting Northland.
- NSCI7104 *Restoration ecology* – citizen science; partner Supporters of Tiritiri Matangi (Inc.)
- NSCI7107 *Biosecurity* – biological control of invasive plants; partner Auckland Council.
- NSCI7106 *Applied Animal Behaviour Science* – testing sparrow repellent using behaviour (partner KEY Industries).

2 School of Environmental & Animal Sciences Goals and KPIs

There are six KPIs for research:

1. 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.
2. 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.
3. 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.
4. 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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.

The School of Environmental & Animal Sciences has the following current goals:

- **Quality Assured Research Outputs:** Maintaining the quality assured research outputs to at least 1.5 output per research active FTE[1].
- **Research Productivity:** Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- **External Research Income:** The school will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- **Industry Funded Projects:** Maintain industry-funded projects at least 5 per year.
- **Student Integrated Research:** The school will strive to develop research Student Negotiated Research projects in line with the definition of this KPI.
- Maintain the annual number of peer-reviewed journal articles at 15 in 2024 (School/discipline-specific goal).
- Increase the number of EAS staff who have published peer-reviewed journal articles to 20 by 2024 (School/discipline-specific goal).

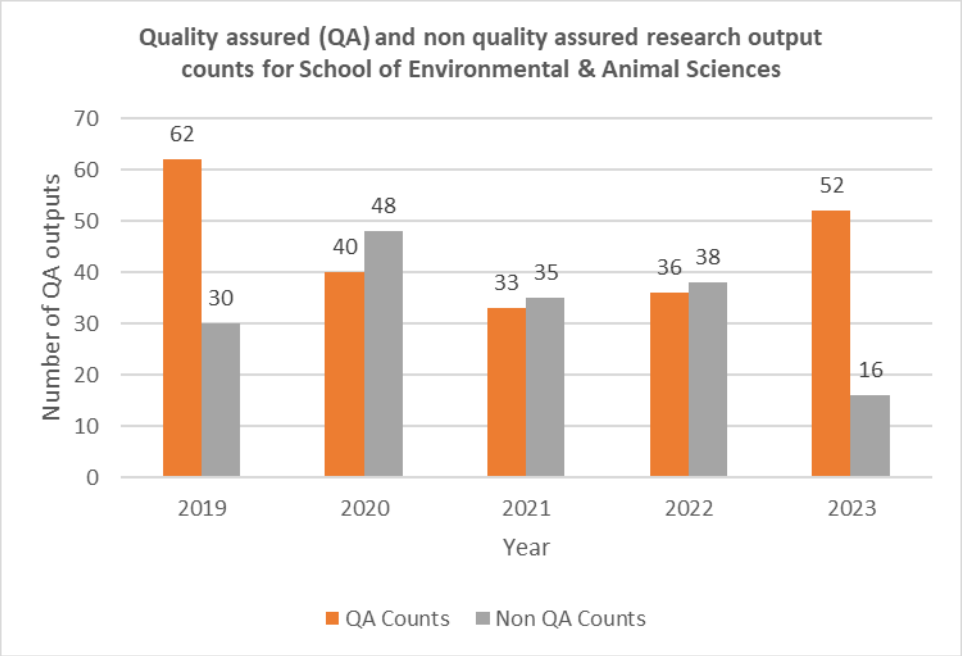


Figure 1: School of Environmental & Animal Sciences research outputs

Note: The 2020-22 levels reflect the impact of Covid-19, particularly the loss of research time and access to field research, and the cancellation of conferences.

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

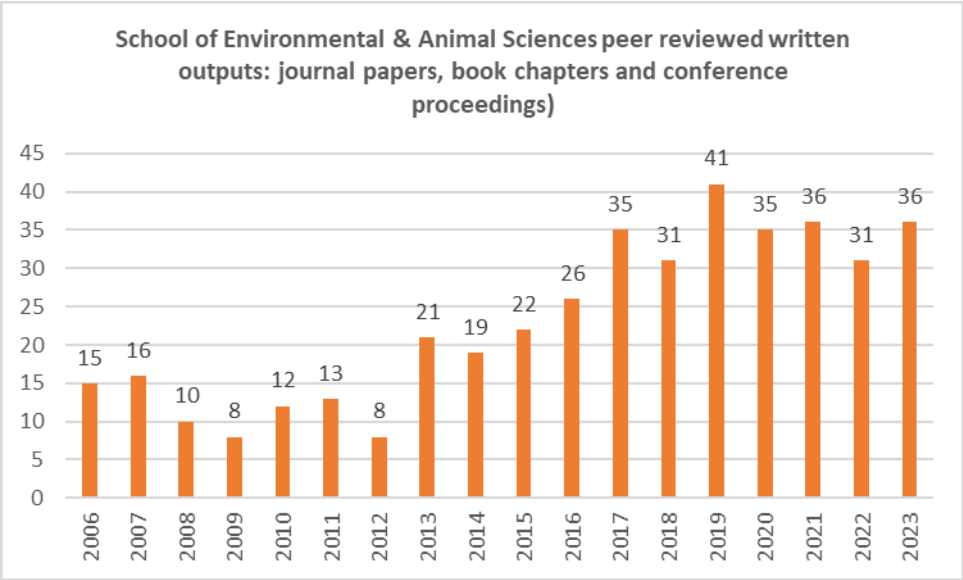


Figure 2: School of Environmental & Animal Sciences peer reviewed outputs

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. There was a peak in output in 2017 due to pre-PBRF publishing activity, and overlap between the departure of two highly-productive researchers (Lefort and Boyer) and the arrival of two more highly productive researchers (Veale and de Lange). The 2020-22 levels reflect the impact of Covid-19 restrictions. The general target for EAS is to publish 20-25 peer-reviewed journal articles per year.

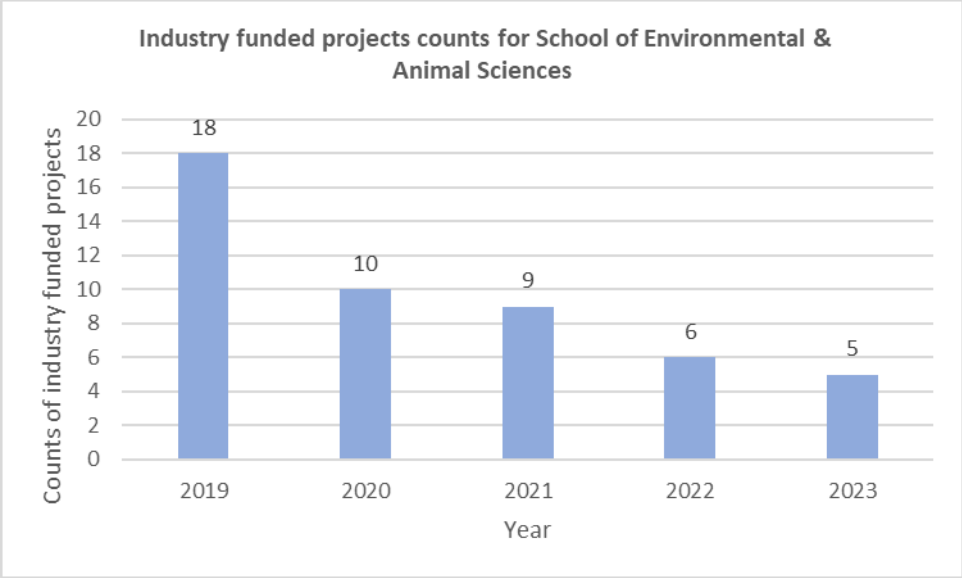


Figure 2: School of Environmental & Animal Sciences industry funded projects

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.

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.

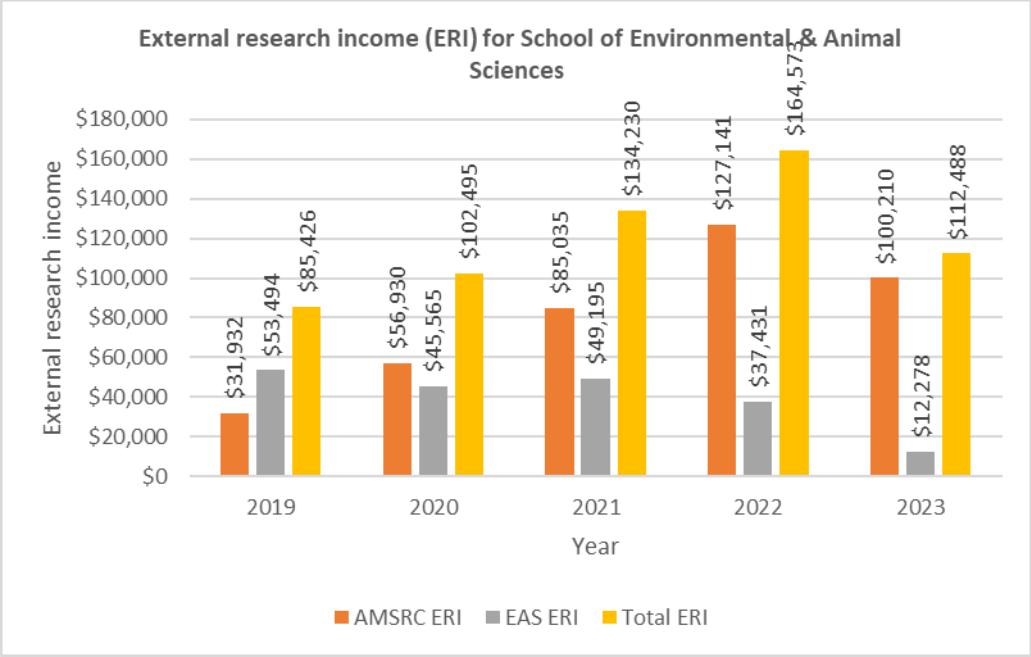


Figure 3: School of Environmental & Animal Sciences external research income

Note: The increase in funding 2019-2021 is due to staff in the School successfully winning external funding.

1.2 What the school is planning for increasing research diversity?

- Appointment of research active Mātauranga Māori expert to EAS staff, available to support/advise fellow EAS researchers
- Increase/ongoing support for students in research courses
- 3x ePress journals
- Support of ECR and emerging researchers - mentoring
- Scholarships available for postgraduate students
- Continued relationship and connection of work or research of VN in Tonga
- Increased engagement with industry stakeholders that require research partnerships (we have a number of zoos that we're starting to partner with to provide research outputs)
- Formalising of the Terms of Reference for the School's Research Committee, which will be highly focussed on the support of new, emerging and established staff who are required to or are interested in conducting research.
- Re-establishment of the Research Support Group and conducting themed workshops relevant to the research skills or interest of staff.

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

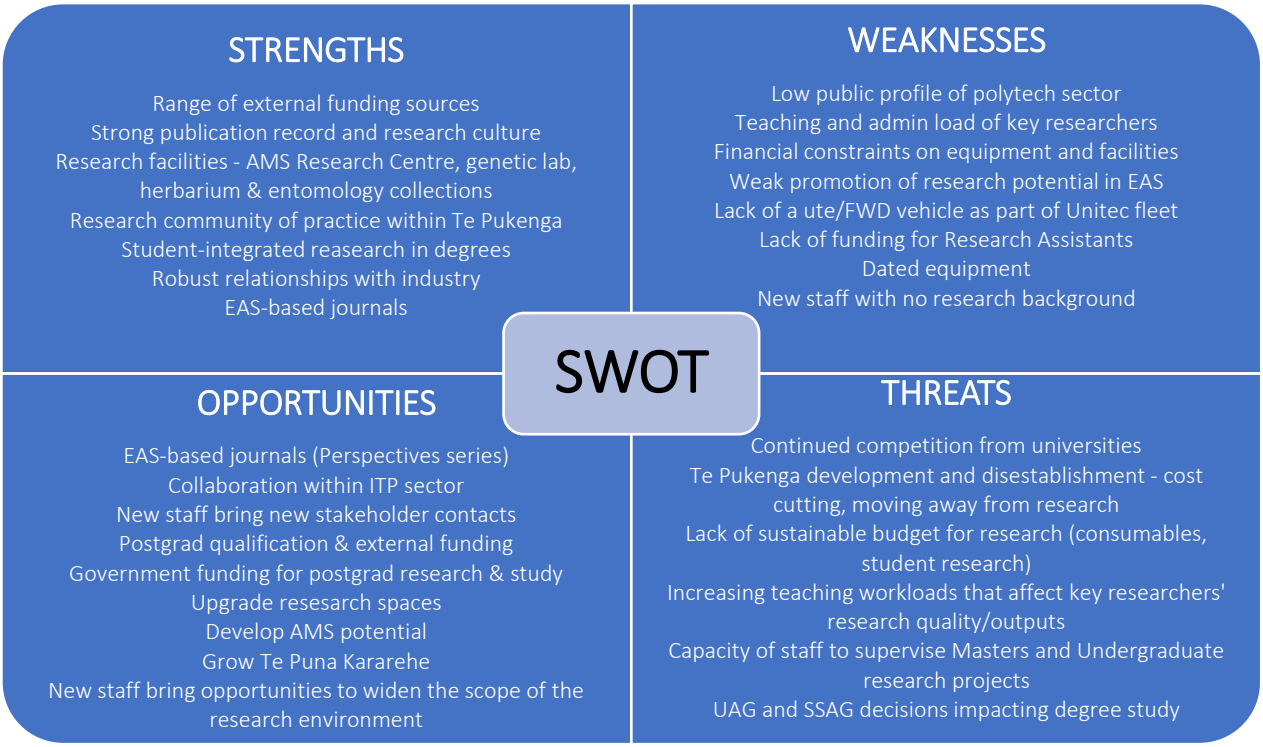


Figure 4: SWOT analysis for research in School of Environmental and Animal Sciences

3 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 four research groups (Animal Behaviour and Welfare; Biodiversity, Applied Ecology and Taxonomy; Veterinary Nursing; Figure 6) and hosts a research centre (Applied Molecular Solutions Research Centre). In addition, a number of EAS staff are members of the Environmental Solutions Research Centre (hosted by the School of Building Construction).

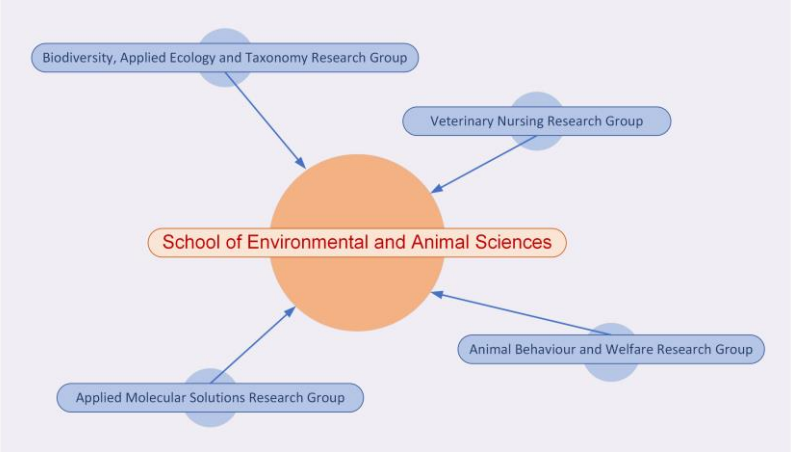


Figure 5: School of Environmental & Animal Sciences four research groups

The research groups/centre partner with external funders and win funding/grants (External Research Income, ERI) (Figures 7 & 8).

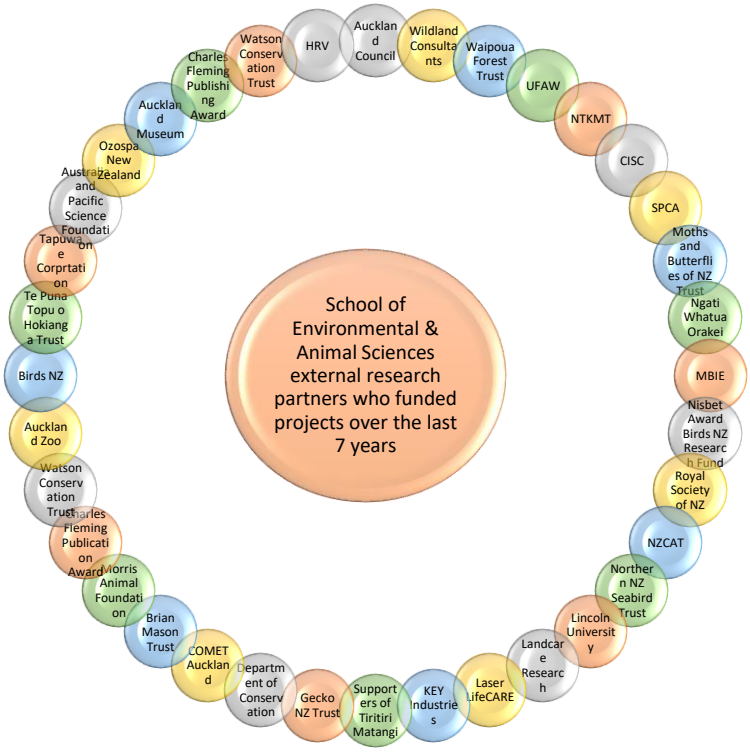


Figure 6: EAS external research partners wo funded projects over the last 7 years

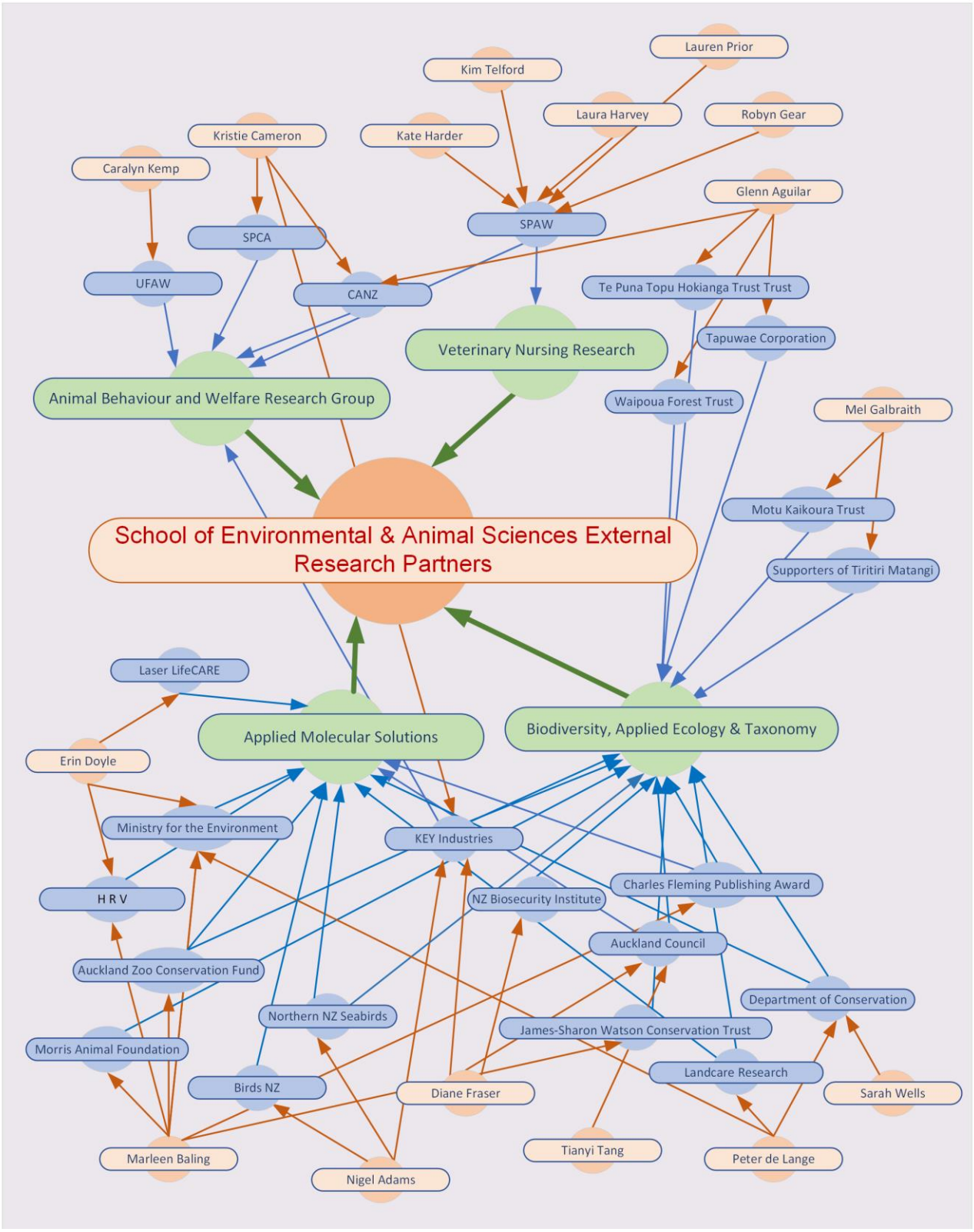


Figure 7: School of Environmental & Animal Sciences external research partners who funded projects over the last 3 years, along with the four research groups and lead researchers.

3.2 Research Group One - Animal Behaviour and Welfare

Statement of purpose

Animal Behaviour and Welfare research is directed towards:

- » understanding the interactions between humans and animals and their consequences;
- » 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, welfare and behavioural requirements of captive wild and domestic animals to improve the management of captive animals in zoo and other animal care and holding facilities.

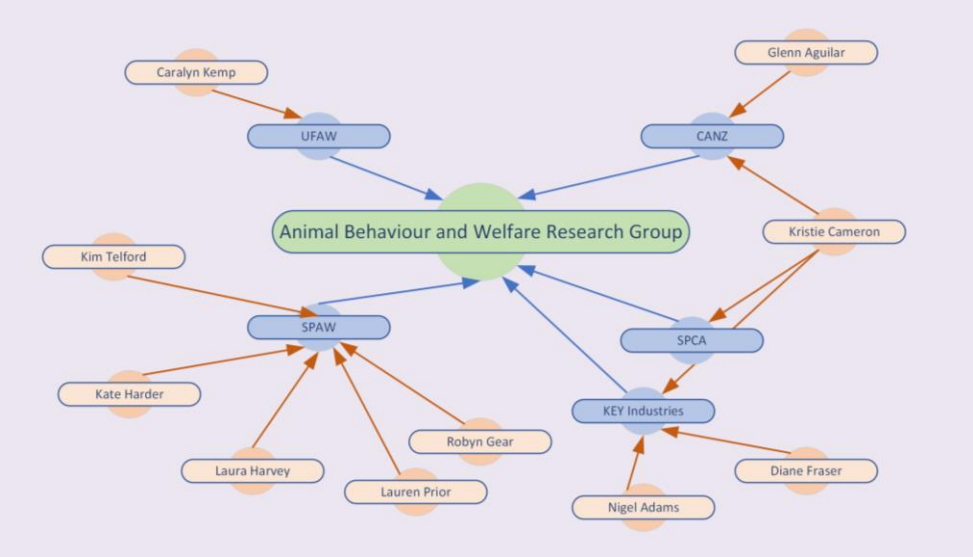


Figure 8: Animal Behaviour and Welfare research group externally funded research partners and lead researchers.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Build Mātauranga Māori knowledge and skills	All kaimahi	Ongoing	Specific PD	Increased confidence in staff with regard to Mātauranga Māori
Develop contestable funding for 1–2 undergrad studentships for third year Māori or Moriori students.	Research Leader, EASRC and Māori Champion?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased interest from students from Māori background to continue to postgraduate level. Increase peer-review publication under student-associated projects.
Partner with community groups, iwi/hapu/imi groups or NGO's to develop list of research projects.	EASRC, Māori Champion, AB&W staff	Ongoing	EAS staff research time, to develop strategy and consultation on priority research. Student volunteers/ internships to conduct short-term	Long-term relationships are maintained between EAS and key iwi/hapū/imi/NGO groups (potential for MOUs?). Increased number of students working key research projects.

			research.	
Work with Mātauranga Māori staff member	All kaimahi	Ongoing	Specific PD	Increased number of projects which demonstrate Mātauranga Māori values and considerations

Goal 2: Develop research opportunity in Animal Behaviour and Welfare Research Group

This could be to develop a project, a funding application or a studentship programme.

Action	Responsible	Deadline	Resources needed	Desired result
Provide resources for small studies associated with student research (NSCI7731 Negotiated Research) to publish.	Research Leader and NSCI7731 course coordinator	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for small student-associated projects (via supervisors).	Increased peer-reviewed publication of student-associated projects. Small pilot studies that were funded will provide enough data for EAS staff to apply for external funding for a larger, related project.
Update and upgrade TPK (animal facility)	TPK manager, HoS, Research leader and EAS RC	Ongoing	EAS staff time, to plan set up and use of the room (e.g., animal behaviour or welfare experiments, housing of animals for research) FM resources, to ensure that the facility is adequate for captive or indoor research purposes (e.g., automated lights, temperature-controlled room, sink and water source, no incoming pests).	Good quality research space for indoor or captive experiments. Publications of good quality indoor or captive research.
Seek Research Fellow in this area to mentor and partner	Research Leader, AB&W staff, EAS RC staff	Ongoing	Application to Tūāpapa Rangahau.	External researcher(s) to support AB&W staff.
Re-initiate staff research support group	Research Leader and EASRC	Ongoing	None	Meetings and mentoring arrangements as needed.
Support staff to attend writing retreats	Research Leader and EASRC	Ongoing	Tūāpapa Rangahau support	Participating staff to submit journal articles.
Identification of research space upgrade or acquisition of equipment.	Research Leaders, staff, lab/tech manager.	2024	AB&W staff time to identify priority upgrade and equipment to purchase. Funding to cover the cost of upgrade or equipment purchase (e.g. CAPEX).	Increase quality of the research space and newer technology equipment. Increase in efficiency of research operations. Increase attractiveness to more collaborations.
Develop contestable fund for 2–4 studentships for EAS staff.	Research Leader and EASRC?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased peer-review publication for student-associated projects. Technical support for EAS

				staff to conduct their projects. Increased exposure for undergrad students to research to encourage studying at postgraduate level.
Publications in ePress journals from EAS staff and external authors. *Perspectives in Animal Health and Welfare*	*Perspectives in Animal Health and Welfare:* Laura Harvey	Ongoing	EAS staff time to work with manuscripts, and coordination of associate editors, website update. Time for ePress editor, copy editor and layout.	Yearly issue for journal. Publications from EAS staff and students, and staff from associated ITPs (e.g., Auckland Zoo, SPCA).
Encourage EAS staff to publish in a peer-reviewed journal or present their research in a scientific conference.	Research Leader and Research Group Leader	Ongoing	Research dissemination funding	Increased publications by EAS staff in good quality journals (e.g., high impact factor). Increased exposure of Unitec and its staff in conference on national and international stage.
Setting up of an Animal Welfare and Behaviour Research Centre	Research Leader and HoS	Being investigated	Workloading of relevant staff, internal funding, external funding or links with industry stakeholders.	Build capacity and recognition to gain external funding and employ a permanent research assistant/technician.
Development of a post graduate programme for AB&W	HoS, AB&W staff	Long term	Interest from industry and stakeholders, time from Unitec support staff, workloading of AB&W staff	Postgraduate or Masters qualification in animal behaviour and/or welfare
Seek animal ethics funding	All kaimahi	Ongoing	Financial support from HoS and Tūāpapa Rangahau	Support more than 1 project a year involving animals

Goal 3: Grow industry and community connectedness

This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.

Action	Responsible	Deadline	Resources needed	Desired result
Identify possible sources of external funding	Research Leader, APM, AB&W staff	Ongoing	Tūāpapa Rangahau support (Brenda Massey).	Maintenance of database of external funding options.
AB&W staff to identify projects which could apply for external funding	Research Leader, AB&W staff	Ongoing	Tūāpapa Rangahau support (Brenda Massey).	Funding for project start in 2024
Setting up of an Animal Welfare and Behaviour Research Centre	Research Leader and HoS	Being investigated	Workloading of relevant staff, internal funding, external funding or links with industry stakeholders.	Build capacity and recognition to gain external funding and employ a permanent research assistant/technician.
Annual EAS research conference	Research Leader, Conference Committee, HoS	Ongoing	Initial support from Tūāpapa Rangahau, external funding through registrations,	Showcase staff and student research to create interest from community and industry

			catering costs covered	stakeholders
Public outreach activities, e.g. such as courses/workshops for schools.	Research leaders, AB&W staff, TPK techs	Once a year	AB&W and tech staff time to plan, coordinate and run the public outreach. Student volunteer time to support the public outreach. Laboratory equipment and consumables, transport costs.	Increased exposure of the community/ public to molecular approaches, and taxonomy. Increased exposure of Unitec and staff to a wider community.
Partner with DoC, Auckland Council, zoos, consulting companies and NGO's to develop list of research projects.	Research Leader, EAS RC, AB&W staff	Ongoing	EAS staff research time, to develop strategy and consultation with ITP on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects.	Long-term relationships are maintained between EAS and ITPs (potential for MOUs between EAS and some ITPs?). Increased number of students working with ITPs on research projects. Increased number of peer-reviewed publications with ITPs.

3.3 Research Group Two – Biodiversity, Applied Ecology and Taxonomy

Statement of purpose

Biodiversity, Applied Ecology and Taxonomy research is directed towards:

- » contributing to the whakapapa and taxonomy of indigenous biota;
- » understanding the interaction between biota and the environment;
- » understanding the impact of anthropogenic change on indigenous biota, particularly with respect to habitat change, ecosystem degradation, and biosecurity;
- » application of research to inform current management approaches.

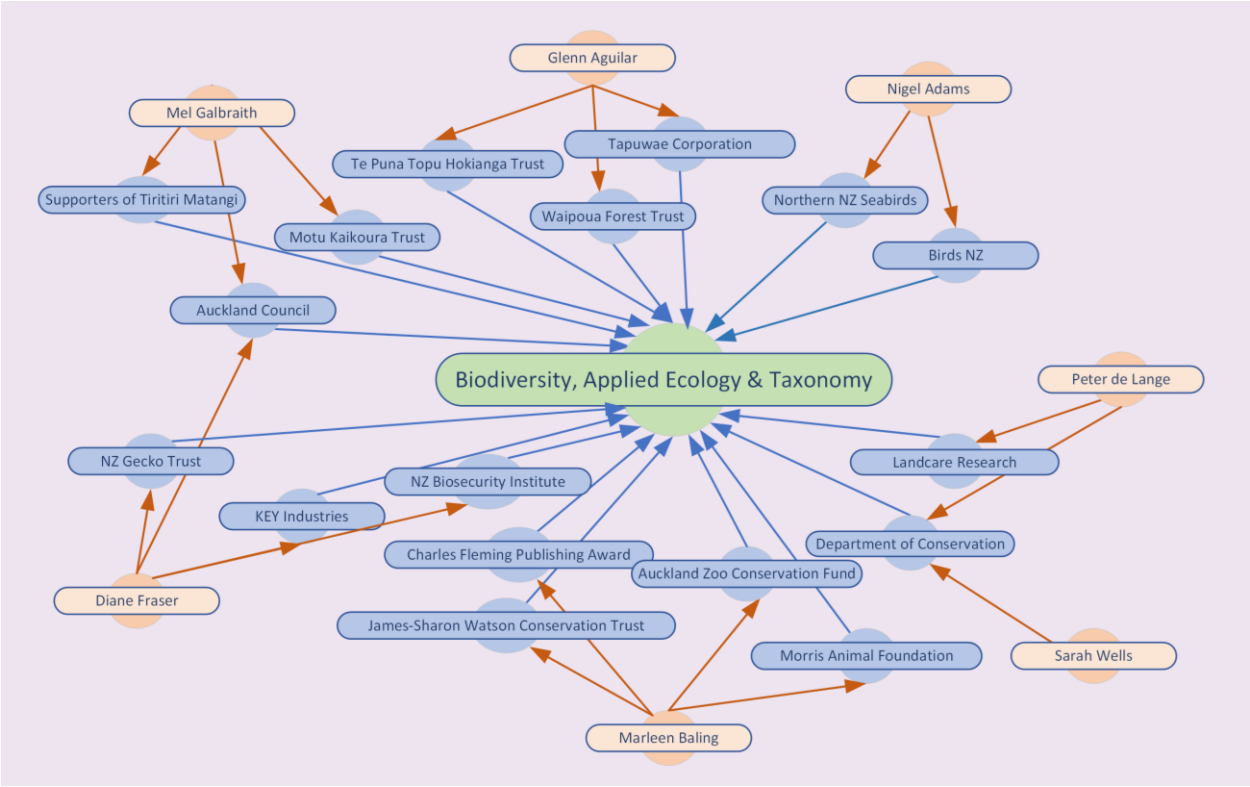


Figure 9: Biodiversity, Applied Ecology and Taxonomy research group externally funded research partners and lead researchers

Note: This group's externally funded partners and/or researcher overlap with the other research groups as seen in Figure 8.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Build Mātauranga Māori knowledge and skills	All kaimahi	Ongoing	Specific PD	Increased confidence in staff with regard to Mātauranga Māori
Develop contestable funding for 1–2 undergrad studentships for third year Māori or Moriori students.	Research Leader, EASRC and Māori Champion?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased interest from students from Māori background to continue to postgraduate level. Increase peer-review publication under student-associated projects.
Partner with community groups, iwi/hapu/imi groups or NGO's to develop list of research projects.	EASRC, Māori Champion and Peter de Lange (e.g., Chatham Is?)	Ongoing	EAS staff research time, to develop strategy and consultation on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects.	Long-term relationships are maintained between EAS and key iwi/hapū/imi groups (potential for MOUs?). Increased number of students working key research projects.

Work with Mātauranga Māori staff member	All kaimahi	Ongoing	Specific PD	Increased number of projects which demonstrate Mātauranga Māori values and considerations

Goal 2: Develop research opportunity in Biodiversity, Applied Ecology and Taxonomy Research Group.				
Action	Responsible	Deadline	Resources needed	Desired result
Provide resources for small studies associated with student research (NSCI7731 Negotiated Research) to publish.	Research Leader and NSCI7731 course coordinator	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for small student-associated projects (via supervisors).	Increased peer-reviewed publication of student-associated projects. Small pilot studies that were funded will provide enough data for EAS staff to apply for external funding for a larger, related project.
Update and upgrade the EAS Research Room	Research leader and Research Group Leader	Ongoing	EAS staff time, to plan set up and use of the room (e.g., animal behaviour or ecology experiments, housing of animals for research) FM resources, to ensure that the facility is adequate for captive or indoor research purposes (e.g., automated lights, temperature-controlled room, sink and water source, no incoming pests).	Good quality research space for indoor or captive experiments. Publications of good quality indoor or captive research.
Develop contestable fund for 2–4 studentships for EAS staff.	Research Leader and EASRC?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased peer-review publication for student-associated projects. Technical support for EAS staff to conduct their projects. Increased exposure for undergrad students to research to encourage studying at postgraduate level.
Encourage EAS staff to publish in a peer-reviewed journal or present their research in a scientific conference.	Research Leader and Research Group Leader	Ongoing	Research dissemination funding	Increased publications by EAS staff in good quality journals (e.g., high impact factor). Increased exposure of Unitec and its staff in conference on national and international stage.
Identification of research space upgrade or acquisition of equipment.	Research Leaders, staff, lab/tech manager.	2024	Biodiversity staff time to identify priority upgrade and equipment to purchase. Funding to cover the cost of upgrade or equipment purchase (e.g. CAPEX).	Increase quality of the research space and newer technology equipment. Increase in efficiency of research operations.

				Increase attractiveness to more collaborations.
Upgrade and update the zoological and geology collections.	Lilith Fisher, Marleen Bailing	Ongoing	EAS staff time, to ensure collections room are good quality to hold the collections and bring in more collections. Student volunteer/ interns or summer studentships, to provide help in sorting and organising collections.	Good quality animal collections that can be used for research including partnerships with community (e.g., citizen science and bioblitz) or industry (e.g. Auckland Council, MPI).
Support for postgraduate student research and dissemination.	All kaimahi	Ongoing	Yearly funding for research projects for all postgraduate students Contestable fund for conference travel for students.	Increased capacity for students to conduct their research. Increased number of students studying at postgraduate level. Increased exposure of students to professional networks at conferences.
Publications in ePress journals from EAS staff and external authors. *Perspectives in Biosecurity* *Perspectives in Biodiversity*	*Perspectives in Biosecurity*: Mel Galbraith and Dan Blanchon *Perspectives in Biodiversity:* Peter de Lange and Marleen Baling	Ongoing	EAS staff time to work with manuscripts, and coordination of associate editors, website update. Time for ePress editor, copy editor and layout.	Yearly issues for each journal. Publications from EAS staff and students, and staff from associated ITPs (e.g., Auckland Zoo, Auckland Councils).

Goal 3: Grow industry and community connectedness

Action	Responsible	Deadline	Resources needed	Desired result
Partner with DoC, Auckland Council, consulting companies and NGO's to develop list of research projects.	Research Leader, EASRC	Ongoing	EAS staff research time, to develop strategy and consultation with ITP on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects.	Long-term relationships are maintained between EAS and ITPs (potential for MOUs between EAS and some ITPs?). Increased number of students working with ITPs on research projects. Increased number of peer-reviewed publications with ITPs.
Yearly postgraduate seminar day	MASCI APM and MASCI project coordinator	Yearly	EAS staff time for planning, coordinating and running the seminar day. Postgrad student time to support planning and running the seminar day. Additional costs for food or additional resources as host.	Relationship maintenance with ITP. Increased exposure of ITP to research at EAS Unitec. Networking between EAS staff & students and invited ITPs and other academic institutions.

				Grow potential for research collaborations between Unitec staff
Annual EAS research conference	Research Leader, Conference Committee, HoS	Ongoing	Initial support from Tūāpapa Rangahau, external funding through registrations, catering costs covered	Showcase staff and student research to create interest from community and industry stakeholders
Public outreach activities, e.g. such as Bioblitz, courses/workshops for schools.	Research leaders, biodiversity staff	Once a year	Biodiversity staff time to plan, coordinate and run the public outreach. Student volunteer time to support the public outreach. Laboratory equipment and consumables, transport costs.	Increased exposure of the community/ public to molecular approaches, and taxonomy. Increased exposure of Unitec and staff to a wider community.

3.4 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 Centre. Staff are currently gaining postgraduate qualifications, relying on internal funding, and moving from conference papers to journal articles.

A new ePress journal, *Perspectives in Animal Health and welfare*, has been established to provide a mechanism for staff and students to publish research. This journal fills a need to provide a quality-assured outlet for veterinary nursing research in Aotearoa.

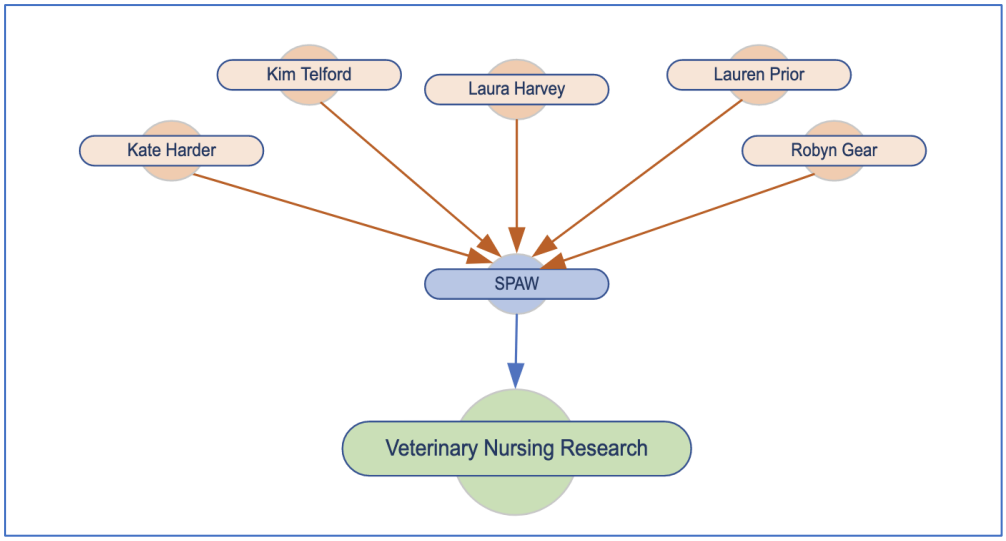


Figure 10: Veterinary Nursing research group externally funded research partner and lead researchers

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Build Mātauranga Māori knowledge and skills	All kaimahi	Ongoing	Specific PD	Increased confidence in staff with regard to Mātauranga Māori
Develop contestable funding for 1–2 undergrad studentships for third year Māori or Moriori students.	Research Leader, EASRC and Māori Champion?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased interest from students from Māori background to continue to postgraduate level. Increase peer-review publication under student-associated projects.
Partner with community groups, iwi/hapu/imi groups or NGO's to develop list of research projects.	EASRC, Māori Champion, AB&W staff	Ongoing	EAS staff research time, to develop strategy and consultation on priority research. Student volunteers/ internships to conduct short-term research.	Long-term relationships are maintained between EAS and key iwi/hapū/imi/NGO groups (potential for MOUs?). Increased number of students working key research projects.
Work with Mātauranga Māori staff member	All kaimahi	Ongoing	Specific PD	Increased number of projects which demonstrate Mātauranga Māori values and considerations

Goal 2: Develop research opportunity in Veterinary Nursing Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	Responsible	Deadline	Resources needed	Desired result
Seek Research Fellow in this area to mentor and partner	Research Leader, VN staff	Ongoing	Application to Tūāpapa Rangahau.	External researcher(s) to support VN staff.
Support staff to gain postgraduate quals	HoS and APM	Ongoing	EAS PD budget	Three VN staff with Masters degrees by 2024
Establish mentoring for VN researchers and group into research teams	Research Leader, APM and AB&W staff	Ongoing	Time and potentially ECR funding	All staff in at least one research project team by Feb 2024
Re-initiate staff research support group	Research Leader and EASRC	Ongoing	None	Meetings and mentoring arrangements as needed.
Build capabilty	Research Leader, EAS RC	Ongoing	Tūāpapa Rangahau workshops, catering, workloading of staff	To assist VN staff to become research active and confident with skills to conduct scientific research
External research funding applications	All kaimahi	Ongoing	External funding sources relevant to the line of research	Projects supported with funding
Publications in ePress journals from EAS staff and external authors.	*Perspectives in Animal Behaviour and Welfare:* Laura Harvey	Ongoing	EAS staff time to work with manuscripts, and coordination of associate editors, website update.	Yearly issues for journal. Publications from EAS staff and students, and staff from associated ITPs (e.g., Auckland

Perspectives in Animal Health and Welfare			Time for ePress editor, copy editor and layout.	Zoo, SPCA).
Provide resources for small studies associated with student research (NSCI7731 Negotiated Research) to publish.	Research Leader and NSCI7731 course coordinator	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for small student-associated projects (via supervisors).	Increased peer-reviewed publication of student-associated projects. Small pilot studies that were funded will provide enough data for EAS staff to apply for external funding for a larger, related project.
Update and upgrade TPK (animal facility)	TPK manager, HoS, Research leader and EAS RC	Ongoing	EAS staff time, to plan set up and use of the room (e.g., animal behaviour or welfare experiments, housing of animals for research) FM resources, to ensure that the facility is adequate for captive or indoor research purposes (e.g., automated lights, temperature-controlled room, sink and water source, no incoming pests).	Good quality research space for indoor or captive experiments. Publications of good quality indoor or captive research.
Support staff to attend writing retreats	Research Leader and EASRC	Ongoing	Tūāpapa Rangahau support	Participating staff to submit journal articles.
Develop contestable fund for 2–4 studentships for EAS staff.	Research Leader and EAS RC?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for EAS staff to support third year studentships.	Increased peer-review publication for student-associated projects. Technical support for EAS staff to conduct their projects. Increased exposure for undergrad students to research to encourage studying at postgraduate level.
Identification of research space upgrade or acquisition of equipment.	Research Leaders, staff, lab/tech manager.	2024	VN staff time to identify priority upgrade and equipment to purchase. Funding to cover the cost of upgrade or equipment purchase (e.g. CAPEX).	Increase quality of the research space and newer technology equipment. Increase in efficiency of research operations. Increase attractiveness to more collaborations.
Publications in ePress journals from EAS staff and external authors. *Perspectives in Animal Health and Welfare*	*Perspectives in Animal Health and Welfare:* Laura Harvey	Ongoing	EAS staff time to work with manuscripts, and coordination of associate editors, website update. Time for ePress editor, copy editor and layout.	Yearly issue for journal. Publications from EAS staff and students, and staff from associated ITPs (e.g., Auckland Zoo, SPCA).
Encourage EAS staff to publish in a peer-reviewed journal or	Research Leader and Research Group Leader	Ongoing	Research dissemination funding	Increased publications by EAS staff in good quality journals (e.g., high impact factor).

present their research in a scientific conference.				Increased exposure of Unitec and its staff in conference on national and international stage.

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	Responsible	Deadline	Resources needed	Desired result
Identify possible sources of external funding	Research Leader, APM, VN staff	Ongoing	Tūāpapa Rangahau support (Brenda Massey).	Maintenance of database of external funding options.
VN staff to identify projects which could apply for external funding	Research Leader, VN staff	Ongoing	Tūāpapa Rangahau support (Brenda Massey).	Funding for project start in 2024.
Partner with vet clinics, vets, industry and NGOs to develop list of research projects.	Research Leader, EAS RC, VN staff	Ongoing	EAS staff research time, to develop strategy and consultation with ITP on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects.	Long-term relationships are developed and maintained between EAS and industry. Research opportunities for staff identified and taken up. Increased number of students working with industry on research projects. Increased number of peer-reviewed publications with industry.
Encourage conference submissions	Research Leader, EAS RC, mentors	Ongoing	Relevant conferences, appropriate timing of conferences, staff workloading, research support	VN staff to be more visible with wider community, creating networking opportunities which benefit staff and students.
Annual EAS research conference	Research Leader, Conference Committee, HoS	Ongoing	Initial support from Tūāpapa Rangahau, external funding through registrations, catering costs covered	Showcase staff and student research to create interest from community and industry stakeholders
Public outreach activities, e.g. such as courses/workshops for schools.	Research leaders, VN staff	Once a year	VN staff time to plan, coordinate and run the public outreach. Student volunteer time to support the public outreach. Laboratory equipment and consumables, transport costs.	Increased exposure of the community/ public to animal health and husbandry. Increased exposure of Unitec and staff to a wider community. Build strong ties with community and industry.

3.5 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 and ecosystems, conservation of native flora and fauna, and assessment of animal and human health. These genetic resources can be used, for example, to create rapid diagnostic tests for diseases or pest species that affect native biodiversity, 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 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 (nursing), Landscape Architecture (landscape scale genetics, restoration genetics) and in the areas of environmental engineering and sustainability.

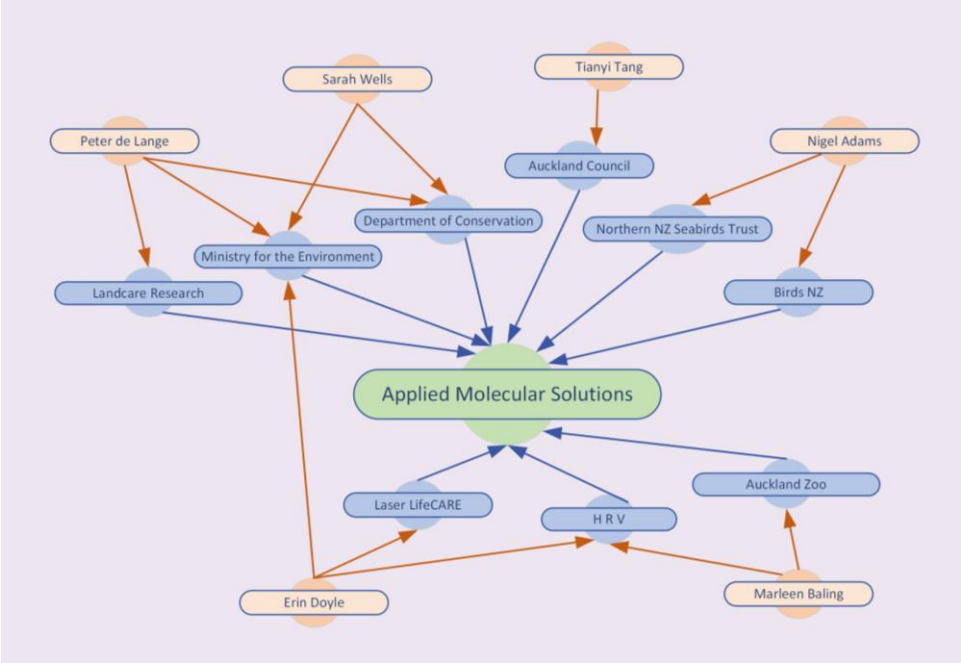


Figure 12: Applied molecular solutions research group externally funded research partners and lead researchers

Note: This group's externally funded partners and/or researcher overlap with the other research groups as seen in Figure 8.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	Responsible	Deadline	Resources needed	Desired result
Develop 1–2 undergraduate studentships role for Māori or Moriori students to work in laboratory or herbarium.	Research Group Leaders, EASRC and Māori Champion?	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund to support third year studentships.	Increased interest from students from Māori or Moriori background to continue to postgraduate level. Increase peer-review publication under student-associated projects.
Partner with community groups, iwi/hapu/imi groups or NGO's to develop list of research projects or molecular approaches/ techniques for applied research.	Research Group Leaders, principal investigators.	Ongoing	AMSRC staff research time, to develop strategy and consultation on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects. Co-funding opportunities from Tūāpapa Rangahau	Long-term relationships are maintained between AMSRC and key iwi/hapu/imi groups. MOU between AMSRC and some iwi/hapu/imi groups? Increased number of students working key research projects. New or novel molecular techniques that to provide solutions for real problems in the space indigenous innovation, environment, health or matauranga.
Build Mātauranga Māori knowledge and skills	All kaimahi	Ongoing	Specific PD	Increased confidence in staff with regard to Mātauranga Māori
Work with Mātauranga Māori staff member	All kaimahi	Ongoing	Specific PD	Increased number of projects which demonstrate Mātauranga Māori values and considerations

Goal 2: Develop research opportunity in Applied Molecular Solutions Research Group				
Action	Responsible	Deadline	Resources needed	Desired result
Connecting all relevant research spaces as AMSRC: molecular lab, herbarium, plant growth room and culture/microbiology lab.	Research Group Leaders.	2024	EAS staff time for planning, budgeting and coordinating the research spaces. Funding support from Tūāpapa Rangahau for base operational costs.	All research spaces are streamlined to ensure accurate usage and outputs recorded. To enable to plan for better research collaboration between users of all these research spaces.
Develop 1–2 undergraduate studentships role for support staff in laboratory,	Research Group Leaders.	Yearly	Yearly research fund from Tūāpapa Rangahau as contestable fund for to support third year studentships.	Increased peer-review publication for student-associated projects. Technical support for AMSRC

herbarium, growth room or culture/microbiology room.				staff to conduct their projects. Increased exposure for undergrad students to research to encourage studying at postgraduate level.
Develop a permanent casual research assistant positions in the laboratory and herbarium.	Research Group Leaders.	Yearly	Funding support to hire the casual assistants.	Increased efficiency of general lab and herbarium operations. Reduced workload for AMRSC staff with lab technical support. If assistants are student, increased experience for students working in the laboratories, herbarium or biological collections.
Students working in AMSRC participate in the postgraduate seminar day.	AMSRC supervisors	Yearly	EAS staff time for planning of seminar day. Student time to support the postgraduate seminar day.	Experience for students to publicly present their research. Networking opportunity for students with EAS staff, other students and also ITPs.
Identification of research space upgrade or acquisition of equipment.	Research Leaders, AMSRC staff, lab manager.	2024	AMSRC staff time to identify priority upgrade and equipment to purchase. Funding to cover the cost of upgrade or equipment purchase (e.g. CAPEX).	Increase quality of the research space and newer technology equipment. Increase in efficiency of research operations. Increase attractiveness to more collaborations.
AMSRC staff and associated external staff publishing in ePress journals: *Perspectives in Biosecurity* *Perspectives in Biodiversity*	Principal researchers *Perspectives in Biosecurity* *Perspectives in Biosecurity:* Peter de Lange and Marleen Baling	Ongoing	AMRSC staff and student time to work on manuscripts.	Publications from AMSRC staff and students and co-authors from associated ITPs (e.g. Auckland Zoo, Auckland Councils, DOC).
Encourage EAS staff to publish in a peer-reviewed journal or present their research in a scientific conference.	Research Leader and Research Group Leader	Ongoing	Research dissemination funding	Increased publications by EAS staff in good quality journals (e.g., high impact factor). Increased exposure of Unitec and its staff in conference on national and international stage.
Support staff to attend writing retreats	Research Leader and EASRC	Ongoing	Tūāpapa Rangahau support	Participating staff to submit journal articles.
Support for postgraduate student research and dissemination.	All kaimahi	Ongoing	Yearly funding for research projects for all postgraduate students Contestable fund for	Increased capacity for students to conduct their research. Increased number of students studying at postgraduate level.

			conference travel for students.	Increased exposure of students to professional networks at conferences.
Provide resources for small studies associated with student research (NSCI7731 Negotiated Research) to publish.	Research Leader and NSCI7731 course coordinator	Ongoing	Yearly research fund from Tūāpapa Rangahau as contestable fund for small student-associated projects (via supervisors).	Increased peer-reviewed publication of student-associated projects. Small pilot studies that were funded will provide enough data for EAS staff to apply for external funding for a larger, related project.

Goal 3: Grow industry and community connectedness

This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.

Action	Responsible	Deadline	Resourcesneeded	Desired result
Partner with ITPs (DOC, Landcare Research, Auckland Zoo, Auckland Council) to develop list of research projects or molecular approaches/ techniques for applied research.	Research Group Leaders, principal investigators.	Ongoing	AMSRC staff research time, to develop strategy and consultation on priority research. Student volunteers/ internships to conduct short-term research. Postgraduate students, to conduct research projects.	New molecular techniques that to provide solutions for real problems in biodiversity, biosecurity, agriculture, animal welfare and health generated by industry and/or the community. Long-term relationships are maintained between AMSRC and ITPs. MOU between AMSRC and some ITPs(?). Increase in students working with ITPs on research projects. Increased peer-reviewed publications with ITPs.
Encourage AMSRC staff to publish in a peer-reviewed international journal or present their research in a scientific conference.	Research Leaders, principal investigators	Ongoing	Dissemination funding	Increased publications in AMSRC staff good quality journals (e.g. high impact factor). Increased exposure of Te Pukenga and their staff in conference in national and international stage.
Public outreach activities, e.g. such as Bioblitz, courses/workshops for schools.	Research leaders, AMSRC staff	Once a year	AMSRC staff time to plan, coordinate and run the public outreach. Student volunteer time to support the public outreach.	Increased exposure of the community/ public to molecular approaches, and taxonomy. Increased exposure of Unitec and staff to a wider

			Laboratory equipment and consumables, transport costs.	community.
Annual EAS research conference	Research Leader, Conference Committee, HoS	Ongoing	Initial support from Tūāpapa Rangahau, external funding through registrations, catering costs covered	Showcase staff and student research to create interest from community and industry stakeholders

4 Current staff expertise

Below are the data of the current staff members' research outputs over the last seven years and their research interests.

Staff Name	Research outputs (2018-2024)	Research Interests
Alice Henry		Veterinary nursing
Bianca Kuhlmann	1-Presentation (non-conference)	Animal care, husbandry and exotic animal veterinary nursing
Caralyn Kemp	2-Book Chapter, 7-Conference Contribution- Oral Presentation, 7-Conference Contribution- Poster Presentation, 1-Edited Book/Volume, 1-Journal Article, 1-Presentation (non-conference), 2-Report	Animal behaviour and welfare; anthrozoology; zoo management
Chole McMenamin	1-Journal Article	Animal welfare and conservation
Diane Fraser	9-Conference Contribution- Oral Presentation, 19-Conference Contribution- Poster Presentation, 2-Essay - Published (Unitec only), 4-Journal Article, 3-Other, 5-Presentation (non-conference), 2-Report	Biosecurity, animal nutrition, advocacy and public policy
Glenn Aguilar	6-Conference Contribution- Oral Presentation, 7-Conference Contribution- Poster Presentation, 9-Journal Article, 1-Presentation (non-conference), 8-Report	Geographic information systems (GIS), marine fisheries, modelling
Jo Jones		Animal care, welfare and husbandry
Jo Thorne	1-Conference Contribution- Oral Presentation, 1-Presentation (non-conference), 1-Report	Canine behaviour & training, improvement of behaviour and welfare of companion animals
Kate Harder	4-Conference Contribution- Oral Presentation, 2-Journal Article	Bird and marine mammal surveys, mist netting, biological data collection, parasitology
Kim Telford	1-Conference Contribution- Poster Presentation	Veterinary dentistry and home care preventative care
Kristie Cameron	1-Conference Contribution- Oral Presentation, 4-Conference Contribution- Poster Presentation, 14-Journal Article	Animal behaviour and welfare; statistics

Laura Harvey	1-Awarded Masters Thesis, 3-Conference Contribution- Oral Presentation, 12-Conference Contribution- Poster Presentation, 10-Journal Article	Veterinary nursing, psychosocial issues in VN and leadership
Lauren Prior	1-Awarded Masters Thesis, 1-Conference Contribution- Oral Presentation, 6-Conference Contribution- Poster Presentation, 1-Journal Article	Veterinary anaesthesia and analgesia, best practice veterinary nursing, social issues in veterinary clinics
Lilith Fisher	1-Awarded Masters Thesis, 1-Journal Article	Invertebrate taxonomy, biosecurity; Mātauranga
Lorne Roberts	2-Conference Contribution- Poster Presentation, 1-Other, 2-Presentation (non-conference)	Captive animal biology, human-animal interactions, kea conservation
Margie Rutherford		Veterinary nursing
Mark Large	1-Book Chapter, 2-Edited Book/Volume, 4-Journal Article, 2-Other, 1-Presentation (non-conference)	Botany, palynology, plant anatomy and histology; statistics
Marleen Baling	1-Book Authored, 13-Conference Contribution-Oral Presentation, 3-Conference Contribution-Poster Presentation, 8-Journal Article	Wildlife ecology; reptile ecology, conservation translocation; animal colouration; behavioural ecology
Nigel Adams	1-Book Chapter, 4-Conference Contribution-Oral Presentation, 9-Conference Contribution-Poster Presentation, 10-Journal Article, 1-Other, 1-Presentation (non-conference), 5-Report	Ornithology (particularly seabirds), diet, vertebrate anatomy and physiology; statistics
Peter De Lange	5-Book Authored, 6-Book Chapter, 2-Conference Contribution- Oral Presentation, 69-Journal Article, 1-Monograph, 2-Other, 3-Presentation (non-conference), 3-Report	Botany, biosecurity, geology, lichenology, taxonomy
Robyn Gear	1-Book Chapter, 1-Conference Contribution-Oral Presentation, 3-Conference Contribution-Poster Presentation, 2-Journal Article, 1-Presentation (non-conference)	Small animal internal medicine
Sarah Wells	5-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 9-Journal Article	Molecular ecology, behavioural ecology
Sofia Chambers		Molecular biology, AI use and teaching practices
Wesley Webb	1-Awarded Doctoral Thesis, 1-Conference Contribution- Oral Presentation, 3-Journal Article, 2-Presentation (non-conference)	Animal communication, behavioural ecology
Jacques de Satge		
Adrianna Woloschuk		Veterinary nursing
Benjamin Goodwin		Invertebrates, biodiversity and conservation
Campbell James	3-Journal Article	
Emily Burden		
Nathalie Dussart	1-Conference Contribution- Oral Presentation	Osteopathy

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	12	20	32
Total research FTE allocated	2.08	2.43	4.51
Current Research Traffic Light rating (Percentage of green lit staff	75%	90%	84%
PBRF history (Number of PBRF rated staff in 2018)	9	5	14

1.1 Health Care

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.1.1 Describe how School Research is aligned with Te Tiriti o Waitangi?

Our grant applications this year have all reflected the relationships we have developed with Māori. We have developed our proposals *with* our Māori partner to reflect the need for a Te Ao Māori perspective on developing undergraduate curricula to meet the needs of older people. Our RTPL research dissemination budget has prioritised Māori staff. The department is actively recruiting Māori staff for student facing roles and we anticipate that this will bring further opportunity for development.

1.1.2 What the school is planning in the area of research to achieve the goal and key project (leadership roles, recruitment, prioritisation, opportunity and partnership development)

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. Across the department, the proportion of novice researchers is high. It means that researchers are completing post graduate qualifications and are learning by assisting on projects that are led by more senior members of the department. Critical mass has not yet been achieved. However, the department is aspirational in that the appointment of Māori and Pacific research active staff will assist the whole team in developing culturally appropriate research skills.

Overall, academic staff in healthcare continue to develop as researchers. Five staff achieved ratings in the 2018 PBRF round with 3 achieving C grades and 2 achieving R grades. Preparation has begun to identify and support those staff members who are likely to contribute the next round through the submission of draft portfolios and feedback and the development of tailored support. Medical Imaging maintains a Research Productivity Traffic Light with 100% of staff being green lit. Nursing academic staff are also engaging and developing their research capability. In the last year the department has shown significant development in the Research Productivity Traffic Light 93% now being green lit. Within the

healthcare department, six staff have a doctoral qualification and there are three who are nearing completion.

Research on 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, journal article critique and research proposal development. Medical imaging students are required to develop a research proposal in level 7 studies.

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 Joanna Thorogood Medical Imaging APM
- Dr. Dianne Roy (HCBN7101; HCBN 7103) Stroke family study – phenomenology.
- Dr. Samantha Heath (HCBN7101) Ongoing education for nurses –Mixed methods research
- Dr Shadi Safavi (HCBN 7102) Emotional response to the diagnosis of Cancer
- Leslie Kistan (HCBN 6107) Understanding success factors to promote ED Nurse retention in a New Zealand District Health Board
- Vimlesh Shukhla (HCBN 7103) Exploring Perspectives affecting Access to Healthcare Amongst Older Fijian Indian Immigrants in New Zealand

The award of $320,000 Whitinga Fellowship from MBIE/Te Apārangi, continues to provide huge opportunities to further develop the research culture and capability within the department. There are 5 internal staff members who are actively contributing to the two national studies in which all Te Pūkenga subsidiaries are a part. The project sits within the healthcare education research cluster previously identified in the first edition of the research strategy. Clinical continues to be represented through collaboration with a local hospice on developing their understanding of potential service development and has resulted in successful completion for one master's student. The establishment of the Centre for Research in education for Healthcare Professionals has provided opportunities to collaborate with international colleagues for projects grant applications, and with ESRC on sustainability in healthcare with a major aged care provider. Nursing staff are investigating the impact of zoom supervision on students and clinical supervisors to determine if there are any lessons to be taken for current or future practice. Medical Imaging staff are well engaged with the private sector in researching novel treatments for prostate cancer and further, the ongoing development of research to examine the quality of images produced using specialist technology. Other staff are invested in working clinical colleagues on working patterns and wellbeing. Dissemination activity internal to the department has been exemplary with contributions to both, Unitec and externally mediated opportunities with other ITPs.

1.2 Social Practice

The Unitec Research Strategy 2020 – 2024 states: Priority 1 is that Research that is aligned with Te Tiriti o Waitangi and Goal One is: Unitec has strong Māori research leadership, capability, excellence, partnerships, processes and governance.

1.2.1 Describe how School Research is aligned with Te Tiriti o Waitangi

A significant number of staff research projects in Social Practice reflect Treaty principles, and several aspects of our Research Group foci align explicitly with this priority. See the appendix for research projects engaging Māori individuals and groups.

It is a key priority for Social Practice, in both its teaching and research activities, to be aligned with Te Tiriti principles and practices. A large percentage of our student body is Māori and/or Pacific, and Social Practice has been engaged for many years (even prior to Unitec's broader 'I See Me' initiatives) in embedding Mātauranga Māori throughout our curricula. As detailed below, large number of Master of Applied Practice -- Social Practice theses and dissertations are Kaupapa Māori and/or Treaty -based, and in 2023 the Applied Practice (AP) (postgraduate) Suite refreshed its graduate profiles and learning outcomes explicitly to include Te Tiriti principles.

1.2.2 What the school is planning in the area of research to achieve the goal and key project (leadership roles, recruitment, prioritisation, opportunity and partnership development)

In terms of alignment with Te Tiriti o Waitangi, our developing Research Group 'Indigenous Studies' in particular (but not exclusively) will grow and enhance associated research activity. Partnering with Māori (and/or Pacific) individuals and groups and with Nga Wai a te Tūī will be sought as appropriate. We also anticipate increased levels of publishing alongside students on topics supporting this priority.

More generally, Social Practice staff members' research activity sits alongside, informs and enhances three Social Practice degrees: The Bachelor of Social Practice (BSP), which has been taught since 2014; the Master of Applied Practice (Social Practice), which has been taught within Social Practice since 2019 (it was previously housed in Te Miro); and the Postgraduate Certificate in Applied Practice (Social Practice), which has been offered since 2022.

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 tenured teaching staff members hold a minimum of a Master's qualification, and two staff members hold PhDs (and two are currently pursuing PhDs). Nine staff achieved ratings in the 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, although in 2024 it is amber-lit due to a combination of staff attrition and the hiring of new staff who have come straight from practice and need a bit of time to establish a research dissemination track record. It is anticipated that the BSP will be green-lit again in 2025.For the past eight years 100% of staff teaching at Master's level have been green-lit. In addition, in recent years several Early Career Researchers (ECRs) in Social Practice have received internal Unitec funding to support their projects.

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 (see appendix).

Research is embedded within teaching and learning approaches and the curriculum, particularly at postgraduate level. 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 Social Practice staff engagement with external Māori stakeholders, Māori organisations, and Iwi. Staff are also strongly engaged with external Pasifika stakeholders.

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

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

- The effectiveness of Te Whāriki Manawāhine o Hauraki Māori Women's Refuge in Hauraki (*Note: this student, Denise Messiter – who established this service and is currently its General Manager – received Queen's Birthday Honours for this work and related services in 2022: New Zealand Order of Merit).*

- Kohikohia ngā taikākā o tea o pāpāho Māori: How to sustain kaupapa Māori in Māori language media.

- 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).

- 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*).

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

- Exploring the views and possible impacts of assisted dying on elderly members of a Catholic church community in Papakura, and on their Catholic faith.

- The effectiveness of the Incredible Years parenting programme for Tongan parents.

-

- The unspoken voices of Tongan youth offenders (*Note: supported by funding from LeVa*).

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 (see the appendix for details).

Beyond supervisory relationships in the MAP-SP, Social Practice staff have developed staff/student research collaborations, some involving co-authorship. Co-authored projects completed to date are listed in the appendix. One notable collaboration led to Social Practice's first Bold Innovator's

Scholarship award in 2022 ($15,000), granted annually at Unitec to a recent Master's or Doctoral graduate to develop innovative and enterprising projects based on their research. Kristi Shaw's *Extraordinary Parents Project*, developed with the support of her Principal Supervisor (Social Practice staff member Geoff Bridgman), is designed to help parents with a child challenged by anxiety to help themselves, their children, and each other collaboratively.

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 in the appendix.

2 School of Healthcare & Social Practice Goals and KPIs

There are six KPIs for research:

1. 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.
2. 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.
3. 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.
4. 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.
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). This is measured as a count of the number of research outputs.
6. Rangahau Māori Productivity - productivity in this context would be aggregated as - QA outputs by Māori staff, funded projects with named Māori staff, Māori supervisors, Level 9 and 10 Māori postgraduate scholarships, QA outputs that demonstrate excellence in Vision Mātauranga, accredited Vision Mātauranga and Kaupapa Māori rangahau professional development achievements and rangahau Māori research stories in the media.

The School of Healthcare & Social Practice has the current goals.

- → Quality Assured Research Outputs: Maintaining the quality assured research outputs to at least 1.5 outputs per research active FTE[1].
- → Research Productivity: Work towards maintaining green traffic light status with 75% or more staff who meet the agreed levels of research in the research traffic light.
- → External Research Income: The school will strive to lead or partner in the development of external funding applications and to lead or partner in successful externally funded projects.
- → Industry Funded Projects: Maintain industry-funded projects at 1-3 projects per year
- → Student Integrated Research: The school will strive to develop research Student Integrated Research projects in line with the definition of this KPI.

[1] Research active FTE – staff FTE involved in teaching and/or supervising degree programmes.

→ **Rangahau Māori Productivity:** The school will strive to increase Māori Rangahau Productivity in line with the definition of this KPI.

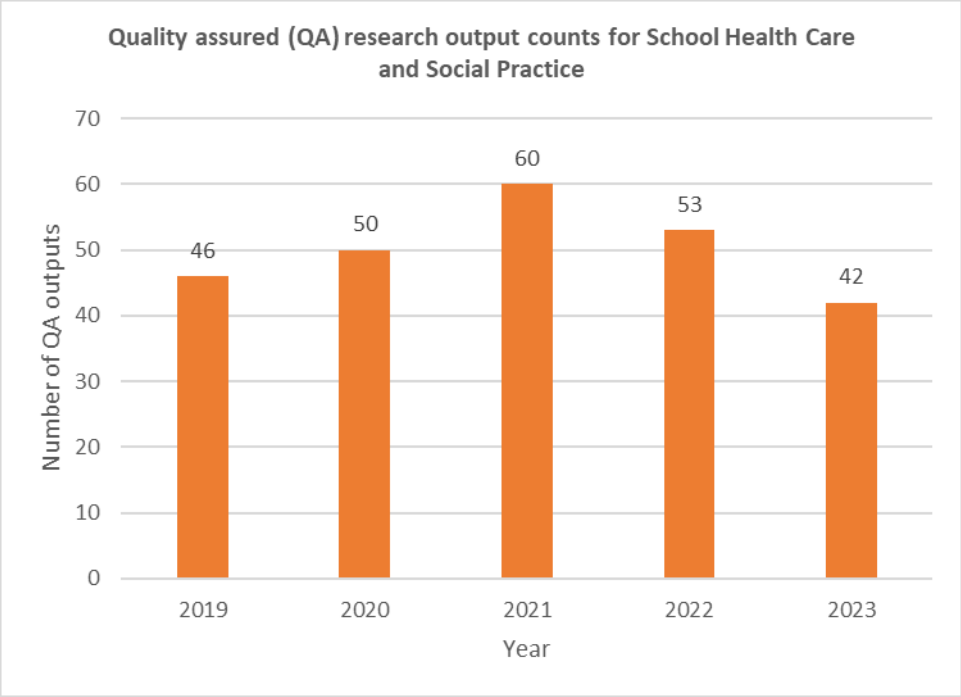


Figure 1: School of Healthcare & Social Practice Quality Assured Research Outputs

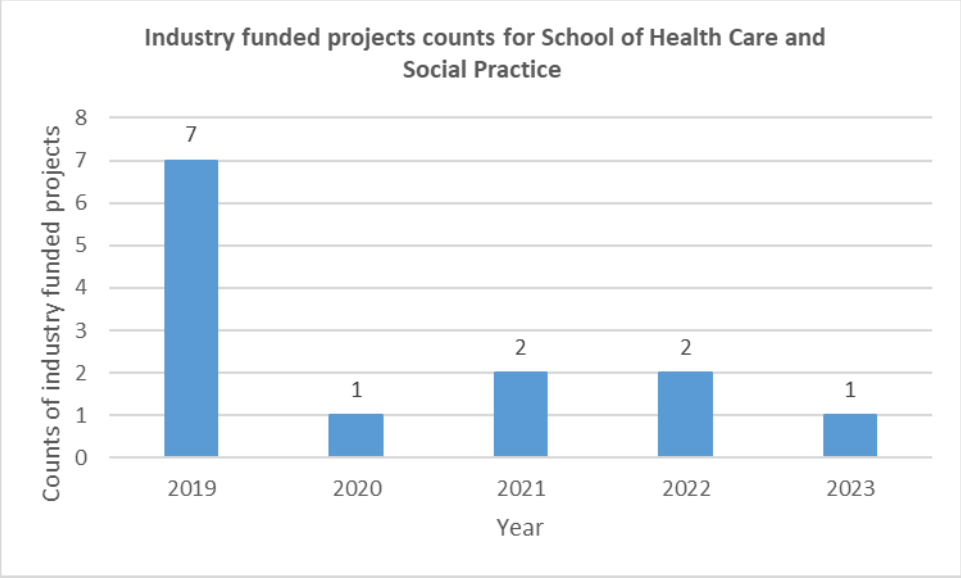


Figure 2: School of Computing & Information Technology Industry Funded Projects

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.

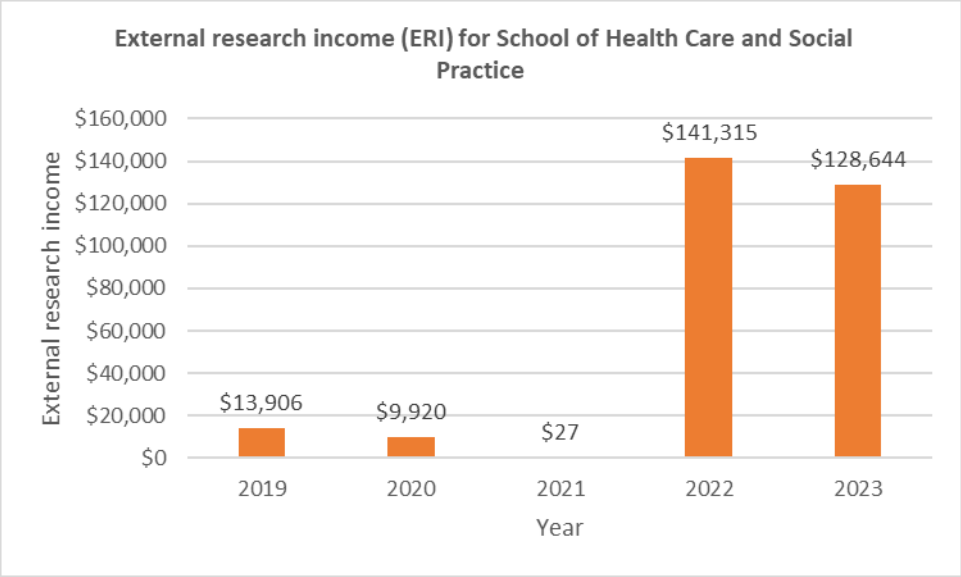


Figure 3: School of Healthcare & Social Practice External Research Income

2.1 What the school is planning for increasing research diversity – Social Practice

Beyond already-existing opportunities to increase research diversity, in 2023 Social Practice does not have additional plans to implement. Our research diversity is strong. It is noted however that maintaining sustainable supervisory and research culture support for Pacific MAP-SP students (our fastest-growing domestic cohort) is an ongoing challenge. The programme currently contracts much of its Pacific supervisory support externally.

2.2 What the school is planning for increasing research diversity – Healthcare and Medical Imaging

Staff within Nursing and Medical Imaging have embraced the challenge of research diversity. Mature researchers and new emerging researchers work together to develop a deep understanding of research within the department. In addition to the collaborative nature of research there is considerable research culture which supports our students. Our current PhD student staff are almost at completion and for nursing, this will provide strength from a qualified researcher from a Pacific perspective. Staff within the department are also developing relationships and connections with stakeholders in the healthcare community e.g. aged care providers. This will enhance awareness of the Unitec nursing and medical imaging department research capabilities and will support the position of the department in the year to come.

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

3.2 Social Practice

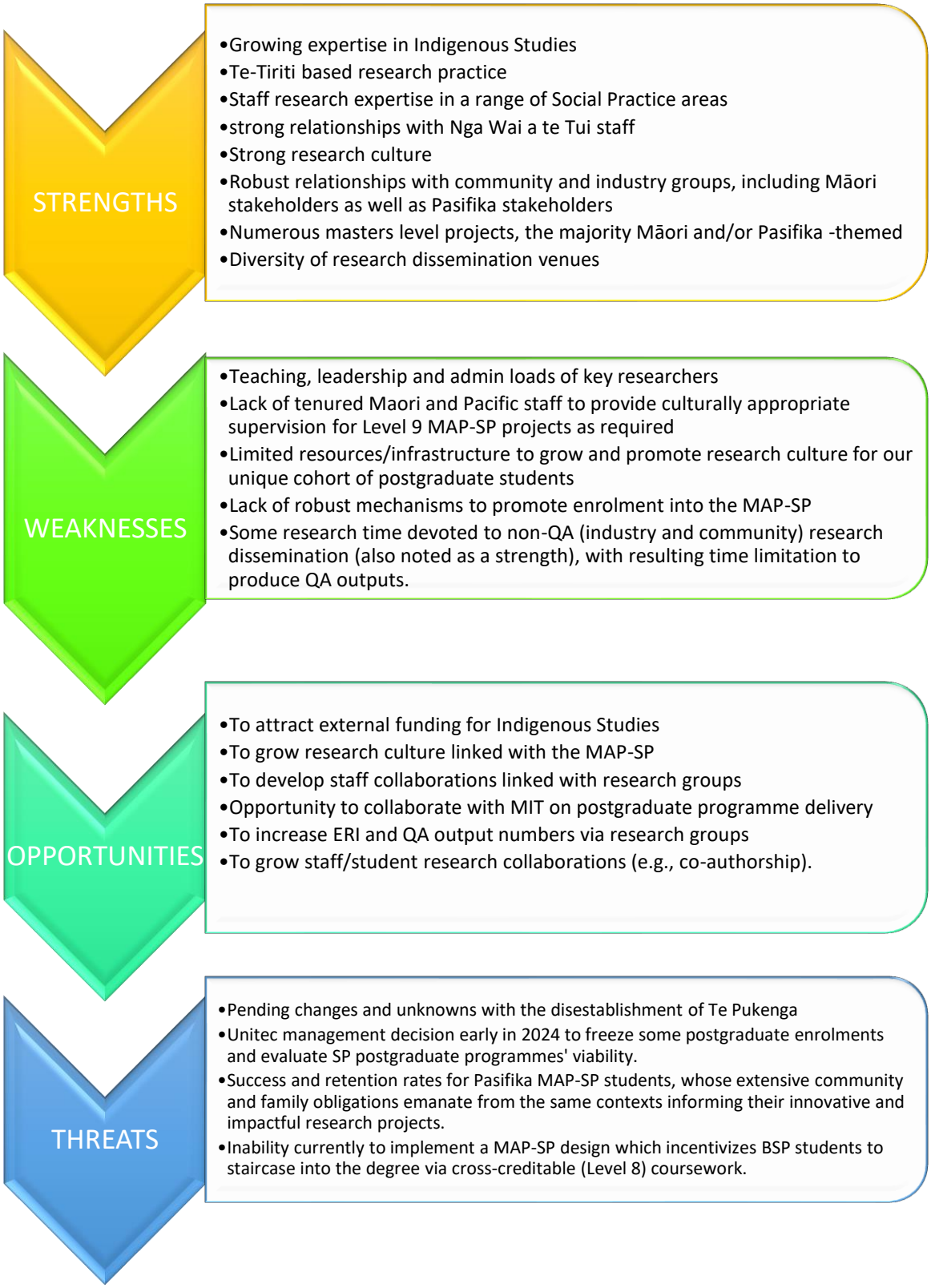


Figure 4: SWOT analysis for Social Practice in School of Healthcare & Social Practice

4 Research Groups and projects (consider the Te Tiriti Priority One goal in the Research Strategy)

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').

In future, Healthcare could potentially work towards the development of a centre for healthcare professional education. This centre would see projects like drawing for anatomy, literacy and workforce education research all come together under one heading Healthcare Education and Workforce Development.

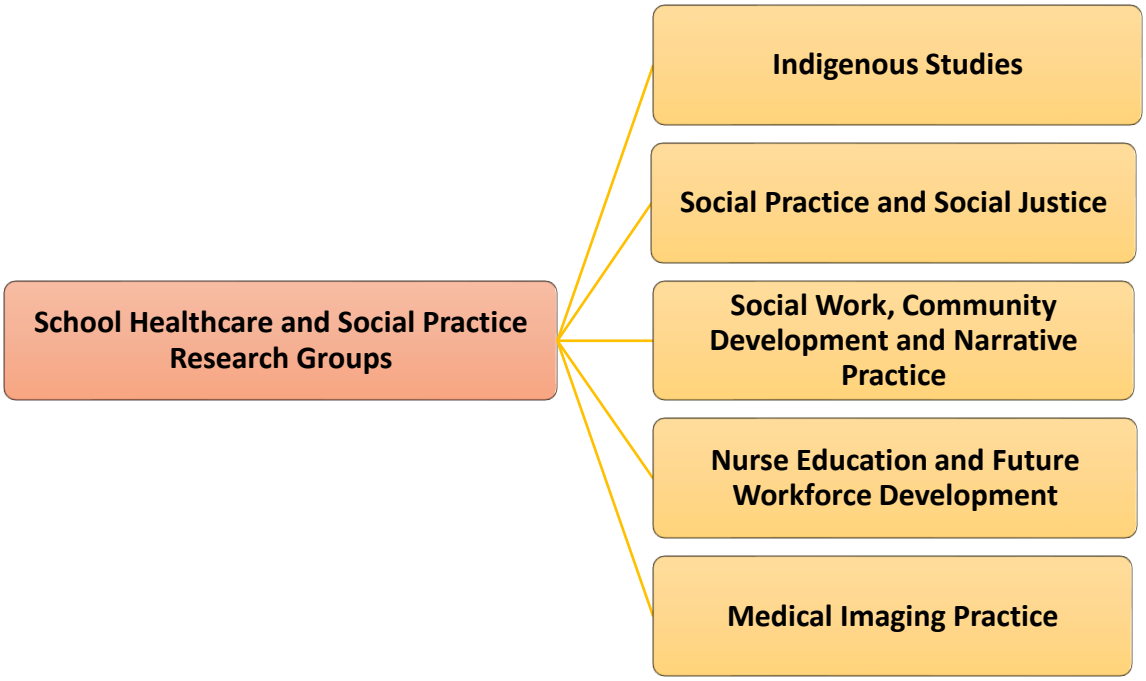


Figure 5: School of Healthcare & Social Practice research groups

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 5 years.

Figure 6: School of Healthcare & Social Practice external research partners who funded projects from 2016-2023

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 2022-2023, establishing specific goals and targets over time. This group builds upon existing staff expertise and articulates with fast-growing foci within the MAP-Social Practice. See the appendix 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 Tūī 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

2024-2025 Goals:

Goal 1: Increase staff/staff and staff/student collaborations				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Partner less experienced team members with more senior researchers	Research Leader with staff support	Semester 1 2025	Dissemination funding	Co-authored research output for at least one partnership
Support at least two staff members to attend writing retreat	Research Leader	Semester 2 2024	Tūāpapa Rangahau support	Attending staff member/s submit journal article/s for publication
Create or support attendance in fora for MAP-SP students to network	MAP-SP Discipline Leader, core MAP-SP teaching team, APM	Semester 1 2024	Variable/TBC	At least one hui where research ideas are shared and/or developed
Support staff members to co-author with students	MAP-SP Discipline Leader, core MAP-SP teaching team	Semester 2 2025	Potentially Tūāpapa Rangahau support (Marie Shannon)	At least one co-authored article published

Goal 2: Earn External Research Income				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**

Identify applicable research projects, associated partners and external funding opportunities	Research Partners	Semester 2 2025	Research Partner and/or Senior Research Advisor support (Tūāpapa Rangahau)	Funding for at least one project starts in 2024
Investigate contract research opportunities	Tūāpapa Rangahau	Semester 2 2025	Tūāpapa Rangahau staff (time)	At least one new contract active by 2024

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.

2024-2025 Goals:

Goal 1: Increase staff/staff and staff/student collaborations				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Partner less experienced team members with more senior researchers	Research Leader with staff support	Semester 1 2025	Dissemination funding	Co-authored research output for at least one partnership
Support at least two staff members to attend writing retreat	Research Leader	Semester 2 2024	Tūāpapa Rangahau support	Attending staff member/s submit journal article/s for publication
Create or support attendance in fora for MAP-SP students to network	MAP-SP Discipline Leader, core MAP-SP teaching team, APM	Semester 1 2024	Variable/TBC	At least one hui where research ideas are shared and/or developed
Support staff members to co-author with students	MAP-SP Discipline Leader, core MAP-SP teaching team	Semester 2 2025	Potentially Tūāpapa Rangahau support (Marie Shannon)	At least one co-authored article published

Goal 2: Earn External Research Income				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Identify applicable research projects, associated partners and external funding opportunities	Research Partners	Semester 2 2025	Research Partner and/or Senior Research Advisor support (Tūāpapa Rangahau)	Funding for at least one project starts in 2024

Investigate contract research opportunities	Tūāpapa Rangahau	Semester 2 2025	Tūāpapa Rangahau staff (time)	At least one new contract active by 2024

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

2024-2025 Goals:

Goal 1: Increase staff/staff and staff/student collaborations				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Partner less experienced team members with more senior researchers	Research Leader with staff support	Semester 1 2025	Dissemination funding	Co-authored research output for at least one partnership
Support at least two staff members to attend writing retreat	Research Leader	Semester 2 2024	Tūāpapa Rangahau support	Attending staff member/s submit journal article/s for publication
Create or support attendance in fora for MAP-SP students to network	MAP-SP Discipline Leader, core MAP-SP teaching team, APM	Semester 1 2024	Variable/TBC	At least one hui where research ideas are shared and/or developed
Support staff members to co-author with students	MAP-SP Discipline Leader, core MAP-SP teaching team	Semester 2 2025	Potentially Tūāpapa Rangahau support (Marie Shannon)	At least one co-authored article published

Goal 2: Earn External Research Income				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Identify applicable research projects, associated partners and external funding opportunities	Research Partners	Semester 2 2025	Research Partner and/or Senior Research Advisor support (Tūāpapa Rangahau)	Funding for at least one project starts in 2024
Investigate contract research opportunities	Tūāpapa Rangahau	Semester 1 2025	Tūāpapa Rangahau staff (time)	At least one new contract active by 2024

4.4 Research Group Four – Nurse Education and Future Workforce Development

Research in 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. This group is made up of novice and emerging researchers who are mentored by an experienced researcher. External funding has provided the opportunity to collaborate nationally on the development of Future Nursing workforce with respect to aged care. Funding is also internal and will see outputs that are conference papers with opportunity to develop journal articles. The key areas of output will be:

- Best practice in nurse education (aged care)
- 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

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Continue to partner with Māori on grant applications	Research Lead	On going	Support from senior grants advisor	Achievement of another successful grant submission

Goal 2: Develop research opportunity in [Name of Research Group] Research Group *This could be to develop a project, a funding application or a studentship programme.*				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Submit grant applications to further the study	Research Lead	Ongoing	Support from senior grant s advisor	Achievement of another successful grant submission

Goal 3: Grow industry and community connectedness *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Continue to work with external industry partner and to further connections nationally and internationally	Research Lead	Ongoing	Research Partners	Further collaboration

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.

2024-2025 Goals

Goal 1: Demonstrate Vison Mātauranga (Medical Imaging Practice)				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Development of relationships with internal/external communities of practice	Medical imaging staff	Ongoing	Introductions; Kaumatua support; employment Māori medical imaging staff	Development of key relationships for the development of Vision Matauranga in teaching human biology

Goal 2: Grow industry and community connectedness (Medical Imaging Practice) *This is at the heart of research in the ITP sector and the Unitec Research Strategy. How will thisgroup develop and achieve this.*				
Action	**Responsible**	**Deadline**	**Resources needed**	**Desired result**
Development of Professional connectedness among Unitec medical imaging teaching staff	ALL	Ongoing	Time	Researchers remain connected with clinical areas

5 Appendix

5.1 Appendix – Staff Interests

Staff Name	Research outputs (2018-2024)	Research Interests
Amanda Collins	2-Presentation (non-conference)	Communication between nurse and patient in acute care
Bernie Kushner		Developing a research relationship between Unitec (BN) and Oceania Healthcare (OHC) & Ryman Health care providers
Dianne Roy	1-Book Chapter, 3-Conference Contribution- Oral Presentation, 1-	Phenomenology and lived experience of chronic and long-term illness

	Conference Contribution- Poster Presentation, 1-Discussion/Working Paper (Published), 2-Journal Article, 1-Presentation (non-conference), 1-Report	
Fiona Sayer	2-Conference Contribution- Oral Presentation, 1-Educational Material, 1-Presentation (non-conference)	The psychosocial intervention for blood cancer survivors & health professionals & support workers
Gilian Graham	2-Conference Contribution- Abstract, 1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 4-Presentation (non-conference)	Nurse education; infection control; therapeutic communication
Irene Doyle	1-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Journal Article, 2-Presentation (non-conference)	Managing rheumatic fever and early detection for protecting communities.
Jillian Phillips	1-Conference Contribution- Abstract, 10-Conference Contribution- Oral Presentation, 4-Conference Contribution- Poster Presentation, 2-Presentation (non-conference)	Nurse education; literacy among student nurses
Joanna Thorogood	1-Awarded Doctoral Thesis, 1-Conference Contribution- Abstract, 5-Conference Contribution- Oral Presentation, 5-Conference Contribution- Poster Presentation, 1-Journal Article, 2-Presentation (non-conference)	PhD student
Joseph Aziz	5-Conference Contribution- Oral Presentation, 4-Conference Contribution- Poster Presentation, 1-Journal Article, 2-Other, 1-Presentation (non-conference), 1-Report	Anatomy
Lee Yang	1-Conference Contribution- Oral Presentation, 3-Presentation (non-conference)	Clinical radiology
Leslie Kistan	1-Conference Contribution- Oral Presentation, 7-Presentation (non-conference)	PhD student
Lian Wu		Traditional Maori house building and its impact on respiratory disease.
Madhusudan Vyas	1-Book Authored, 2-Conference Contribution- Abstract, 12-Conference Contribution- Oral Presentation, 13-Conference Contribution- Paper in published Proceedings, 8-Conference	PhD student

	Contribution- Poster Presentation, 2-Edited Book/Volume, 1-Educational Material, 4-Journal Article, 1-Presentation (non-conference)	
Mary Yan	3-Conference Contribution- Abstract, 7-Conference Contribution- Oral Presentation, 2-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 4-Journal Article, 1-Presentation (non-conference)	The field of public health, health promotion, and health intervention to improve public health and quality of life. Food (re)formulation in partnership with industry and external partners is a way to improve the quality of food products.
Michele Rogalin-Henderson	1-Presentation (non-conference), 1-Report	Aged care in the curriculum
Robina Mall	10-Conference Contribution- Oral Presentation, 4-Conference Contribution- Poster Presentation, 1-Presentation (non-conference), 1-Report	Aged care in the curriculum
Shadi Sadat Safavi	1-Conference Contribution- Oral Presentation, 2-Journal Article, 3-Presentation (non-conference)	GP Practice nurses in a pandemic: how the lock-down impacts on primary healthcare services
Sharon Sitters	3-Conference Contribution- Oral Presentation, 1-Conference Contribution- Poster Presentation, 1-Journal Article, 1-Other, 1-Presentation (non-conference)	Modern day slavery
Shobha Johnson	1-Conference Contribution- Abstract, 11-Conference Contribution- Oral Presentation, 4-Conference Contribution- Poster Presentation, 1-Presentation (non-conference), 1-Report	Nurse education; paediatric nursing
Vimlesh Shukla	1-Performance, 5-Presentation (non-conference)	PhD student
Craig Tunnicliffe	6-Conference Contribution- Oral Presentation	Education for social change. Social work education including field education pedagogy, supportive learning strategies, diversity and inclusion, gender and sexuality, technology and society, sociology and critical theory
Flora Apulu	3-Conference Contribution- Oral Presentation, 1-Report	Youth Development: authentic youth participation and governance; youth offending: prevention, risk assessment and interventions; co-design strategies and programme development. Pacific Peoples: Samoan women's wellbeing and development, health

		and wellbeing advancement, intercountry adoptions, youth development, business and prosperity, co-design strategy and programme development
Genevieve Sang-Yum	1-Journal Article	Family Violence prevention: Samoan indigenous framework; cultural intervention; Indigenous religion, religious beliefs; safety. Community development: pacific island families; pacific island intervention strategies; health and wellbeing. Gender and social justice: Indigenous theories/frameworks; Intersectionality; indigenous gender roles; pacific island gender roles; Samoan gender roles.
Geoff Bridgman	5-Conference Contribution- Oral Presentation, 3-Film/video1-Monograph, 2-Other, 1-Presentation (non-conference), 8-Report	Violence prevention; community safety and resilience; Māori mental health; Deaf mental health; white fragility; mixed-methods research
Helen Gremillion	10-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 1-Conference Contribution- Poster Presentation, 4-Journal Article	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
Helena Murphy	1-Conference Contribution- Oral Presentation	Exploring He Whakapunga as a foundation document of Māori lore, especially in terms of its relevance in the field of education and social work practice.
Jason Hallie	9-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings	The effectiveness of alcohol (and other substance) education in the workplace
Nigel Pizzini	6-Conference Contribution- Oral Presentation, 1-Conference Contribution- Paper in published Proceedings, 3-Journal Article, 1-Other	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
Peter Matthewson	2-Book Chapter, 2-Book Review (Unitec only), 6-Conference	Action research to develop anti-poverty practice framework for social

	Contribution- Oral Presentation, 1-Journal Article	work in Aotearoa; impact of student placement in radical organisation
Rasheed Ali	1-Awarded Doctoral Thesis, 4-Conference Contribution- Oral Presentation, 1-Journal Article	Mental health, addiction, and the success of minority students in tertiary education, with special emphasis on neurodiverse students.
Zhi Chen		Asian/Chinese immigrants' acculturation and cultural identity in Aotearoa

5.2 Externally funded research projects within Social Practice (2020-present):

- A project examining barriers and facilitative factors regarding male high school students engaging with school counsellors (Nigel Pizzini, 2023). $1.5K Contributed by the New Zealand Association of Counsellors.
- 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). National rollout planned. 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 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. Extensive media coverage achieved (including on New Zealand's One News programme in 2021). The Te Atatu Electoral Office has contributed $9,370; Unitec has contributed $5,000. (2020-2021). As at July 2022 findings have been under view in Parliament's Education Workforce Committee.
- 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).
- Evaluation of Henderson's Budgeting Services (HBSI) Financial Literacy Programme for youth and validation of a financial self-efficacy scale (Hoa Nguyen). Unitec has contributed $5,000 (in addition to $13,000 from its Early Career Researcher Fund); HBSI has contributed $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 contributed $5,000, and the partner organization Community Waitakere contributed $1,000 plus $4,000 in-kind.

5.3 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 (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.
- Four Master's 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; De-gendering the French language through narrative conversations).
- 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.

5.4 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).
- Former staff members Paula Bold-Wilson Eliza Wallace submitted Kaupapa Māori Master's theses informed by Māori communities. Both received first-class honours for their work, which was supported by Unitec Postgraduate Research Scholarships. 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.

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

- Shaw, K.L., & Bridgman, G.D. (2022). Creating appreciation and community support for mothers caring for a child with an anxiety disorder. E-press, Unitec. Te Pūkenga. DOI: https://doi.org/10.34074/mono.097.
- 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
- Pizzini, N. & McCormick, M. (2020) Stopping the Bus while touring through client landscapes. *International Social Work, 1-6*. Doi:10.1177/0020872820940031
- 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.
- Rangiwai, B., Aliioaiga, E., Cook, M., Latu, F., & Tukutau, M. (2022). The effects of the 2021 Delta lockdown in Aotearoa New Zealand: A thematic analysis of some preliminary material to inform a future research question. *Te Kaharoa: The eJournal on Indigenous Pacific Issues, 15*(1), 1-29.
- Rangiwai, B., Enari, D., Masae, C., Paea, D., Tahilanu-Mapili, L., & Vailahi, V. (2021). Lost in translation: Reflexive thematic analysis in research with Pacific peoples. *Te Kaharoa: The eJournal on Indigenous Pacific Issues*, *17*(1). https://doi.org/10.24135/tekaharoa.v17i1.354

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?