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To: [Research, Science and Innovation Strategy Secretariat](#)
Subject: Late submission on draft RSI strategy
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Organisation

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Te Herenga Waka – Victoria University of Wellington

Submission to the Ministry of Business, Innovation and Employment consultation on the draft Research, Science and Innovation Strategy

Electronic submission to Research, Science and Innovation Strategy Secretariat at RSI-Strategy@mbie.govt.

For questions or clarification, please contact Professor Margaret Hyland, Vice-Provost (Research) of Te Herenga Waka - Victoria University of Wellington, Margaret.Hyland@vuw.ac.nz.

Background

Te Herenga Waka - Victoria University of Wellington (VUW) thanks the Ministry of Business, Innovation and Employment (MBIE) for the opportunity to provide feedback on the draft of *New Zealand's Research, Science and Innovation Strategy* (RSIS). We commend MBIE for setting an ambitious vision, namely that 'by 2027, New Zealand will be a global innovation hub [and] a world-class generator of new ideas for a productive, sustainable, and inclusive future'¹. We also understand MBIE's desire to demonstrate the value of research to society; many in the research community also wish to see their work having social, cultural, environmental and economic impacts beyond the 'contribution to knowledge and skills in research organisations'². Any impact 'measures' that MBIE may decide to employ, however, should acknowledge that the agency of researchers and research organisations including universities largely is limited to the first steps on the path to impact, including engagement with end-users and knowledge mobilisation, and that we cannot be held responsible for ensuring the uptake or adoption of research outcomes by the public sector, business/industry or society more broadly.

VUW also commends MBIE for recognising that 'government spending needs to support and complement' growth in business research and development spending by 'moving from our current level of support of around \$1.6bn to just under \$3bn in 2027'³ and we welcome the draft document's focus on the principles of excellence and connections as well as many of the more detailed aspects of the draft *RSIS*. Here we note that VUW fully endorses the suite of affirmations and recommendations included in the Universities New Zealand (UNZ) submission as well as that document's further suggestions for improvement. Throughout the remainder of VUW's submission, we will highlight and reinforce UNZ's assertions that we believe are most crucial for the success of the government's *RSIS* and will expand on certain points in more detail.

How this Strategy Supports the Government's Priorities

VUW agrees strongly with UNZ's point that 'Science and technology' receive too much emphasis in the draft *RSIS* and that all 5 actions in the draft strategy, except for Action 4 ('Towards an extended VM'), are very business focused.⁴ The revised version of the *RSIS* should give greater recognition to the fact that supporting all of the government's priorities (outlined on page 5 of the draft) requires explicit considerations and enhanced funding for research and innovation in the humanities, social science and the arts.

¹ MBIE, *New Zealand's Research, Science and Innovation Strategy: Draft for Consultation* (September 2019), p. 6.

² MBIE, *The Impact of Research: Position paper* (October 2019), p. 1.

³ *RSIS*, p. 16.

⁴ Universities New Zealand, 'Research, Science and Innovation Strategy: Submission to the Ministry of Business, Innovation and Employment', p. 11. Hereafter cited as 'UNZ submission'.

VUW also recommends that the draft strategy's language be reviewed and greater emphasis given to social and cultural innovation and the research on which it is based; we note with concern that cultural innovation does not appear in the document at all despite the fact that one of the nation's key distinguishing features is its cultural distinctiveness. The 'benefits' derived from research and innovation also need to be considered more explicitly rather than the current document's focus on 'value' and the economic outcomes of the RS&I system. VUW notes that many of Aotearoa's, and indeed the world's, most pressing challenges, including the 'transition to a clean, green, carbon neutral New Zealand' prioritised in the draft *RSIS* can only be addressed successfully if social and cultural innovation underpinned by research in the arts, humanities and social sciences occurs first or in conjunction with science-based research and innovation.

Put another way, as UNZ note, the revised *RSIS* should take into account that science research increasingly relies on transdisciplinary platforms, themselves based on other diverse disciplines (including the arts and social sciences) and that the document is very 'science tech' focused where real-world problems demand multi-disciplinary and inter-disciplinary solutions.⁵

Finally, humanities, social science and arts research and innovation must be taken into account as part of the draft *RSIS*'s focus on 'Innovating in the Public Sector'⁶. In furtherance of this aim, VUW recommends that MBIE builds its internal capacity to connect with the RS&I sector and public sector agencies in the areas of social and cultural research and innovation and strongly supports the UNZ suggestions under the section headed 'Universities welcome the introduction of the success indicator around research uptake by public sector'⁷. New Zealand's universities, including VUW, are ready and willing to assist in these endeavours.

Diversity and 'Towards an Extended Vision Mātauranga'

VUW endorses the inclusion and strengthening of Vision Mātauranga as well as the focus more generally on diversity in the RS&I system. With UNZ, we recommend

- that the section on Vision Mātauranga acknowledges that, while there is still significant room for improvement, NZ is viewed as a world leader for Indigenous research, based strongly on research informed by mātauranga Māori.
- The final version of the strategy should include a much clearer commitment from MBIE as to how they will genuinely and authentically engage with researchers to co-design the ways in which Vision Mātauranga can be integrated into the policies and the way in which policies are implemented. In fact, the revised version should acknowledge that we should go beyond Vision Mātauranga and recognise how Māori ways of knowing and doing can benefit all of New Zealand.

In addition, VUW also recommends

- that the language of the draft *RSIS* related to an extension of Vision Mātauranga on pages 26-27 and 36-37, be reviewed and reworked utilising the principles of co-design which necessitate collaboration *on setting the questions to be addressed and the direction adopted by the strategy itself* rather than MBIE engaging in collaboration having already determined 'a starting place for these conversations'⁸.
 - Key among the areas requiring a co-design approach are clarifications around the draft *RSIS*'s references to the framework of the 'Treaty of Waitangi' noting that navigating

⁵ UNZ submission, p. 11.

⁶ *RSIS*, p. 19.

⁷ UNZ submission, pp. 6-7.

⁸ *RSIS*, p. 36. See for example Penny Hagen, 'Co-design in Aotearoa', (December 2016) at <https://www.smallfire.co.nz/2016/12/02/co-design-in-aotearoa/>;

between the Treaty and Te Tiriti o Waitangi is an important aspect of co-design, consultation and collaboration.

- that this work and the need for on-going co-design and collaboration of initiatives and policies with Māori researchers, entrepreneurs, entities and businesses requires a significant investment in capacity building within MBIE.

In terms of diversity more generally, VUW recommends that the draft RSIS be revised to include more specific actions targeted at reducing gender disparities in the RS&I system and in particular the need for targeted funding to address these issues.

Impact

VUW strongly endorses UNZ's point that 'the development and refinement of appropriate impact measures and responses will need to be carefully considered'⁹. While universities including VUW endorse the inclusion of 'impact' in the draft strategy, we want to stress to MBIE several important points made in the UNZ submission¹⁰:

- Measuring impact is fraught with challenges and expensive. There is no consistently used, valid and reliable way of measuring impact that is not fraught with unintended consequences—such as a highly selective representation of research being considered for assessment, high costs associated with preparing case studies¹¹ and potential gender-representation distortions.¹²
- There is extensive literature on the challenges of trying to measure impact—particularly for basic research where any impact may not be seen for decades and where predicting likely or potential impact earlier is effectively impossible.
- Given the criticisms^{13,14,15,16,17} of the UK's Research Excellence Framework (REF), which focuses heavily on impact measures, introducing impact measures into the New Zealand funding system should be considered very carefully. If introduced, this should be done in a slow and considered way to avoid unintended consequences and to effectively incorporate the impact framework of the Vision Mātauranga policy.
- Much university research is aimed at developing scholarship and/or the research history that allows more junior researchers to develop the reputation necessary to successfully pursue research relationships and research funding later in their careers. If most or all government funding is focused on achieving impact, this could lead to unintended adverse consequences in building research capability.
- The potential for impact is already a focus of several government research funds. Excluding the proportion of university research funding that comes from PBRF and SAC, 74% of university research funding is from the Crown through funds awarded based on an assessment of both quality and likely impact. We argue that there is already enough incentive for impact through other Crown funds. The PBRF also supports impact assessment in several ways and both UNZ and VUW have recommended

⁹ UNZ submission, p. 7.

¹⁰ What follows is drawn from the UNZ submission, pp. 7-9.

¹¹ Bornmann, L. (2017), Measuring impact in research evaluations: a thorough discussion of methods for, effects of and problems with impact measurements, *High Educ*, 73 (5), 775–787, <https://doi.org/10.1007/s10734-016-9995-x>

¹² <https://wonkhe.com/blogs/why-arent-women-leading-research-impact-cases/>

¹³ <https://www.theguardian.com/education/2009/oct/13/research-funding-economic-impact-humanities>

¹⁴ <https://www.independent.co.uk/news/education/higher/andrew-oswald-ref-should-stay-out-of-the-game-1827306.html>

¹⁵ <https://www.theguardian.com/higher-education-network/2014/dec/15/research-excellence-framework-five-reasons-not-fit-for-purpose>

¹⁶ <https://ianpace.wordpress.com/2018/04/03/the-rae-and-ref-resources-and-critiques/>

¹⁷ <http://cdbu.org.uk/reflections-on-the-ref-and-the-need-for-change/>

to the Ministry of Education that no further increase in weighting should be given to impact in the PBRF.¹⁸

- MBIE should also ensure the revised *RSIS* aligns with MBIE's recently released position paper on impact¹⁹ such as in the way in which it acknowledges the results-chain framework across the sector. In both the position paper and the draft *RSIS*, the assignment of responsibility to pursue and demonstrate impact should be at the portfolio level of institutions and not at the level of all individual researchers. This is because
 - Research impact takes time and therefore the measure of success of individual researchers' careers should not rely heavily on their research having impact.
 - True impact is most appropriately articulated through an extensive portfolio of research/programme run by an institution or a research fund rather than an individual.
 - Impact is more appropriately applied to mission-led research rather than investigator-led fundamental research.

Making New Zealand a Magnet for Talent

Retention of talent as well as attracting and developing a strong research, science and innovation workforce is crucial if we are to deliver on the aims of the *RSIS*. VUW notes and strongly supports UNZ's recommendations in the section headed 'If we want to make NZ an attractive place for researchers, more funding needs to be injected into the RS&I system'²⁰. We are also keen to see MBIE implement the proposed fully funded research career pathway positions for new and emerging researchers.²¹

Develop a global best-practice research commercialisation scheme

While VUW commends MBIE for setting ambitious goals in the area of research commercialisation, we do not believe the draft *RSIS* provides enough information on the country's existing strengths in this area nor do we agree with the document's assertion that the nation will necessarily gain the greatest value from 'innovations based on unique deep technology'²². Research commercialisation frameworks should recognise and support the growth of non-tech based start-ups as well as those, whose value we recognise may be significant, that are based on technological innovation.

We are aware of the recommendations and suggestions made by KiwiNet in their submission to MBIE, and we endorse the recommendations and suggestions made in that document in relation to research commercialisation. The data presented by KiwiNet and our experience suggests that the current commercialisation scheme is already an example of global best practise and should be leveraged. VUW therefore urges MBIE to gain a greater understanding of New Zealand's existing best practise model and represent it more fully in a revised *RSIS* before making policy changes.

When compared to overseas experience, New Zealand's current research commercialisation scheme is world leading in terms of the strength of connections in the system, effectiveness and impacts delivered^{23 24}.

¹⁸ UNZ's 11th Oct 2019 submission to the Ministry of Education in response to the 2019 PBRF Review Terms of Reference. See also VUW's submission to the 2019 PBRF Review Panel, pp. 6-7.

¹⁹ <https://www.mbie.govt.nz/dmsdocument/6983-the-impact-of-research-position-paper-pdf>

²⁰ UNZ submission, pp. 9-11.

²¹ UNZ submission, p. 6.

²² *RSIS*, p. 32.

²³ The Association of University of Technology Managers – AUTM has extensive data comparing performance of institutions and countries.

²⁴ In June 2019, *Les Nouvelles*, the Journal of the Licensing Executives Society, published a special addition on the challenges of knowledge transfer and IP. The articles highlight many of the issues faced by this activity, and although

Increasingly, Viclink (VUW's commercialisation entity) is being called upon to advise overseas governments on commercialisation. Examples from the last three months include India, the State of West Java in Indonesia and the State Government of Western Australia. At an operational level, Viclink evaluates more than 50 disclosures a year and concludes between 5 and 10 technology transfers each year. The vast majority of these are licenses with NZ companies or the formation of a new NZ based company. These operational statistics are world leading when compared to the size of VUW.

We commend the notion of needing 'close and enduring connections between research institutions and the users of their research, and a system of initiatives that supports those efforts effectively'²⁵. Through the Commercialisation Partner Network (CPN) and our own activities, we observe increasing numbers of such connections between the University and the users of our research, and our observation is that these relationships are built on trust and longevity. Many of VUW's and Viclink's activities, therefore, are designed to foster this trust and additional government initiatives to enhance this would be welcomed.

VUW also welcomes the extension of the Technology Incubator Scheme proposed in the draft *RSIS*²⁶. Four of our last 6 start-ups were with incubators, and we see the opportunity for launching additional new start-ups with the new incubators.

The principle of MBIE taking a regulatory approach to intellectual property mentioned in the same section of the draft *RSIS*, however, is something that we believe requires a thorough review with wide consultation prior to making any changes. We note that the current approach taken by MBIE in relation to research contracts is global best practise but that the approach taken in other areas of government often serve to limit commercialisation activity. In particular, research and service contracts from other agencies often limit the transfer of IP. We would also caution against confusing transparent, predictable, common IP arrangements with a mandated approach. Our experience dictates that it is the partner that often requires changes to the way IP assignment or license is handled and a mandated approach will not provide them the flexibility required. A recommended approach could be a set of publicly available templates as starting points. This would be very similar to those available from the New Zealand Venture Investment Fund, KiwiNet, and a number of law firms.

not specifically mentioned in the special edition, the NZ's scheme is effective at addressing many of the challenges covered.

²⁵ *RSIS*, p. 32.

²⁶ *RSIS*, p. 32.