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To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
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Submission on Draft Research, Science and Innovation Strategy recevied:

Are you making your submission as an individual, or on behalf of an organisation?
Organisation

Name
Simon Lovatt

Name of organisation or institutional affiliation
University of Waikato

Role within organisation
Director, Research & Enterprise

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Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)

If you selected other, please specify here:

Gender

Ethnicity

Name of organisation on whose behalf you are submitting, if different to the organisation named above

In which sector does your organisation operate: (Please select all that apply)
Research , Interface of research and industry

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?
1200

Please indicate if you would like some or all of the information you provide in your submission kept in confidence, and if so which information.

Please upload your submission document here
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THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

8 November 2019

The Chief Executive
Ministry of Business, Innovation and Employment
PO Box 1473
Wellington 6140

Dear Ms Tremain

University of Waikato Submission on the Research, Science and Innovation Strategy

Thank you for the opportunity to respond to this strategy. The University of Waikato endorses and supports the submissions by Universities New Zealand and by KiwiNet. This submission seeks to add to those submissions with respect to some of the questions asked in the Strategy Draft for Consultation on which the University of Waikato has particular perspectives.

Question 4: Do you agree that the RSI Strategy should be focused on innovation at the "frontier" (creating new knowledge) rather than behind the frontier (using existing knowledge to improve the ways we do things)?

Along with Universities New Zealand (4a of its submission), we agree that the strategy should focus on innovation at the "frontier". Using existing knowledge to improve the ways we do things is important but should not be the focus of the RSI strategy. An example of an area in which the distinction between at- and behind-frontier is not clear cut is that adapting existing knowledge to apply it to a new sector can be frontier innovation. A current example in which NZ (particularly, the University of Waikato) is a leader is in adapting robotic technology (which has been well-established in automotive manufacturing for decades) to horticulture.

Question 5: In which research and innovation areas does New Zealand have an ability to solve problems that nobody else in the world has solved? Why?

Areas where NZ has unique resources, skills or motivations. As examples:

- NZ has a unique set of flora and fauna due to its long isolation from other landmasses and its volcanic landscape which created unusual environments. Thus, we have biological taonga resources in the form of genomes and enzymes that other countries do not have and (if appropriately and respectfully developed in alignment with the Wai-262 decision, for example) could create a lot of value for iwi and the country as a whole.
- NZ has particularly strong skills in a range of areas -- some as a result of longstanding important industries like agriculture and horticulture, and others derived from Mātauranga Māori and tikanga, for example. In the latter case, Māori perspectives on intellectual property ownership, privacy, data sovereignty, information access and storage, developed over centuries, provide insights into important problems that much of the world has only begun to wake up to following the Cambridge Analytica scandal and other privacy breaches.
- NZ also has strong motivations to solve certain problems because of its circumstances. Finding ways to produce ruminant products with low or no GHG emissions, designing buildings that are robust to earthquakes and reducing childhood obesity are all areas where we are more strongly motivated to solve problems because the problems are more important for us than for many other countries.

Question 6: In which areas does New Zealand have a unique opportunity to become a world leader? Why?

Indigenous data sovereignty -- because the Treaty of Waitangi means the NZ government has particular obligations to Māori that other governments do not have to indigenous peoples.

Question 9: What are the challenges of innovating in the public sector? How do they differ from those in the private sector?

A private sector company that reduces costs or makes new products that customers want will earn more revenue, more profit and its staff may well be paid more or earn bonuses. The incentives are thus relatively simple and relatively well-aligned between organisation, management and staff. In contrast, improving products and services in the public sector often creates more demand and hence drives increases in expenditure, rather than the increased revenue and profit that result from similar activity in the private sector.

This problem can partly be resolved by putting in place clear, measurable, key performance indicators for public sector organisations, of which achieving budgeted expenditure is only one.

Question 10: Do you agree that the key challenge for the RSI system is enabling stronger connections? Why or why not?

Yes. Putting together the best teams to create the greatest benefit for New Zealand requires developing and maintaining strong connections. Even with excellent telecommunications, our geographical isolation puts us at a substantial disadvantage, however. Thus, finding ways to build those connections without spending very large amounts of money (and greenhouse gas emissions) on researchers' travel around the world will be difficult.

It is easier to find willing partners to connect with when those partners gain at least as much from the connection as we would. Emphasising building connections for areas with NZ has particular strengths would increase the motivation for international partners to work with us and would complement prioritising investment in those research areas.

Question 18: How could we improve connections between people within the RSI system and people outside it, including users of innovation, international experts, business communities and markets?

Investing in networking activities, multi-disciplinary conferences that include presentations from both end-users and researchers, small projects that enable researchers, implementation partners and Māori groups to spend time together and build a mutual understanding of skills and mutual trust.

Open access to data and research can help build connections in some cases but lack of opportunities for exclusivity can sometimes damage connections with private companies. If researchers "shared freely" with competing companies A, B and C, there would be no chance for any of those companies to gain a competitive advantage and thus no incentive for them to incur the very substantial cost of commercialising a research outcome, for example. Thus, the choice between open access and temporary exclusivity has to be made case-by-case to maximise the benefit to New Zealand.

Question 20: How could we attract people with unique skills and experience from overseas to New Zealand?

TEC's Entrepreneurial Universities initiative was very effective at attracting research leaders with unique skills from overseas to New Zealand. Building on that success with a similar initiative, with some modifications to expand its scope, could be even more effective.

Kind regards

Simon J Lovatt
Director, Research & Enterprise