

COMBINED TTO SUBMISSION TO Te Ara Paerangi—Future Pathway Green Paper



PREAMBLE

Technology Transfer Offices (TTOs) are the bridge between the scientific and commercial worlds, necessitating TTO staff to have amongst other things, well-honed skills in market validation, intellectual property management, academic and industry engagement and networks, and ultimately be able to commercialise publicly funded research.

Current literatureⁱ around the TTO space has found that the most commonly stated impediment to commercialisation is the cultural divide between the TTO, academic organisation / academic scientists, and industry. A key success factor for TTOs is a strong (university) culture of research, innovation, and entrepreneurship, however, to be truly successful it needs to be embedded across the entire research, science and innovation (RSI) system.

TTO professionals are locally embedded and nationally connected within the RSI system, and are also becoming more involved in assisting universities and their principal investigators with funding applications, non-monetary type initiatives that support the broad university environment and are increasingly identified as “pivotal cross-level brokers within entrepreneurial and innovation ecosystemsⁱⁱ.”

The group tabling this response to Te Ara Paerangi – Future Pathways Green Paper 2021, represent well established, high functioning TTOs deeply embedded within our respective academic institutions. We are passionate about our profession and wish to see the momentum continue that we and others have generated over time. Our responses are primarily centred on aspects that impact, or may have an impact upon, knowledge transfer through commercialisation and the resulting benefits to Aotearoa New Zealand, including not only financial benefits but also social, environmental and cultural benefit outcomes.

Summary of feedback

Our recommendations on the basis of the report are as follows:

(1 - Funding) Targeted inclusion of commercialisation funding in government prioritised research projects as well as incentivising funding to high-performance TTOs will increase the scale of investment in commercialisation resourcing and the associated performance in commercialisation translation for impact.

We recommend:

- The government mandates that for selected research grants, a proportion of new and additional funding is allocated to support commercialisation of the research outputs from those programmes.

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- Alternatively or additionally, new and additional base funding be provided to TTOs from the government with this funding linked to the degree of support of the parent institution for commercialisation activities, and to those institutions who demonstrably embrace commercialisation through a well-resourced and high-performing TTO.

(2 - Structure) Build the commercialisation system out through leveraging the existing system, particularly TTOs that are already at scale and high performing. This recognises the significant investment that has already gone in to building up commercialisation capability and capacity in New Zealand (both through government investment via Commercialisation Partnership Networks (CPN) and PreSeed Accelerator Funds (PSAF), as well as local institute investment in supporting their TTOs). Leveraging the existing resources effectively and empowering further TTO development will accelerate and multiply the creation of beneficial outcomes through commercialisation of research.

We recommend:

- Leveraging the (CPNs) to enable those TTOs at scale to provide support for smaller TTOs that are less well-resourced / not at scale, on an as needed basis.
- Leveraging the CPNs to incentivise cross fertilisation of overarching commercialisation strategies (beyond project-by-project) to enable the localised development of ‘best practice’ approaches. This can be incentivised through CPN funding directed to these activities and associated increased access to PSAF for those TTOs that genuinely demonstrate the development of optimised commercialisation strategies for their organisations.
- *Not* moving to a centralised model of commercialisation. Centralisation inherently ignores the role of strong local relationship building between a Publicly Funded Research Organisation (PRO) and its TTO function in commercialisation success, as well as the need for the TTO of a given PRO to be able to optimise its commercialisation activities around its own the nexus of risk appetite, innovation portfolio (dictated by research activity type) and resourcing. If the goal is scale across the system, leveraging the existing at scale entities both directly and through best practice transfer will be far more effective and efficient.

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RESEARCH FUNDING FOR PROJECTS AND PROGRAMMES

Presently, fundamental research funding e.g. MBIE Endeavour Programme and Smart Ideas grants for societal good projects and programmes contest head to head with those that strive to deliver economic benefit. An example might be a project that measures and monitors the levels of carbon dioxide being absorbed by say seaweed competing with a project that will seek to find a renewable method of permanently sequestering carbon dioxide.

Our recommendation is that such projects are not funded from the same pot; instead, discrete funds are used for opportunities that could never be considered comparable. This way, the best projects to ensure Aotearoa New Zealand remains a secure and vibrant society will be funded, as will those that have the potential to deliver real economic returns to our country.

Additionally, government should mandate funding for commercialisation of these research programmes directly through the appropriate research funding streams they support. For example, all Smart Ideas and Endeavour Fund programmes could have a proportion (say 10%) of new and additional funding directed to the TTO to support the commercialisation work from the outset. Those funds should only unlock via TTO engagement and be directed toward answering key commercialisation-related questions. This project specific funding would be in addition to the current PSAF funding programme, and not be an eligible source of matched funding for PSAF. Additional PSAF funding (under the current rules) would also be used for commercialisation of a given funded research programme, should that particular opportunity require additional resourcing to reach an ‘investor ready’ point.

Alternatively, or additionally, new and additional base funding to TTOs to ensure that they can undertake this work should be considered. This funding should be linked to the degree of support the parent institution for commercialisation activities, evidenced by a well-resourced and active TTO – an approach which is elaborated on in the following section.

COMMERCIALISATION SYSTEM STRUCTURE AND THE ROLE OF INSTITUTIONS

Section 4.6 and key question 13 explore questions around knowledge exchange and research commercialisation.

Commercialisation capability and capacity needs to be available equitably across the ecosystem; presently it is not. This is not to suggest that a centralised approach should be explored as we believe centralisation would be highly detrimental to outcomes from the RSI system, and does not leverage the significant investment already made in building scale and capability within the current network of TTOs.

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The commercialisation process is the activity which ultimately creates the return (economic and/or social) to Aotearoa New Zealand. Without a system for taking research to the market and civic society, the research is going to be of limited value.

Institutions (including CRIs) should to be incentivised to take commercialisation more seriously and be required to appropriately fund and support the TTO function if they wish to receive government funding for programmes with possible economic outcomes (as distinct from programmes which are for societal benefit). Incentives could be provided through increased PreSeed Accelerator Funds or a level of base funding for those institutions that demonstrably embrace commercialisation through a well-resourced TTO.

There will be organisations where the scale and/or breadth of research activity types) is insufficient to run their own TTO at the scale required to ensure successful outcomes. In such instances, with some level of provision via the CPN, support should be made available to these organisations - that support could be through contracting a well-resourced TTO to act on their behalf.

There should not be a standardised approach to commercialisation 'required' of any one TTO, as none truly exist. In commercialisation there is a conventional view that the licensing route is generally "less risky" than forming a start-up company, however the risk/reward for any given project is a unique combination of the nature of the innovations being commercialised, the ability to access appropriate third party licensing partners (new economy research for example often requires offshore licensing) and the availability and willingness to invest in a given technology area from accessible investor groups. There are a number of methods of transferring technology to third parties, and no one approach fits all.

Preferably, the TTO of each research organisation should be empowered and trusted to develop a commercialisation strategy that fits within the risk, resource and innovation deal-flow framework associated with that particular organisation. Cross sector learnings between TTOs through the existing and high quality CPNs provide the opportunity for cross fertilisation of overarching commercialisation strategies (beyond project-by-project) and this sharing of 'best practice' approaches can be incentivised through CPN funding directed to these activities, and associated increased access to PSAF for those TTOs that genuinely demonstrate the development of optimised commercialisation strategies for their organisations.

A challenge with the current grant process is the need to have New Zealand firms associated with the grant application and research phase, however, in our combined experience, New Zealand firms are not always best placed to be a partner. We have high impact research outputs for which no real industry exists in New Zealand (e.g. pharmaceuticals) yet the applicant is required to show strong connections to not one but oftentimes two local industries.

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We believe that start-ups are likely to be more beneficial to New Zealand's economic future, even if they ultimately end up offshore, than licensing / technology transfer to New Zealand firms, where such firms exist to license to. We often see the high value new economy research (that we strongly support being funded), only have offshore licensing partners for that transaction type.

It is evident from attempts overseas to centralise commercialisation functions that they do not work either. Recently, the University of Queensland's UniQuest (a TTO) established itself as a service provider to numerous Australian universities. This failed for several reasons, including:

- lack of local representation for the required deep engagement with the various university's researchers;
- an inherent inability to construct and then execute on local commercialisation strategies that suited the particular situation for each University, and;
- the lack of focus inherent to any external service provider to deliver on other associated knowledge transfer activities of value, such as student exchange with industry, support for industry engagement in fundamental research activities.

The respective entities are now rebuilding their own in-house capabilities with the attendant cost, time and rebuilding of local trust required.

In our experience, a TTO that is restructured significantly requires a minimum of 5 years to rebuild the local relationships needed to develop a high-performing innovation pipeline. Centralisation risks the loss of dedicated commercialisation expertise from the sector which in itself requires a number of years to build and develop. Government should build on the investment it and research institutions have made to date into TTOs, rather than try and recreate them through centralisation.

Other impact outcomes

Although commercialisation is a key mechanism through which impact is generated, we note above that alternatives exist. To that end, in addition to developing and growing Aotearoa New Zealand's commercialisation professional capabilities, government should also consider growing new functions with dedicated impact professionals. These people would be well placed to guide research outcomes into areas such as government policy, social services and non-commercial activities.

Furthermore, on the basis that only ~20% of PhD students will remain in academia, supporting the transition of PhDs into industry via industry-aligned programmes such as those recently announced by the Australian Federal Government would be beneficial in seeing more impact professionals welcomed into the ecosystem. In addition to existing curricular learning,

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students would gain extracurricular skills and an understanding of business needs that would assist them to transition into the commercial environment. Similarly, Post-docs could receive scholarships to pursue commercialisation of their PhD outcomes.

ⁱ https://ideas.repec.org/a/kap/jtecht/v46y2021i6d10.1007_s10961-020-09829-y.html

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