Submission by

to

On the

Te Ara Paerangi – Future Pathways

March 16, 2022

Contact:

Brendan O'Connell
Chief Executive, AgriTechNZ

Summary

AgriTech New Zealand (AgriTechNZ) wishes to thank Hīkina Whakatutuki Ministry of Business Innovation and Employment for the opportunity to submit on the Te Ara Paerangi Future Pathways Greenpaper. We welcome the invitation to provide feedback on our submission.

The submission comments included in this document were gathered and developed from discussion across our community. They represent a community response, and not necessarily the individual views of any one member or contributor.

Background

- AgriTechNZ is a purpose driven, membership-funded organisation. Our vision is to maximise New Zealand's agritech capability to:
    1. enable an even stronger and progressive NZ Primary Sector
    2. drive regional growth (agritech happens all around NZ)
    3. increase technology exports, and
    4. solve global food and environmental challenges

- AgriTechNZ connect innovators, investors, regulators, researchers, social entrepreneurs and the public, and acts as a neutral centre of gravity for discussion, debate, policy development and collaboration around agritech in and from New Zealand.

- AgriTechNZ is an industry partner to the All of Government Agritech Industry Transformation Plan which identified the need for improved science commercialisation and workforce / skills development.

- AgriTechNZ is an association of the New Zealand Tech Alliance (NZTech). NZTech is a member funded, not-for-profit, non-governmental organisation that represents twenty tech associations, with over 1600 members who collectively employ more than 100,000 New Zealanders: over 10 percent of the New Zealand workforce.

Comments

1. Research Priorities: how to better identify and deliver on whole of system research priorities

1.1. What principles could be used to determine the **scope and focus** of national research priorities?

    1.1.1. We recognise the research system needs to focus on both public good as well as other impacts. In our discussions we focussed on the need for science research conducted for the purpose of impact.

    1.1.2. Our national priorities must sit in a global context, we need to connect with the world, not isolate ourselves from it.

    1.1.3. For science to have sustainable impact it needs strong links with the commercial interests that are motivated to deliver and maintain value in the market.

    1.1.4. Our science system must deliver national value…this includes feeding our innovation system which marries science with business. Commercialisation of IP must be a key metric. The number and success of the start-up economy is a key science system output, not an afterthought.

    1.1.5. Our science system must focus on matters of global concern, not just national interests. This is not only a planetary citizenship issue, it also empowers our innovators and exporters to part of system that addresses global issues.

    1.1.6. A key priority for our science system needs to be in digital enablement for New Zealand and how we fully embrace and lead a network world…both in terms of how we research, collaborate and connect.

    1.1.7. We need to be choosing ideas that create big Impact, and then seeing if the Science is right.

    1.1.8. In many instances it is not about creating new science, it is about finding out the right science, maybe even the science that already exists and can be repurposed to create impact. We repeatedly see research being funded with no understanding of the patent or existing science landscape.

1.2. What principles should guide a national research **priority setting process**

    1.2.1. Research priorities must be set in collaboration with industry – this includes industry associations and their members including private sector representation

    1.2.2. Industry engagement and commercialisation of IP are key drivers of impact and should be considered when identifying priorities as much of our science can only have full impact with that 'final step' considered at the beginning. Begin with the end in mind!

    1.2.3. Evidencing and measuring impact are controversial and fast developing areas – likely to comprise a mix of quantitative indicators and qualitative reviews.

    1.2.4. To determine what is of Impact New Zealand needs to develop a whole knowledge community where Research/Science/Universities/Corporates work as a collective, a knowledge and innovation covenant is developed to bide all members together under a clear understanding and mandate, in essence build a common purpose to build trust. There needs to be an **Honest Broker** that sits between all parties and manages the overall relationships. That a consortium across the membership provides the governance and specific areas of competency are setup as knowledge centres to tackle the appropriate areas of Impact.

1.3. How should **strategy** for national research priority be set and how do we operationalise them
    1.3.1. For science to have sustainable impact it needs strong links with the commercial interests that are motivated to deliver and maintain value in the market. Beginning with the end in mind, early engagement with industry groups is vital.
    1.3.2. We see the current system as a **Closed Innovation** model and suggest an an approach to **Open Innovation** would add value where, open innovation means a situation where an organisation doesn't just rely on their own internal knowledge, sources and resources (such as their own staff or R&D for example) for innovation (of products, services, business models, processes etc.) but also uses multiple external sources (such as customer feedback, published patents, competitors, external agencies, the public etc.) to drive impact.
    1.3.3. To operationalise strategies, we advocate for a Logical Model that presentsa holistic depiction of a program, initiative, or intervention that shows:

- What the program will do and what it is to accomplish
- The logical relationship among the resources invested, the activities that take place and the benefits or changes that result.
- A series of "if-then" relationships that, if implemented as intended, lead to the desired outcomes
- The core of program planning and evaluation

2. Te Tiriti, Mātauranga Māori, and Supporting Māori Aspirations: how the research system can best honour Te Tiriti, give life to Māori research aspirations, and enable mātauranga Māori

2.1. How would you like to be engaged?
    2.1.1. We are willing to participate and represent our community as a partnership to discussions.
2.2. What are your thoughts on how to enable and protect mātauranga Māori in the research system
    2.2.1. Mātauranga Māori is both deep and unique and should be incorporated into our science system
    2.2.2. The Maori view and involvement needs to be established at the Governance level first and should flow through to Executive, Middle-management and Research Institutes.
    2.2.3. The Te Tiriti partnership is globally unique and has the potential to frame a deep and unique contribution to global issues. It is fundamental to New Zealand's impact globally.

2.3. What are your thoughts on regionally based Māori knowledge hubs?
    2.3.1. Regional hubs are necessary and need to align with national priorities where appropriate

3. Funding: how to reshape the funding system for the future and to give effect to research priorities

3.1. How should we decide what constitutes a core function and how should we fund them?
  3.1.1. Core functions should be based on whole of system impacts in line with national priorities
  3.1.2. Science investment needs a portfolio and pipeline focus, with a view that IP commercialisation is the major metric of success for much of the system
  3.1.3. The relationship between public and private investment should be explicit and collaborative
  3.1.4. The concept of the Entrepreneurial State is considered useful for creating a portfolio of science investments that enable commercialisation of IP, enables higher risk profiles for public funding programs, and ensures that losses are covered, and benefits are fully banked – extending the funding available through return on science investment. Public science investment should be bolstered by private sector successes.
  3.1.5. We need a national portfolio…too small if done institution by institiution.
  3.1.6. We repeatedly see research being funded with no understanding of the patent or competitor landscape, the answer to this is research proposals (especially those in the PSAF/Smart Ideas categories) to have clear state-of-the art understanding and budget allocation for IP.
  3.1.7. In the business case for a research project the funding should incorporate the return on investment through to a commercialisation or value realisation stage.
  3.1.8. The balance of funding should be attributed to two thirds Top Down and one third Bottom Up or pure research.

3.2. Do you think a grant-based funding model will improve stability and resilience for research organisations and how should we go about designing and implementing such a funding model?

4. Institutions: how to increase connections, collaboration and adaptability within the system for future success

4.1. How do design collaborative, adaptive and agile research institutions that will serve current and future needs?
  4.1.1. Collaborative design means having the right people in the room. For science impact this must include commercial industry players, investors and innovators.
  4.1.2.
4.2. How can institutions be designed to better support capability, skills and workforce development?
  4.2.1. We need institutions that support businesses in transforming research into valuable products and services. In many cases, science impact can only be measured through commercial outcomes – it must be viewedas connected ecosystem
  4.2.2. Having staff switch between roles in the ecosystem

4.3. How should we make decisions on large property and capital investments under a more coordinated approach?

    4.3.1. Co-ordinated approaches can be enabled through physical and commercial interactions across the science and innovation ecosystem. Enabling investment can mean facilitating a connection between early-stage research, applied research and commercial implementation in hubs that attract both public and private investments.

4.4. How do we design Tiriti-enabled institutions?

    4.4.1. The Maori view and involvement needs to be established at the Governance level first and should flow through to Executive, Middle-management and Research Institutes.

4.5. How do we better support knowledge exchange and impact generation?

    4.5.1. In many cases, our science institutions must be set up to provide businesses with access to their expertise and facilities, enabling them to test, demonstrate and improve their ideas. By fostering collaborations between industry, government, research organisations, academia and many others.

4.6. What should be the role of research institutions in transferring knowledge into operational environments and technologies?

    4.6.1. It's a core function of the institutions, not just a transfer process.

5. Workforce : How the RSI workforce is supported, developed and funded

5.1. we include workforce considerations in eth design of national research priorities?

    5.1.1. A culture of science innovators and entrepreneurs should be encouraged. The funding flow should bring together Fundamental research, applied and commercial endeavours with workforce able to chose career paths or just sabbaticals across any part of that continuum.

    5.1.2. Whilst fully recognising institutional IP, science entrepreneurs or potential entrepreneurs should be free to build relationships with any investor/collaborator that they can build a relationship with. This should be supported, but not controlled, by institutional commercial representatives – the aim should be to allow productive relationships to flourish wherever they occur innovation is all about connecting people...focus should be on fostering those connections, not forcing through static systems.

    5.1.3. Give researchers permission and time to develop relationships, alongside tech transfer offices.

    5.1.4. Arguably, there is a mindset in our science system that commercial outcomes are somehow exploitive or have negative

    5.1.5. Researchers will need to develop new skills and capabilities to demonstrate ability to create impact, which could become central to career progression and institutional reputation.

5.2. What impact would a base grant have on the research workforce?

5.3. How do we design new funding mechanisms that strongly focus on workforce outcomes?

6. Research Infrastructure : How we invest in, govern and run the national

6.1. How do we support sustainable, efficient and enabling investment in research infrastructure?

6.1.1. Through enabling physical and commercial interactions across the science and innovation ecosystem. Enabling investment can mean facilitating a connection between early-stage research, applied research and commercial implementation in hubs that attract both public and private investments.

6.1.2. Research infrastructure considerations should also consider digital infrastructure and how teams are enabled IT systems that encourage wide ranging collaborations

6.1.3. Our research links must sit in a global context, we need to connect with the world, not isolate ourselves from it. The concept of research collaborations and potentially actually workforce and infrastructure in overseas markets should be considered.

Ngā manaakitanga me kei runga noa atu

Brendan O'Connell
Chief Executive, AgriTechNZ
Privacy - 9(2)(a)