MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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TITLE	Innovation support mechanisms		
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PURPOSE	To provide an overview of government support mechanisms for innovation in New Zealand.		

Innovation support mechanisms

This background paper provides an overview of government support for innovation. The particular focus is on interventions under the Science, Innovation and Technology portfolio, but information has also been provided on cross-government interventions where relevant. This paper excludes interventions conducted through the private sector. This document is intended to provide an overview, rather than comprehensive.

CONDITIONS FOR INNOVATION

When considering the innovation ecosystem and the place for government interventions, we generally view the conditions that enable innovation to occur as grouped into four categories: having sources of ideas for innovation, the incentives that turn these ideas into innovative opportunities, resources to support innovation to occur and that there is an enabling environment to support innovation. Government has a range of interventions that sit across these conditions.

INNOVATION POLICY INTERVENTIONS

The Government's primary role is creating the market conditions and law/regulations to incentivize innovation and create an enabling environment

Note: Responsibility for most of the mechanisms for incentivizing innovation through market conditions, law and regulation sit outside of the Science, Innovation and Technology portfolio.

The government interventions that seek to create the conditions for innovation can be summarized as follows:

1. **Providing efficient intellectual property protection**

   A fundamental role of Government in enabling innovative activity is to set and enforce laws relating to the protection of intellectual property (IP). These rules incentivize innovators to commercialise their discoveries, while at the same time ensuring other innovators have 'freedom to operate' without being sued for breaching the IP rights of others. New Zealand largely follows international standards for IP laws according to The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

2. **Enabling innovators have access to domestic and international markets**

   The Government's role in international trade policy and in directing the activities of internationally focussed business agencies is to support access to domestic and international markets for New Zealand innovators. New Zealand businesses seeking to operate internationally are supported through New Zealand Trade & Enterprise, including funding to enter international markets under the International Growth Fund. New Zealand's international trade policy influences the challenges and opportunities that New Zealand innovators have in entering overseas markets, and agreements, such as The Australia–New Zealand Closer Economic Relations Trade Agreement (CER), Free Trade Agreements and the World Trade Organisation, are influential in facilitating access to international markets.

3. **Regulating to ensure negative externalities (eg, pollution and emissions) are internalised**

The Government can play a role in ensuring that the negative externalities of certain activities are internalised, and therefore encourage innovative activity to transform industries and production processes to be more efficient and less consumptive of resources. For example, New Zealand's Emissions Trading Scheme increases the cost of high emitting activities and helps incentivise businesses to innovate to reduce emissions and cost, which creates demand for new technologies.

4. **Being an "anchor" purchaser**

   New Zealand does not have specific programmes to encourage government agencies to procure innovation, unlike other countries such as the USA, UK and Australia. Government can take a role in procuring innovation to address challenges in existing approaches or commercially available technologies by working with businesses to address these technological challenges. Some countries have government programmes to pilot solutions and retain the right to commercialise and sell those solutions in domestic and global markets.

The Government funds public research organisations (PROs)to generate ideas that will potentially lead to innovation

Through operating PROs and providing funding for research, the Government aims to spur research activity that will result in ideas for innovative opportunities. These are covered in more detail in the background paper on "Background to New Zealand's Science, Innovation and Technology system" (SSAG-MBIE-001 refers).

More specifically, the Government funds and operates PROs dedicated to conducting research in areas of particular interest to New Zealand:

1. **Crown Research Institutes (CRIs) (c.$765 million per annum)**

   CRIs are Crown-owned companies with boards appointed by the Government to undertake scientific research for the benefit of New Zealand. Each CRI is aligned with a productive sector of the economy or a grouping of natural resource to encourage the creation of a common knowledge base in certain industries. (SSAG-MBIE-001 and SSAG-MBIE-005 refers).

2. **Callaghan Innovation's Research and Development Solutions (R&D Solutions) ($33 million)**

   The R&D Solutions operated out of New Zealand's innovation agency, Callaghan Innovation, that conducts applied research and provides contract R&D services for several manufacturing industries. Areas of expertise in R&D Solutions include advanced materials, biotechnologies, Internet of Things and data solutions, and advanced manufacturing. This approach differs from many other innovation agencies across the world, who do not provide R&D services, but rather operate as primarily funders of R&D.

The Government also collects levies for funding applied research in certain industries as sources for potential innovation

Government has legislated to provide a compulsory levy framework to enable certain industries (predominantly in the primary sector) to fund industry-relevant research activities. The following organisations are funded through levies administered by the Science, Innovation and Technology portfolio:

1. **Building Research Association of New Zealand**

   The Building Research Levy Act New Zealand authorises the levying of building contractors to provide funds for research into improved techniques and materials for use in the building industry.

2. **Heavy Engineering Research Association**

   The Heavy Engineering Research Levy Act New Zealand authorises the levying of persons engaged in heavy engineering manufacture and related industries to provide funds for research into heavy engineering.

3. **Wheat Industry Levies Act 1989**

   This act allows for a levy to be drawn from wheat growers, flour millers, and purchasers of flour to be supplied to various industry organisations to fund research. United Wheat Growers (NZ) Limited determines the levy and reports to you annually about how it is spent.

To facilitate the commercialisation of publicly funded research, the Government supports technology transfer offices (TTOs) with capability building and funding and the private sector with investment capital

Commercialisation of research generated in PROs is primarily the responsibility TTOs, but the Government also provides support to enable this to happen. The **Commercialisation Partner Network** ($4.3 million per annum) helps to build capability and provides advice on commercialisation and through the **Pre-Seed Accelerator Fund** ($9 million), where it matches PRO funding to advance commercialisation projects to the "investor ready" stage. In addition, the **Tech Incubator programme** ($15 million per annum) and **New Zealand Growth Capital Partners** (with a combined capital investment of $450 million) supports the private market to make investments in startups spun out of PROs and from other sources. More information on government support for research commercialisation is detailed in the 'Research Commercialisation' paper you have been provided (SSAG-MBIE-010 refers).

The Government provides subsidies for private-sector R&D that incentivise R&D activity by compensating for spillover benefits others (beyond the business) receive from the investment

Business R&D is a major driver of innovation, globally accounting for 73% of total R&D spend averaged over the OECD in 2021. However, because the output of R&D (increased scientific or technological knowledge) benefits those other than the person or the organisation investing in the R&D, private incentives are insufficient to create the optimal level of R&D activity in the wider economy. To compensate for these spillover benefits and incentivise businesses to increase their R&D up to the optimal level, the Government provides subsidies for business R&D.

The current mechanisms for supporting business R&D in New Zealand are:

1. **Research and Development Tax Incentive (RDTI) (c.$500 million per annum)**

   The Research and Development Tax Incentive (RDTI) provides a 15 per cent tax credit for eligible R&D expenditure by New Zealand businesses. Unlike other countries, such as Australia, the RDTI includes a scheme that enables businesses to get approval for R&D activities before they are conducted. The early approval is facilitated through a team of technical experts within Callaghan Innovation. The RDTI also offers a "refund" in lieu of a tax credit where a business does not have sufficient tax liability to benefit from a tax credit. $3.6 billion total R&D expenditure has been claimed and $542 million of tax credits paid out since the RDTI's introduction in 2019.

2. **New to R&D Grant ($22.5 million per annum)**

   The New to R&D Grant provides support of up to 40 per cent of eligible R&D expenditure (before tax) to businesses that have not performed R&D before to support building the capabilities necessary to perform R&D over the longer term. The goal is to increase the number of businesses engaging in R&D, and thus the spillovers of R&D occurring in the wider economy. This grant is administered by Callaghan Innovation. For financial year 2022/23, 18 companies were supported through this grant with a funding total of $4.3 million.

3. R&D Student Grants ($15 million per annum)

R&D Student Grants support businesses to employ a current or recently graduated student on an R&D project to build R&D capability. This aims to increase the skills base of researchers and others involved in R&D who are then able to apply this knowledge in the wider economy. This grant is administered by Callaghan Innovation.

This grant supports students to either undertake a summer R&D project (experience grant), or a PhD or Masters project (career grant). For financial year 2022/23, 40 students were supported for the career grant and 1064 students were supported for the experience grant. This is separate to the newly announced MBIE funded Applied PhD programme (not run by Callaghan) – which is designed around host model and for which an expression of interest is soon to be published.

Figure 1 shows government support for business R&D from 2016/17 to 2022/23. This reflects several schemes that have now been phased out and replaced by the RDTI and New to R&D Grant:

4. R&D Growth Grants (c.$175 million per annum)

This was put in place in 2013 and was the main R&D-support mechanism until the introduction of the RDTI in 2019. This provided eligible businesses with a subsidy of 20 per cent of eligible R&D (before tax), up to a maximum of $5 million per year.[1]

5. R&D Project Grants (c.$22.5 million per annum)

These grants provided a subsidy of up to 40 per cent of eligible R&D expenditure (before tax) for businesses that were not eligible for the R&D Growth Grant. This grant focussed on businesses new to R&D and conducting small-scale R&D projects. The R&D Project Grants finished in 2022 and were replaced by the R&D Student Grants.

6. R&D Loan Scheme ($149 million of capital in 2020/21)

This was a short-term scheme to support businesses performing R&D in response to COVID-19, allowing eligible businesses to borrow up to $400,000 (or 85 per cent of their eligible R&D expenditure, whichever was lower) to maintain R&D activity in the 2020/21 fiscal year.

[1] To be eligible, a business needed to be spending at least 1.5% of its revenue on R&D and to be growing its R&D over time (ie, year on year).

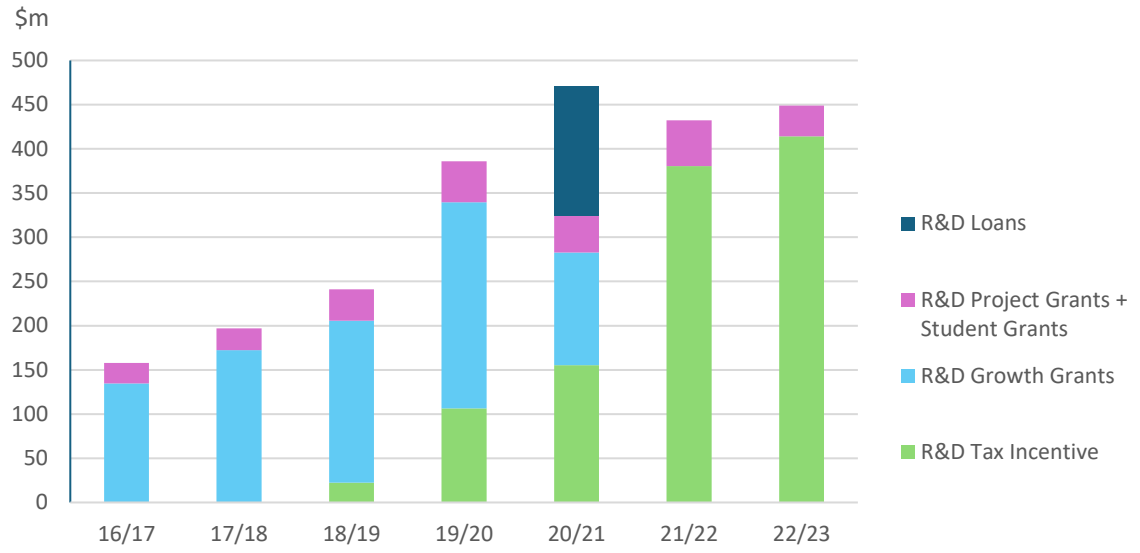

Figure 1: Government support for business R&D Source: Ministry of Business, Innovation and Employment analysis, based on data from Estimates of Appropriations

The Government also subsidies business expenditure on non-R&D activity where it has the potential to create spillover benefits to others in the innovation system, and to create world-leading innovation

In general, the Government does not provide public support for business expenditure on non-R&D activity because most, if not all, of the benefits from that activity typically accrue to the business itself (or its private investors). However, it is warranted when the non-R&D activity is likely to have spillover benefits to others in the innovation system.[2]

The **Arohia / Innovation Trailblazer Grant** ($25-50 million per annum) provides a 30 per cent subsidy for the cost of non-R&D activities when businesses are performing non-R&D activities which are likely to generate significant spillovers benefits. Such benefits may result from the innovative activity and accrue outside the business to the rest of the innovation system or the economy more broadly. During the assessment process for grant applications, Callaghan Innovation identifies spillovers and uses this as key selection criterion for successful applicants. For financial year 2022/23, 178 companies received Ārohia evidence grants (grants to support the preparation of a full grant application) and 8 companies received full grants.

The Government funds, administers, and/or operates several sector-focused schemes that help business take advantage of knowledge developed in PROs and support innovation to occur

Through Callaghan Innovation, the Government administers and/or operates several schemes that help connect businesses with researchers:

[2] This excludes different business expenditure grants and or investments conducted through other Government Ministries which may have an impact on the innovation system but where innovation is not the primary purpose. For example, various grants and funds in the primary sector include the Sustainable Food and Fibre Fund (SFFF), or the Higher Education system. There are also initiatives/funds with a particular thematic focus, such as environmental investments. Some examples of these thematic initiatives include the Waste Minimisation Fund, Green investment Finance Limited (GIF), Kānoa Regional Economic Development and Investment Unit, and the International Growth Fund (IGF) run by NZTE.

1. **New Zealand Product Accelerator (NZPA) ($2.3 million per annum)**

   The NZPA is a network of technology developers and practitioners based out of the University of Auckland that help to connect manufacturing-industry participants with research expertise to solve industry problems. The network draws on research expertise from CRIs and universities across New Zealand. Callaghan Innovation has operational oversight and contract management of the NZPA.

2. **Bioresource Processing Alliance (BPA) ($2.4 million per annum)**

   The BPA co-funds and undertakes R&D projects with companies to convert low-value primary industry and other biological waste streams into high-value goods, which also draws from research expertise from CRIs and universities. Callaghan Innovation has operational oversight and contract management of the BPA.

3. **HealthTech Activator (HTA) ($0.6 million per annum)**

   Callaghan Innovation operates the HTA, which helps early-stage health technology companies and their founders to find and access experts and investors.

   The HTA is also connected to the **Medtech Research Translator ($2.7 million per annum)**, a government-funded, national industry-research network that partners with various universities to enable the translation of publicly funded medical research into clinical solutions.

4. The **New Zealand Food Innovation Network (NZFIN) ($4.5 million per annum)** provides open-access, pilot scale food and beverage production facilities, along with specialist business development services to help businesses to scale up and commercialise new products. NZFIN provides expertise in R&D and access to a suite of manufacturing equipment across two physical hubs: FoodBowl (Auckland) and FoodSouth. NZFIN generates some commercial revenue, however, is not expected to be self-sustaining.

The Government supports innovation-related skills development to enrich the enabling environment

Callaghan Innovation operates several programmes that are designed to develop skills and capability among innovating businesses at different stages of development:

Founder and Startup Support Programme ($3 million per annum)

This programme contract with private-sector “incubators" to build entrepreneurial capability among start-up founders. The five incubators funded under the current round of this programme are Ministry of Awesome, CreativeHQ, HTK Startup, Icehouse Ventures and Sprout.

Callaghan Innovation 'Upskill’ and ‘Grow’ products[3]

Callaghan Innovation subsidises courses on innovation and commercialisation skills (‘Upskill’ products), which include programmes on digital transformation for businesses IP management and capital education. These are complemented by their team of business innovation advisors, who provide bespoke training and advice (‘Grow’ products) to businesses in particular sectors, with a focus on frontier ventures and Māori business (SSAG-MBIE-003 refers).

[3] We do not have currently have information on the cost of these specific interventions but they are funded through the Building Business Innovation category of the Callaghan Innovation appropriation, which is allocated $33 million per annum.

Aside from explicit government support, New Zealand's immigration settings, especially the availability of visas for highly skilled personnel, affect the ability of New Zealand research institutions and innovating businesses to recruit expertise not available in New Zealand.

There are several existing visa categories and work programmes in New Zealand's immigration system that while not explicitly aimed at innovation skills attraction, aim to assist in building New Zealand's skills base more generally. These include the Accredited Employer Work Visa Scheme, the Skilled Migrant Category Resident Visa, study and work visas. The Active Investor Plus Visa also encourages wealthy investors who invest in start-ups to apply for residency. Previously, the Global Impact Visa (affiliated with the Edmund Hilary Foundation) has existed to encourage entrepreneurs and investors to create ventures with global impact in New Zealand, and programmes like Entrepreneurial Universities have operated to actively attract R&D talent to New Zealand.

The Minister of Science, Innovation and Technology is considering advice on the development of **technology-based visa categories**.

Figure 2 summarises the range of government mechanisms for supporting business innovation.

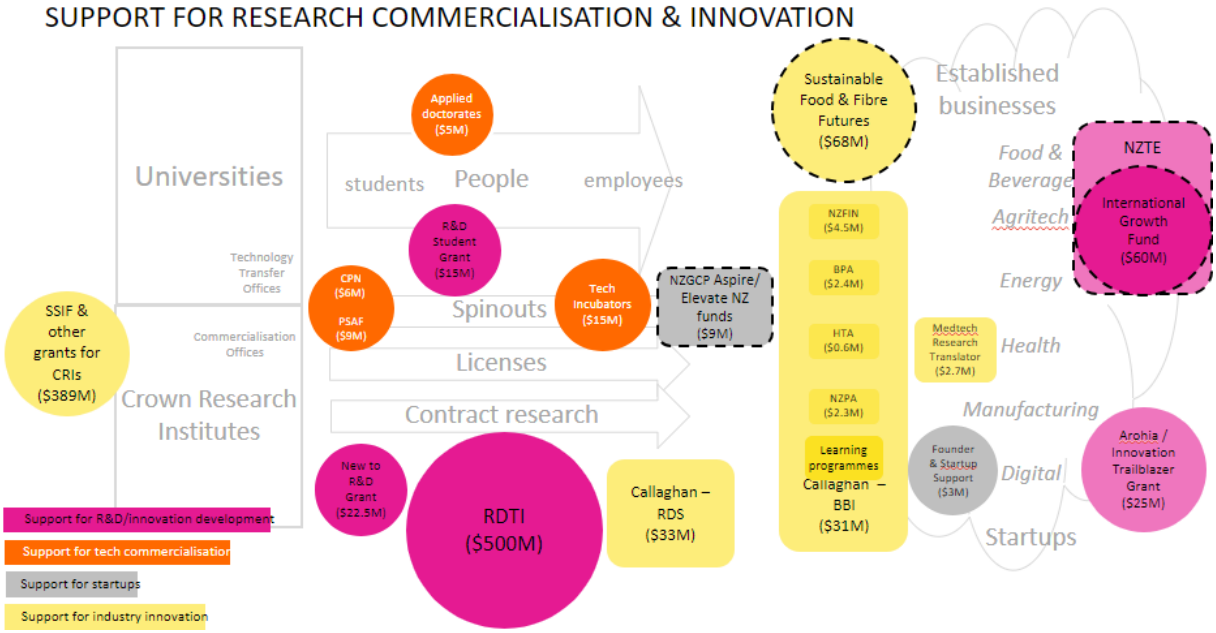

Figure 2: Government support for research commercialisation and innovation