BUDGET–SENSITIVE

# 1. Portfolio overview: Science, Innovation and Technology

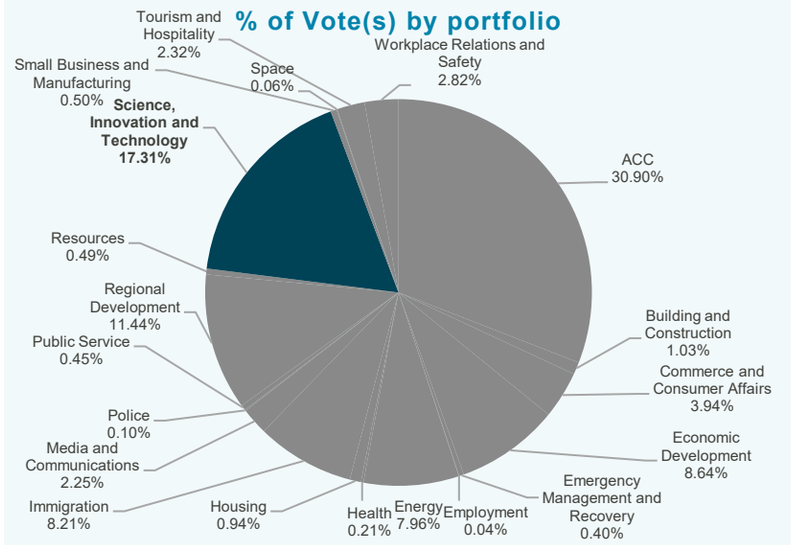
## KEY ISSUES

A Science System Advisory Group (SSAG), chaired by Professor Sir Peter Gluckman, was established in April 2024 to provide advice to the government on strengthening the science, innovation and technology system. The existing system was last reformed over 30 years ago and is therefore inadequately placed to underpin the challenges and opportunities that New Zealand will face in the future.

The systematic issues limiting the performance of the system include:
- **Funding**: The adequacy, sustainability and balance of funding in areas of national and system importance, and effectiveness of funding mechanisms. NZ's investment in R&D is well under the OECD average (1.45% vs 2.7%)
- **Research infrastructure**: Uneven access to research facilities and equipment, hindering research progress and collaboration.
- **Regulatory frameworks and incentives**: These are not optimised for the most effective management of research and research innovation or commercialisation.
- **System inefficiencies and fragmentation**: The system experiences inefficiencies, complex funding mechanisms, fragmented research efforts, and limited collaboration between different stakeholders.
- **Workforce**: Career pathways are uncertain, diversity is limited, Māori and Pacific Peoples are under-represented and under-served, and there are difficulties in attracting and retaining the best talent.
- **Industry**: co-ordination across government and industry needs strategic redevelopment, Industry co-operation and support is not well positioned to adapt to emerging markets .
- **International**: New Zealand, as a small country, needs to exploit international partnerships in both research and innovation (including access to capital). International science funding is largely ad hoc and not co-ordinated across government to assist diplomatically.

Cabinet will be considering SSAG's recommendations around these issues from late 2024.

## 1.1 SPEND BY PORTFOLIO




## TARGETS AND PRIORITIES

### Government targets

This portfolio underpins the government's efforts to advance one of its five key themes, namely: promoting innovation, science and technology

New Zealand's economy needs to transform over the next 25 years to deliver sustainable prosperity for current and future generations. To meet the multiple challenges it faces, New Zealand needs to export a more diverse set of products and services to a wider range of countries, producing them with lower emissions and higher rates of productivity. This cannot be achieved without meaningful, long-term and sustainable investment in science, leading to increased innovation and the creation and adoption of advanced technology.

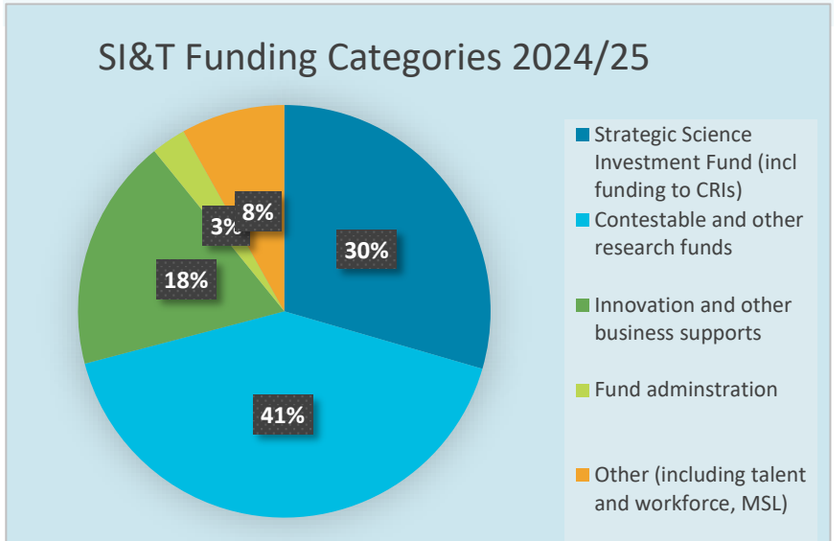
### Strategic and Portfolio priorities

The government has identified some key priorities for the SI&T portfolio, including to:

1. Revise and update legislation around gene-technology to support the growth of New Zealand's biotech industry
2. Ensure that there are adequate incentives around advancing commercial opportunities from the science and research that is publicly funded
3. Pursue recommendations made by the Science System Advisory Group to strengthen the science, innovation and technology system to ensure that it is fit for purpose for New Zealand's future.

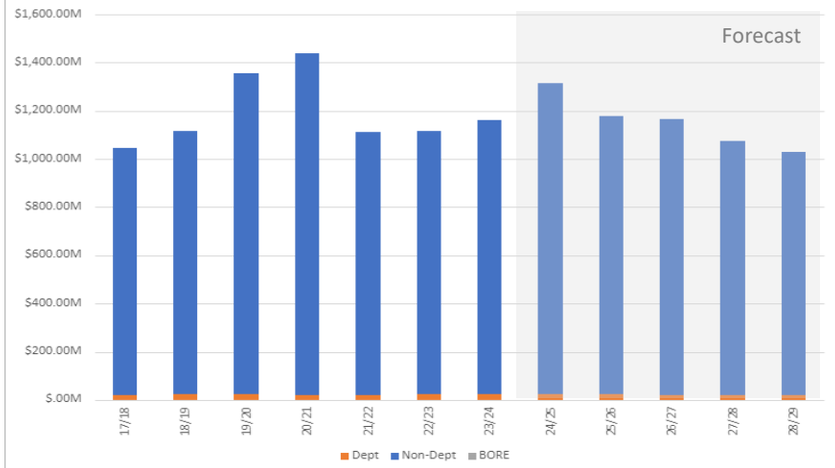
### Categories of SI&T Expenditure

The $1.2 billion sitting within the SI&T portfolio is 2024/25 is distributed over a wide range of areas, including those with economic growth objectives, and others that have environmental or social objectives. Science services with public benefits that would not be otherwise funded are supported via the Strategic Science Investment Fund. Some of this Fund is allocated to CRIs. Funding in the contestable (e.g. Endeavour, Health Research) and other research funds (like Catalyst) is distributed to research organisations including universities. Business supports includes Callaghan Innovation and the Game Development Sector Rebate.




## EXPENDITURE BY TYPE

### 1.2 Departmental, non-departmental, and Benefit or Related Expenditure (BoRE) ($m)




### Recent changes in expenditure

Non-departmental expenditure has been relatively stable with some additional funding during COVID to support R&D performing firms and transitional support between R&D programmes. The purchasing power of this funding has decreased due to the increasing cost of undertaking research and science services. This is putting pressure on research institutes including Crown Research Institutes and universities and is leading to reductions in capability via FTE cuts.

For Departmental expenditure, there was a large drop (37%) from 2023/24 to 2024/25 relating to the end of some previous time-limited funding, and the provision of 10% saving in Budget 2024. This is being resolved by some internal transfers from related Departmental appropriations and further reductions in FTEs.

### Expected changes in expenditure

The portfolio needs to rebalance the focus of its expenditure towards a stronger focus on advanced technologies (and relatively less on primary sector and environment). New Zealand is under investing in this area relative to other advanced economies. Implementing the recommendations of the SSAG may result in changes to expenditure to implement this rebalancing and to realise efficiencies across CRIs, as an example.

### Monitoring and funding of Crown companies or entities

- Callaghan Innovation
- AgResearch Limited
- Institute of Environmental Science and Research Limited
- Institute of Geological and Nuclear Science Limited (GNS Science)
- Landcare Research New Zealand Limited (Manaaki Whenua)
- National Institute of Water and Atmospheric Research Limited (NIWA)
- The New Zealand Institute for Plant & Food Research Limited
- New Zealand Forest Research Institute Limited (trading as Scion)
- REANNZ (Research & Education Advanced Network NZ Ltd)

# 2. Portfolio overview: Current specific fiscal risks, workforce, and third-party revenue

## SPECIFIC FISCAL RISKS

| Title / Description | Amount and Probability | Mitigations |
|---|---|---|
| CRIs managing sharp decline in commercial revenue could face insolvency without capital injection | $TBC but likely in 10s of $m; Unlikely | Monitoring. Proposal to integrate CRIs into a smaller number of entities, providing greater scope to respond to specific fiscal pressures |
| Gracefield seismic risks, requiring exit of tenants from particular buildings | $TBC but likely in 10s of $m; Reasonably Possible | |

## WORKFORCE

2.2

### Drivers and implications of change(s) in FTE

Departmental FTEs within the portfolio – MBIE staff working on SI&T are across Policy and Fund Administration functions – **144.5 in total.** Policy FTEs have reduced by 25% since 2023/24. There are currently 65 FTEs working on Policy; 6 on Entity Monitoring; 3 on Board appointments; 3.5 on Data and Insights. 70 FTEs work on Fund Administration activities. [Note Policy includes two new teams to the portfolio – Biotech and Digital Futures Policy]. Absent a successful Cost Pressure bid in Budget 2025, further reductions of FTEs will be needed in the year ahead to ensure that MBIE budgets stay within Departmental appropriations, with associated impact on work programme delivery.

Non-Departmental funding supports the employment of researchers across the system including in universities and other research organisations. MBIE does not hold data on this as funding from this portfolio will be one funding source alongside others.

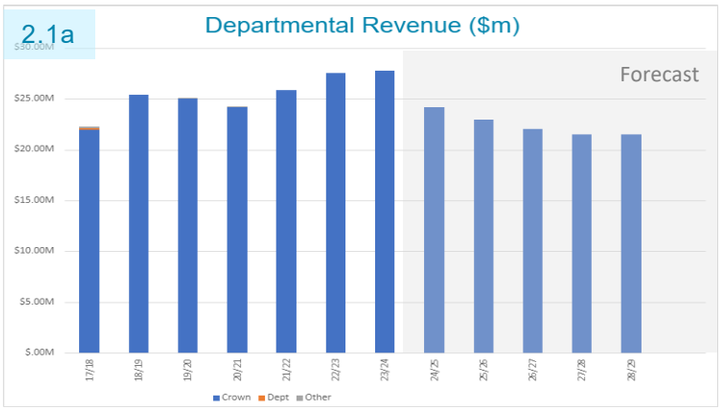
Collectively CRIs employ 3957 FTEs, which is nearly 3% less than 12 months ago. The CRI workforce is funded via a mix of public and private sector funding, although this varies across the CRIs.

Callaghan Innovation has also reduced its workforce. The FTEs for 2023/24 financial year end (June 30 2024) was 381. Total FTEs as of September 2024 is 373 (including both fixed term and permanent employees). A further 10 FTEs are proposed to be removed before end of 2024.

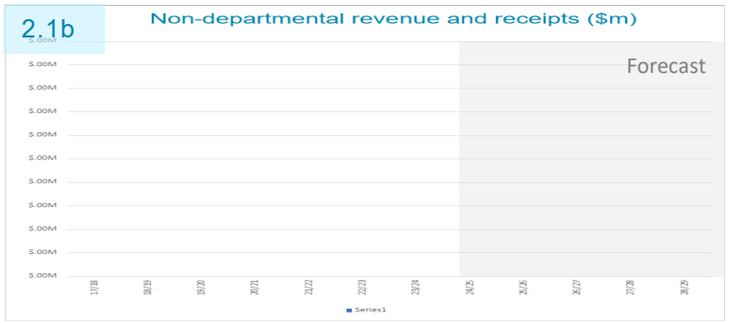
## DEPARTMENTS WITH THIRD PARTY REVENUE (INCLUDING TAX, FEES, LEVIES, EXCISE, DUTIES AND CHARGES)

### Revenue sources

2.1a




2.1b




### Scenarios that could impact third-party revenue

| Scenarios | Incidence in last 10 years | Likely in next 10 years? |
|---|---|---|
| [Specific Fiscal Risks (list any current risks related to third party revenue as outlined in latest EFU)] | | |
| [Risk 1] | [Yes/No] | [Yes/No] |
| [Risk 2] | [Yes/No] | [Yes/No] |
| [Other potential shocks (e.g. those that might not have reached materiality/probability threshold for a SFR)] | | |
| [Scenario 1 | Yes | Yes |
| [Scenario 2] | [Yes/No] | [Yes/No] |
| [Scenario 3] | [Yes/No] | [Yes/No] |

### Activities funded by third-party revenue and when were they last reviewed

| Activity name | % User funded | Date last reviewed | Date next reviewed | Material under or over recovery | Key performance measure and 2023/24 performance |
|---|---|---|---|---|---|
| There is no third party revenue in this portfolio | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# 3. Portfolio Managing within baselines: Current and future drivers

## DRIVERS OF COST PRESSURES AND INITIATIVES FOR MANAGING WITHIN BASELINES

4.1

| | Operating impact $m increase, (decrease) | | | | | |
|---|---|---|---|---|---|---|
| | 2017/18 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
| **Total baseline*** | **1044.52** | **1313.2** | **1177.97** | **1165.34** | **1073.25** | **1028.80** |
| **Operating baseline** | **1044.52** | **1313.2** | **1177.97** | **1165.34** | **1073.25** | **1028.80** |
| *Total volume pressures* | - | - | - | - | - | - |
| *Total price pressures* | - | - | - | - | - | - |
| *Total wage pressures* | - | 0.66 | 1.16 | 1.63 | 2.12 | 2.61 |
| *Total other pressures* | - | 0.11 | 22.35 | 22.38 | 7.41 | 7.48 |
| **Total cost pressures** | - | **0.77** | **23.50** | **24.01** | **9.52** | **10.08** |
| **Total reprioritisation/ savings** | **-** | **(0.77)** | **(23.50)** | **(24.01)** | **(9.52)** | **(10.08)** |
| **Net impact on baseline** | **-** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

*includes all operating (departmental, non-departmental, Benefits or Related Expenses and revenue dependent appropriations). Benefits or Related Expenses and revenue dependent appropriations are removed in the operating baseline.

### Summary of cost pressures:

- Gracefield Innovation Quarter is currently occupied and managed by Callaghan Innovation. The current arrangements are not sustainable, and a decision on the future ownership model will be required this year. This could involve either exiting the site or improving its quality in preparation for investment from the private sector. Either option will require additional funding to realise (including a capital component est $50m).
- The funding for SI&T Policy Advice has reduced due to previous time-limited funding coming to an end. Advancing the government's priorities for the portfolio will require additional resourcing. The Policy Advice appropriation has been cross-subsidised by other MBIE Policy Advice appropriations over many years.
- Crown Research Institutes have not requested any cost-pressure funding. Cost-pressures including increasing expenses, indirect impacts of reduced funds and grants from other government agencies i.e. Ministry of Health contracts with ESR, are being managed internally.

## FUTURE DRIVERS

**Advanced technology –** advances across a range of areas, including AI and machine learning, quantum, sensing and robotics have the potential to fundamentally improve economic and social outcomes through smart adoption to solving problems and taking advantage of the opportunities they enable. They will also change how research and science are undertaken

**Geopolitical competition:** the international rules-based trading system is being undermined by increasing protectionism and rising geo-political tensions, with some countries adopting protective measures to provide economic security and to support their transition to a low emissions economy. Partner countries are investing in active industry strategies for economic growth, and national security and resilience reasons. This may create barriers to New Zealand's engagement or conversely opportunities to leverage mutual interests where New Zealand can demonstrate value (i.e. in particular research fields and industry capability).

**Climate change:** increasing global GHG emissions caused by human activity is directly linked to rising global temperatures and more extreme and frequent weather events. New Zealand will face its fair share of natural disasters requiring continued investment in science at all stages (prepare, respond and recovery).

**Global competition for workforce:** A combination of increasing competition for research and industry capability internationally, and a constrained funding situation in New Zealand is leading to early signals of a loss of capability as workforce flows out of New Zealand.

4.2

In the context of increasing external pressures, particularly due to climate change, ageing populations, rapidly evolving technology, and increased geopolitical competition, science, innovation and technology have been identified by almost all developed countries as critical factors in national success. Such countries invest far more heavily in SI&T than New Zealand does currently.

### Choices to mitigate/manage long term pressures

| Policy that causes demand or demand driver | Options to manage this? | Lead time required to make changes? |
|---|---|---|
| Advanced technologies – increasing investment for economic growth | Rebalance portfolio of investments | Longer term given need to recalibrate away from environmental and primary sector research. Will need to build research capability on advanced tech |
| Creaking infrastructure that's at end of life and requires replacement | Consolidate CRIs into smaller number of entities and rationalise required infrastructure. Look for public-private partnerships | To begin later in 2024/25, time horizon will be multiple years |

### Plan for managing within baselines (Table 4.1)

| | Impact | | | | | |
|---|---|---|---|---|---|---|
| Area | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | Description |
| Contestable funds (Endeavour, Marsden, Health Research) | 0 | -7.0 | -7.0 | -7.0 | -7.0 | Reprioritising funding from the contestable funds (TBC) to ensure there is sufficient departmental funding for the policy advice and fund administration functions for the portfolio. The relative size of the funds currently would mean that the impact is likely manageable but will mean less research funding in the system. |
| Combination of contestable funds and Strategic Science Investment Fund | 0 | TBC | TBC | TBC | TBC | Confidential advice to Government |

# 4. Portfolio Managing within baselines: Workforce and capability

## Strategy for workforce costs, including remuneration

Bargaining is underway and we are unable to provide full details of MBIE's remuneration strategy while that is ongoing. The focus of MBIE's approach is to ensure workforce costs balance affordability alongside ongoing sustainability and enable us to deliver MBIE's work programme.

MBIE is working through what measures need to be put in place to balance those cost pressures we have been directed to absorb. This is being done as part of our preparation for Budget 2025.

The Ministry has been working to calibrate its workforce to optimise against government priorities and ensure that workforce costs fit within portfolio appropriations.  A reduction in the SI&T Departmental appropriation from 2023/24 has required a 25% reduction in the numbers of FTEs working in the portfolio.

Crown Research Institutes (CRIs) are required to ensure financial resilience. In a tight fiscal operating environment, CRIs are reassessing their capability needs, which is an operational decision made by CRI Boards. Generally, capability will be maintained where it is supported by revenue and available funding. Government agency and CRI restructures have occurred without an overarching coordination mechanism meaning capability gaps may result within the Science System and there is risk the capability lost will take time to rebuild .

Callaghan Innovation are undertaking a strategic reset to make the organisation financially sustainable. Phase 1 completed on 30 June 2024 resulted in a reduction of approximately 30 science FTE, and Phase 2 is expected to commence soon and result in an approximately 20 FTE reduction in back-office staff.

## Capability – non-workforce (e.g. organisational systems, processes, governance, technology and data)

Implementing the recommendations of the Science System Advisory Group will require sufficient departmental resources to oversee the work programme over the rest of 2024/25 and into later years (refer to Policy Advice Cost Pressure). MBIE need to access additional expertise relating to institutional and organisational design.

# 6. Managing with baselines: Investment and monitoring

## MONITORING STATEMENT (IF APPLICABLE)

MBIE monitors seven Crown Research Institutes and one Crown Entity within the portfolio.  A summary of how this role is undertaken is on the next slide.

MBIE also monitors the investments made under the different funds that are in the portfolio (Endeavour, Strategic Science Investment Fund) and oversees the monitoring by third parties in the case of the Marsden and Health Research Funds.

Every active contract is managed by MBIE Investment Managers. All contract holders report annually per contract against agreed deliverables and KPIs. These are reviewed by MBIE Investment Managers, including assignment of a performance rating. All contracts assessed as not being "on track" are contacted to initiate remedial action, which can include early termination in the case of gross underperformance.

For example, The SSIF Programmes Performance Framework sets out how MBIE will monitor and evaluate/review investments (https://www.mbie.govt.nz/assets/518a038335/performance-framework-2018-strategic-science-investment-fund-programmes.pdf).  The majority of our individual Programme investments have a scheduled mid-way contract review

# 6. Managing with baselines: Investment and monitoring

| Summary of how MBIE undertakes its monitoring role | | | | |
|---|---|---|---|---|
| **Activity** | Entity name ► | Callaghan Innovation | CRIs (x 7) | REANNZ |
| | Monitoring status ► | On watch | Standard x4.<br>GNS, Scion, Plant & Food<br>On Watch | Standard |
| | Frequency ▼ | | | |
| **Appointments & Governance** | As required | ✓ | ✓ | ✓ |
| **Performance advice to relevant Minister/s** | Quarterly, unless stated.<br>Plus Weekly Report items. | Based around Ministerial meetings | Six-monthly, plus Weekly Report items | Annually, plus Weekly Report items |
| **Engagement with Chair / Board** | Varies depending on situation | Monthly | Six-monthly or Quarterly | Six-monthly |
| **Engagement with CE / ELT** | Varies depending on situation | Fortnightly | Quarterly<br>Monthly engagement if 'on-watch' | Quarterly |
| **Regular attendance at board meetings** | Typically monthly, but frequency depends on board timetables | ✓<br>MBIE is a designated Special Advisor in legislation | × | × |
| **Significant additional activities status ►** | | - | Weather forecasting review | - |

| Overview of performance risks | |
|---|---|
| **Callaghan Innovation** | Confidential advice to Government<br>Commercial Information |
| **Crown Research Institutes (x 7)** | It is unclear what the flow-on impact of Government cost savings exercises will be for CRIs. The CRIs that are more heavily reliant on government revenue are Manaaki Whenua, NIWA, GNS and ESR.<br>Confidential advice to Government<br>we expect that fewer larger organisations with improved capacity to more efficiently manage physical footprints should reduce the need for Crown support.<br>Confidential advice to Government |
| **REANNZ** | No significant fiscal risks. |