Endeavour Fund
Investment Plan 2017 - 2020

AUGUST 2017

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

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Minister's foreword

I am pleased to release this updated three-year investment plan for the Endeavour Fund. This Investment Plan identifies the Government's priorities for investment through the Fund, to provide the Science Board with guidance on its funding decisions. This version reflects the increased funding made available through Budget 2016 and Budget 2017.

The National Statement of Science Investment identified excellence and impact as twin pillars of the science system. The Endeavour Fund is one of the most important investment mechanisms to support these. The Endeavour Fund focuses on excellent, higher-risk research with transformative impact in areas of future value, growth and critical need for New Zealand.

This Investment Plan maintains the investment signals from the previous version, out to 2020. This is intended to provide predictability and transparency on the direction of our investments, and on the availability of future funding opportunities. It highlights which areas government agencies consider will be key to the future prosperity and wellbeing of New Zealand and New Zealanders, while providing sufficient flexibility to allow for the emergence of new and challenging ideas.

Science is critical to improve the living standards of New Zealanders and preserve and enhance what is special about New Zealand.

The science supported through the Endeavour Fund will be central to achieving the vision set out in the National Statement of Science Investment, of a highly dynamic science system that enriches New Zealand, making a more visible, measurable contribution to our productivity and wellbeing through excellent science.

Hon Paul Goldsmith
Minister of Science and Innovation
August 2017

Introduction

CHANGES TO THE ENDEAVOUR FUND

This update to the Investment Plan increases the Government's proposed investment through the 2017 Endeavour Round and through subsequent rounds. This is a result of new funding of $81.9 million provided as part of the Innovative New Zealand Initiative through Budget 2017. As a result the Endeavour Fund will increase in size from $183 million in 2015/16 to $243 million in 2020/21.

The National Statement of Science Innovation (NSSI) 2015- 2025 sets out the Government's decision to focus investment made under the Endeavour Fund on excellent, higher risk research with the potential for long-term, transformative impact in areas of future value, growth or critical need for New Zealand.

This announcement followed a review process launched in the draft NSSI in May 2014. The draft NSSI consulted on high-level proposals for change to align the Endeavour Fund with the Government's 10-year vision for the science and innovation system for the period 2015 to 2025. The draft NSSI proposed reducing the number of funds, increasing flexibility to shift funding to respond to emerging research opportunities and needs, and to reduce the complexity and cost of operational processes.

THE INVESTMENT PLAN

The NSSI announced changes to the Investment Plan (the Plan) for the Endeavour Fund. These changes are intended to provide greater predictability and transparency on the direction of investment, as well as the scale of expected bidding opportunities. This will support the research community in planning their research and to develop new and established relationships with end-users.

The key changes to the Plan are that it:

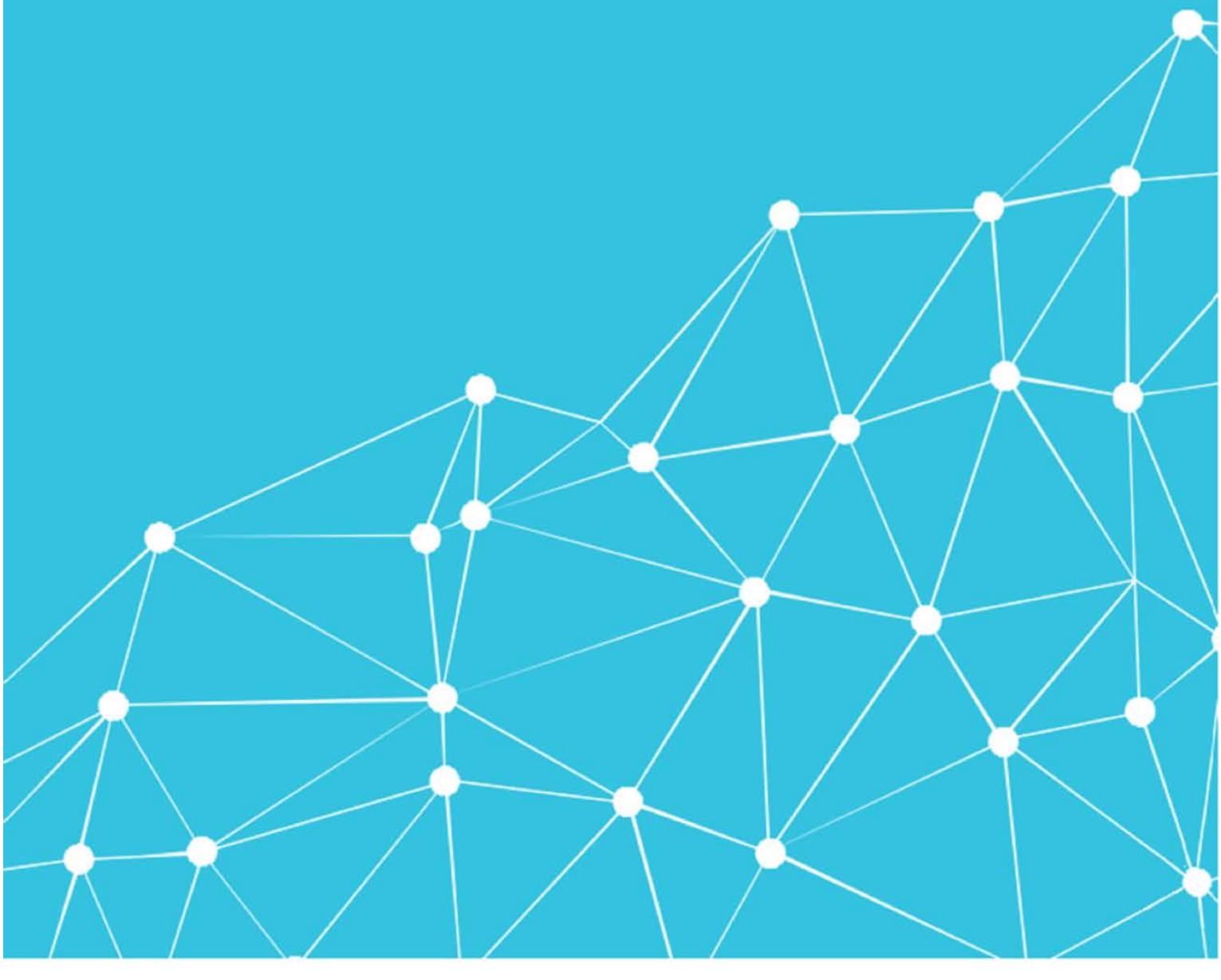
- communicates to the Science Board the funding available for investment through calls for proposals for the Endeavour Fund
- provides an outlook of expected funding available under the Endeavour Fund over a three-year horizon
- provides investment signals on how the Government seeks to grow or change our investment through the Endeavour Fund over this time horizon
- describes how the Endeavour Fund is currently invested.

The Science Board will allocate funds as set out in this Plan and in accordance with the investment signals and mix of investment set out in **Sections 2** and **3** of this Plan.

The Plan has been agreed by Cabinet. This update of the plan should be read in conjunction with the NSSI and the Gazette Notice at **Annex 1** which sets out the criteria for the Science Board's decisions on proposals made under the Endeavour Fund.

Section 1

The Endeavour Fund



The Endeavour Fund

This section explains the role of the Endeavour Fund in the science system, why government is investing, and key changes to the Endeavour Fund's structure and operational processes.

INVESTING FOR LONG-TERM, TRANSFORMATIVE IMPACT FOR NEW ZEALAND

The Endeavour Fund is one of the government's main mission-led investments. The fund uses competition to drive an increasing focus on excellent, higher risk research and on the potential for impact in areas of future value, growth or critical need for New Zealand.

The Fund's mission is to support research, science or technology or related activities with:

> "The potential to positively transform New Zealand's economic performance, the sustainability and integrity of our environment, help strengthen our society and give effect to the Vision Mātauranga policy."

This reflects the Government's ten-year vision set out in the NSSI of **"a highly dynamic science system that enriches New Zealand, making a more visible, measurable contribution to our productivity and wellbeing through excellent science."**

The Endeavour Fund complements the government's much larger, wider investment in **mission-led science**, made through:

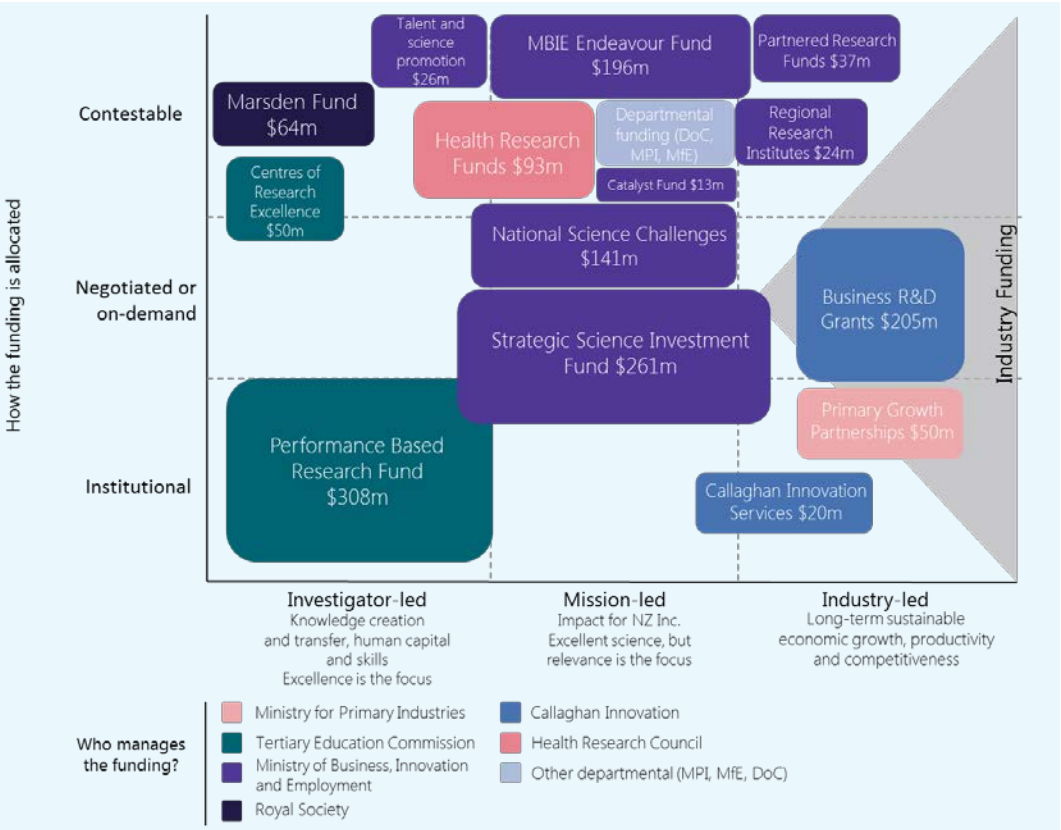
- the **Strategic Science Investment Fund** (SSIF) investing in large term underpinning programmes and infrastructure critical to New Zealand's future
- **National Science Challenges** (NSCs) a collaborative mechanism to fund research that addresses complex, long term, national-scale issues for New Zealand
- **Health Research Council** (HRC) to support improved health outcomes for New Zealand
- **wider government agencies** and **local government funding** to support policy-making and operational needs.

The government also provides separate **contestable funding** to support other policy objectives across the science system. The **Marsden Fund** supports investigator-initiated research aimed at generating new knowledge with long term benefit for New Zealand.

Other specific, tactical policy objectives are supported through funding which is allocated through a competitive process: the **Vision Mātauranga Capability Fund, targeted workforce funds, Independent Research Organisation Capability Funding** (now part of SSIF), and **targeted uptake and extension funds**.

Chart 1 indicates where the Endeavour Fund fits in relation to wider government-funded science and innovation investments, by allocation method and type of investment.

Chart 1. Government-funded science and innovation investments



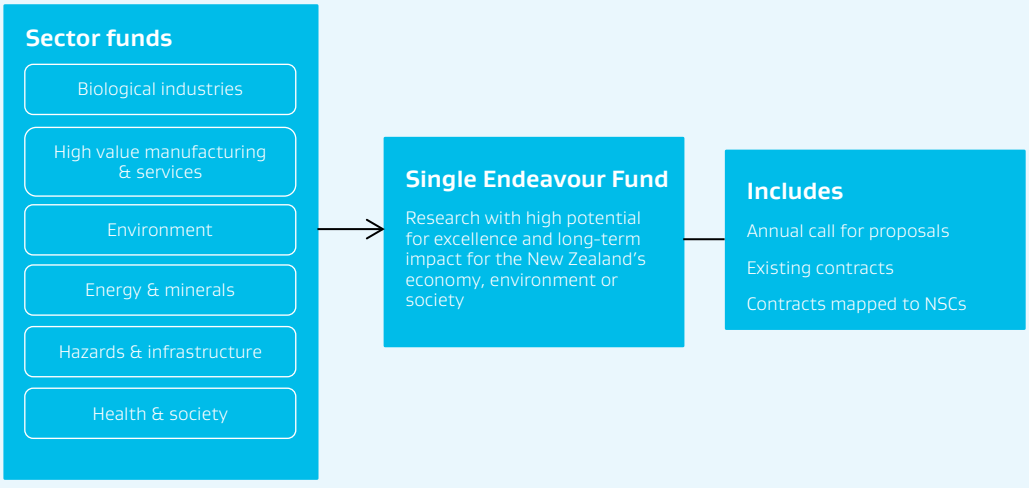
Source: 17/18 figures from Estimates of Appropriations 2017

A LARGER, MORE AGILE AND RESPONSIVE FUND STRUCTURE

The NSSI announced a change to a single, contestable fund, which will be managed as an investment portfolio across social, environmental and economic objectives. This change in structure, disbanding the six sector-based research funds, took effect from 1 July 2016.

The Government expects the single fund to provide greater investment flexibility, enabling funding to shift across sectoral and disciplinary boundaries. This flexibility will provide for greater frequency and predictability of opportunity to bid for funding. Scientists will be able to bid every year and will not have to wait until money becomes available from expiring contracts in a particular field.

Figure 1. Moving from six funds to a single fund



TRANSPARENCY AND PREDICTABILITY OF FUNDING OPPORTUNITIES

The Plan now looks out over a three-year horizon for the Endeavour Fund. It explains how, why and where the government seeks to grow or change our investment and the scale of expected funding opportunities.

Greater predictability of direction and scale of investment allows the research community to plan their research and engage more meaningfully with end users.

Each year, an update will be published to confirm the funding available for the next annual investment round, add a further year to create a rolling three-year funding horizon, and provide a current description of the investment portfolio.

As the level of available evidence on the portfolio grows, future Investment Plan updates will include information on the quality of outputs and impact from the research we fund.

The Cabinet will refresh the Plan and MBIE's approach to managing the investment portfolio every three years.

DECISIONS BASED ON EXCELLENCE AND POTENTIAL FOR IMPACT

This Fund will use competition to drive an increasing focus on excellent research with high potential for impact in areas of future value, growth or critical need for New Zealand.

The independent Science Board will continue to make the funding decisions on proposals made to the Endeavour Fund.

The Science Board will be provided with independent, expert assessment of the science excellence and potential for impact for New Zealand of proposals. Value for money considerations will be integrated as a consideration into these criteria in terms of the additional value provided by the proposed research and how it leverages wider science investments, whether domestic or international.

This reflects the vision set out in the NSSI that we should strive for greater excellence and impact in publicly funded research. As much of our science as possible should be of the highest quality by international standards and any investment should have clear line of sight to eventual impact.

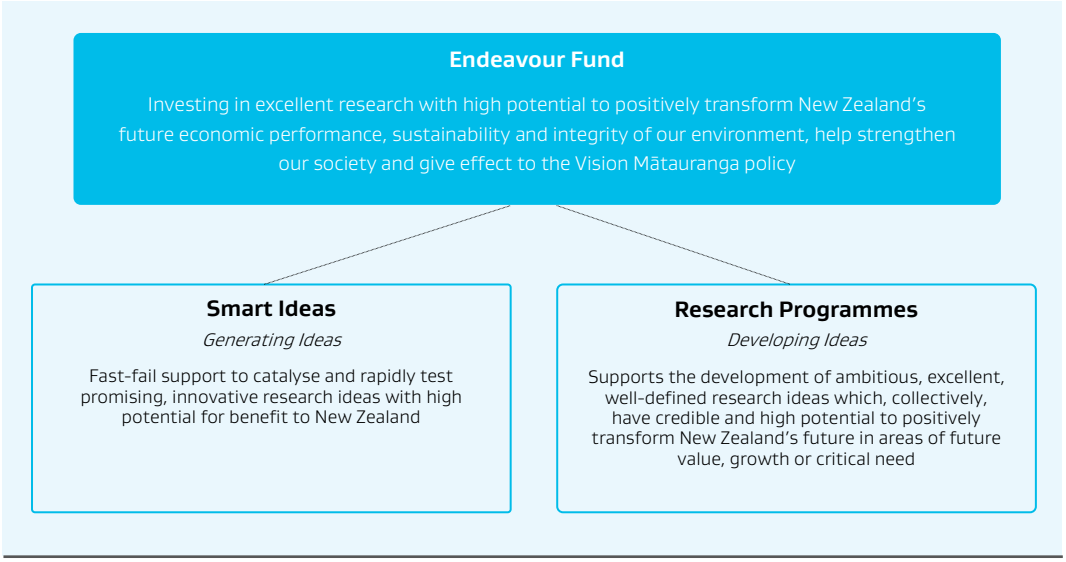
The Science Board's funding decisions, individually and as a collective portfolio, must be made in accordance with the investment signals set out in **Sections 2** and **3** of this Plan. Their decisions will also be supported by relevant information held by MBIE, such as portfolio analysis, and administrative services from MBIE.

The grounds for the Science Board's decisions, criteria for eligibility and assessment of proposals, and policy objectives for each investment mechanism are set out in the Gazette Notice at **Annex 1**.

TWO ROUTES TO APPLY FOR FUNDING

In support of the NSSI's design principle of reduced complexity in the public science system, we have simplified the routes through which applicants may apply for funding.

There will be two straightforward investment mechanisms which we expect to remain stable over time. An annual call will be published for both mechanisms, based on the funding opportunities and signals set out in the Plan.



STREAMLINED, ROBUST OPERATIONAL PROCESS

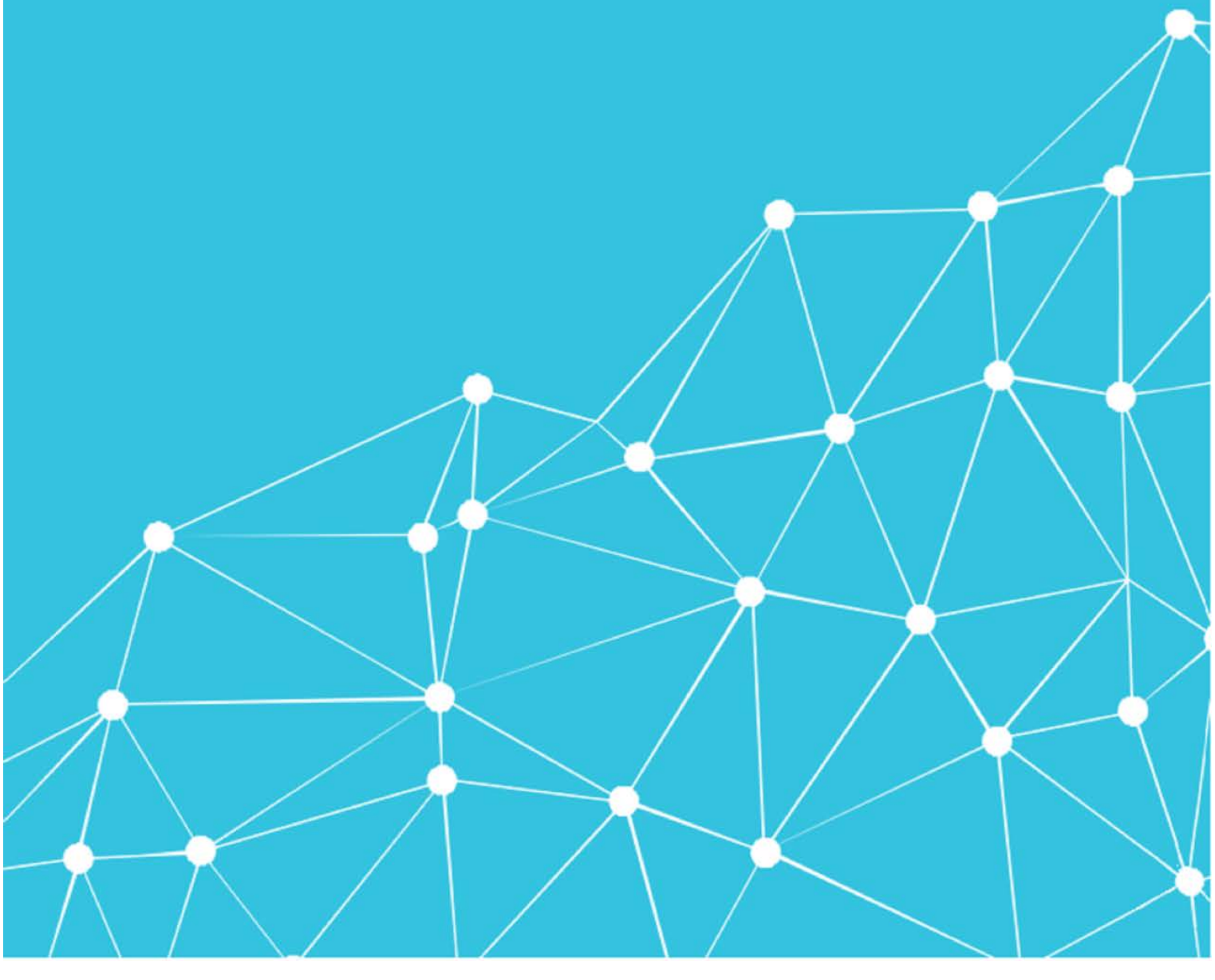
Operational processes and systems have been redesigned to improve the balance between administrative cost and complexity for users, and the value these processes add to a robust decision-making process for granting public science funding, reflecting international evidence and evaluation of science grant assessment processes.

The Science Board's decisions are supported by the assessment of proposals by independent experts. Separate review by both scientific peers and impact experts is integrated into the process.

Wherever possible, we have simplified the operational documents, systems and processes which underpin the investment process.

Section 2

Investment Signals



Investment signals

This section describes how the Endeavour Fund is currently invested and communicates investment signals on how we seek to grow and change our investment through the 2016 to 2019 calls for proposals for the Endeavour Fund.

HOW WE DESCRIBE THE ENDEAVOUR FUND PORTFOLIO

The Plan describes the Endeavour Fund investment portfolio, as it stands in 2016/17, through the following multiple frameworks:

- **socio-economic objectives** (SEO) of the research, using the ANZSRC SEO classifications
- **type of research**, using the OECD's *Frascati* definitions
- **excellence and impact** of the research, including integrated consideration of value for money and risk, using the criteria set out in the Gazette Notice
- fit with **wider public and private science investment**, using the frameworks set out in the NSSI.

ANZSRC SEO CLASSIFICATIONS

The ANZSRC SEO classifications allow research and development (R&D) activity in Australia and New Zealand to be categorised according to the intended purpose or outcome of the research rather than the processes or techniques used in order to achieve this objective.

R&D projects may be a homogeneous body of work directed towards a specific objective. Others are sufficiently large or complex (in terms of research areas) that they contribute to multiple objectives.

Full definitions are available online.

The criteria for classification should be the purpose of the R&D programme or project, i.e. its primary objective. The allocation of R&D budgets to socio-economic objectives should be at the level that most accurately reflects the funder's objective(s).

TYPES OF RESEARCH

Public sector expenditure on R&D is categorised by the OECD for various statistical returns by type of research using the following OECD definitions:

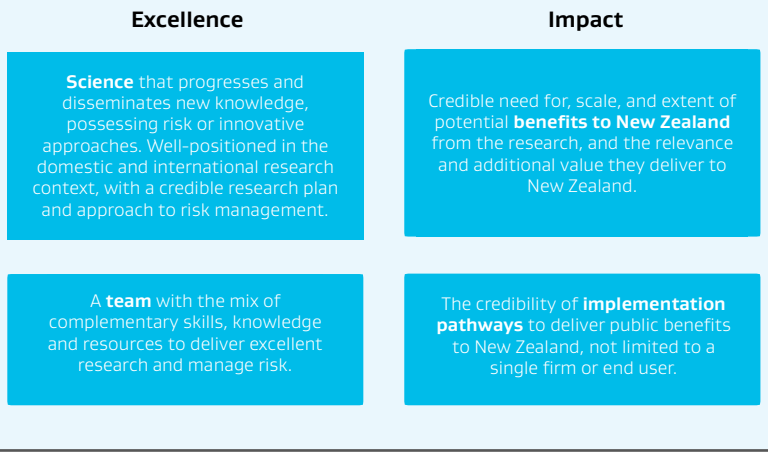
- **Basic research** is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- **Pure basic research** is carried out for the advancement of knowledge, without seeking long-term economic or social benefits or making any effort to apply the results to practical problems or to transfer the results to sectors responsible for their application.
- **Targeted (or oriented) basic research** is basic research carried out with the expectation that it will produce a broad base of knowledge likely to form the basis of the solution to recognised or expected current or future problems or possibilities.
- **Applied research** is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.
- **Experimental development** is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

The wording of these definitions is the result of cognitive testing of the definitions provided in the OECD's publication *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development*. The *Frascati Manual* is the internationally recognised methodology for collecting and using R&D statistics.

EXCELLENCE AND IMPACT CRITERIA

These are set out in full in the Gazette Notice in **Annex 1**, and summarised in **Figure 2** below.

Figure 2. Excellence and impact criteria for the Endeavour Fund



NSSI FRAMEWORKS

The objectives of the Endeavour Fund are defined based on social, economic and environmental missions. These are not mutually exclusive objectives, as contracts may contribute to one or multiple objectives.

Table 1 sets out the Government's **framework for the evaluation of impact** across the science system as published in the NSSI.

The framework is intended to provide a clearer sense of the areas in which we are seeking to develop better focus on the impact of our science and to guide future investment decisions, across all science investments. No ranking is implied by the model below. We expect proposals to contribute to one or more of these system-level dimensions.

Where research supported under the Endeavour Fund contributes to **health outcomes**, this may be a secondary objective only of the research. Research with the primary objective of health outcomes is funded through separate contestable funding managed by the HRC.

Table 1. The NSSI 'dimensions of impact' framework for the wider science systems

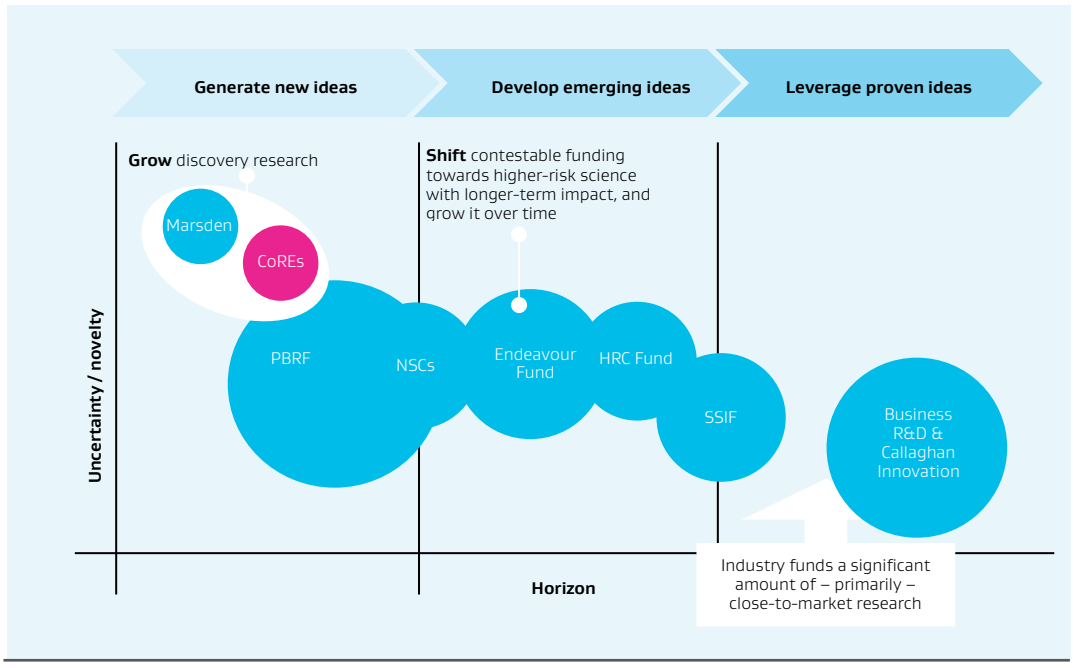
Economic	Environmental	Health	Social
New/improved products and services	Reduced or mitigated environmental impact	Improved population health and health status of disadvantaged groups	Increased knowledge and interest in science
Reduced operating costs or commercial risk	Reduced or mitigated environmental risk	Reduction in health maintenance costs	Understanding of and resilience to real or perceived communal risk
New job opportunities	Improved condition of an environmental asset	Early detection and mitigation of health risks	Stronger social and infrastructure systems and improved techniques for delivery of public services
Improved business and industrial processes	Better understanding of the environment, and characterisation and management of natural capital	Improved wellbeing through development of human and social capital, and removal of institutional barriers	
Value extraction from existing science			
Improvements in public policy advice			

Vision Mātauranga		
Indigenous innovation: economic growth through distinctive R&D	Taiao: Sustainability through iwi and hapū relationships with land and sea	Hauora/Oranga: improved health and social wellbeing
Mātauranga – explore indigenous knowledge for science and innovation		

The NSSI also considers government-funded science investments across a horizons framework, which is set out in **Chart 2**.

The Government's intention is to focus a greater proportion of investment through the Endeavour Fund in research with a potentially high, but longer term impact, or with high technical or market risk, where the role of government in correcting market failure is clearest. This shift to a more distributed risk profile is at portfolio level across the Endeavour Fund, with continued investment in lower- and medium- risk projects with significant potential for public benefit.

Chart 2. NSSI 'horizons' framework



Box 1. Key relevant Government and public sector priorities and strategies

The National Statement of Science Investment: The NSSI sets out the Government's strategy for the public science and innovation system over the period 2015-2025.

System Performance Report: A compendium that describes the science system and its performance.

Business Growth Agenda: The Business Growth Agenda applies across research funds with an economic development focus or a focus on resource development and management. Goals of particular relevance include growing exports, improving the quality of our natural resource base, harnessing Māori resources, encouraging more business expenditure on research and development, and building international linkages.

He kai kei aku ringa: This Crown-Māori economic growth partnership aims to grow the Māori economic sector and deliver prosperity to Māori and resilience and growth to the national economy.

Vision Mātauranga: The Vision Mātauranga policy aims to unlock the science and innovation potential of Māori knowledge, resources, and people for the benefit of New Zealand. The policy applies across and is integrated within all MBIE science investment mechanisms.

Tertiary Education Strategy 2014-2019: The strategy sets out the Government's long-term strategic direction for tertiary education. This strategy highlights the need to build international relationships that contribute to improved competitiveness, support business and innovation through development of relevant skills and research and improve outcomes for all.

The Treasury Living Standards Framework: The framework identifies four factors considered to be essential to achieve the overarching goal of higher living standards for New Zealanders: financial and physical capital, natural capital, social capital and human capital.

Better Public Services: Results for New Zealanders: These set 10 challenging results for the public sector to achieve over the next five years.

The National Policy Statement for Freshwater Management: The statement supports improved freshwater management in New Zealand by directing regional councils to establish objectives and set limits for fresh water in their regional plans. The Statement resulted from a blueprint for New Zealand's land and water management reform developed by the Land and Water Forum.

New Zealand Antarctic and Southern Ocean Science Directions and Priorities 2010-2020: This sets the framework for New Zealand's Antarctic science during this decade and identifies three high level research outcomes encompassing climate, ice and atmosphere; inland and coastal ecosystems; and the broader marine environment.

The New Zealand Biodiversity Strategy: A framework for action to conserve and sustainably use and manage New Zealand's biodiversity, in response to New Zealand's obligations as a signatory to the United Nations Convention on Biological Diversity.

The New Zealand Biosecurity Strategy 2003: This sets out an overall direction for biosecurity, and contains a detailed list of expectations. This will be replaced by the Biosecurity 2025 Direction Statement currently under development.

Environment Domain Plan 2013: This is an initiative to address our environmental information needs.

The Thirty Year New Zealand Infrastructure Plan 2015: The Plan provides a new approach to infrastructure management and planning to tackle the challenges of the next 30 years, along with supporting actions.

The Conservation and Environmental Science Roadmap

The Primary Sector Science Roadmap – Te Ao Tūroa

New Zealand is also involved in a number of **international agreements, treaties and conventions** that make it easier for information and trade to flow between New Zealand and other signatory countries.

WIDER GOVERNMENT FRAMEWORK

Research supported by the Endeavour Fund should not duplicate investment through the wider science system or research which is already underway elsewhere, whether domestic or overseas.

We expect our investment through the Endeavour Fund to take into account **wider government and other national policies, strategies, and roadmaps.**

The main government strategies that are relevant are identified in **Box 1**. Some of these are horizontal in nature and broadly applicable to research proposals, others are specific to sectors or areas of research. The list provided is not exhaustive and we expect research applicants to seek out and consider Government priorities and strategies relevant to their research area.

DESCRIPTION OF THE CURRENT INVESTMENT PORTFOLIO

The following pages describe the current investment portfolio under the Endeavour Fund.

Figures provided in charts and tables in this section are based on active contracts in the financial year 2016/17. The figures:

- Include contracts made under **former investment mechanisms** where we expect the funding to remain within the Endeavour Fund, such as Targeted Research and Enabling Technologies.
- Include contracts which have been **mapped to the National Science Challenges**, but are part of the Endeavour Fund until these contracts end.
- Exclude contracts under the six sector funds, made under **investment mechanisms managed separately** to the Endeavour Fund, through different administrative processes. These are the Health Research Council, Partnerships, Pre-Seed Accelerator Fund, Commercialisation Partners Network, Envirolink and Independent Research Organisation Capability Funding (now part of SSIF).

The data presented in this Plan are sourced from MBIE's investment management system. This contains profiling information submitted by contract holders through their applications and annual reporting, or completed by MBIE across its investments.

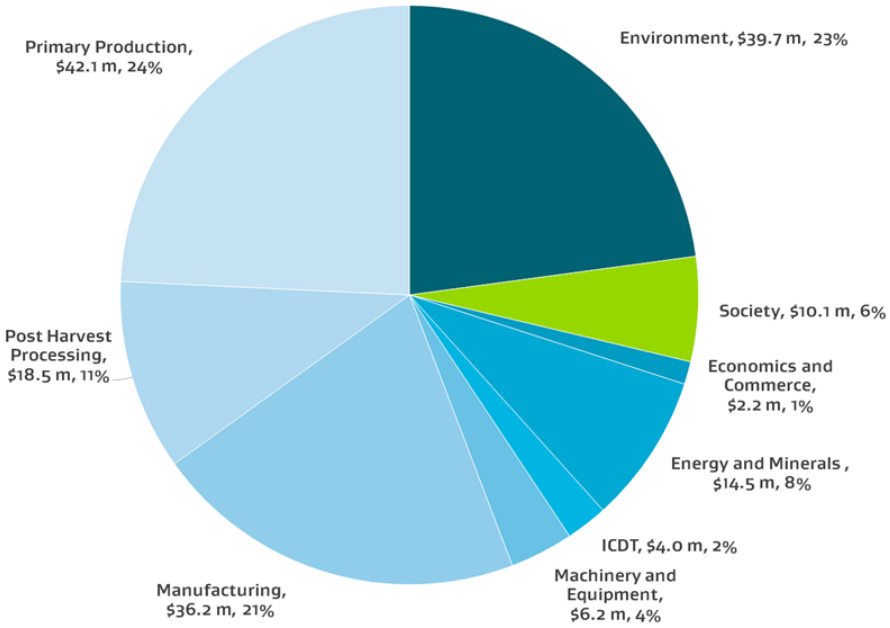
A typical contract comprises research across multiple objectives and types of research – which we expect and encourage to continue. To reflect this, data has been aggregated from impact statements under these contracts. At fund level this provides a broad understanding of how the portfolio is invested.

We want to provide more detailed information to the science sector on how the Endeavour Fund is invested in the future. This will improve the understanding and transparency of our current portfolio. It will help to minimise unintended duplication between funding agencies as investment decisions are made. It can also support greater connectivity between researchers, organisations and end-users.

How the Endeavour Fund is currently invested in 2016/17 (Financial Year)

THE FUND INVESTS $ 173 MILLION P.A . T O BENEFIT NEW ZEALAND

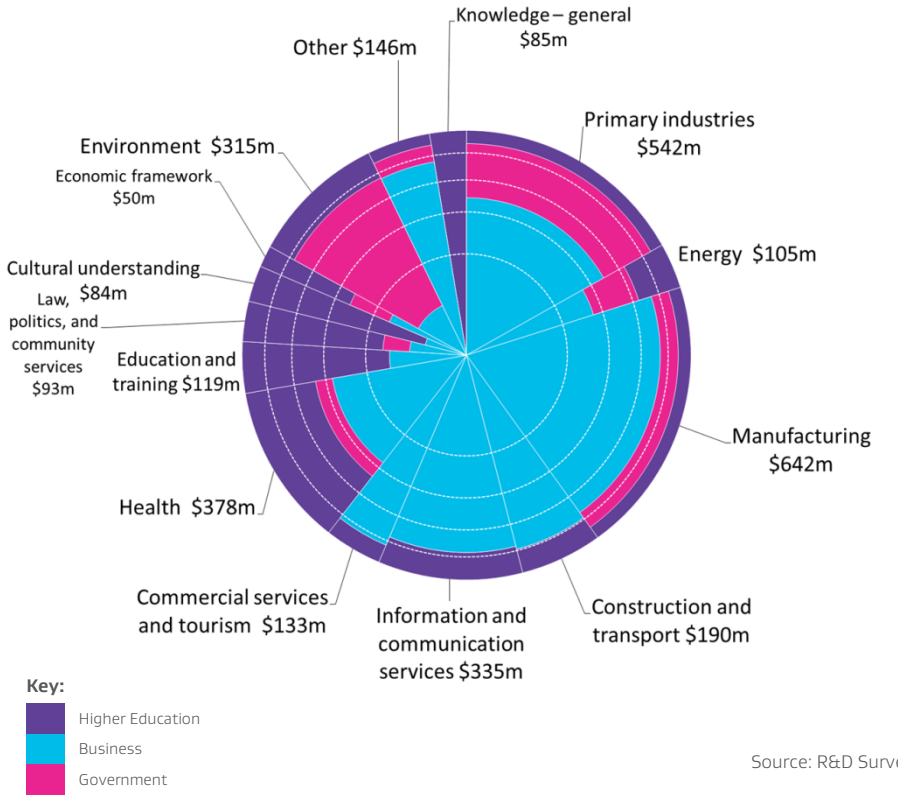
Endeavour Fund investment by purpose of research in 2016/17



Source: MBIE

PART OF A MUCH LARGER INVESTMENT IN R&D IN NEW ZEALAND

Total R&D funding in New Zealand, by purpose of research and sector of expenditure, 2016



Source: R&D Survey 2016

Current fund investment by objective

ECONOMIC

$123.6-million a year to challenge existing approaches, grow new, knowledge-intensive enterprises, and transform our economy

PRIMARY INDUSTRIES

We currently invest 35% of the fund ($60.5 million) in this area.

We have invested heavily in horticulture, aquaculture and on-farm production. Investment in potential areas of competitive advantage such as in high value add areas, in post-harvest and in forestry is low by comparison.

In 2016, investment to support the primary industries shifted the portfolio towards higher value add areas and biosecurity. This investment mostly falls under manufacturing or environment objectives.

MANUFACTURING

We currently invest 21% of the fund ($36.2 million) in this area.

Our investment has maintained use of manufacturing and health research expertise to support areas of emerging competitive advantage such as agri-technologies, high value food products and processing, and biomedical devices and pharmaceuticals. Quality of proposals continues to be highly variable across this area.

ICT

We invest only 2% of the fund ($4 million) in this area.

In 2016, overall levels of investment stayed broadly constant. While new investment was made, contracts ending and overall low quality and volume of proposals received constrained planned funding increases.

ENERGY AND MINERALS

We currently invest 8% of the fund ($14.5 million) to support this area.

In 2016, new investment was made to support renewable energy increased by $1.1 million per year.

ENVIRONMENT

$39.7 million a year to understand our natural environment, its inherent processes, and threats and mitigations

ENVIRONMENT

We are currently funding research to understand how we monitor, maintain, and use natural ecosystems, including land, marine and freshwater resources, air, atmosphere and climate in New Zealand and Antarctica, and to develop tools and technologies to manage these sustainably.

In 2016, investment increased in freshwater research, enhanced environmental decision-making and behavioural change. Quality of proposals constrained funding of Antarctic research.

NATURAL HAZARDS

We are currently funding research to improve management of hazards through prediction and reduction, improving readiness, and emergency response and recovery.

In 2016, new investment was made to support extreme fire research.

RISKS TO NATURAL RESOURCES

We are currently funding research on the identification, mitigation of, or adaptation to risks to our natural resources and resource-based businesses and trade, such as biosecurity.

SOCIETY

$10.1 million a year to improve public services and the wellbeing of future New Zealanders

AGEING POPULATION

We currently fund research into:

- the effect of decisions regarding housing in later life
- how early life decisions affect quality of later life
- supporting retirement living.

MINORITY, HARD-TO-REACH, AT-RISK GROUPS

We currently invest in research on societal participation, educational achievement, standards of living, social connectedness and resilience, and access to social services.

In 2016, new funding was invested in research on the development of a new model to study consequences of homelessness.

FAMILIES, CHILDREN AND YOUTH

We currently fund research into:

- the factors leading to improved health and wellbeing of young people
- positive transitions between high at-risk youth and adulthood
- the role and impact of fatherhood
- bringing a New Zealand focus to international research

TRANSFERS TO NATIONAL SCIENCE CHALLENGES

Funding from some contracts under economic, society and environment is mapped to National Science Challenges.

As these contracts end through 2019, funding transfers to the NSCs for re-investment.

Economic: funding under mapped contracts transfers to *High Value Nutrition, New Zealand's Biological Heritage and Building Better Homes, Towns and Cities.*

Environment: funding under mapped contracts transfers to *Our Land and Water, Sustainable Seas, New Zealand's Biological Heritage, The Deep South, and Resilience to Nature's Challenges.*

Society: funding under mapped contracts transfers to *A Better Start and Ageing Well.*

Investment Signals for 2017 – 2020

DIRECTION OF NEW INVESTMENT ACROSS THE FUND

Increased focus on excellent research, with high potential impact for New Zealand

Greater proportion of investment in research with higher risk and longer term horizons to impact

Better leveraging wider investment and knowledge, in New Zealand and overseas

More stable levels of funding available for new contracts each year

Broadly maintain the current balance of funding between fund objective areas

Give greater effect to Vision Mātauranga

AN INCREASING QUALITY OF PROPOSAL

Excellence

Science that progresses and disseminates new knowledge, possessing risk or innovative approaches. Well-positioned in the domestic and international research context, with a credible research plan and approach to risk management.

A **team** with the mix of complementary skills, knowledge and resources to deliver excellent research and manage risk.

Impact

Credible need for, scale, and extent of potential **benefits to New Zealand** from the research, and the relevance and additional value they deliver to New Zealand.

The credibility of **implementation pathways** to deliver public benefits to New Zealand, not limited to a single firm or end user.

Proposals should. . .

Be appropriately set within the Investment Plan, well-positioned in the wider domestic and international research context, and leverage additional value from wider research.

Have considered, identified and responded to opportunities presented by Māori knowledge. This includes Māori issues, needs, contributions or innovation that are relevant to the research, its implementation and uptake

FUTURE DIRECTION OF INVESTMENT BY OBJECTIVE AREA

Research can contribute to one or more of the fund's objectives: they are not mutually exclusive. Research may contribute to improved health outcomes for New Zealanders, but this may not be its primary objective.

ECONOMIC

We will invest around 70% of the fund to positively transform New Zealand's future economic performance, supporting the long-term growth, diversification, and resilience of our economy.

A more productive New Zealand economy will require a greater investment in knowledge-intensive sectors, as well as an increase in productivity across all sectors of the economy.

Research is critical to keep up with technological advances and lead innovation globally, to grow exports and raise R&D intensity.

We want to grow our support for research that builds on areas of emerging, as well as existing, competitive advantage, in:

- ICT, supporting the long term growth of the sector, particularly far-from-market basic discovery and applied research
- manufacturing and primary sectors, supporting knowledge-intensive, high value add and export growth areas
- energy and minerals, supporting sustainable and efficient use of natural resources, and increasing our investment in energy demand and use
- other sectors, to address long term growth and sustainability, such as infrastructure, transport, tourism, commercial series and construction.

Research should possess higher risk or innovative approaches, with potential benefits to our wider economy over a longer time horizon and to multiple end users or beneficiaries.

It should not crowd out near-to-market, industry-led research, or duplicate provision made through industry-led research supported through Callaghan Innovation or Primary Growth Partnerships.

If private benefit could accrue to individual end users, we expect partnering. Partnerships should not prevent broad benefits from research being realised for New Zealand.

ENVIRONMENT

We will invest around 25% of the fund to improve how we use, monitor and maintain the sustainability and integrity of our natural environment.

Research is crucial to ensuring we can derive sustainable benefits from our natural resources, helping increase the productive potential of our environment, while preserving its integrity and sustainability.

Research can increase understanding of the resource base and assist commercially and environmentally informed decision making.

We want to improve our information and evidence base, to:

- deepen our understanding of environmental opportunities and limits
- strengthen and expand our ability to monitor and report on the state of and trends in the environment.

We want to support identification and mitigation of and adaptation to risks and hazards to our environment, including to:

- natural ecosystem and taonga species
- New Zealand's natural resources
- resource-based businesses and trade, such as biosecurity risks.

Research should reflect and support the Government's wider strategic plans, priorities, and domestic and international environmental commitments, such as to Antarctic research.

Research should not duplicate wider government science investment in this area, including through Crown research institutes, the National Science Challenges, or central and local government agencies.

SOCIETY

We will invest around 5% of the fund to help strengthen our society, increasing social cohesion and equity for New Zealanders.

Research can help us to deliver better public services and improved quality of life and wellbeing for New Zealanders.

We want to support research on long-term, strategic societal challenges, with the potential for broad benefit for New Zealand:

- developing innovative approaches and interventions, speeding the path to implementation in New Zealand
- building on existing data and wider domestic and international knowledge
- strengthening the long-term evidence base, including longitudinal data, where it is required by multiple public sector end users and of long term benefit to New Zealand.

Research should reflect and support, but not duplicate, wider government science investment in this area.

It should not address short term public policy and operational needs in this area.

VISION MĀTAURANGA

Giving effect to the Vision Mātauranga policy is a priority across the fund's economic, environmental and societal objectives.

This could provide opportunities for Māori, individually or collectively, to derive benefit from leading, developing or co- developing, participating or partnering in the research and its implementation.

It could also provide opportunities for Māori to fund, take up or leverage off the research.

Opportunities may contribute to any or all of the following outcome benefits to New Zealand:

- Economic growth through lifting productivity and performance in Māori businesses and other enterprises
- Achieving environmental sustainability through increased understanding of distinctive Māori relationships with the environment
- Real gains in health and social wellbeing for Māori
- Contributing to knowledge at the interface between indigenous knowledge and science and technology.

Section 3

Funding Opportunities

Funding opportunities

This section of the Plan provides an outlook of expected funding opportunities for new contracts under the Endeavour Fund.

This outlook is intended to provide greater predictability and transparency of expected funding opportunities to the science sector and end-users.

It **confirms** the funding available for the Science Board to allocate through the **2017** call for proposals for the Endeavour Fund.

For the **2018, 2019 and 2020 calls for proposals** for the Endeavour Fund, it provides an indication of the **expected** funding available. These figures reflect the current contractual position. Updated figures will be issued each year to reflect decisions made by the Science Board on funding, the latest contractual position and any future Budget decisions.

FUNDING AVAILABLE UNDER THE 2017, 2018, 2019 AND 2020 CALLS FOR PROPOSALS

The Science Board may award up to **$58 million** per year through the 2017 call for proposals for the Endeavour Fund.

Depending on the mix of two- to five- year contract durations awarded by the Science Board, the total value of contracts under this call for proposals is likely to be more than $250 million.

FUNDING BY INVESTMENT MECHANISM

Indicative funding allocations for each of the two investment mechanisms are set out in **Table 2**.

Table 2: Indicative funding by investment mechanism

INVESTMENT MECHANISM	2017	2018	2019	2020
Research Programmes	$43 million	$43 million	$43 million	$43 million
Smart Ideas	$15 million	$15 million	$15 million	$15 million

Note: Funding figures exclude GST.

Over time, up to 20% of the total Endeavour Fund will be invested under the Smart Ideas mechanism. The balance of investment between the two mechanisms will remain under review, with a view to gradually increasing the proportion invested through Smart Ideas.

For Smart Ideas, the Science Board may award contracts with durations of two to three years, with a **total value** per contract of between $0.4 million and $1 million.

For Research Programmes, the Science Board may award contracts with durations of three to five years, with a contract value of no less than $0.5 million **per year**.

FUNDING BY OBJECTIVE

The Science Board should maintain the broad proportion of funding to each of the fund's social, environmental and economic objectives across the total Endeavour Fund portfolio, as set out in **Table 3**.

Table 3. Expected indicative fund portfolio balance

OBJECTIVE	% OF FUND
Economic	70%
Environment	25%
Society	5%

The economic, environmental and social objectives are not individual funds. The Science Board is expected to consider the balance between, and within, these objectives across the Endeavour Fund investment portfolio when making its funding decisions.

FLEXIBILITY TO MOVE FUNDING

The figures in **Section 3** are **indicative**.

The Science Board may make decisions which result in less than the total funding available being awarded. Their decisions may also result in funding shifting between the two investment mechanisms or between or within the fund's economic, environmental and social objectives.

They may do so on the following grounds:

- where proposals do not meet eligibility criteria or are not of sufficient quality against assessment criteria set out in the Gazette Notice, and/or
- to align funding decisions with the investment signals in **Section 2** and the investment mix in **Section 3** of this Plan, including to address potential duplication or concentration of investment in a particular area.

FUTURE FUNDING LEVELS ACROSS THE FUND

In 2016/17, the Endeavour Fund comprises $173 million per year. This figure is the sum of relevant contracts drawn from the six sector-based research funds.

As contracts end each year, a proportion of the Endeavour Fund becomes available for re-investment. Some of this funding is transferred to another investment mechanism, for example, where historic contracts have been mapped to the National Science Challenges. The remainder is invested through the annual call for proposals.

Budget 2016 provided additional funding of $113 million, with Budget 2017 providing a further $82 million over four years to the Endeavour Fund, this will bring the total Government investment in the Endeavour Fund to $243 million in 2020/21.

Glossary

Connectivity – the science system builds and engages in wide networks with domestic and international research communities and with end-users, and uses these connections to raise public engagement and strengthen its research, skills development, knowledge exchange and influence.

CRI – Crown research institute.

Gazette Notice – The New Zealand Gazette is the Government's official newspaper and is produced every Thursday by the New Zealand Gazette Office in the Department of Internal Affairs. Items in the Gazette are Gazette Notices. The Minister of Science and Innovation issues Gazette Notices to, among other things, set criteria for the Science Board regarding the assessment of proposals for science-led contestable funding.

Health Research Council – manages the Government's investment in health research. Their vision is to improve the health and quality of life of all New Zealanders.

Marsden Fund – supports excellence in science, engineering, maths, social sciences and the humanities in New Zealand by providing grants for investigator-initiated research.

MBIE – the Ministry of Business, Innovation and Employment is the government's lead business-facing agency. Its purpose is to grow the New Zealand economy to provide a better standard of living for all New Zealanders.

Mission-led science – is undertaken towards a particular aim or objective. The intended goal may be broadly or narrowly defined but is often identified by the funder. The science might bring together resources and knowledge across different fields, technologies and disciplines and be directed towards social, environmental or economic outcomes, or a combination of all three.

National Science Challenges – eleven research collaborations seeking answers to the most pressing issues of national significance facing New Zealand.

Research organisation – an organisation that has internal capability for carrying out research, science or technology, or related activities.

Science Board – The independent Science Board was established by the Minister of Science and Innovation under the Research, Science, and Technology Act 2010 to make funding decisions.

SSIF – The Strategic Science Investment Fund supports longer-term underpinning infrastructure and programmes of mission-led science critical to the future of New Zealand's economy, environment and well-being.

Annex 1 – Gazette Notice

This Annex reproduces the text of the Gazette Notice, which is available on https://gazette.govt.nz/notice/id/2017-go4232.

Endeavour Fund

Notice to the Science Board

1. In this notice, I:
   a. specify that the Science Board is to make funding decisions on proposals for the Ministry of Business, Innovation and Employment (MBIE) Endeavour Fund under section 10(3)(b) of the Research, Science, and Technology Act 2010 ('RS&T Act 2010'); and
   b. set the criteria for the eligibility and assessment of proposals for the Endeavour Fund under section 8(1) of the RS&T Act 2010.

General Policy Objectives

2. The general policy objectives of the Endeavour Fund are to:
   a. support research, science or technology or related activities that have high potential to positively transform New Zealand's future economic performance, the sustainability and integrity of our environment, help strengthen our society, and give effect to the Vision Mātauranga policy; and
   b. drive an increasing focus on:
      i. excellent research; and
      ii. the potential for impact in areas of future value, growth or critical need for New Zealand.

Interpretation

3. For the purposes of this notice and the Schedules to this notice, the terms:
   a. **Vision Mātauranga policy** means the government policy which aims to unlock the innovation potential of Māori knowledge, resources, and people for the benefit of New Zealand.
   b. **research organisation** means an organisation that has internal capability for carrying out research, science or technology, or related activities.
   c. **relevance** means the science focuses on areas of strategic importance to New Zealand and is relevant to our economic, social and environmental needs (both current and future), usable and appropriate to potential end-users and beneficiaries.
   d. **areas of future value, growth or critical need for New Zealand** means the investment signals set out in the relevant annual Investment Plan specified in clause 4.

Funding Decisions

4. In making funding decisions on proposals for the Endeavour Fund, the Science Board will allocate funds as set out in the relevant Government annual Investment Plan, published on MBIE's website: http://www.mbie.govt.nz/endeavour-fund-investment-plan.pdf.
5. The Science Board must make funding decisions on proposals for the Endeavour Fund in accordance with:
   a. the Public Finance Act 1989 and the relevant Appropriation Acts for Vote Business, Science and Innovation;
   b. the eligibility and assessment criteria specified in this notice and the relevant Schedules to this notice;
   c. the investment signals and mix of investment set out in the relevant annual Investment Plan specified in clause 4;
   d. the government's Vision Mātauranga policy.

Eligibility Criteria

6. For proposals to be assessed under the Endeavour Fund against the assessment criteria set out in the Schedules to this notice, they must:
   a. be made by a New Zealand-based research organisation or a New Zealand-based legal entity representing a New Zealand-based research organisation;
   b. not be solely for the benefit of the research organisation or legal entity which represents the organisation;
   c. not be made by a department of the public service as listed in Schedule 1 of the State Sector Act 1988;
   d. be made under an investment mechanism specified in the Schedules to this notice;
   e. be for research, science or technology or related activities, the majority of which are to be undertaken in New Zealand, unless the Science Board considers that there are compelling reasons to consider the proposals, despite the amount of research, science or technology or related activities being proposed to be undertaken overseas;
   f. not be for research with the primary objective of health outcomes;
   g. meet any applicable timing, formatting, system or other similar administrative requirements imposed by MBIE in supplying administrative services to the Science Board under section 10(7) of the RS&T Act 2010; and
   h. advise that the proposed funding recipient will, and the Science Board is of the view that it can, adhere to the terms and conditions of funding set out in an investment contract determined by the Science Board.

Revocation of Previous Notices

7. I hereby revoke the notice titled Endeavour Fund published as a Supplement to the New Zealand Gazette, 25 August 2016, No 75, Notice No. 2016-go4875.

The update to the funding available for the 2017 Investment Round as set out in the Investment Plan dated August 2017 comes into effect on 18 August 2017.

This notice and the Investment Plan dated August 2016 will otherwise come into effect on 1 September 2017.

Dated at Wellington this day 8th of August 2017.

Hon Paul Goldsmith, Minister of Science and Innovation.

Schedule 1

Smart Ideas investment mechanism

Specific Policy Objectives

1. This investment mechanism is intended to catalyse and rapidly test promising, innovative research ideas with high potential for benefit to New Zealand, to enable refresh and diversity in the science portfolio.

Assessment Criteria

2. A proposal for Smart Ideas that has been assessed as eligible for the Endeavour Fund under clause 6 of the main notice must be assessed having regard to the extent to which the proposal meets the following criteria:
   a. Excellence.
      i. Science (weighted 50%). Research should be well-designed, well-performed, and leverage additional value from wider research. Assessment must have particular regard to whether the proposed research, science or technology or related activities:
         a. progress and disseminate new knowledge;
         b. possess high scientific risk, technical risk, novelty or innovative approaches;
         c. are well-positioned in the domestic and international research context; and
         d. have a well-managed research plan and credible approach to risk management.
      ii. Team (weighted 15%). The proposed team should have the mix of complementary skills, knowledge and resources to deliver the proposed research, science or technology or related activities and to manage risk.
3. Only proposals that have been assessed as having sufficient quality against the Excellence assessment criterion under clause 2(a) of this Schedule will be assessed with regard to the criterion above and the following criterion:
   a. Impact.
      i. Benefit to New Zealand (weighted 25%). Research should have direct and indirect benefits or effect on individuals, communities or society as a whole, including broad benefits to New Zealand's economic, social, human or natural capital. Assessment must have particular regard to:
         a. the credibility of the need for scale and extent of potential benefits from the proposed research, science or technology or related activities; and
         b. the relevance and additional value they deliver to New Zealand.
      ii. Implementation Pathway(s) (weighted 10%). The credibility of indicative implementation pathway(s) to deliver public benefit to New Zealand, not limited to a single firm or end-user, and which may be uncertain in nature.
4. When assessing proposals, the extent to which a proposal is likely to meet the following must be taken into account:
   a. General policy objectives set out in clause 2 of the main notice and specific policy objective set out in clause 1 of this Schedule including, where appropriate, the Vision Mātauranga policy.

Schedule 2

Research Programmes investment mechanism

Specific Policy Objectives

1. This investment mechanism is intended to support ambitious, excellent, and well-defined research ideas which, collectively, have credible and high potential to positively transform New Zealand's future in areas of future value, growth or critical need.

Assessment Criteria

2. A proposal for Research Programmes that has been assessed as eligible for the Endeavour Fund under clause 6 of the main notice must initially be assessed with regard to the extent to which the proposal meets the following criterion:
    a. Excellence.
        i. Science (weighted 25%). Research should be well-designed, well-performed, and leverage additional value from wider research. Assessment must have particular regard to whether the proposed research, science or technology or related activities:
            a. progress and disseminate new knowledge;
            b. possess scientific risk, technical risk or innovative approaches;
            c. are well-positioned in the domestic and international research context; and
            d. have a well-managed research plan and credible approach to risk management.
        ii. Team (weighted 25%). The proposed team should have the demonstrated mix of complementary skills, knowledge and resources to deliver the proposed research, science or technology or related activities and to manage risk.
3. Only proposals that have been assessed as having sufficient quality against the Excellence assessment criterion under clause 2(a) of this Schedule will be assessed with additional regard to the following criterion:
    a. Impact.
        i. Benefit to New Zealand (weighted 25%). Research should have direct and indirect benefits or effect on individuals, communities or society as a whole, including broad benefits to New Zealand's economic, social, human or natural capital. Assessment must have particular regard to:
            a. the credibility of the need for, scale and extent of potential benefits from the proposed research, science or technology or related activities; and
            b. the relevance and additional value they deliver to New Zealand.
        ii. Implementation Pathway(s) (weighted 25%). The credibility of implementation pathway(s) to deliver public benefits to New Zealand, not limited to a single firm or end user, and the strength of relationships with relevant end users, beneficiaries, or stakeholders.
4. When assessing proposals, the extent to which a proposal is likely to meet the following must be taken into account:
    a. General policy objectives set out in clause 2 of the main notice and specific policy objective set out in clause 1 of this Schedule including, where appropriate, the Vision Mātauranga policy.

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

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