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MINISTRY OF BUSINESS, INNOVATION, & EMPLOYMENT

CRITERIA FOR PROPOSALS FOR NATIONAL SCIENCE CHALLENGES FUNDING

PURSUANT TO THE RESEARCH, SCIENCE, AND TECHNOLOGY ACT 2010

Criteria for Proposals for National Science Challenges funding

General introduction

In August 2012, the Government agreed to the creation of the National Science Challenges policy. The Challenges are a set of mission-led science investments that will help to address some of the most fundamental issues New Zealand faces for its future development. The process of identifying the Challenges involved significant public engagement and recommendations by an independent National Science Challenge Panel.

The Science Board will make decisions on all proposals for National Science Challenges funding. Proposals will be sought using a request for proposals document.

Definitions

- Business plan – a document that outlines arrangements including the governance, management and financial structures that will be used to undertake a Challenge.
- Co-funding – cash or in-kind support provided by other organisations to the contracted party, to support the delivery of the Challenge objective, and outcomes (under the themes) for a particular proposal. Co-funding does not include funding from the Ministry of Business, Innovation, and Employment or other government departments and agencies unless they are potential users of the research and the funding is specifically to support the delivery of the Challenge objective, and outcomes (under the themes).
- Mission-led science investments – the funding of research, science, or technology or related activities directed at achieving a specific outcome.
- Outcome – the likely or achieved short- and medium-term effects of an intervention's outputs.
- Proposal – a document that comprises a research plan and a business plan for a specific Challenge.
- Related activities – includes engagement with communities, schools, businesses and end-users of research to support/ensure technology transfer and uptake; capability development directly associated with the research planned; science communication and promotion; and providing for open access and reuse of data.
- Relevant schedule – the schedule that outlines the specific Challenge objective, themes and outcomes.
- Research plan – a document that outlines a research strategy and research programme(s) that will be undertaken to achieve the objective and outcomes (under the themes) in a Challenge.
- Science priorities – areas of research, science, technology and related activities that the government has identified as key priorities.

Notice to the Science Board

1 In this notice, I:

(a) specify that the Science Board is to make funding decisions on proposals for National Science Challenges funding under section 10(3)(b) of the Research, Science, and Technology Act 2010; and

(b) set the criteria for the assessment of proposals for National Science Challenges funding under section 8(1) of the Research, Science, and Technology Act 2010.

General policy objective

2. The general policy objective of National Science Challenges funding is to fund research, science, or technology, or related activities that have the potential to:

(a) respond to the most important, national-scale issues and opportunities identified by science stakeholders and the New Zealand public;

(b) promote collaboration across a number of research providers and involve a broad portfolio of multi-disciplinary research activity;

(c) enable government to take a more long-term strategic approach to managing and coordinating mission-led science investments;

(d) complement other science priorities; and

(e) give effect to the Vision Mātauranga policy.

Vision Mātauranga policy

3 The Vision Mātauranga policy aims to unlock the science and innovation potential of Māori knowledge, resources and people for the benefit of New Zealand. It focuses on four themes:

(a) Indigenous Innovation – contributing to economic growth through distinctive science and innovation;

(b) Taiao/Environment – achieving environmental sustainability through iwi and hapū relationships with land and sea;

(c) Hauora/Health – improving health and social well-being; and

(d) Mātauranga – exploring indigenous knowledge and science and innovation.

Science Board to make decisions on proposals for National Science Challenges funding

4.1 The Science Board will make funding decisions on proposals for National Science Challenges funding in accordance with the Research, Science, and Technology Act 2010.

4.2 In making funding decisions on proposals for National Science Challenges funding, the Science Board will allocate funds from the National Science Challenges appropriation in Vote Science and Innovation.

4.3 The Science Board must make funding decisions on proposals for National Science Challenges funding in accordance with:

(a) the Public Finance Act 1989 and the relevant Appropriation Acts for Vote Science and Innovation;

(b) the funding amounts and specific criteria as outlined in the relevant schedule of this notice (the “Relevant Schedule”); and

(c) the following general eligibility criteria and assessment criteria set out in clauses 5-7.

General eligibility criteria for National Science Challenges funding proposals

5.1 For a proposal to be assessed against the criteria in clause 6, the proposal must:

(a) be to undertake research, science, or technology, or related activities that are in a Challenge specified in the Relevant Schedule;

(b) be made under one Challenge as specified in the Relevant Schedule;

(c) meet any requirements specified in the Relevant Schedule;

(d) be made by a legal entity (based in New Zealand) representing a comprehensive range of organisations and individuals with a track record in the research area of the Challenge;

(e) not be made by or include a department of the public service as listed in Schedule 1 of the State Sector Act 1988;

(f) not be solely for the benefit of the applicant (which includes the organisations and individuals it represents);

(g) not be for capital expenditure;

(h) 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 proposal, despite the amount of research, science, or technology, or related activities being proposed to be undertaken overseas;

(i) meet any applicable timing, formatting, system or other similar administrative requirements imposed by the Ministry of Business, Innovation, and Employment in supplying administrative services to the Science Board under section 10(7) of the Research, Science, and Technology Act 2010; and

(j) 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.

Assessment criteria for National Science Challenges funding proposals

6.1 A proposal that has been assessed as eligible for National Science Challenges funding under clause 5 must also be assessed having regard to the four criteria below:

(a) The proposal is collaborative and will respond to the most important, national-scale issues for New Zealand

Key questions: To what extent does the proposal:

(i) provide an integrated, up to 10-year plan of research, science, and technology and related activities to deliver the Challenge objective and outcomes (under the themes)?

(ii) outline the proposed research, science, and technology and related activities and how these will meet the Challenge objective, and outcomes (under the themes)?

(iii) include a broad portfolio of activities including multi-disciplinary approaches?

(iv) build on the existing research and research strategies being undertaken in New Zealand, and internationally?

(v) outline how it will contribute to and interact with related research in the Challenge, including embedding relevant Crown research institute core funding as additional funding of the proposed research?

(vi) include private co-funding and other funding and support for the proposed research from other sources?

(vii) outline how it will work with other Challenges where relevant?

(viii) make best use of existing capabilities and competencies of key New Zealand research organisations?

(ix) reflect the needs of end-users?

(x) give effect to the Vision Mātauranga policy in clause 3?

(b) The research, science, and technology will be excellent quality

Key questions: To what extent does the proposal:

(i) make best use of the skills and expertise of key New Zealand researchers to deliver the Challenge objective and outcomes (under the themes)?

(ii) leverage the skills and experience of international researchers and the capacities of international research organisations?

(iii) build the current and future skills and expertise of the New Zealand researchers to deliver the Challenge objective and outcomes (under the themes)?

(iv) allow for the dynamic introduction of new capability, research and researchers into the Challenge?

(v) outline activities that will contribute to outstanding science quality?

(vi) include a portfolio of research with an appropriate balance of incremental and high-risk, high-return research?

(vii) outline transparent and robust processes used to identify, assess, prioritise and select the proposed research to meet the Challenge objective and outcomes (under the themes)?

(viii) outline methods for ensuring on-going quality assurance in delivering the research?

(ix) give effect to the Vision Mātauranga policy in clause 3?

(c) The governance, management, and financial arrangements are sound and enduring

Key questions: To what extent do the proposed governance, management, and financial structures (as outlined in the business plan):

(i) provide a governance entity for the Challenge that has access to the necessary experience, track record, capability and resources to assume responsibility for co-ordinating, monitoring, and managing the proposed collaboration?

(ii) outline how multiple researchers, organisations and end-users will work together in a way that achieves the Challenge objective, and outcomes (under the themes) over the period of the Challenge?

(iii) outline the mechanisms to bring in new ideas, knowledge, researchers and research organisations to ensure both stability and the flexibility to respond to future priorities?

(iv) outline arrangements that will continue to build the capability of the researchers, organisations, and end-users involved in the Challenge?

(v) outline arrangements that will leverage and build on existing governance structures to reduce transaction costs?

(vi) outline arrangements that will leverage existing and future funding in the Challenge research area, including ensuring alignment with related Crown research institute core funding?

(vii) outline a contestable process to allocate a proportion of the Challenge funding (involving assessment by an independent panel) that is designed to facilitate the introduction of new ideas and researchers into the Challenge?

(viii) outline the arrangements for the ownership and management of intellectual property arising from research in the Challenge?

(ix) outline accountability arrangements that enable performance to be monitored across the Challenge to ensure research quality, value for money, measurable outputs, and ultimately research outcomes?

(x) provide evidence that the most cost effective option for achieving the expected outcome(s) was selected?

(xi) outline appropriate financial management procedures?

(xii) give effect to the Vision Mātauranga policy in clause 3?

(d) The proposal is focused on delivering impact

Key questions: To what extent does the proposal:

(i) define the relationship between the proposed research, science, and technology and the impacts necessary to achieve the Challenge objective, and outcomes (under the themes) ?

(ii) outline the nature and size of the benefits the proposed plan is expected to have for New Zealand, including benefits to New Zealand science, in relation to their costs?

(iii) outline the additional value the Challenge will deliver, including by addressing gaps and opportunities?

(iv) demonstrate that the research organisations and researchers have the necessary experience, track record, capability and resources to deliver the research to address the Challenge objective, and outcomes (under the themes)?

(v) outline a credible pathway to implementation of the Challenge objective, and outcomes (under the themes)?

(vi) outline arrangements for managing risks and liabilities?

(vii) outline key performance indicators related to the expected outcomes of the research over the period of the Challenge including lines of accountability from Challenge members to each KPI?

(viii) give effect to the Vision Mātauranga policy in clause 3?

Additional criteria for National Science Challenges funding proposals

7.1 A proposal that has been assessed as eligible for National Science Challenges funding under clause 5 must also be assessed having regard to the following criteria:

(a) The extent to which the proposal is likely to achieve the general policy objective of National Science Challenges funding outlined in clause 2;

(b) how the proposal contributes to the overall mix of investments in respect to the National Science Challenges, including the extent to which the overall mix of investments:

(i) is likely to best achieve the objectives referred to in clause 7.1(a)-(b);

(ii) will ensure that funding is not concurrently provided in respect of any two or more programmes of research, science, or technology, or related activities that are the same or substantially similar (whether those programmes are part of a new proposal or are already being funded); and

(iii) will minimise the risk that an applicant will not be able to undertake the relevant programme of research, science, or technology, or related activities because the applicant, or any person involved in delivering the programme, would concurrently be committed to one or more other programmes (whether those programmes are part of a new proposal or are already being funded).

Dated at Wellington this 24th day of January 2014.

HON STEVEN JOYCE, Minister of Science and Innovation.

Schedule 4: New Zealand's Biological Heritage: Ngā Koiora Tuku Iho

1. Objective

1.1 This Challenge will protect and manage our biodiversity, improve our biosecurity and enhance our resilience to harmful organisms.

2. Funding

2.1 The Science Board may allocate no more than $63.7 million (excl GST) for up to 10 years for New Zealand's Biological Heritage: Ngā Koiora Tuku Iho and no more than $25.8 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Discovery and characterisation	New Zealand's indigenous and introduced biodiversity are sufficiently understood across a range of scales and knowledge systems to inform the design of a world-leading system for prioritising biosecurity and biodiversity management.
Interdependencies, functions, ecosystems and resilience	Management for resilience of our indigenous and introduced ecosystems is supported by understanding the linkages between biodiversity, evolution, ecosystem function and services, mātauranga Māori and environmental and economic pressures.
Mitigation and restoration	New Zealand has diverse and vibrant indigenous and introduced ecosystems across a range of scales. Responses to economic and environmental drivers (threats and risks) are balanced to support kaitiakitanga and ensure long-term sustainability.
Detection, measurement and assessment	New Zealand has quantitative and qualitative measurement and assessment tools, integrated across the biosecurity and biodiversity domains and consistent with international best practice/standards, to enable the understanding, monitoring and evaluation of status and trends of biodiversity and the impacts of invasive organisms.
Social partnerships and licence	Social partnerships with motivated and enabled citizens, scientists, kaitiaki and decision makers are built, providing the basis for a social licence to apply new management methodologies, tools, technologies and solutions.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 5: A Better Start: E Tipu e Rea

1. Objective

1.1 This Challenge will improve the potential of young New Zealanders to have a healthy and successful life.

2. Funding

2.1 The Science Board may allocate no more than $34.7 million (excl GST) for up to 10 years for A Better Start: E tipu e Rea and no more than $14.2 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Maternal health, pregnancy and early childhood	New and existing knowledge is used to understand embryonic, perinatal, infant and child development and the intrinsic and extrinsic factors that impact upon the developmental processes to determine future overall well-being to inform evidence-based interventions.
Successful transition into healthy adulthood	Our understanding of human behaviour is enhanced using new and existing knowledge, including the links between the relevant genes and the physical and socio-economic environment, allowing the development of interventions to manage risk, improve health and educational outcomes, and promote resilience in our population.
Education, living in the digital world	New and existing knowledge is used to understand the different world in which our children are growing up, and our parenting, educational and employment practices adapted to optimise health, well-being and productivity. The possibilities offered by digital technologies are built on to create a more interactive learning experience for our children, to instil a fascination for science, and to enhance learning and development.

Note: Developmental is intended to be inclusive, including neurological, physical, psychological, cognitive and social development.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 6: Ageing Well: Kia eke kairangi ki te taikaumātuatanga

1. Objective

1.1 This Challenge will harness science to sustain health and well-being into the later years of life.

2. Funding

2.1 The Science Board may allocate no more than $34.9 million (excl GST) for up to 10 years for Ageing Well: Kia eke kairangi ki te taikaumātuatanga and no more than $14.6 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Maintaining brain health	The number of older people requiring residential care due to cognitive and other neurodegenerative deficits, including those resulting from strokes, is reduced.
Dealing with physical frailty	Older people maintain more independent mobility later in life with reduced osteoarthritis and fracture rates, reduced hospital re-admissions, and increased physical activity.
Enhancing the role of older people in society	Older people have increased engagement and a sense that their roles and contributions are valued and supported within their culture and communities.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 7: Healthier Lives: He Oranga Hauora

1. Objective

1.1 This Challenge will reduce the burden of major New Zealand health problems.

2. Funding

2.1 The Science Board may allocate no more than $31.3 million (excl GST) for up to 10 years for Healthier Lives: He Oranga Hauora and no more than $13.7 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Prevention	Disease in New Zealanders is prevented and reduced through high quality scientific evidence indicating which health interventions should be effective for equitable outcomes.
Innovation in health delivery, diagnostics and therapies – "the right treatment for the right patient"	The diagnosis and treatment of obesity, diabetes, cancer and cardiovascular disease are improved to reduce their negative impacts on New Zealanders for equitable outcomes.
Population, cultural, and social factors	Emotional, behavioural, cultural, social, educational and economic considerations specific to New Zealand have underpinned the science thinking of the two themes above, resulting in equitable approaches to reducing the burden of major New Zealand health problems.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 8: Science for Technological Innovation: Kia kotahi mai – Te Ao Pūtaiao me Te Ao Hangarau

1. Objective

1.1 This Challenge will enhance the capacity of New Zealand to use physical and engineering sciences for economic growth.

2. Funding

2.1 The Science Board may allocate no more than $106 million (excl GST) for up to 10 years for Science for Technological Innovation: Kia kotahi mai – Te Ao Pūtaiao me Te Ao Hangarau and no more than $33.3 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Materials, manufacturing and design	A wide range of new or enhanced materials and technological processes are developed that enable industry to advance new or enhanced products, services and processes.
Sensors, robotics and automation	A wide range of new or enhanced sensors and sensing technologies are developed and are implemented in a variety of new or enhanced products or applications. Robotics and automation are applied to a wide range of applications to reduce costs, improve efficiencies, enhance safety in environments dangerous to humans and undertake tasks not otherwise economically viable.
IT, data analytics and modelling	A wide range of new or enhanced hardware components and systems and software applications are developed that enable industry to incorporate them into new or enhanced products and services.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 9: Sustainable Seas: Ko ngā moana whakauka

1. Objective

1.1 This Challenge will enhance utilisation of our marine resources within environmental and biological constraints.

2. Funding

2.1 The Science Board may allocate no more than $71.1 million (excl GST) for up to 10 years for Sustainable Seas: Ko ngā moana whakauka and no more than $31.3 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Characterising our ocean	An integrated temporal and spatial baseline of biological and physical resources, as well as human activities, is established. This provides a basis for understanding the dynamics, sensitivities and resilience of ocean and coastal systems.
Understanding the dynamics and sensitivities of ocean and coastal systems	The interconnectedness between ocean systems, including human activities, is understood to enable adaptation and mitigation of impacts of change.
Towards effective integrated management of oceans and coasts considering environmental, societal, cultural, Māori and economic concerns	The evidence base to inform and develop management and policy frameworks is enhanced to optimise the sustainable use and resilience of coastal and ocean resources within societal, cultural, Māori and economic values, rights and interests.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

Schedule 10: Our Land and Water: Toitū te Whenua, Toiora te Wai

1. Objective

1.1 This Challenge will enhance primary sector production and productivity while maintaining and improving our land and water quality for future generations.

2. Funding

2.1 The Science Board may allocate no more than $96.9 million (excl GST) for up to 10 years for Our Land and Water: Toitū te Whenua, Toiora te Wai and no more than $27.6 million (excl GST) for the first five years.

3. Specific eligibility criteria

3.1 To be eligible for funding under this Challenge the applicant must provide a proposal for research, science, and technology, or related activities that:

(a) addresses all or most of the "themes" in the table below; and

(b) is directed towards meeting the "outcome statements" in the table below:

Themes	Outcome statements
Defining and meeting social values	Society has confidence in New Zealand's primary production systems because they meet the social, environmental, cultural, Māori and economic requirements of New Zealanders and their markets, including maintenance and improvement of their land and water quality.
Optimising primary sector supply chains	Technical barriers, and other barriers are identified and overcome (if science can address these), and product performance requirements are met to optimise value to New Zealand's primary producers and processors, and consumers.
Land and water management	The functions and environmental limits of land and water systems are sufficiently understood and defined within societal, cultural, Māori and economic values, rights and interests and incorporated into sustainable production systems.
Adaptable, responsive and resilient land-based primary production systems	Sustainable productive capacity and profitability are ensured, by developing and adopting tools, technologies and systems that support a flexible and responsive primary industry.

3.2 If the applicant can better meet the Challenge objective with different theme(s) and/or outcome(s) it may in its proposal vary a theme or outcome providing it gives reasons for such change. The Science Board will decide whether such change better enables the Challenge objective to be met.

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