Ministry of Business, Innovation & Employment

National Science Challenges – Features

A Challenge should be constructed, managed and governed as shown in the following table.

Features

1.	Each Challenge will have a strong, virtual governance structure (new or existing), with clear leadership and accountabilities across the researchers and institutions involved in the Challenge.
2.	Each Challenge is likely to involve a broad portfolio of multi-disciplinary research activity that will involve collaboration across a number of research providers.
3.	Each Challenge will involve within it a number (eg 2 to 6) of inter-related research themes that are integrated and co-ordinated to provide a plausible pathway to achieving the Challenge. Each research theme will involve a number of research components.
4.	Each Challenge will seek to combine all of the relevant expertise available across the science sector in New Zealand to achieve the Challenge.
5.	Each Challenge will be clearly linked with international research activity that will support the achievement of the Challenge.
6.	Each Challenge will exhibit strong collaboration between researchers and intended end-users of the research activity, including, where appropriate, obtaining investment from end-users in the Challenge's research.
7.	Each Challenge entity will map and include relevant existing research into the scope of the Challenge.

Selection Criteria for the National Science Challenges

The Challenges will be selected using the criteria below on the basis of the Peak Panel's judgement and experience. The criteria are intended to be used as a tool to help to select Challenges that will deliver value for New Zealand.

The high level of the Challenge could mean that it is more meaningful to assess lower-level research themes within a Challenge and to aggregate these assessments when considering the broader Challenge.

Importance to New Zealand

Benefit to New Zealand

1. **Each National Science Challenge will target a high-level goal which, if achieved, would have a major and enduring public benefit for New Zealand.**

   This criterion is intended to ensure that scientific investment through the National Science Challenges primarily benefits the good of New Zealand as a whole rather than directly benefitting commercial businesses, specific sectors or private enterprise (although they may enjoy direct and indirect benefits) and will be sustained. In general, New Zealand is more likely to benefit from science investment that addresses a New Zealand-specific issue or where New Zealand has the capacity and comparative

advantage to realistically exploit an economic opportunity. The longer benefits can be sustained, the more substantial the benefit for New Zealand. The size of the benefit depends on how soon the research results will be available for implementation; how long the benefits will be available; the duration of the need or demand for the benefits; the development of new solutions to risks, challenges, and opportunities; and the obsolescence of the research.

2. **There is wide public consensus that the Challenge will address a major issue or opportunity of wide public importance for New Zealand.**

   This criterion is intended to ensure that the Challenge addresses a national-scale issue or opportunity that is widely recognised as important for New Zealand.

Science

3. **Scientific research is essential to solving the Challenge.**

   This criterion is intended to ensure that science is central to addressing or solving the Challenge. Other actions, such as changes to regulation, may also contribute to achieving the goal of the Challenge but are not included in it. Scientific research encompasses a wide range of research activity, including for example social sciences and engineering.

Science Feasibility

4. **New Zealand has the broad scientific capability and capacity to undertake the challenge successfully.**

   This criterion is intended to assess the likelihood that the science will be successful. This will **depend on New Zealand's scientific capability (appropriately skilled scientists and** infrastructure) and scientific capacity (critical mass of expertise and infrastructure) as well as access to overseas capability and capacity as well as the current state of scientific knowledge.

Likelihood of Impact

5. **There is sufficient external motivation and linkages for the research results to be successfully implemented to achieve the Challenge goal.**

   This criterion is intended to ensure that the benefits derived from investment in science through the National Science Challenges can be successfully implemented and successfully adopted. Successful implementation is more likely where there is external motivation, such as regulation or market need, as well as the ability to transfer and adopt new knowledge and technology.