



**MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT**
HIKINA WHAKATUTUKI

UNIVERSITY
of
OTAGO



Te Whare Wānanga o Ōtāgo

The Science Advisory System in New Zealand

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One Health Aotearoa Symposium

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Nordmeyer Theatre, University of Otago, Wellington



Overview

- Need for a Science Advisory System
- Current state of NZ science funding
- NZ Science Advisory System
 - MBIE's Science Advisory System
- Detailed example of work within MBIE
 - Endeavour Fund & Feedback to Applicants



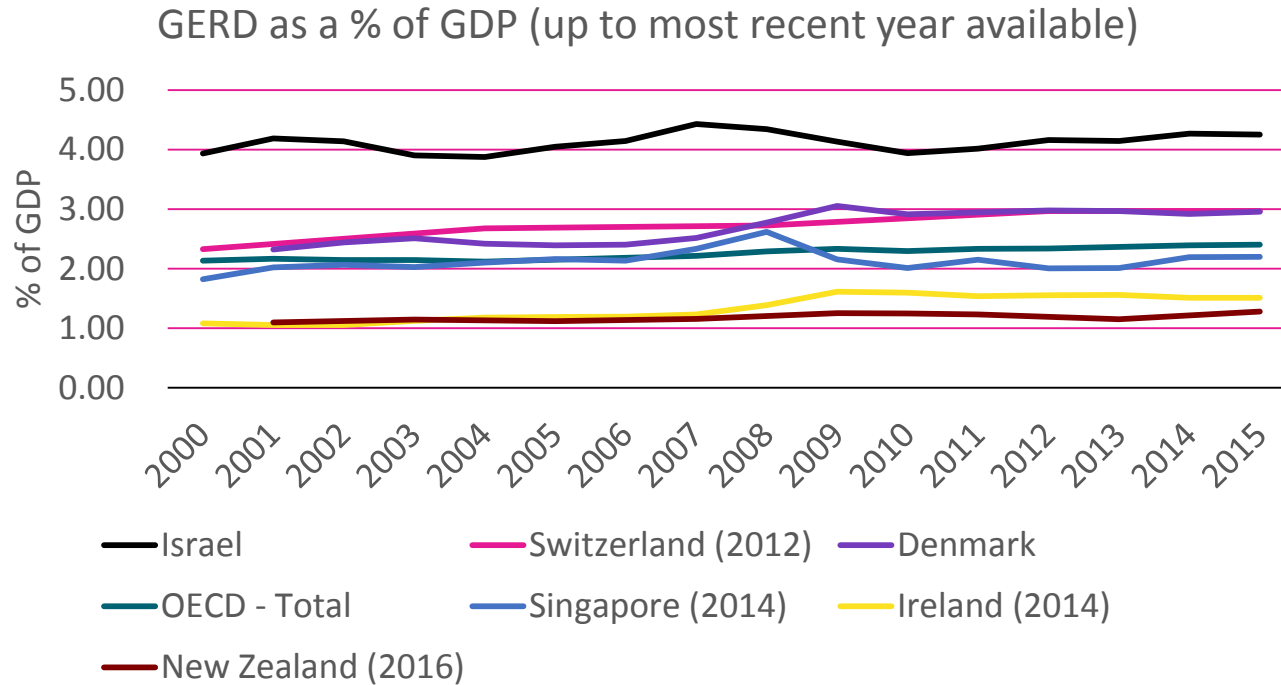
The Need for a Science Advisory System

- Scientific evidence can assist decision making in almost every aspect of government
 - Evidence-informed decision making, not evidence-based
- But such evidence requires financial support
- Balanced public & private sector investment in R&D is core to
 - Economic growth
 - Environmental resilience
 - Social and diplomatic advantage



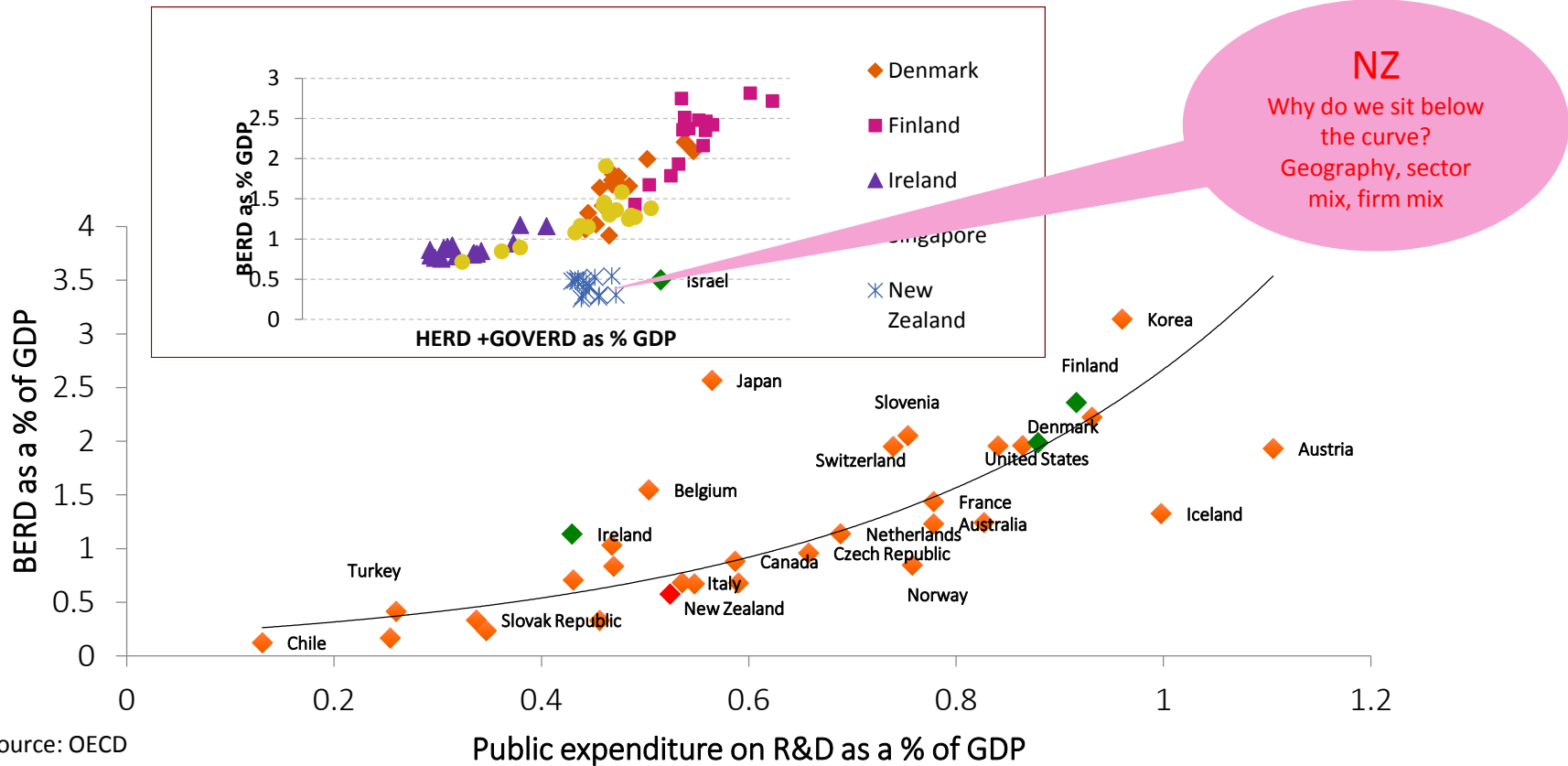
The Challenge

- Small advanced economies (SAEs) have been increasing their expenditure in R&D aiming for ~3% GDP
 - Singapore, Israel, Denmark, Finland , Austria, Switzerland all > 2%
 - New Zealand is a relative outlier (research intensity is ~1.3%)



Business + Public R&D are Complementary

But there may be a threshold public investment, beyond which BERD grows at a more rapid rate.



Source: OECD

The Outlook

- 2016 R&D spending 1.3% GDP (OECD mean 2.4%)
 - \$ 20% higher than 2014, largely due to growth in business R&D
 - But 2017 budget saw a decrease in % GDP of government spend
- New government aiming at 2% of GDP by 2027
 - This will be a challenge



Prime Minister's Chief Science Advisor (PMCSA)

- 2009: PM John Key establishes role
- Senior, practising academic scientist
- Use of science in policy making
 - Scientific advice to PM
 - Public understanding of science
 - Promote NZ's interests through science diplomacy
 - Chair network of science advisors
- Sir Peter Gluckman appointed



Sir Peter Gluckman

- Paediatrician
- Wide interests in medicine, physiology, evolution, public health
- Rutherford Medal (2001)
- University of Auckland
 - Professor (ex HoD) of Paediatric & Perinatal Biology
 - Founding Director: National Research Centre for Growth & Development; Liggins Institute
- Singapore Institute for Clinical Sciences
 - Programme Director for Growth, Development & Metabolism
- ONZ, KNZM, FRS, FMedSci, FRSNZ



NZ Departmental Science Advisors (DSAs)

- Senior, practising scientists, seconded to departments
- Ministry of Business, Innovation & Employment (MBIE)
- Ministries of Social Development

Health

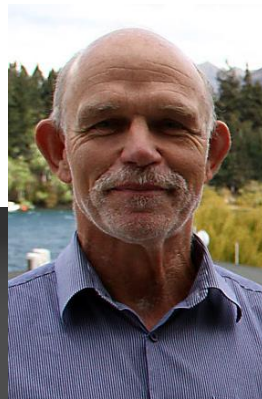
Justice

Education

Environment

Primary Industries

- Department of Conservation



MBIE's Scientists

- MBIE includes NZ's science portfolio
- Margaret Hyland, MBIE Chief Scientist
 - Chemical Engineering, University of Auckland
- Rob Murdoch, MBIE Science Advisor
 - General Manager Research, NIWA
- Hamish Spencer, MBIE Science Advisor
 - Zoology, University of Otago
- Role is “to provide specialist advice and thought leadership across the science portfolio.”



MBIE Science Advisor Job

- Participate in CSA-DSA Meetings
- Provide science advice to MBIE
 - Input to MBIE from NZ science community
 - Ensure science sector's expertise feeds into development of policy & investment plans
 - Watching brief on science sector issues
- Let NZ scientists know about MBIE
 - Explain MBIE processes & thinking
- Development of Vision Mātauranga capability in MBIE



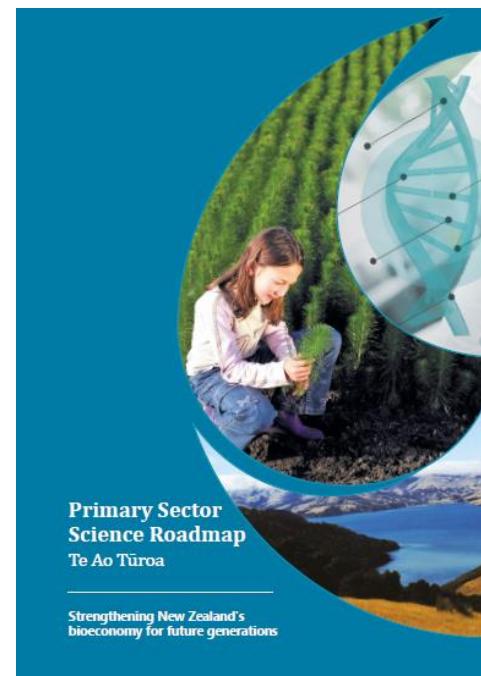
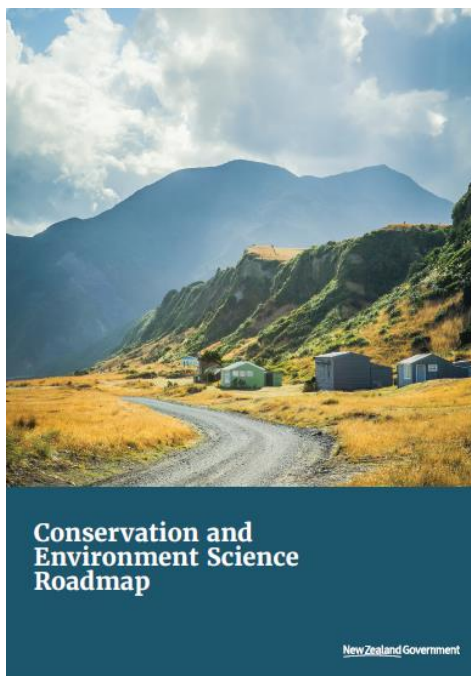
CSA-DSA Meetings

- Chaired by Sir Peter Gluckman, PMCSA
- Stephen Goldson, Strategy Advisor to Office of PMCSA
- DSAs from Primary Industries, Environment, Conservation
Social Development, Health, Justice, Education
- MBIE DSAs & Chief Scientist
- Chief methodologist, Department of Statistics
- C4ISR Advisor, Ministry of Defence
- Occasionally
 - Various government officials (e.g., Deputy Commissioner, SSC)
 - RSNZ President & CE



Purpose of CSA-DSA Meetings

- Cross-departmental government initiatives
 - Roadmaps: Conservation & Environment Science; Primary Sector Science
 - Enhancing scientific integrity across NZ
 - Mental-health
 - Prison reform
- Budget bids
 - Social sector



Science Advice to MBIE

- Independent
 - DSAs not directly employed by MBIE
- Non-partisan
 - Appointed by CE, not Minister
 - Advice is to Ministry, not Minister
- Advice is just that
 - May be ignored!
 - Evidence-informed decision making, not evidence-based
 - Decisions affected by other policy constraints, funding, politics, ...
- Available to whole of MBIE, but in practice
 - Science System Investment & Performance (SSIP)
 - Science Policy



Examples of My Advice to MBIE

- Advanced Genomics Research Platform
 - Wide consultation
 - Recommendations for selection panel
 - Genomics Aotearoa
- Discussion documents
 - Science impact
 - Digital science
- Reviews of processes
 - Endeavour Fund
 - Vision Mātauranga
- Panel member for
 - Unlocking Curious Minds 2016
 - Strategic Science Investment Fund (SSIF) 2016, 2017



Examples of Helping NZ Scientists Understand MBIE

- Talks to conferences
 - Australasian Research Management Society Conference
 - Today's talk
- Visits to research institutions
 - CRIs (NIWA, GNS, ESR)
 - IROs (Cawthron)
- Formal functions
 - Science New Zealand 2017 National Awards
 - 25th Anniversary of the Korean-New Zealand Science and Technology Cooperation Agreement
- Meetings
 - Taxonomy/Biosystematics Decadal Plan Workshop
 - Environmental Protection Authority

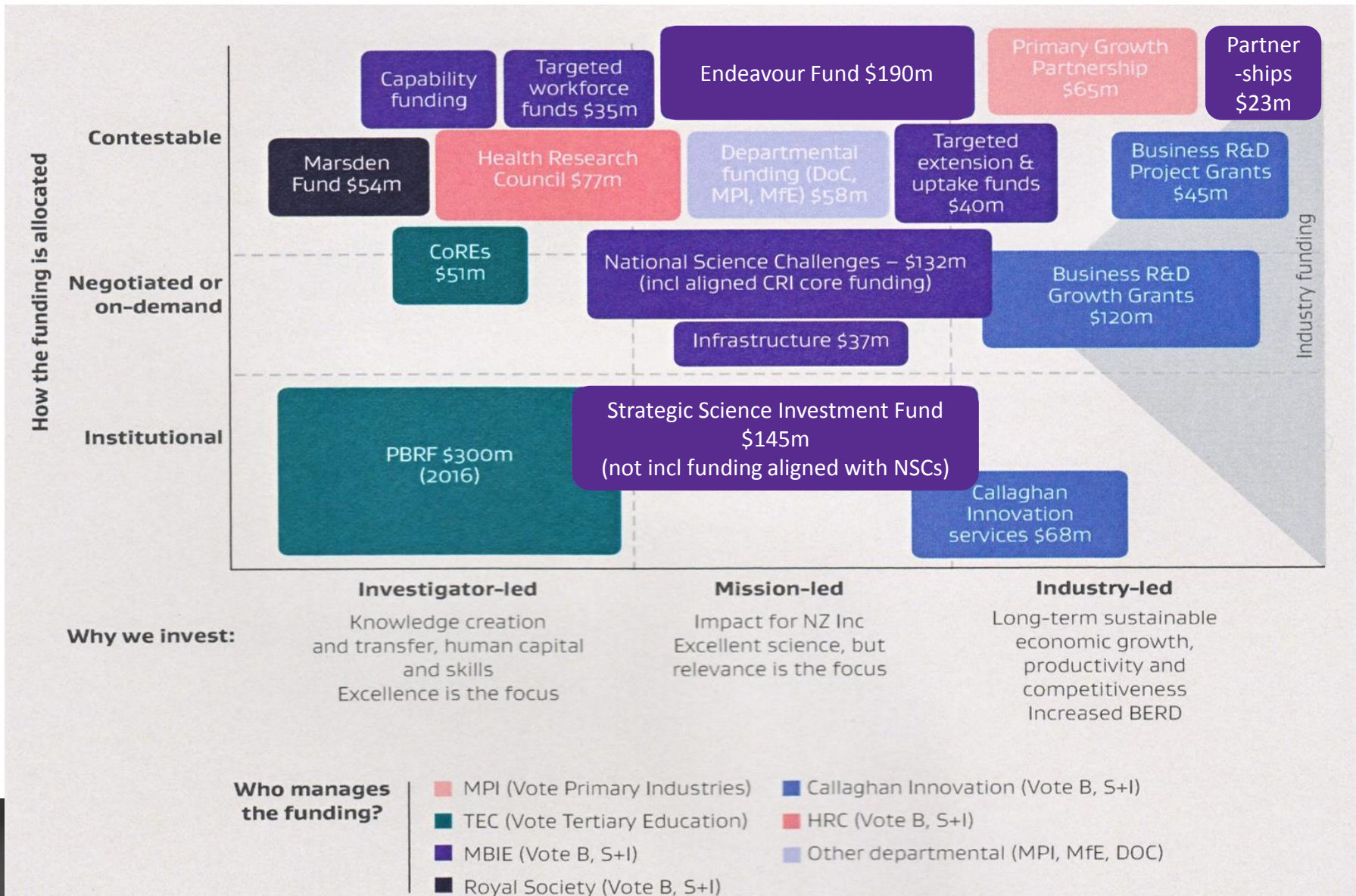


An Example in Detail: Endeavour Fund

- Largest contestable fund in NZ Science System



New Zealand Science-Funding System



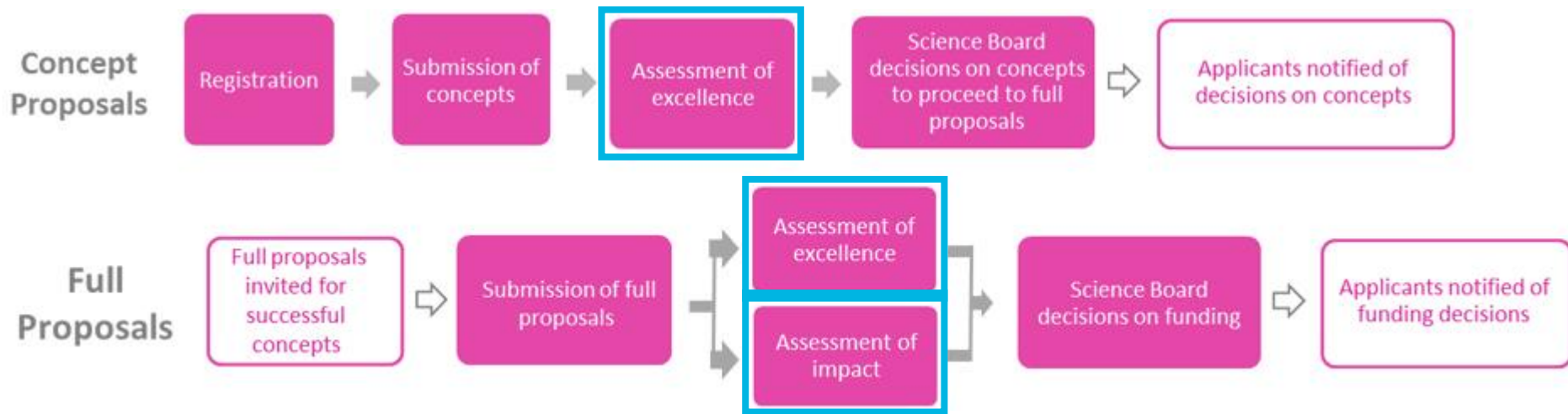
Endeavour Fund

- Contestable
- Mission-led
- Invests in “excellent research that has high potential to positively transform New Zealand’s future”
- Two “mechanisms”
 - Smart Ideas
 - Research Programmes



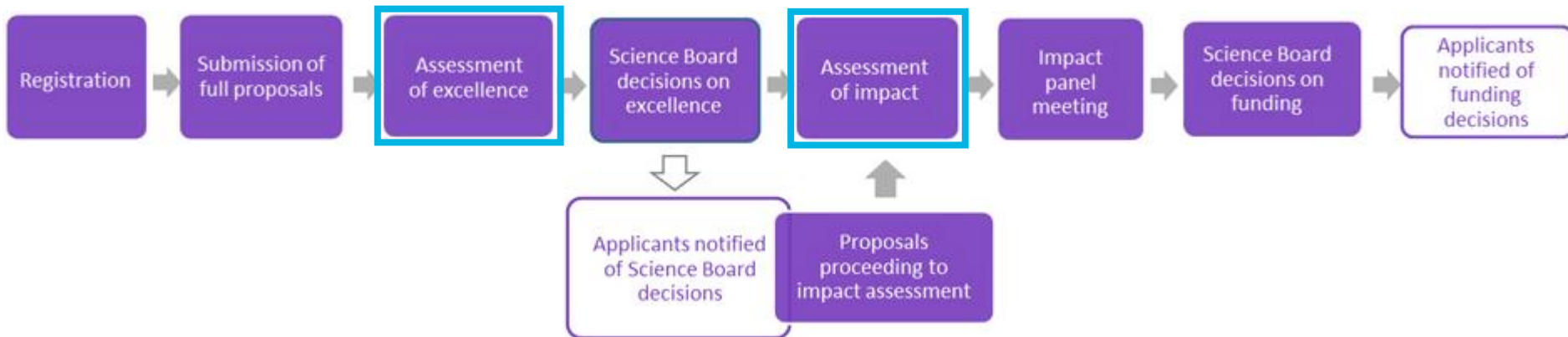
Smart Ideas

- “Promising, innovative research ideas”
- \$0.4m to \$1m over 2-3 years
- Two-stage application process



Research Programmes

- “Ambitious, excellent, and well-defined research ideas”
- >\$0.5m over 3-5 years
- Single-stage application process



Assessment of Applications

- Not carried out by MBIE officials
- Excellence assessed by paid peer reviewers (other scientists)
- Impact assessed by panel of ~15 experts
- Decisions made by Science Board
- Institutional affiliations irrelevant



Acknowledgements

- Nigel French
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- Sir Peter Gluckman
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