

Competition V Connectivity in the Market Place.

Paul Ewart

Waikato Institute of Technology, Hamilton 3240, New Zealand.

2017 Joint NZDE/BEngTech Forum



The academic conundrum

Continued improvement in the tertiary education system is in many ways linked to decreasing financial input from the Government since disbanding the free education funding model in New Zealand. The other contributing factor being withdrawal of core funding allocations from crown research organisations forcing them to compete in the contestable funding process.

How should we be positioned to collaborate with industry and what is the approach to ensure we maintain freedom to publish?

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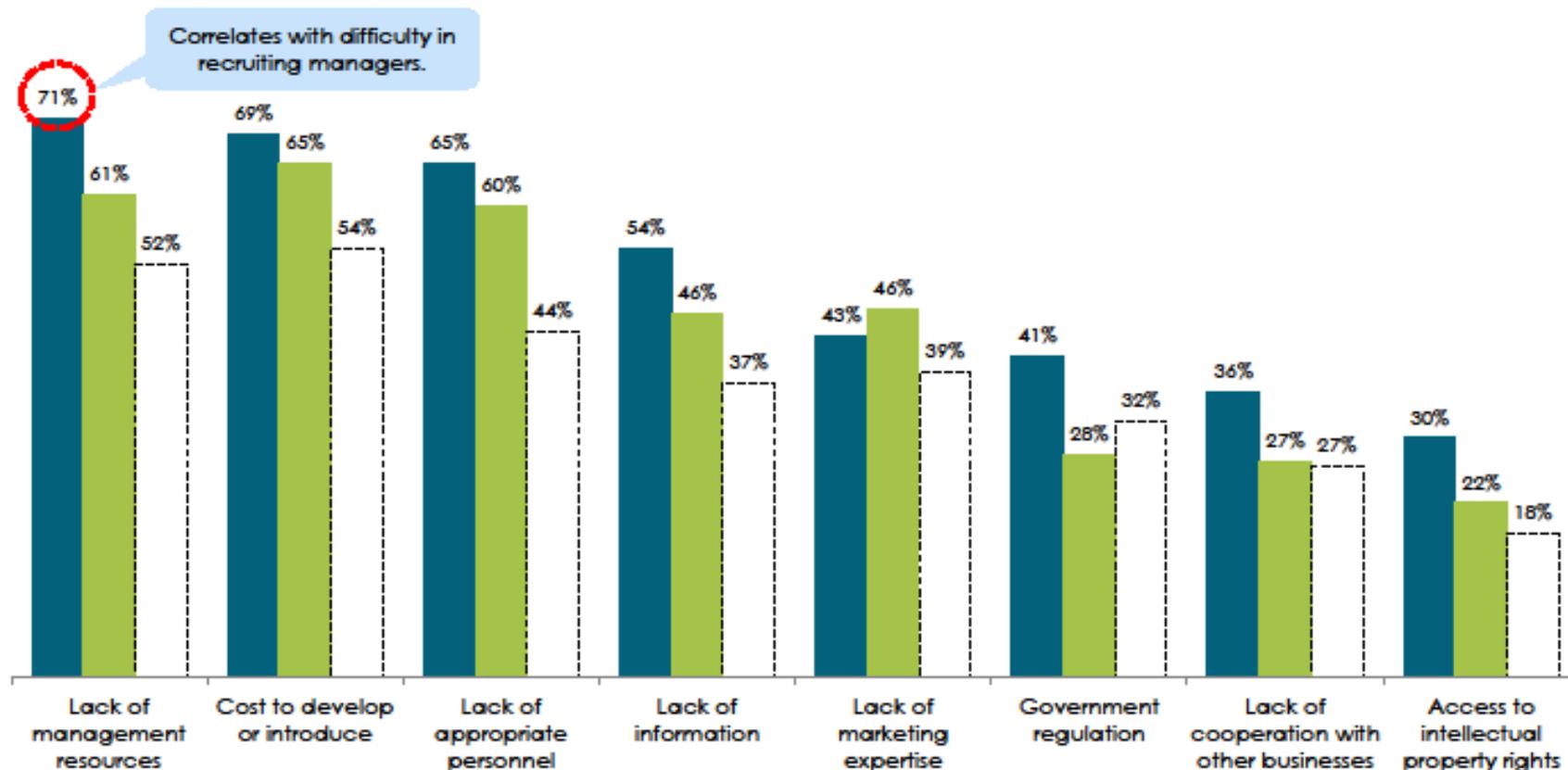
Barriers to innovation: high technology vs medium-high technology

While more high technology manufacturing firms innovate than average, more report facing barriers to undertaking that innovation

Firms reporting barriers to innovation

% of firms; 2011

■ High technology manufacturing ■ Medium-high technology manufacturing □ NZ average



The funding landscape

The Tertiary Education Commission (TEC) invests about NZ\$2.8 billion annually for tertiary education in New Zealand.

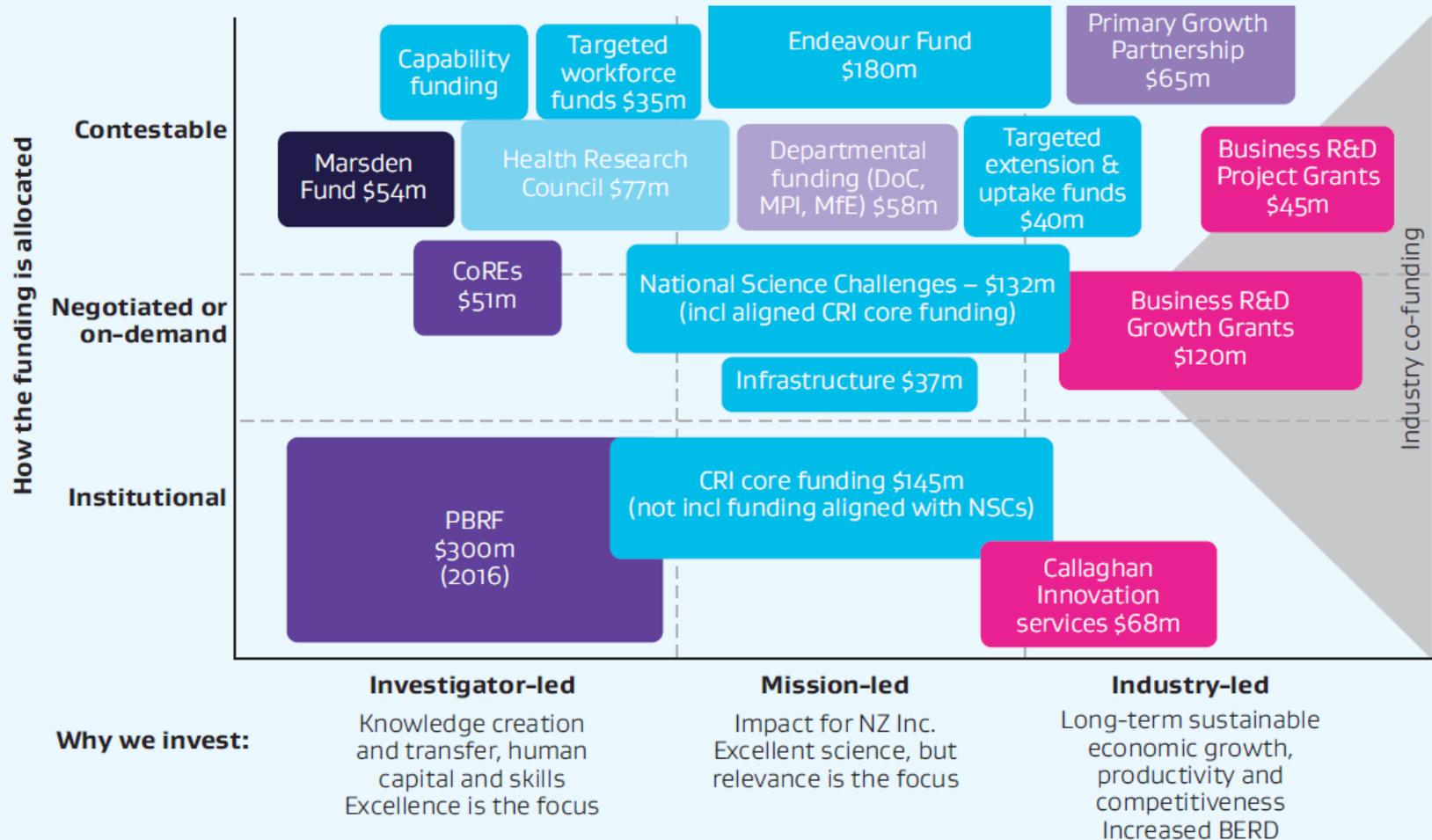
This covers areas from adult literacy to trades academies, centres of research excellence and Wananga research capability.

These funds were allocated as volume dependant or milestone reporting as well as some priority focus funds.

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Government-funded science and innovation investments in 2015/16



Who manages the funding?

- MPI (Vote Primary Industries)
- TEC (Vote Tertiary Education)
- MBIE (Vote Business, Science + Innovation (B, S+I))
- Royal Society (Vote B, S+I)
- Callaghan Innovation (Vote B, S+I)
- HRC (Vote B, S+I)
- Other departmental (MPI, MfE, DOC)

Tertiary funding

The allocation for 2015 being TEIs \$2293M, ITOs, \$166M and PTEs \$348M with approximately \$350M of the annual total being milestone allocation for research (All-Grants-Provider-Funding-2013-2015-Publication-Spreadsheet. Aug 2016). It is also shown that of the TEC research funding allocation ITPs receive only about 2.5% of the total with more than 97% to the Universities (AlosiusJ, SmartW, Research-Financing Properties, Ministry of Education, NZ. Sept 2016). Universities also won external research income of about \$450M. with no reporting of the value of ITPs although the TEC minimum value for external income was at 11% in 2013 (The 2013 Tertiary Education Performance Report).



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Research funding

The Royal Society of NZ administer a wide range of funds both national and international. Such as Marsden and Rutherford...

The Ministry of Business, Innovation & Employment (cross-government investment in science and innovation to \$1.2 billion annually) fund;

The Health Research Council of NZ (\$92M).

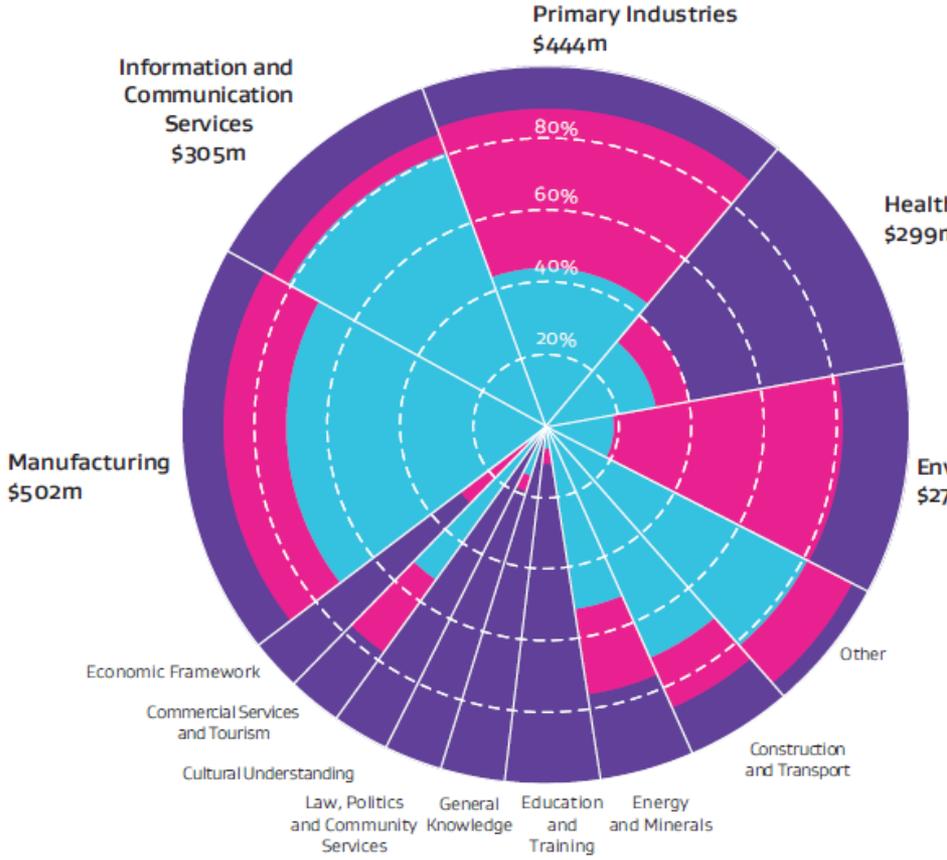
Callaghan Innovation who administer funding such as the Endeavour Fund (\$182M) in order to help New Zealand businesses grow and become globally competitive.

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Total R&D funding in New Zealand, by purpose of research and sector of expenditure, 2014

Adapted from 'Endeavour fund investment plan 2016 - 2019', MBIE.

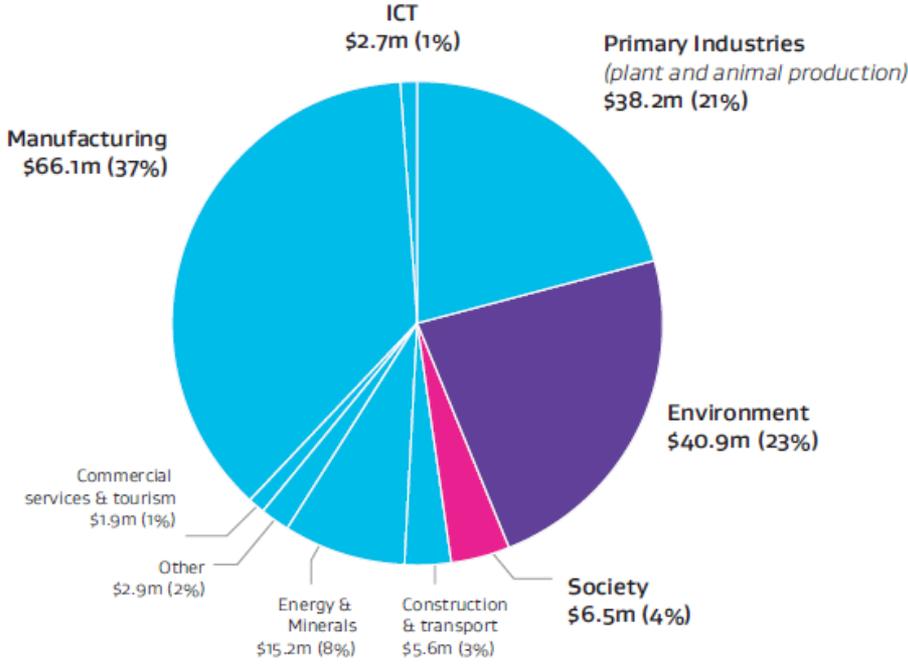


- Economic
- Society
- Environment

Source: MBIE Source: MBIE

- Business
- Government
- Higher Education

Source: Statistics NZ R&D Survey 2014



Endeavour Fund investment by purpose of research in 2015/16

Industry funding

Sources include Callaghan Innovation and the Government's international business development agency New Zealand Trade and Enterprise.

Technology incubators, technology transfer hubs and collaborative spaces (regionally operated and supported from business sector and regional government).

Industry networks, seed investors and venture capital organisations (Investor mechanisms generally follow loss of equity models).

Financial support from corporate banking through conventional business loans.

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Key Support Organisations

Some of New Zealand's technology sector supporters:

	Tertiary/ Research and Development Institutions	Government and Industry Networks	NZ Angel and Seed Investors / Venture Capital	Collaborative Spaces, Tech Transfer Offices and Incubators
NZ Wide			<p>Angel & Seed Investors:</p> <p>Venture Capital:</p>	
Auckland & Northland			<p>FIRST CUT</p>	
Hamilton			<p>Enterprise Angels</p>	
Central North Is.			<p>Launch Taranaki</p>	
Wellington & Lower North Is.			<p>AgriHQ</p>	
Christchurch & Other South Is.				

Page 32 lists contact details for the key NZ-wide organisations.

Should we just teach?

According to IPENZ the 1st obligation of an engineering professional is to safeguard life, the 4th relates to personal actions where your skills and knowledge must be relevant and up-to-date.

Therefore we can maintain the status quo in regard to teaching and course work, as above, for our graduates to meet these standards provided we keep ourselves current and integrate this into the courses.

IPENZ Code of Ethical Conduct 2016

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The collaborative conundrum

Academics have a core mandate to disseminate key concepts and knowledge although according to Fox academic publishing is 'all about status'.

For industry the same key concepts and knowledge (IP) inherent in any given product or process holds the greatest value through commercial advantage and will be sensitive to exploitation by competitors.

Justin Fox at justinfox@bloomberg.net

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The collaborative path

Discussion and informal agreement

Identification of common goals

Formalising common interest

Capability assessment and resource requirements

Project selection and planning

Contract negotiations

Implementation

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Discussion points

First contact- who, when, how?

Formalities- MU, MoU, contract, partnership?

Resource- student, technical, academic?

Implementation- coursework, project, research?

Maintaining relationship- academic/commercial balance

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Thank you.

References and acknowledgements:

Waikato, Hamilton 3210, New Zealand.

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