Research, Science and Innovation Snapshot 2018

R&D SPENDING • PUBLICATIONS • BUSINESS INNOVATION • IMPACTS • PEOPLE AND SKILLS • CONNECTIONS

FEATURES

DOWNLOAD full report and data tables behind report indicators at www.mbie.govt.nz

ABOUT THIS SNAPSHOT

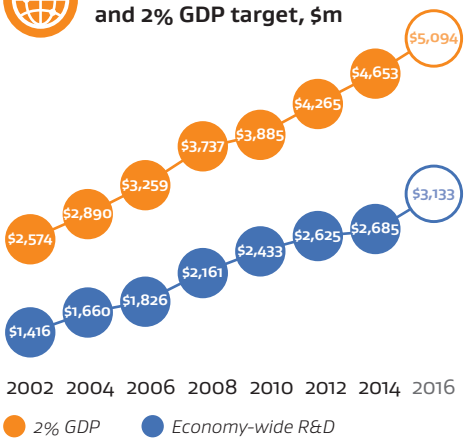
Key findings from the 2018 Research, Science and Innovation System Performance Report.

Includes benchmarking to Small Advanced Economies, OECD and Australia.

R&D spending

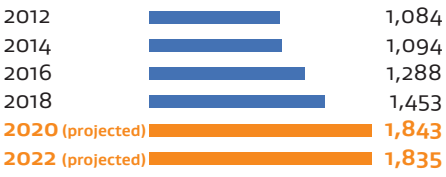
Government target is to raise economy-wide R&D to 2% GDP

Economy-wide R&D spending and 2% GDP target, $m

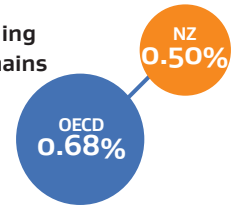


Publicly funded R&D will grow significantly following Budget 2018

Public R&D funding, $m



Public funding of R&D remains lower than OECD average



Business R&D is growing strongly

Business expenditure on R&D, $m

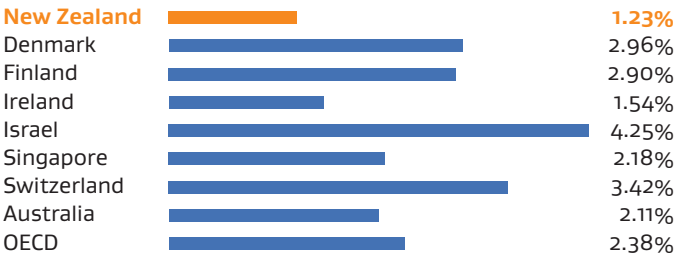
MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

Publications

Our science system is relatively small...

Proportion of GDP spent on R&D (latest available data)



...but highly productive

Publications per $m higher education and government research expenditure

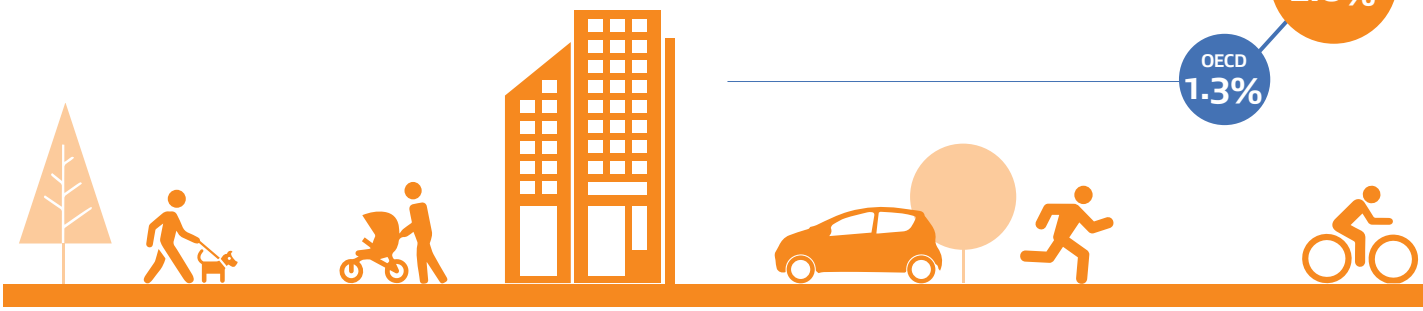
NZ 13
OECD 5

Publications per researcher per year

NZ 0.7
OECD 0.3

Publications in top 1 per cent most-cited worldwide

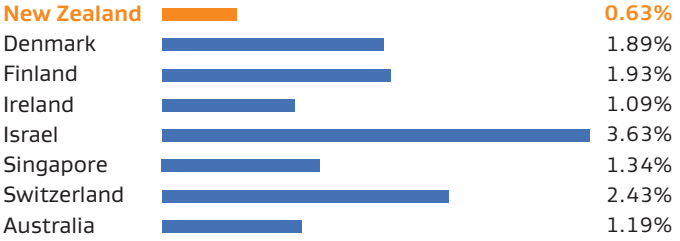
NZ 2.0%
OECD 1.3%



Business Innovation

Business R&D expenditure is low...

Business expenditure on R&D as % GDP (latest available data)



...but growing strongly

Business R&D increased by $356m (29%) from 2014-16

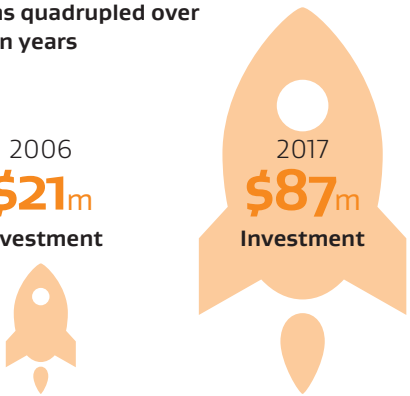
Innovation rates are low

Proportion of firms reporting innovation (latest available data)

Start-up investment has quadrupled over ten years

2006
$21m
Investment

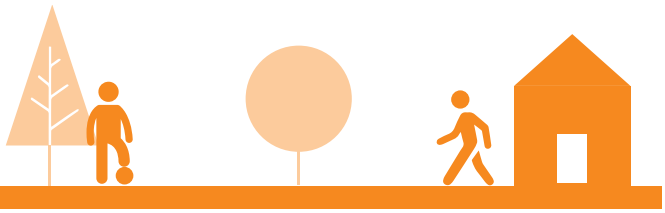
2017
$87m
Investment



We have some research specialisations

Top 3 Research specialities in terms of relative publication volume

- Agriculture and Biological Sciences
- Business, Management and Accounting
- Health Professions



Top R&D spenders

Sectors which perform the most R&D

- Manufacturing **42%**
- Computer services **27%**

Our economic sophistication is falling behind the global frontier

New Zealand's world economic complexity rank

2000	2008	2015
42nd	46th	56th

Impacts

Rocket Lab

PROJECT/ In January 2018, Rocket Lab successfully reached low earth orbit with its Electron rocket launched from the Mahia peninsula/Te Māhia. It is making space more accessible through an agile, cost-effective approach to space launches.

Clinical Trials

PROJECT/ New Zealand clinicians collaborate with other countries to run clinical trials of intensive care treatments. The findings from these trials mean New Zealand patients have significantly better health outcomes from intensive care.

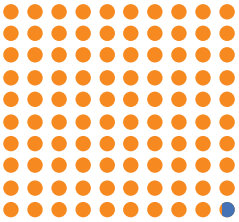
Sustainable 21st Century Fishing

PROJECT/ Plant and Food Research is collaborating with industry to develop a revolutionary technology for wild fish harvesting. The new system allows captured fish to swim at their own pace, which avoids stress and injury. It has the potential to produce wild fish products with the quality of farmed fish, and to reduce mortality rates of by-catch.

People & Skills

Nearly 8 in every 1000 workers are employed as researchers

Researchers per 1000 employment



We have a net 'brain-gain' each year

Permanent/long-term migration of Science, Technology, Engineering and Mathematics professionals in 2016

STEM professionals	Annual arrivals	+5,605
	Annual departures	-2,953
	Net arrivals	+2,652
Science professionals	Annual arrivals	+871
	Annual departures	-521
	Net arrivals	+350

New Zealand produces relatively few 'STEM' graduates

Proportion of graduates in Science, Technology, Engineering and Mathematics subjects (2016 or 2015)

New Zealand	20%
Denmark	20%
Finland	30%
Ireland	25%
Switzerland	24%
Australia	18%

New Zealand students underperform at Science and Maths versus other Small Advanced Economies and Australia

Trends in International Mathematics and Science Study Scores (Year 5, 2015). 500 is the international benchmark.

Mathematics

491

New Zealand	491
Ireland	547
Singapore	618
Australia	517

Science

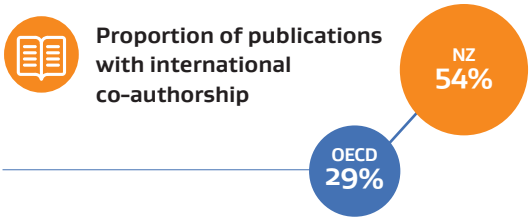
506

New Zealand	506
Ireland	529
Singapore	590
Australia	524

Connections

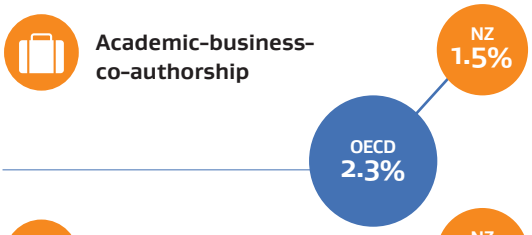
NZ has high international collaboration rates

Proportion of publications with international co-authorship

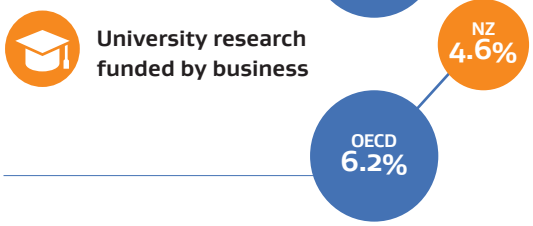


Academic-business collaboration remains low

Academic-business-co-authorship



University research funded by business



Top collaborator countries

Number of co-authored publications (2014-17)