

Where To From Here, Australia?

An address to the University of South Australia on Friday July 8, 2016.

Hon Peter Beattie AC

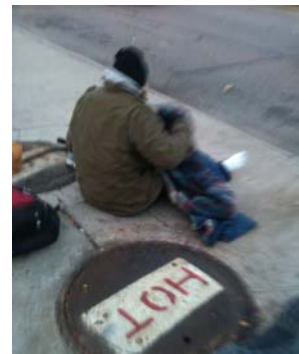
Murder rate 10 times New York



Detroit downtown: 80,000 abandoned buildings



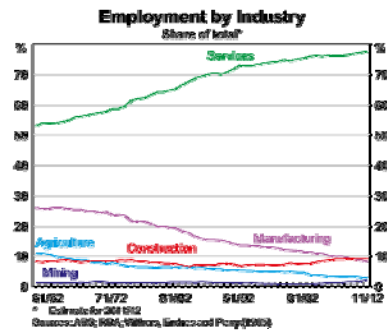
Homeless outside HQ of GM



Detroit: 1 Million people left



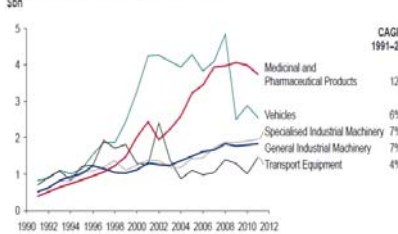
Traditional manufacturing industry continuing to shrink. Mining is not a large employer



Mining industry represents <2.0% of all jobs in Australia

Innovation can provide sustainable economic growth protected by patents and expertise

Australian Manufactured Exports - Top Five Sectors



Pharmaceutical manufacturing largest manufactured export industry* >40,000 jobs



Notes: 1. CAGR - compound annual growth rate
Source: Australian Bureau of Statistics
Source: Commonwealth Government 2013

However, we are poor at translating research innovation into economic benefit for Australia

Rank	Innovation Input Country	Innovation Output Country
1	Singapore	Switzerland
2	Hong Kong (China)	Netherlands
3	United States of America	Sweden
4	United Kingdom	United Kingdom
5	Sweden	Malta
6	Finland	Luxembourg
7	Switzerland	Iceland
8	Denmark	Finland
9	Canada	Israel
10	Netherlands	Germany
11	Australia	Ireland
12	Ireland	United States of America
13	Norway	Canada
14	Japan	Denmark
15	New Zealand	Hong Kong (China)
16	Korea, Republic of	Norway
17	Austria	France
18	Luxembourg	Singapore
19	Israel	New Zealand
20	Germany	Cyprus
21	Iceland	Estonia
22	Belgium	Belgium
23	France	Hungary
24	Spain	Korea, Republic of
25	Estonia	China
46	Greece	Australia

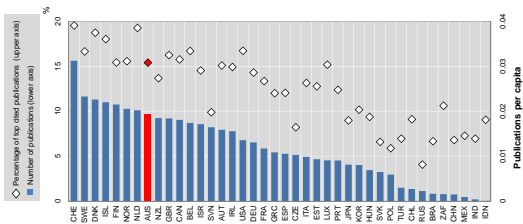
INSEAD Global Innovation Index (Analysis of 142 countries)

Global Innovation Index	Simple average of the Input and Output Sub-Indices	Australia Ranking
Innovation Efficiency Index	Ratio of the Output Sub-index over the Input Sub-index	116

140 OECD countries analysed

Relative to its size, Australia continues to produce a large amount of high quality scientific output – we have a foundation

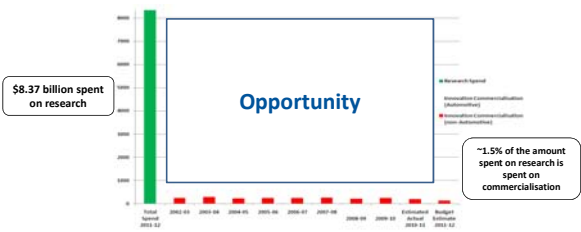
The quantity and quality of scientific production (Quality and Excellence in Publications, 2003-11)



Source: OECD Science, Technology and Industry Scoreboard 2013 and BCP analysis

Market failure: strong support of research, but commercialisation support poor

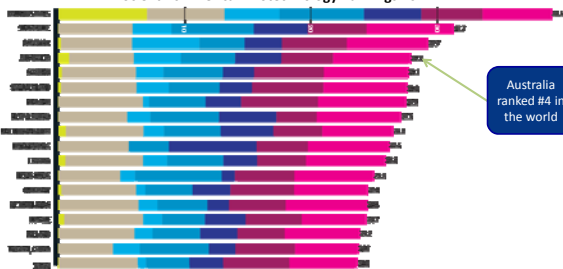
An opportunity to capitalise on the research output



Source: Aust Govt 2011-12 Science, Research and Innovation Budget Tables (Commercialisation-related budget lines); Brandon Capital Analysis

Australia's biotechnology capabilities are world leading

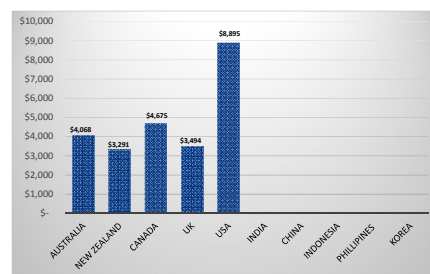
Scientific American Biotechnology Rankings 2014



Source: 2014 Scientific American Worldview

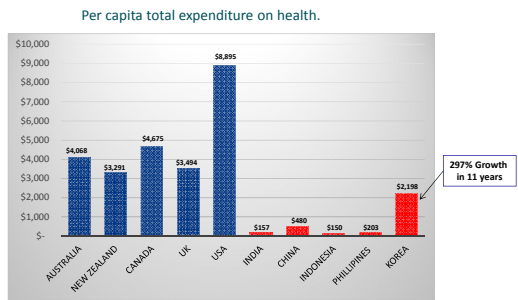
The next growth region for biotechnology and pharmaceuticals is on our doorstep

Per capita total expenditure on health



Source: WHO (<http://apps.who.int/gho/data/node.country#indc-1>)
World Bank (<http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>)

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The disruptors



The three most disruptive technologies in the future will be Nanotech; biotech and spatio tech.

- Spatio technologies will drive changes in architecture, construction and engineering
- Importantly they will also enable better planning for healthier cities and lifestyle
- Australia needs smarter cities for us to be globally competitive
- Planning today is arguably as medieval an art as alchemy

MRCF – A Growing National Collaboration

Now at 52 members across the Country

QLD (9 + 4)	NSW (9 + 5)	Victoria (11 + 3)
AIBN	Centenary Institute	Baker IDI
Centre Clinical Research	Garvan Institute	Alfred Health (Alfred Hospital)
Diamantina	Heart Research Institute	Hunter Health (Alfred Hospital)
Institute Molecular Bioscience	I3 Institute	Centre for Eye Research Aus
Monash Medical Research Institute	The George Institute	Deakin Institute of Biotech
Aus Institute for Tropical Medicine	The Victor Chang Cardiac Research Institute	Murdoch Children's Research Inst
Institute of Health and Biomedical Innovation		Melbourne Health
Queensland Department of Health		St Vincent's Institute
		Water and Eliza Hall Institute

WA (5)	SA (7)*
Telethon Kids	SA Department of Health
Perkin's Institute	Mawson Institute
WA Department of Health (research hospitals)	Samson Institute
Princess Margaret Hospital	Wark Institute
Sir Charles Gairdner Hospital	Centre for Cancer Biology*
	MORI*

Virtual world

This virtual world will:

- serve us as a knowledge amplifier and collective super-sense to aid in our survival of the big challenges we face such as epidemics, natural disasters and even climate change
- enable better planning for recreation and lifestyle



Where will the jobs come from?

1. Advanced manufacturing,
2. Food and agribusiness,
3. Medical technologies and pharmaceuticals,
4. Mining equipment, technology and services,
5. Oil; gas and energy resources and
6. Services generally including aged care and tourism.
7. Education.



Demand for richer spatial information

- Within the next decade driverless cars and trucks will fundamentally disrupt the way our cities operate. Already driverless trucks are being used at Australian iron ore mines and South Australia is proposing trials for an airport shuttle.
- Driverless vehicles will demand increasingly richer spatial information about the places they take us. They, along with swarms of small drones (JAVs) and other smart sensors in our clothing and structures will capture and share an extraordinary amount of live spatial information about the built environments we move through in our daily lives.
- Within the next decade this new spatially referenced internet of information will become the new fabric for our increasingly sentient cities and our existences in them.

BHP UNVEILS ROBOT TRUCKS, THE AUSTRALIAN NOVEMBER 01, 2012

