Research Landscape and (Higher Education) Research Policy in Australia

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Some quick facts on Australia
Population: 24 Mio., 43% of adults with tertiary education

Economy: 12th largest economy, 25 years of uninterrupted growth

Research Intensity: R & D expenditure total (GERD): 2,11% (2013) (OECD: 2.37%, Germany 2.82)
- Private Sector Expenditure on R & D (BERD): 1,19% (2013)

Research output: ~ 3,9% of the worldwide Publications
(Rank 11 worldwide, Rank 8 OECD)

Sources: OECD.Stat / OECD Science, Technology and Industry Outlook 2014 / Scopus
Australian Research Landscape:

- 40 Universities
- 45 Health Research Institutes
- 2 Funding Agencies (Research Councils)
- 6 public non-university Research Organisations
Australian Universities (1):
Australian Universities (2):

- More than 1 million enrolled Students
- More than 100,000 staff
- International Education is Australia’s biggest Export in the Services Area
- Fees from foreign students amounted to $ 4.7 billion in 2014
- Australian Universities provide significant contributions by job offers, by research collaboration with Industry, etc. in their respective region
- University Research stimulates Innovation and offers solutions for the economic, social und demographic Challenges.
Australian Universities (3): ARC-Funding
Health Research Institutes:

- Australia’s Health Research Institutes work on a broad spectrum of human health problems, for example: preventative health, chronic diseases, mental health, Immunology und indigenous health.
- Research areas span from biomedical basic research to clinical research and the translation of research findings from the lab to the .
- In most cases they are spatially closely linked to the main teaching hospitals.
- **Organisation:** Association of Australian Medical Research Institutes (AAMRI), more Information under [http://aamri.org.au](http://aamri.org.au)
- **Examples:** WEHI Melbourne, Garvan Institute Sydney, TRI Brisbane
Funding Agencies:

**Australian Research Council**

- $744.4m (2016-17)
- Funds all disciplines except clinical medicine and health
- All funding schemes are open to international researchers applying through eligible Australian organisations
- Reports to the Minister for Education and Training

**National Health and Medical Research Council**

- $840.5m (2016-17)
- Funds clinical and medical research
- Supports research, research capacity and translation
- Supports projects performed in partnership with international organisations and research consortia
- Reports to the Minister for Health
Research Organisations (1):

Commonwealth Scientific & Industrial Research Organisation

- largest non-university research organisation in Australia (1926)
- more than 5300 staff
- Broad spectrum of research areas organized in 8 so called business units: Agriculture & Food; Health & Biosecurity; Data 61; Energy; Land & Water; Manufacturing; Mineral Resources; Oceans & Atmosphere
- Budget Estimate 2016-17 (787 Mio. AUD)

www.csiro.au
Research Organisations (2):

Australian Nuclear Science & Technology Organisation

- Operation of the research reactor at Lucas Heights (Sydney)
- Environmental, Materials, and Health Research
- Nuclear medical substances
- (nuclear) Services, for example Dosimetry
- More than 1000 staff
- Budget Estimate (2016/17): 212 Mio. AUD

www.ansto.gov.au
Research Organisations (3):

**Defence Science & Technology Organisation (DSTO)**
- DSTO is Australia’s military research organisation
- Founded in 1910 as Chemical Adviser’s Laboratory in Melbourne
- Headquarters in Canberra and research sites in all States and Territories.
- DSTO has approx. 2300 staff
- Budget Estimate (2016/17) 438 Mio. AUD

**Bureau of Meteorology**
- Weather forecast
- Climate Research
- Civil protection
- Budget Estimate (2016/17) 23 Mio. AUD
Research Organisations (4):

Geosciences Australia

- Collection and Provision of geoscientific Data
- for example of mineral resources
- Cartography
- Environmental Protection
- Budget Estimate (2016/17) 140 Mio. AUD
- Approx. 700 staff

Australian Institute of Marine Science

- Founded 1972, Cape Ferguson (Townsville)
- Focus on Tropical Marine Sciences: including Protection and Management of the Great Barrier Reef
- Budget Estimate (2016/17) . 42 Mio. AUD
- 260 staff
Collaborative Structures

- **Cooperative Research Centres (CRCs)**
  - CRCs up to 10 years
  - CRC-Projects up to 3 years
  - Undertake research projects to solve industry-identified problems

- **Rural Research and Development Corporations**
  - Industry partnering with research organisations
  - Conduct research on agriculture, horticulture, water and fisheries
Industry Growth Centers

Aims:
• Increasement of cooperation between Industry and public Researchers, enabling the adoption of new processes and development of new products;
• Better commercialisation of new Ideas;
• Reduction of red tape for Australian enterprises;
• Increased participation in global supply chains und markets;
• Implementation of training strategies for the future workforce

Topics:
• Food and Agribusiness
• Mining equipment, -technology und -services
• Medical technologies und Pharmaceuticals
• Advanced Production Technologies
• Oil, Gas and Energy Resources
• Cyber Security

Program Start in 2015; Funding: $188,5 Mio. over the first 4 years
Government actions for Australia’s Innovation System

- **Innovation and Science Australia** (Bill Ferris)
- **Office of the Chief Scientist** (Dr Alan Finkel)
- **Government action**

2015:
- Innovation system audit

2016:
- National Science and Research Priorities
- National Research Infrastructure Roadmap

2017:
- 2030 Strategic Plan
- National Innovation and Science Agenda & Future Waves

Innovation system that supports productivity and growth
National Innovation and Science Agenda (NISA)

- The NISA sets out Australia’s vision for economic prosperity, driven by embracing new ideas in industry, science and innovation policy
- Affirms the role of science, research and innovation in powering economic growth
- $1.1 billion in initiatives under four pillars over the next four years

Culture and capital  Collaboration  Talent and skills  Government as an exemplar
Germany - Australia Science and Research Cooperation

- Germany was Australia’s fifth highest publications partner over the period 2011-15, with 15,466 joint publications.

- Australia was Germany’s eleventh highest collaborator (fourth highest non-EU collaborator) over the same period.

- The top research fields for co-authored articles and reviews:
  - physical sciences and astronomy;
  - clinical medicine;
  - biological sciences;
  - earth and environmental sciences; and
  - basic medical research

- 572 cooperation agreements between German & Australian Universities!
Joint Science & Technology Meetings

• STC Agreement signed in 1976
• last JSTM in Berlin on 24.October 2016

Outcomes:
➢ Implementation of the AGAG recommendations regarding Education & Research
➢ Cooperation in the field of research-industry linkages and innovation
➢ Cooperation in the area of research infrastructures
➢ Increasing mobility of students and researchers
➢ Increased cooperation of Fraunhofer institutes with CRCs, IGCs, CSIRO
➢ Extension of cooperation of Helmholtz Centers with Australian research organisations and universities
➢ Extension of cooperation in the area of health research & medical technologies
➢ Holding events to mark the 40th anniversary of the STC Agreement
Thank you very much for your attention!

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