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Intellectual Property in Public Sector Research and Information: a Basis for Collaboration

International evidence on patent data shows that up to three-quarters of private sector patents draw on public sector research. IP rights also underpin collaborations and knowledge sharing among researchers, primarily though academic publications.

Publicly-funded research organisations (PFROs), including universities, generate significant intellectual property (IP) assets. The role such IP has or could have in stimulating collaboration with industry and thereby supporting commercialisation is of interest to government.

IP generated by PFROs is often at an early stage of development and requires significant investment in order to realise its value. IP rights are important in terms of collaboration and translating research into new products and technologies.

The ‘University Commercialisation in Australia’ report by Murdoch University (2010) found that commercialisation requires a large pool of experienced research staff, commercially relevant research, availability of research facilities, and other infrastructure. Aligning interests and expectations of all collaborating partners and maintaining an effective relationship between the PFRO researchers and the commercialisation office are also crucial factors impacting the formation of PFRO collaborations with industry.

Review of the Role of IP in Collaborations between the Public and Private Sectors

The Australian Government’s 10 year innovation agenda – Powering Ideas – identified collaboration between the public and private sectors as a priority in fostering Australia’s innovation system.

The Advisory Council on Intellectual Property (ACIP) is exploring the role of IP to support collaborations between publically funded research organisations and private sector stakeholders in its review, Collaborations between the Public and Private Sectors: The Role of Intellectual Property. Its findings will be presented to the Minister for Industry and Innovation in July 2012.

Review of National Principles of IP Management for PFROs

Australian PFROs are responsible for developing and implementing policies and procedures for identifying, capturing, managing and commercialising their IP. These policies are guided by the National Principles of Intellectual Property Management for Publicly Funded Research. Drafted in 2001, the Principles aim to ensure that researchers, research managers and their organisations have access to best practices for IP management, thus helping to maximise the benefits obtained from public research.

The Coordination Committee on Innovation (CCI) is currently undertaking a review of the Principles. A discussion document is to be circulated to stakeholders for consultation in May 2012.
Easy Access IP

In an attempt to maximise the impact of its IP in driving collaborations with industry, the University of New South Wales has recently introduced an innovative IP licensing model called **Easy Access IP**.

UNSW will give companies free exclusive licences to selected IP, provided industry partners demonstrate that they can use it for economic and social benefit within the next three years. It is believed that such an approach will enable UNSW to develop closer relationships with industry partners, thus seeding commercial collaborations in the future. In December 2011, the university licensed to industry its first free technology – a commercial wind power forecasting system.

Macquarie University and the University of Queensland also intend to license some of their IP to industry for free in the near future.

Open Access Publishing introduced by the NHMRC

The **National Health and Medical Research Council (NHMRC)** has recently announced an open access policy on dissemination of research findings, requiring that any publications arising from NHMRC supported research must be deposited on an online institutional repository within 12 months from the date of publication. This means that other researchers will be able to access the publications free of charge over the Internet.

The new policy will come into effect on 1 July 2012 and will bring NHMRC in line with other international health and medical research funding bodies, such as the National Institute of Health in the United States, the Welcome Trust and the UK Medical Research Council.

Open Access to Public Sector Information

Improved access to, and re-use of, public sector information represents an important opportunity for governments to increase their engagement with the public and to realise a range of social and economic benefits.

The OECD **Working Party on the Information Economy** has analysed and provided policy principles for Open Access to Public Sector Information (PSI), ranging from weather and map information generated by governments through to public sector broadcasting archives, museums and art repositories.

The OECD **Recommendation** on public sector information sets policy guidelines for improving access to, and increasing use of public sector information through greater transparency, enhanced competition and more competitive pricing.

Australia is part of a global movement to improve access to and use of PSI. The Office of the Australian Information Commissioner (OAIC) has strategic functions relating to information management in the Australian Government. In this capacity, the OAIC is committed to leading the development and implementation of the national information policy framework to promote secure and open government. As part of this vision, the OAIC has released a set of **Principles** on open public sector information and an accompanying report. The OAIC encourages agencies to embed the Principles into their internal policies and procedures on information management.
PORTFOLIO DEVELOPMENTS

NEW: Industry Cooperative Innovation Program (ICIP) Evaluation

An evaluation of the Industry Cooperative Innovation Program (ICIP) will be completed in 2012.

The ICIP commenced in June 2005 as a competitive, merit based grants program to encourage business-to-business cooperation on innovation projects both within Australia and internationally to enhance productivity, growth and international competitiveness in Australian industries. The program was open to applications for three years (2005-2007) and all projects were completed by 30 June 2011. Total funding for the program was $25 million to June 2011.

ICIP focused on meeting strategic industry requirements. To achieve this, a consortium of at least three entities needed to cooperatively conduct a project. Successful applications were offered funding of up to 50 per cent of the eligible expenses for the approved project.

The evaluation to be conducted by Department of Industry, Innovation, Science, Research and Tertiary Education will assess the performance of ICIP against the criteria of Appropriateness, Effectiveness, Efficiency, Integration, Performance Assessment and Strategic Policy Alignment as described in the Expenditure Review Principles.

The Department is assembling a methodology for consultation and it is expected consultation with ICIP participants will occur in the second and third quarters of 2012.

Clean Technology Innovation Program

A second round of public consultations on the design of the $200 million Clean Technology Innovation Program concluded on 14 March 2012.

Feedback was sought via written submission. A second discussion paper was posted on www.ausindustry.gov.au and circulated to over 600 stakeholders. It provided a platform for the public to express their views on a range of issues relating to applicant eligibility, collaboration, tools for measuring carbon and/or energy emissions, and the application process.

Feedback received will inform the program guidelines, to be released in time the launch of the program in mid 2012.

The Clean Technology Innovation Program will be delivered by AusIndustry. It is a competitive, merit-based grants program that will support research and development, proof of concept and early stage commercialisation activities to develop new products, processes and services, in the areas of clean energy, low-emission technology and other energy efficient technologies.
Enabling Technology Futures: A Survey of the Australian Technology Landscape

Formally known as the 'Enabling Technologies Roadmap', the Enabling Technology Futures document is currently in the final stages of drafting following a six week public consultation process.

Enabling Technology Futures investigates new and emerging technologies in the fields of nanotechnology, biotechnology and syntthetic biology and examines their potential contribution to address Australia's national challenges. The report, which will be published soon, will be available on the Departmental website.

Australian Public Sector Innovation Indicators Project Update

In March 2012, the Project received the Final Draft Report “Measuring Innovation in the Australian Public Sector” from the Australian Innovation Research Centre. The Draft Report outlines a methodology for measuring innovation in the Australian public sector and developing innovation indicators at an agency level. This completes the first (developmental) stage of the Project.

Part of the Final Draft Report includes a draft questionnaire designed to measure public sector innovation within the Australian Public Service. This questionnaire will be cognitively tested in mid-April 2012, with a view to launching it as a pilot survey in July – August 2012. Agencies currently covered by the State of the Service Report will be asked to participate in the pilot survey.

The Australian Public Service Commission will be conducting the pilot survey on behalf of the Department of Innovation. The analysis of the survey data will be done jointly with the Australian Innovation Research Centre.

The indicators developed in the Final Draft Report will assist in the preparation of data cards at an agency-level to show innovation taking place across the APS. It is intended that the information from this Projects will be comparable with that being collected through work on measuring public sector innovation at the OECD.

Commercialisation Australia

Case Manager Procurement

To accommodate increasing demand for Commercialisation Australia grant assistance a nationwide request for tender process has been conducted to engage Case Managers, with over 300 tenders received. It is anticipated that 6 new Case Managers will be engaged by early May as a result of this process.

Pilot Program Update

Commercialisation Australia has announced $360,000 in grant support for its first pilot program. The project will trial Roadmap Analytics™, a process developed by WA-based company Innovation Economics, that promises to fast-track
identification of attractive projects and prospective licensees by research organisations, at a much lower cost than existing approaches.

Innovation Economics will trial the process during 2012 with leading innovation agencies Uniquest, UoM Commercial and CSIRO, whose combined activity accounts for over half of the total innovation disclosures from Australian publicly funded research organisations.

Roadmap Analytics™ delivers high-quality, up-to-date, market specific information by using specialised software to search a unique database of business and industry reports. It can identify the innovations most likely to succeed by assessing industry needs and market demand for a new product, process or service, putting high-quality information at the fingertips of key commercialisation decision-makers at the earliest points of the commercialisation process. Given Australia’s gross R&D expenditure of more than $27 billion a year, the potential benefit from this type of project is enormous. By aiding early stage decision making, the process promises to allow research organisations to deploy their resources better.

Coordination Committee on Innovation

The CCI held its meeting in Canberra on 20 April. Items discussed at the meeting included:

- Clean Energy Futures;
- National Research Infrastructure;
- Demand-side policies;
- Enhancing International Business Collaboration; and
- CSIRO Precincts.

Industry Innovation Councils

Industry Innovation Councils contribute to building a strong culture of innovation in Australian industry. They bring together innovation leaders from industry, unions, research and government.

The Councils provide strategic advice to the Minister; champion innovation in industry; and build connections and collaborate with other innovation initiatives.

Nine Council members were appointed to the Prime Minister’s Taskforce on Manufacturing. A key focus for Councils in 2012 will be providing input to the Taskforce’s considerations, in particular to support the work of their members on the Taskforce. The Councils are also providing input into the development of the Government’s White Paper on ‘Australia in the Asian Century’.
CSIRO FUTURES was established within CSIRO in 2010 to provide strategic foresight that guides longer term policy development and strategic planning to Government and Industry by leveraging CSIRO’s world-class science expertise and evidence based foresight methods.

Strategic Foresight

Strategic Foresight and the analysis of long term societal factors and their impact on business environments provide a way to ensure we are prepared for future challenges and may capitalise on the opportunities that these challenges bring.

CSIRO Futures provide a foresight process that enables participants to engage in structured and shared consideration of plausible futures with a view to generate a shared vision based on strong and sound evidence and analysis.

The value generated by engaging in strategic foresighting includes:

- **Strategic vision** - developing and agreeing on a shared vision and the commitment, amongst stakeholders, to tactical actions in the context a future vision.
- **Stakeholder engagement** - providing systematic collective reflection by engaging stakeholders and build ownership of the long-term future.
- **Thought leadership** - providing informed and credible information of future trends that may reshape a sector.
- **Wiser choices** - combining informative and evidence based information of different futures with the judgement and intuition of decision makers.
- **A platform for change** - providing the environment to analyse and decide on the best options to ensure the success in coming decades.

Venture Capital and Later Stage Private Equity Survey

On 9 February 2012 the Australian Bureau of Statistics released the Venture Capital and Later Stage Private Equity Survey for the period 2010-1. Key points to note include:

- Compared to the previous year, investment in venture capital has decreased by 40% ($252 million for 2010-11 versus $420 million in 2009-10).
- Seventy-five per cent of venture capital investment in 2010-11 was follow-on investment into existing companies.
- Venture capital funding for new investments decreased by 69% compared to the previous period ($63 million compared to $201 million in 2009-10).
- Capital is increasingly being committed to later stages of investment.
Since 2007-08, investment in venture capital has decreased by 72% and new venture capital investments have decreased by 90%.
NATIONAL DEVELOPMENTS

Innovation requires global engagement

The Australian Academy of Science launched a position paper ‘Australian science in a changing world: innovation requires global engagement’ in November 2011. The paper argues that:

- the scientific landscape is changing rapidly;
- Asia is emerging as a key R&D region;
- Australia has a closing window of opportunity to build scientific and innovation links with the emerging economies in Asia; and
- Australia has a unique opportunity, as both a Western and Asian nation, to participate strategically in global science.

The Australian Academy of Science recommends that the Australian Government invest for the future in the internationalisation of science and innovation, and that a new program of $250 million over 10 years be established to complement, coordinate and optimise the government's significant existing investments in science and innovation. These include:

- A program for early to mid-career researchers to establish partnerships with international leaders in their field.
- Collaborative innovation projects to deliver industry and economic benefit for Australia through research links with overseas companies and capabilities.
- Strategic partnerships determined by existing Australian Government priorities and cooperation agreements, supplementing and aligned with existing bilateral strategic partnership funds for India and China.
- A new national advisory board for international science collaboration, chaired by the Chief Scientist, to provide coordination and guide investment across all areas of government and the broader Australian science and innovation community.

Innovation through collaboration – a Gen Y perspective

Left Right Think-Tank (Left Right) is Australia’s first independent, non-partisan think-tank of young minds with a mission to involve young people in public policy.

The Policy Fellowship Program is Left Right’s flagship education program offered in Melbourne, Sydney, Perth and Brisbane. The Program guides a group of talented young people through an in-depth policy development education program.
– the culmination of which is a thoroughly consulted and researched policy report on a specific topic.

In 2011, Left Right’s Victorian Team developed a policy report focused on creating an environment for innovation and collaboration in Australia. The policy paper recommends that the Australian Government adopt two measures to strengthen innovation in Australia:

- A voucher-style research funding scheme to encourage businesses to take part in, co-manage or co-fund university research through a re-structuring of the existing ARC Linkage Grants. The scheme would fund research undertaken by universities, which are relevant to the nation’s economic needs, and will provide opportunities for businesses to engage with universities in commercially focused and demand-driven research.

- A “Complete Package Funding” system that would encourage the establishment of Specialisation Hubs within universities. By focusing investment into research equipment in specific areas, universities will develop specialisations with targeted infrastructure. Specialisation Hubs will attract businesses and increase collaboration by ensuring it is easier to determine the appropriate university for particular research, as well as encourage private investment in universities through these hubs and agglomeration.

University linkages

In February 2012, the Group of Eight published the University-Business Nexus in Australia report, which provides an overview of the current status of business and university linkages within the Australian Innovation System.

University-business linkages can be based on a number of factors including: research, education, employment, knowledge and technology transfer, the development of strategy and to philanthropy.

There are a number of barriers that impede collaboration and linkages including: differences in culture and values; lack of incentive structures; problems in identifying the right people or areas within a university or business; bureaucratic complexity; lack of knowledge and resources within firms; and, ownership and management of intellectual property. Other key findings of the report include:

- business and universities are complementary parts of the national innovation system and the effectiveness of the system depends on them working together;

- businesses can interact with universities to influence and inform their teaching and the learning environment that they provide;

- the most significant linkage is the movement of graduates from universities to take up positions in business, as graduates carry with them knowledge, skills, expertise and awareness of modern technologies and thinking developed through university education;
universities and businesses can also develop linkages through collaborative research. However, empirical evidence suggests one major factor limiting business innovation is the lack of creative people and people having the necessary skills and expertise, rather than access to information and research; and

improved dialogue between universities and business has the potential to produce stronger linkages, and to develop new ways to meet business needs, including better and more sophisticated work-integrated learnings.

Skills shortages: prevalence, causes, remedies and consequences for Australian businesses

The National Centre for Vocational Education Research has published the research report *Skills shortages: prevalence, causes, remedies and consequences for Australian businesses*. The aim of the report is to improve understanding about the phenomenon of skill shortages. The report offers a business perspective on skill shortage, and it is based on the answers from small to medium-sized businesses who responded to questions about skill shortages in the Australian Bureau of Statistics Business Longitudinal Database. Findings of the report include that:

The cause of skills shortages is a lack of specialist knowledge, however future-demand uncertainties, slow recruitment processes and high market wages are also causes. Lack of availability of adequate training was not reported to be a major cause of skill shortages.

Some industries are more susceptible to multiple cause skill shortages, including agriculture and construction. For other industries, including wholesale trade, retail trade, and property and business services, the incidence is low.

Most businesses address their skill shortages through better utilisation of their core workers including longer hours, better pay and conditions and internal training, while some use outsourcing and short-term contracts. A small but significant proportion of firms reduce output.
INTERNATIONAL DEVELOPMENTS

Group of Eight delegation to South America

A delegation of Australian academic leaders travelled to South America in March to strengthen links with South America which is fast becoming an important education partner for Australia.

The Group of Eight (Go8) delegation visited Chile and Brazil for meetings with university leaders and education officials. Dr Michael Spence, Vice-Chancellor of the University of Sydney and leader of the delegation, said: “Australia’s links with South America have flourished in the last decade and we are keen to explore new areas of cooperation and engagement. We are interested in building long-term relationships, and it is important for us to focus on partnerships that bring mutual benefits and broaden our research base.”

In Brazil, the primary focus of the visit was a meeting with the Ministry of Education to follow up on the Science without Borders program recently announced by President Dilma Roussef. This will invest $2 billion in scholarships to send 100,000 Brazilian students to the world’s best universities, and aims to increase Brazil’s capacity in the knowledge economy, scientific production and technological innovation. Michael Gallagher, executive director of the Go8, said: “There is considerable interest across South America in partnering with Australian universities in double degrees, student exchange and research collaborations. Our leading universities have an excellent reputation in the region, but there is still much work to be done in the area of qualifications recognition which can be very complex in South America.” From 2004 to 2009 the number of agreements between Australian and South American universities almost trebled, from 80 to 230. During the same period the number of South American students across all sectors in Australia grew from 7,000 to more than 30,000.

The Global Innovation Policy Index

The 2012 Global Innovation Policy Index, was released in March 2012 by the Information Technology and Innovation Foundation and the Ewing Marion Kauffman Foundation in Washington DC. The report benchmarks the effectiveness of innovation policies in 55 countries.

The Policy Index assesses nations against 84 indicators across seven core innovation policy areas:

1. Open and non-discriminatory market access and foreign direct investment policies;
2. Science and R&D policies that spur innovation;
3. Openness to domestic competition and new firm entry;
4. Effective intellectual property rights protection policies;
5. Digital policies enabling the robust deployment of ICT platforms;
6. Open and transparent government procurement policies; and
7. Openness to high-skill immigration.

The Index ranked countries in four tiers in regard to overall innovation policy capacity.

- Upper tier: 18 countries (Australia, Austria, Canada, Chinese Taipei, Denmark, Finland, France, Germany, Hong Kong, Japan, Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, UK, and US).
- Upper-mid tier: 15 countries (Belgium, Cyprus, Czech Republic, Estonia, Hungary, Iceland, Ireland, Israel, Lithuania, Luxembourg, Malta, Portugal, Slovenia, South Korea, and Spain).
- Lower-mid tier: 13 countries (Brazil, Bulgaria, Chile, China, Greece, Italy, Latvia, Malaysia, Poland, Romania, Slovak Republic, South Africa, and Turkey)
- Lower tier: 9 countries (Argentina, India, Indonesia, Mexico, Peru, Philippines, Russia, Thailand, and Vietnam).

Of the seven core policy areas, Australia is in the upper tier in trade, science R&D, domestic competition and intellectual property; and, in the upper-mid tier in ICT, government procurement and high-skill migration.

Successful Cleantech Cooperation in China

Kachan & Co, a cleantech analysis and consulting firm, has released a report titled Successful Cleantech Cooperation in China on insights into business collaboration in China on clean technology.

China is now the single largest market for clean technology products and services. China’s size and growth present opportunities for global cleantech companies in every cleantech-related sector:

- Government policy and spending is creating cleantech opportunities across many sectors. Many western cleantech firms are investigating R&D, capital, finance and industrial cost and speed advantages in China to fill the gaps in these areas that they are unable to close in their home country;
- Western cleantech firms face four major challenges in China. These include building business relationships, intellectual property (IP) protection and legal issues, local competition and local talent management;
- Strategies for strong business relationships and effective IP management are highly related. Both require careful planning, ongoing assessment, and for long term success rely on aligned goals and incentives of the Western and Chinese parties
China and Ireland strengthen ties

In March 2012 China and Ireland established a strategic partnership agreement to promote cooperation in science and research, innovation, investment, and trade. The agreement was made between Chinese Premier Wen Jiabao and Irish Taoiseach Enda Kenny during Kenny’s recent visit to Beijing. The agreements aim to increase personnel exchanges between the two countries’ enterprises, strengthening communication and practical cooperation in international trade in services, broadening cooperation in science and technology, and extending cooperation in areas including agriculture, culture, education, environmental protection, tourism and public health.

Since the establishment of diplomatic relations in 1979, China has become Ireland's biggest trading partner in Asia. Wang Zhanpeng, director of the Irish Studies Center at the Beijing Foreign Studies University, said Ireland is turning to cooperation with China from previous focuses, such as the United States and the United Kingdom.

Vice-President Xi Jinping has said that China's total foreign investment is likely to reach $500 billion in 2015.

Biomass Research and Development Initiative - USA

On March 22 2012, the US government announced US$35 million over three years to support research into advanced biofuels, bioenergy and high value bio-based products.

The funding will be administered through the Biomass Research and Development Initiative, a joint project between the US Departments of Agriculture and Energy. The funding is intended to support five to seven successful projects over three to four years. Successful projects will emphasise collaboration, identify and address knowledge gaps and integrate multiple technical areas. Funding will be targeted at:

- Feedstock development
- Biofuels and biobased products development
- Biofuels development analysis

The projects are expected to generate jobs and reduce US dependence on oil imports, which supports President Obama’s blueprint for an economy fuelled by alternative energy sources designed and produced by American workers. Successful applicants are expected to be notified by mid June 2012.

Global Trends in Advanced Manufacturing report


Commissioned by the US Office of Director of National Intelligence and the National Intelligence Manager for Science and Technology, the report identifies
emerging worldwide trends in advanced manufacturing. The study focused on converging trends, emerging trends, enabling factors and future scenarios in four key technology areas:

- Semiconductors;
- Advanced materials (particularly computational materials engineering);
- Additive manufacturing; and
- Biomanufacturing (particularly synthetic biology).

The most important trend the report identified was that the manufacturing industry was likely to become increasingly networked in the future. Information technology, innovation within supply chain and rapid change were also likely to have significant influence.

The National Network for Manufacturing Innovation, USA

The National Network for Manufacturing Innovation (NNMI) was announced by US President Obama on 9 March 2012.

The NNMI will comprise up to 15 Institutes for Manufacturing Innovation (IMIs) across the USA, serving as hubs of manufacturing excellence to help make US manufacturers more competitive and encourage investment. The NNMI will allow advanced engineering schools and innovative manufacturers to collaborate on new ideas, new technology, new methods, and new processes. The network will be financed by a one-off investment of US$1 billion, with the pilot institute selected by a competitive application process and funded with US$45 million of existing resources from the Department of Defence, the Department of Environment, the Department of Commerce, and the National Science Foundation.

The NNMI will focus on a specific technology area to assist in commercialising and scaling-up new manufacturing products and processes. At least US$30 million in total funding will support investments in advanced manufacturing equipment and research activities, and US$5 million for basic research in advanced manufacturing and the workforce. The planned IMIs are similar to the German Fraunhofer Institutes. The IMIs will be designed at a regional workshop Designing for Impact I, on April 25, sponsored by the Advanced Manufacturing National Program Office at the National Institute of Standards and Technology.

EU Innovation Union Scoreboard

The 2011 EU Innovation Union Scoreboard has been released. It aims to help monitor the implementation of the Europe 2020 Innovation Union flagship by providing a comparative assessment of the innovation performance of the EU27 Member States and the relative strengths and weaknesses of their research and innovation systems.

The 2011 Scoreboard found that most member states improved their innovation performance. This allows the EU to stay ahead of the innovation capacity of
emerging economies, but the improvements were not enough to close the gap with innovation leaders such as the US, Japan and South Korea.

The most innovative economies within the EU were Finland, Sweden, Denmark and Germany. In particular, these economies emphasised public-private partnerships and had high R&D expenditure, allowing them to lead the EU in innovation.

**EU Eurobarometer Survey**

The Eurobarometer survey is a new survey published in the EU examining the views and attitudes of SMEs.

The survey is the first of its kind, and focuses on three key themes – resource efficiency, green markets and green jobs. Key conclusions of the report include:

- Resource efficiency is an important priority for SMEs;
- Green markets are a large untapped potential for SMEs;
- SMEs succeed at home but not internationally;
- Customer demand is the main driver of green products and services;
- Government and EU policy can help SMEs become greener;
- Public procurement can be used to help SMEs become greener; and
- Green jobs are expected to expand by 35% in the next two years.

**Masdar City, UAE**

Masdar City is an emerging, designed city situated 17km from downtown Abu Dhabi. The city, which will house 40,000 residents and hundreds of businesses, has a research university developed in cooperation with the Massachusetts Institute of Technology. Other major partners include Siemens, GE, Schneider, BASF, the Swiss Village Association, the Korea Technopark Association and the International Renewable Energy Agency (IRENA). Masdar City is billed as a “high-density, pedestrian-friendly development where current and future renewable energy and clean technologies are showcased, marketed, researched, developed, tested and implemented.”