Australian Government

Department of Industry
Innovation, Science, Research
and Tertiary Education

INNOVATION POLICY REPORT

FEBRUARY 2012

CONTENTS

DEVELOPMENTS IN THE SERVICES SECTOR

The Australian Services Sector

The services sector is diverse in nature and has become the dominant sector of the Australian economy. Many services are direct inputs into other business activities and therefore fundamental to maintaining a robust economy. In 2010-11 services accounted for 76.7 per cent of industry value added.[1] Over the last 20 years services sector value added has increased at an average annual rate of 3.8 per cent.

Key facts:

- Services industries accounted for 83 per cent of the two million Australian businesses operating as at June 2009[2].
- The services sector is the largest employer of Australians. At the end of the 2010-11 financial year the sector employed over 9.9 million persons – or around 87 per cent of the Australian workforce.
- Services exports totalled $50.6 billion (17 per cent of Australia's exports) in 2010-11[3].
- In 2009-10, 44.3 per cent of all surveyed services businesses were innovating[4]. Twenty four of the 44 established CRCs are service sector based.

There is growing awareness across the sector that innovation is as important for service businesses as it is in the manufacturing, mining and agricultural sectors. Services Science is an emerging multi-disciplinary science that focuses on key research challenges including areas of productivity, innovation and increased exports. In December 2011, the Australian Services Roundtable (ASR) established a Research Committee to provide advice, coordinate research activities, and raise the profile of services science, research and innovation.

Creating a sound macroeconomic environment, removing impediments to growth, enhancing the capacity of service-based businesses through investment in innovation, skills development and infrastructure, and trade liberalisation are all important aspects of the Australian Government's overarching service economy strategy.

With a developed economy, well regulated and secure financial system and a world class education system, Australia is well placed to service the growing economies of the Asia Pacific. These opportunities will be examined by the *Asian Century Taskforce* in its white paper outlining the opportunities and challenges for Australia of an economically surging Asia.

---

[1] *Industry value added* (or total industry production) is calculated as 'gross value added at basic prices' minus 'ownership of dwellings'.
[2] At the time of writing, this is the latest period for which data is available; however updated data is scheduled to be released in late January 2012.
[3] ABS Cat. No. 8165.0 *Counts of Australian Businesses*.; *ABS Cat. No. 5206.0 Australian National Accounts*; .ABS Cat. No. 5368.0 *International Trade in Goods and Services*.
[4] ABS Cat. No. 8166.0, Summary of IT Use and Innovation in Australian Business, 2009-10 and DIISRTE calculations (Does not include businesses from Division O Public Administration and Safety or Division P Education and Training)

PORTFOLIO DEVELOPMENTS

NEW: Global Services Jam 2012

As part of its public sector innovation agenda, the Department is leading the Canberra team involvement in the second Global Services Jam on 24-26 February 2012.

People across the globe who are interested in services and using a design-based approach to problem solving and creativity will meet in their host location cities, and collaborate in real time with other host cities via the internet. As a not for profit organisation, the Global Services Jam is a friendly competition across the globe between teams trying to create a new service inspired by a shared theme within 48 hours. Rules are simple and each Jam can be held anywhere in the world with any number of people from any number of backgrounds and ages.

In 2011, the first Global Services Jam had 1,200 participants in over 50 cities, including an Australian entry from Melbourne. In 2012 there are three Australian teams - one each in Canberra, Sydney and Melbourne. The focus of the Jams is not on conceptual thinking but turning ideas into concrete designs, prototypes and plans of action which the teams or somebody else might want to make real.

NEW: Quarterly Credits for the R&D Tax Incentive

To further improve the access to the R&D Tax Incentive for small and medium enterprises, the Australian Government will introduce quarterly credits from 1 January 2014. DIISRTE is working with the Treasury and the Australian Taxation Office to develop and progress the legislative changes to implement quarterly credits. There will be consultation in 2012 on the details of the changes.

NEW: Update of Intellectual Property Scorecard Report

IP protection is an indicator of innovation that covers a broad range of industries. The IP Scorecard (last published in 2008 and covering the period 2002-2006) has been updated to cover the period 2005-2009. The Scorecard highlights the trends in applications and grants relating to intellectual property protection in Australia and tracks Australia's performance of patent grants in the United States and Europe.

Demand for patents in Australia has increased since 2000 but has declined by 11.6 per cent since a high in 2007. Most of this decline is attributed to foreign originating applications – applications from Australian organisations[5] have declined by 5.1 per cent since 2007. The number of patents granted in Australia has increased by 14.4 per cent since 2006.

[5] Australian defined as Australian-resident companies or individuals.

NEW: Enabling Technologies Roadmap

The Enabling Technologies Roadmap (ETRM) is a reference document being commissioned by the Department on the advice of the National Enabling Technologies Strategy (NETS) Expert Forum. The Expert Forum is focused on exploring new forms of nanotechnology and biotechnology (including synthetic biology), as well as areas of intersection, and those enabled by ICT and cognitive science.

The ETRM provides a road map of new and emerging enabling technologies against five dimensions of analysis: drivers; opportunities; barriers; risks and disruptive potential; and, against national challenges identified within the document. The ETRM provides a horizon scan over the following time-frames:

Horizon 1: technologies that are currently commercialised;

Horizon 2: technologies currently under development (lab bench) with expected commercialisation within the next decade; and

Horizon 3: Long-term (blue sky – greater than 20 years) technologies and applications.

Stakeholders are invited to provide comments and feedback on the ETRM which will be considered in finalising the document. The community consultation period ends on Thursday 23 February 2012.

NEW: Launch of NanoConnect Program

Flinders University's Centre for Nanoscale Science and Technology, South Australia is launching a pilot program, called Nanoconnect to demonstrate to businesses how nanotechnology could help improve their products or processes.

Nanoconnect has initial funding for 12 months from the Department under the National Enabling Technologies Strategy. The aim of Nanoconnect is to bring together researchers with companies to assess the feasibility of harnessing nanoprocesses and nanomaterials to commercial products. It will facilitate commercialisation of early stage nanotechnology and provide links between universities and industry. The program will provide government with a report identifying what types of companies are involved and major hurdles faced by these companies in early stage R&D, including developing linkages, practical issues, skills and cost. Importantly, an analysis will be made of what the NanoConnect program adds to existing government or private programs that facilitate commercialisation of university research.

NEW: *Inspiring Australia Unlocking Australia's Potential* competitive grant round

Since the *Inspiring Australia* report was released in February 2010, the *Inspiring Australia* strategy has been further developed through Expert Working Groups and the implementation of a National Framework - Local Action structure for science engagement throughout 2010 and 2011. Australian Government funding towards the *Inspiring Australia* strategy was announced in May 2011. The *Inspiring Australia*

Unlocking Australia's Potential competitive grant round is open from 16 January – 29 February 2012.

The grants are titled *Unlocking Australia's Potential* because a core element of the round will target people who may not have had interest in or access to science engagement activities in the past. However, it is important to note that this competitive grant round will be open to support the broader *Inspiring Australia* strategy, in accordance with the provisions outlined in the guidelines.

A total of $5 million is available across three levels of grant categories for projects to be delivered in 2012 and/or 2013 and/or 2014. It is intended that the projects approved for funding will provide a comprehensive mix of activities with a variety of delivery approaches, target audiences, geographic locations and science topics. This grant round aims to provide a strengthened, cohesive and sustainable national program of activities.

Applications are requested in the following categories:

1. Small Grants – up to $5,000 (GST exclusive) over the duration of the project – typically to individuals or small organisations for delivering innovative science engagement activities.
2. Medium Grants – up to $45,000 (GST exclusive) over three years – to organisations for delivering high impact science engagement projects at a regional or national level.
3. Large Grants – up to $500,000 (GST exclusive) over three years – to organisations, in partnership with other organisations, for delivering high impact and nationally significant science engagement projects.

This is a competitive grant round assessed by an independent grant selection committee. It is planned to announce successful projects by May 2012. Applications must be submitted online between 16 January 2012 and 29 February 2012 (4:00pm AEDT)..

More information including the program guidelines and how to apply can be found at www.innovation.gov.au/InspiringAustralia.

Commercialisation Australia

As at 5 December 2011, Commercialisation Australia has announced funding for 177 participants of $71.7 million. Details of supported projects can be found on the Commercialisation Australia website: http://www.commercialisationaustralia.gov.au/

The sectoral distribution of funding was as follows:

- Information and Communications Technology – 34%
- Manufacturing and Engineering – 30%
- Biotech – 24%
- Clean Tech – 7%

- Agribusiness – 5%

The Commercialisation Australia Board met for the eighteenth time on 13 December 2011 and is next scheduled to meet on 7 February 2012.

Changes to CA Announced

Significant changes to Commercialisation Australia were announced by the Government on 6 December 2011.

Key changes include:

- Increase in the maximum grant size for Experienced Executive Grants from $200,000 to $350,000
- Removal of the requirement to repay Early Stage Commercialisation (ESC) grants
- Increasing the annual turnover limit for ESC grants applicants from $20 million to $50 million.
- Setting a lower grant size of $50,000 for ESC grants.

Further changes to be implemented in early 2012 will expand the eligible expenditure guidelines for ESC projects to allow more generous support for the development of pilot plant and innovative manufacturing facilities.

Details of the changes are available in the updated Customer Information Guide on the CA website (http://www.commercialisationaustralia.gov.au/Pages/Home.aspx).

Case Manager Procurement

Commercialisation Australia is currently in the process of engaging up to seven additional Case Managers. The tender process closed on Friday, 16 December and received in excess of 350 tenders. Commercialisation Australia currently has a national network of 22 highly skilled case managers, and this number may grow to 29 depending on the outcomes of the Tender process. It is expected that offers to successful tenderers will be made in early April with new Case Managers being engaged in May 2012.

Commercialisation Australia Volunteer Business Mentor Network

Commercialisation Australia's Volunteer Business Mentor (VBM) Network has grown to more than 100 registered mentors from Australia and overseas.

Commercialisation Australia recently hosted by-invitation networking events in Melbourne (26 September), Sydney (28 November) and Brisbane (7 December) to facilitate introductions between mentors and Case Managers, and to encourage greater engagement between the VBM network and Commercialisation Australia.

The events were a great success and were well attended by Mentors and Case Managers who were positive about the skills and experiences the Mentors could contribute to Commercialisation Australia

The Innovation Investment Fund program

The fourth and final tranche of funding under Round 3 of the Australian Government's Innovation Investment Fund (IIF) program was announced on 7 December 2011 by the former Minister for Innovation, Senator the Hon Kim Carr, at an Innovation Showcase event in Brisbane.

The Government will provide $100 million under this tranche to licence new venture capital funds. This capital will be matched at least 1:1 with capital raised from the private sector to deliver $200 million plus of risk capital to fund the research commercialisation activities of innovative Australian start-ups.

The IIF program supports funds and fund managers with expertise in early-stage venture capital investing. The Government co-invests with private sector investors in venture capital funds to assist early-stage companies to commercialise innovative Australian R&D.

The fourth tranche differs from previous tranches in that there is no preference for new fund managers and there is the capacity for larger funds. Applications will close on 2 July 2012.

For further information see:
http://www.ausindustry.gov.au/VentureCapital/InnovationInvestmentFundIIF

Australian Public Sector Innovation (APSII) Project Update

In November 2011 the State of the Service Report (SoS) 2010-11 was tabled in Parliament. Chapter 9 on "Innovation and Efficiency" included a number of new metrics on public sector innovation that were developed through collaboration between the APSC and the APSII Project team.

The results suggest that levels of innovative activity in the Australian Public sector (around 50%) are of the same order to those reported by private business. Nearly all agencies acknowledged that their innovation systems could be further improved.

The APSII project team is currently developing a pilot survey that will supplement the information routinely collected by the APSC on innovation. This data will also enable an improved understanding of innovation in public sector and its impact. The team is considering the range of agencies to be invited to participate in the pilot and also the appropriate unit of analysis.

25 Years of Innovation in Australia

AusIndustry, a program delivery division of the Department of Industry, Innovation, Science, Research and Tertiary Education, has released a publication of *25 Years of Innovation in Australia*. The publication highlights some of the successes and achievements of Commonwealth grant recipients since the inception of the Industry Research and Development Board, now Innovation Australia, 25 years ago in 1986.

In those 25 years over 100,000 Australian businesses, including companies such as Cochlear, Austral and Intrepid Travel, have been awarded Commonwealth grants.

There are many more company stories in *25 Years of Innovation in Australia*, all fascinating and great examples of the Australian capability to innovate across all industry sectors.

If you would like a copy of *25 Years of Innovation in Australia* please contact Secretariat.InnovationSystems@innovation.gov.au.

Industry Innovation Councils

Industry Innovation Councils (Councils) contribute to building a strong culture of innovation in Australian industry and have a leadership role in transforming targeted industry sectors. They bring together innovation leaders from industry, unions, research and government.

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

Nine members from Councils were appointed to the Prime Minister's Taskforce on Manufacturing. A key focus for Councils to mid-2012 will be supporting the work of their members on the Taskforce.

Members of Councils, together with a broad range of stakeholders, consider cross-cutting issues and propose solutions. The forward work plans of Councils include contributing to: the work of the Prime Minister's Taskforce on manufacturing; improving industry productivity, competitiveness and sustainability; improving management and workforce skills; championing innovation through engaging with stakeholders; advice on the design and implementation of government policies and programs; and raising the awareness of the value of industries in people's lives.

Further information on Industry Innovation Councils is at www.innovation.gov.au/industryinnovationcouncils

Future Manufacturing Council

The Future Manufacturing Council, in collaboration with stakeholders, developed the *Trends in manufacturing to 2020* discussion paper covering current and emerging trends, and their likely impact on Australian manufacturers. It is contributing to the Prime Minister's Taskforce on Manufacturing. The paper also contributed to the Future Jobs Forum on 6 October and the Manufacturing Round Table on 20 September 2011.

Information Technology Council

The Information Technology (IT) Council's report on *Cloud Computing : Opportunities and Challenges* outlines industry development opportunities and challenges presented by the growth in cloud computing which is one of the decade's biggest shifts in how organisations use information technology.

The IT Council, in collaboration with Enterprise Connect, is supporting the development of an IT tool to improve the information and resources available to Enterprise Connect Business Advisers and their clients to enable them to identify and explore relevant technical IT issues. The IT Council was invited to participate in the

development of a national school curriculum for digital technologies under the Australian Curriculum, Assessment and Reporting Authority process which is being undertaken from December 2011 into 2012.

Built Environment Council

The Built Environment Council is focussing on its key recommendations in its Recommendations Report, including the continued promotion of industry-wide use of building information modelling (BIM) to drive productivity improvements across the sector; development of a business case for the consideration of the establishment of a national construction entity to champion innovation in the sector and build connections with innovation organisations; and work with the Construction and Property Services Industry Skills Council to develop a national education and training plan with a focus on the upskilling of tradespeople in construction.

NATIONAL DEVELOPMENTS

Manufacturing Strategy for South Australia

Following the 2011 residency of Manufacturing Thinker in Residence, Professor Göran Roos, the South Australian Government is working with industry to develop a Manufacturing Strategy for South Australia. This work is being led by the Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE).

To support this, a workshop targeted to key industry stakeholders was held on 22 November 2011 at the former Mitsubishi site in Tonsley Park. Discussions and feedback will contribute to establishing new directions for manufacturing with a focus on leveraging local industry participation in the state's billions of dollars in major projects. Discussion papers have been produced for the following key areas:

- Cleantech
- Resources Services and Technology
- High-value Manufacturing

http://www.southaustralia.biz/Innovation-in-SA/Industry-Capability-Initiative.aspx

INNOVATION in AUSTRALIA: People Making the Difference

Showcasing Australia's innovation

From a manufacturer of drilling instruments used in mines around the world to leading biotechnology companies, exhibitors came together for the first nationwide showcase – *INNOVATION in AUSTRALIA: People Making the Difference*.

Held in Brisbane on Wednesday, 7 December 2011*, INNOVATION in AUSTRALIA* featured 32 exhibitors and a variety of guest speakers presenting customer innovation stories and stakeholder workshops.

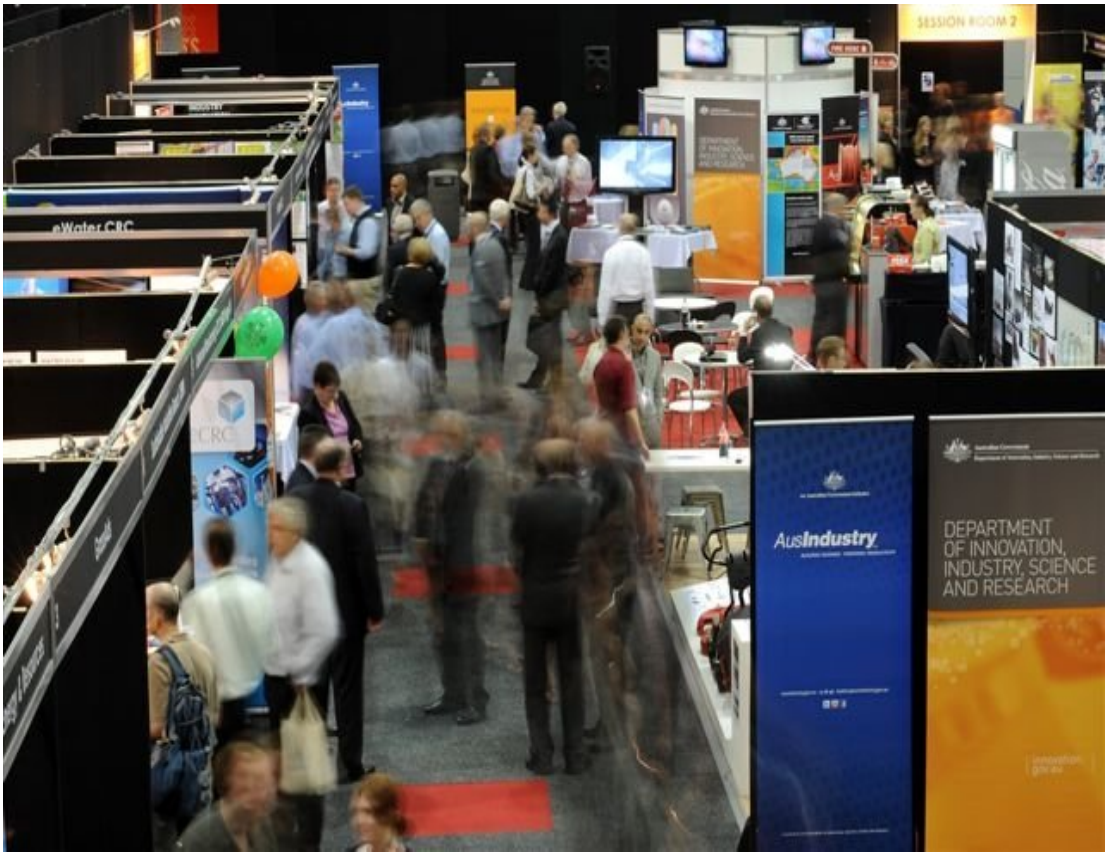
Watch highlights from the event on our YouTube channel!

The then Minister for Innovation Kim Carr said the event celebrates the success of innovative Australian firms: "*INNOVATION in AUSTRALIA* showcases the kind of creative enterprise that is critical to our future as a dynamic, prosperous and outward-looking nation," Senator Carr said.

"Australia has a world-class research sector and we have always excelled at creating new ideas – but we need to do more and encourage innovation across the economy. This event demonstrates to customers the government support available and how businesses can access it."

Presenting at the event, Senator Carr launched *It's all about Innovation*, a new publication with two easy-to-use tools for business:

- the *Eight tests of an innovative idea* which asks people to consider the tests to help them assess the likelihood of commercial success of their innovative idea, and
- *Creating an innovation strategy* which gives 14 principles of innovation to help people create their firm's practical innovation strategy.



"*It's all about Innovation* is a practical tool based on original research commissioned by the Department of Industry, Innovation, Science, Research and Tertiary Education that investigated how companies become and remain systematically innovative."

"It will help businesses and add to the unprecedented support available for innovation in Australia," Senator Carr said.

The Australian Innovation Challenge winners announced

On Wednesday 7 December 2011*The Australian*, in association with Shell Australia and with the support of the then Department of Innovation, Industry, Science and Research announced the winners of The Australian Innovation Challenge at an awards night at the State Library of Queensland in Brisbane.

Awards were presented to the seven professional categories and backyard innovation winners by then Minister for Innovation Kim Carr and Ann Pickard, Country Chair of Shell Australia.

The Australian Innovation Challenge unearthed some of the nation's best ideas. Chris Mitchell, Editor-in-Chief of The Australian said: "We at The Australian newspaper have

been interested in innovation since our paper first launched on July 15, 1964. In fact, our very first edition of the paper included a page of computing news, something unheard of in Australian newspapers at that time, nearly 50 years ago.

The Department was a key supporter of the Innovation Challenge.

"There are terrific entries in all the categories, with real commercial possibilities for many of the innovations produced by the challenge this year. I look forward to our continuing involvement in the challenge next year."

Senator Carr said: "Firms that innovate are twice as likely to boost their productivity and 2.5 times more likely to increase their contribution to their community.

"*The Australian* Innovation Challenge showcased the kind of creative enterprise that is critical to our future as a dynamic, prosperous and outward looking nation."

INTERNATIONAL DEVELOPMENTS

GE Global Innovation Barometer

The GE Global Innovation Barometer (released 18 January 2012) is based on a survey of the perceptions of 2800 senior business executives in 22 countries. The report's findings rank Australia's 16th out of 30 countries as an innovation leader.

Key findings include:

- Only 2 per cent of 2800 senior executives surveyed worldwide mentioned Australia as an innovation champion. At the same time, 18 per cent of Australian business leaders nominated their own country which indicates a gap between local and international perception;
- 86 per cent of Australian executives, compared to 92 per cent globally, see innovation as the main lever for a more competitive economy.
- 28 per cent of Australian executives versus 41 per cent globally said research and development corresponded to their personal definition of innovation;
- 85 per cent of respondents felt that the best way to create jobs was through innovation investment and 84 per cent believing that it was the best way to create a "greener" economy;
- When asked in what areas innovation can improve Australian lives, local business leaders selected communications (96 per cent) and education (90 per cent), closely followed by health quality (89 per cent), job market (89 per cent), and the environment (87 per cent);
- 31 per cent of Australian respondents felt that the innovation environment had not improved over the last five years - this indicator received the most negative response rates across all participants; and
- 88 per cent of Australian business leaders agreed that the key to innovation is partnerships rather than stand-alone activities, and 80 per cent respondents felt that SMEs can now compete more effectively with the innovation efforts of larger companies.

The Milken Institute Innovation Report

The Milken Institute Innovation Report (released 18 January 2012) gives a global analysis of the environment by which innovation is supported in 22 countries.

According to the report Australia is ranked leading in five of seven innovation indicators (University-Industry Collaboration, Gross Expenditures on R&D, Utility Patents, STEM Education, and Business Environment), and above average in the remaining two (High-Technology Export, and Venture Capital Deals).

The Milken report concludes that “Australian respondents to the GE Innovation Survey were fairly negative regarding a number of areas where the nation actually performs quite well. Although Australia was spared a severe downturn, the global recession certainly played a role in the report’s findings. A surprising 85 per cent of respondents said that the recession had forced firms to take fewer risks, and only 69 per cent replied that the innovation environment had improved over the past five years (one of the lowest positive response rates out of the countries surveyed). These perceptions do not completely match up with the improvements Australia has made to its innovation system.”

CSIRO Chile International Centre of Excellence opens in Santiago, Chile

A new centre of excellence, formed from a partnership between CSIRO and Chile, was opened officially by Chile’s Minister of Mines, the Hon. Hernan de Solminihac on 14 December 2011 in Santiago, Chile. The CSIRO Chile International Centre of Excellence in Mining and Mineral Processing will tackle key challenges facing the Australian and Chilean mining industries.

The opening was attended by Mr Pedro Pablo Diaz, Chilean Ambassador to Australia, Ms Virginia Greville, Australian Ambassador to Chile, Dr Megan Clark, Chief Executive, CSIRO, Mr Hernan Cheyre, Vice President CORFO and Mr Alvaro Fernandez, Governor of Antofagasta and other dignitaries.

The Centre will develop cutting-edge technologies that will reduce the environmental impact of mining and increase its productivity. It will also be a major international education and training facility that will build the services and manufacturing industries in both countries through partnership with industry, tackling the mining sector’s global skills shortage.

The CSIRO Chile Centre of Excellence is co-funded by CORFO and supported by the Universities of Antofagasta and Chile, Cicitem and major industry partners: Anglo American North S.A. and Anglo American South S.A., Antofagasta Minerals S.A, BHP Chile Inc, Codelco, and Xstrata Copper Chile S.A.

The Centre will have four research programs: GeoResources and mine planning; intelligent mining systems; mineral processing and metallurgical systems; water, energy and environment impact. The Centre will have a ten year lifespan.

The centre is led by Dr Neal Wai Poi. Shortly after joining CSIRO in 2009 as a research leader, Dr Wai Poi was appointed Acting Director of the Light Metals Flagship. Throughout his career he has successfully delivered international initiatives that have implemented advanced technologies in industry and science.

An official opening of the northern node in Antofagasta is scheduled in April 2012.

United States and Canada

$4 Billion energy efficiency initiative

On 2 December President Obama announced the $4 billion Better Buildings Initiative energy efficiency of existing buildings. The program aims to reduce energy usage and costs from heating and cooling in commercial buildings while reinvigorating the domestic construction sector with a goal of improving energy efficiency in commercial buildings by 20 per cent by 2020.

Obama Administration Announces $2 Billion in Resources to Support Job-Creating Startups

On 8 December 2011, the White House announced initiatives worth $2 billion to help start-up businesses.

The Small Business Administration (SBA) is progressing with its plans for a $1 billion Early Stage Innovation Fund (ESIF), first announced as part of Startup America, to provide matching capital to Small Business Investment Companies (SBICs), targeting early-stage small businesses seeking private institutional capital.

The ESIF, which will be fully implemented in 2012, will leverage the successful SBIC program to allow privately managed investment funds to put more capital into the hands of small business start-ups.

The White House also hosted the Startup America Partnership's first board meeting, where members announced commitments from over 50 private-sector partners to deliver more than $1 billion of in-kind assistance to 100,000 start-ups over the next three years. This includes free software, and free consulting and legal services.

Small Business Innovation Research and Technology Transfer Legislation Passed

After a protracted process the US Congress has passed legislation to reauthorise the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs that were set to expire on 16 December 2011.

The SBIR/STTR is a competitive program that encourages US small businesses to engage in Research and Development that has commercialization potential. The program currently involves 12 Federal agencies. The program has been in place since 1982 and has now been reauthorised for a further six years.

The Competitiveness and Innovative Capacity of the United States

The Competitiveness and Innovative Capacity of the United States report was released on 12 January 2012 by the Commerce Department. The report was mandated as part of the America COMPETES Reauthorization Act of 2010 and signed into law a year ago. Major findings of the report include:

- Federal investments in research, education and infrastructure were critical building blocks for US economic competitiveness, business expansion and job creation in the last century, and failures to invest properly in those areas and

have comprehensive strategies for them, have eroded the US competitive position.

- Government-funded basic research plays a key role in supporting and developing innovations, and examines how this federal 'seed money' has helped with development of the Internet, satellite communications, and semiconductors.
- A flourishing manufacturing sector is also recognized by the report as being crucial to US competitive strength, economic growth and job creation, and is the biggest source of innovation (67 per cent of business R&D) in the US economy. Manufacturing comprised 11.2 per cent of GDP and 9.1 per cent of total US employment in 2009, directly employing over 11 million workers.
- Over the past 10 years, growth in STEM jobs (7.9 per cent) was three times as fast as growth in non STEM jobs (2.6 per cent). Over the coming years, STEM employment is expected to continue to grow at a faster rate.

The report made 10 recommendations for moving forward:

1. Continue to support government funding for basic research.
2. Enhance and extend the R&D tax credit.
3. Speed the movement of ideas from basic science labs to commercial application, for example through centres where industry, academia and government can collaborate and accelerate the development of emerging technologies.
4. Bolstering education, and employment in STEM areas.
5. Increase the spectrum for wireless communications, for example, the goals set by the "National Wireless Initiative," include doubling the amount of spectrum available for wireless broadband services and helping rural areas gain access to wireless broadband services.
6. Increase open access to data to help spur innovation.
7. Coordinate Federal support for manufacturing.
8. Continue and strengthen efforts to foster regional clusters and entrepreneurship.
9. Promote America's exports and improve access to foreign markets, including through participation in the Trans-Pacific Partnership negotiations.
10. Ensure that the conditions exist in which private enterprise can thrive.

The U.S.–Israel Innovation Index

The US–Israel Science and Technology Foundation (USISTF) has developed the U.S.–Israel Innovation Index ("the Index") in order to assess innovation-related collaboration between the U.S. and Israel. Without comparisons of cooperation between the U.S. and other similar innovation inclined countries the true value of the relationship would be difficult to understand. Therefore, the Index benchmarks the

U.S.–Israel relationship against that between the U.S. and a selected set of countries that are economically and competitively similar to Israel.

The Index measures innovation-related collaboration between the U.S. and Israel by tracking quantifiable activities and relationships in the following primary categories: Government, Private Sector & Industry, Human Capital, and Research & Development (R&D). Metrics include:

- Government - number of current bilateral science and technology treaties;
- Private sector and industry coordination - imports and exports in key knowledge-intensive industries and multinational companies, and knowledge-intensive industry companies cross listed on stock exchanges;
- Human capital - co-authorships, U.S. Doctorates awarded and entries to the U.S. under temporary entry for specialty occupations; and
- R&D - total R&D performed by foreign affiliates in each country, and collaborative patent applications and grants to the respective national patent office.

A Charter for Revitalizing American Manufacturing

The Information Technology and Innovation Foundation has produced a "Charter for Revitalizing American Manufacturing". The Charter argues that manufacturing is essential to the health of the U.S. economy, for four key reasons:

- Without a robust manufacturing sector, the U.S. will have great difficulty balancing its foreign trade;
- Manufacturing is a key source of above-average-paying jobs;
- Manufacturing, R&D, and innovation go hand-in-hand. In fact, manufacturing is the principal source of innovation and R&D activity in the U.S. economy, and;
- Manufacturing is vital to U.S. national security and defence.

The Charter makes 28 policy recommendations in the six areas of:

- Support SME Manufacturing and Entrepreneurship;
- Finance/Credit Provision to Support U.S. Manufacturing;
- A U.S. Trade Strategy that Effectively Combats Unfair, Market-Distorting Foreign Mercantilist Practices;
- An Effective Tax Policy to Support U.S. Manufacturing;
- A Talent Policy to Bolster U.S. Manufacturing; and
- Support U.S. Manufacturing through Public Procurement.

Federal R&D Panel reports with six major recommendations

An expert panel leading the Canadian Review of Federal Support to R&D submitted its final report to the Canadian Minister of State for Science and Technology on

17 October 2011. The report makes a series of recommendations that call for a simplified and more focused approach to the $5 billion worth of R&D funding provided by the Canadian government every year.

With a mandate to provide advice on how to enhance federal programming in support of a more innovative economy, the expert panel met with more than 160 stakeholders across Canada, received 228 written submissions, surveyed over 1000 businesses, and consulted with numerous experts in Canada, Europe, Australia, Asia and the United States. The review could neither increase nor decrease overall funding, nor could it touch regulatory research done by federal laboratories or basic research conducted by institutions of higher education.

The report makes six major recommendations:

- The creation of an Industrial Research and Innovation Council (IRIC) to deliver the federal government's business innovation programs.
- Simplification of the tax credit system used to support small and medium-sized businesses.
- Make business innovation one of the core objectives of procurement.
- Transform the institutes of the National Research Council into a series of large-scale, collaborative centres involving business, universities and the provinces.
- Help high-growth innovative firms access the risk capital they need through the Business Development Bank of Canada.
- Establish a clear federal voice for innovation and work with the provinces to improve coordination.

India and Asia-Pacific

Release of the Report to the People 2011

The Indian Government has declared 2010 - 2020 as the 'Decade of Innovation', realising that innovation is the engine for national and global growth, employment, competitiveness and sharing of opportunities in the 21st century.

The Prime Minister formed the National Innovation Council (NInC) in September 2010 to prepare a roadmap for innovation in India and formulate and implement a model of inclusive innovation.

The National Innovation Council began its work in November 2010 and on 15 November 2011 released its first 'Report to the People' which provides an overview of the activities and initiatives of the Council.

Innovations in the last two centuries have been driven by the needs of the developed world. India has continuing challenges arising from unmet needs in critical areas, and these complex challenges cannot be addressed through incremental approaches. The Report calls for massive change, and tectonic shifts that only innovation can enable.

The first report to the people reports on the performance of various aspects of India's National Innovation system including collaboration and networks.

DIISR Secretary Dr Don Russell recently visited the Global Innovation Roundtable in New Delhi, India on 14 and 15 November 2011.

Innovation, Trade, and Technology Policies in Asia-Pacific Economies: A Scorecard

The Information Technology and Innovation Foundation has released Innovation, Trade, and Technology Policies in Asia-Pacific Economies: A Scorecard, a structured assessment of policies informing the innovation capacity of the 21 APEC member economies. The report highlights the most effective policies APEC members have used to build their innovation capacity and describes how APEC members can learn from one another.

The report assesses APEC member economies on their strength in six core policy areas:

- Open and non-discriminatory trade, market access, foreign direct investment, and standards policies;
- Science and research and development policies that spur innovation;
- Digital policies that enable robust deployment of information and communications technology platforms that support a broad range of digital applications;
- Intellectual Property rights protection policies;
- Robustness of domestic competition and new firm entry;
- Open and transparent government procurement policies.

United Kingdom

Queen Elizabeth Prize for Engineering

The UK Government has announced the Queen Elizabeth Prize for Engineering, a new global award which celebrates outstanding advances in engineering that have created significant benefit to humanity.

The £1 million Prize will be awarded to an individual or team of up to three people, of any nationality, directly responsible for advancing the positive application of engineering knowledge.

The Prize will be international and will be awarded biennially, the first being presented in Autumn 2013.

Future of Manufacturing Study

A two year study of manufacturing in the UK was launched on 14 December 2011. The Foresight project will call on industry and academic expertise from the UK and

abroad and investigate the future of manufacturing in the UK until 2050. The study will look at the long-term picture for the manufacturing sector, investigating global trends and drivers of change, and explore how the UK can maximize such opportunities and provide an evidence base to help policy-makers.

The study has been prompted by the declining share of manufacturing in the British economy from 22 per cent of GDP in 1990 to around 10 per cent today.

Innovation and Research Strategy for Growth

The Department for Business, Innovation and Skills (BIS) in the UK has released their "Innovation and Research Strategy for Growth". The paper outlines the strengths of the UK innovation system and the challenges facing it in the future. The paper indicates an increased focus on collaboration within the research sector as well as between the research sector and business, especially SMEs with limited previous engagement.

The paper also outlines the establishment of a “prize centre” to be run by NESTA and an increased focus on government supported commercialisation in “Catapult Centres”.

A policy objective of note is a plan to make all publically funded research data publically available. This project is to be run by the “Open Data Institute” which will also advise the private and public sector on how to manage data. Not clearly addressed in the paper is how IP issues will be managed and the possibility of foreign companies or state owned enterprises accessing the data.

European Union and OECD

OECD Green Growth Study on Energy

The OECD has released its Green Growth study on Energy. The study discusses how easy access to low cost energy has transformed society in the past two centuries and why a secure energy supply is essential for the modern economy to expand and support the growing human population.

The study states current rates of fossil fuel and energy usage in general, are unsustainable and that significant effort will be required to transform the economy into a sustainable model based on green growth principals.

A significant part of this shift is how energy is generated and utilised – requiring a diverse range of sustainable sources and much greater levels of energy efficiency. The study discusses a range of policies to assist in achieving these goals and finds that the shift to low carbon will have an overall positive effect on the economy by generating new employment opportunities and technological innovation.

New policy for innovation in the public sector

The Research Council of Norway’s new policy for innovation in the public sector is scheduled to be launched in early 2012. The public sector employs 30 per cent of Norway’s labour force and represents a large segment of the national economy.

The policy for innovation in the public sector will identify knowledge needs, lay the foundation for the design of new instruments by the Research Council, and set out priorities in various sub-areas. In late 2012 the Council will be establishing new program activities to boost innovation in the public sector.

The policy will look at areas of public policy concern for the future including an ageing population and the need for increased co-operation between business, professions, research agencies and the community.