



Australian Government

Department of Industry  
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and Tertiary Education

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# Innovation Policy Report

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## Australia's Innovation Voucher Schemes

Voucher schemes that aim to promote collaboration between industries and knowledge institutions (i.e. public funded research organisations, universities, research agencies), are an emerging international trend to support innovation activities of Small Medium Enterprises (SMEs).

The main purpose of an innovation voucher is to build new relationships between SMEs and public research institutions. Vouchers allow SMEs to seek research expertise to solve a specific innovation-related problem, such as; a technical question requiring further R&D activities; small scale product prototyping; laboratory verification or field testing. They achieve this through:

- i) stimulating knowledge transfer; and
- ii) catalysing longer-term, more in-depth collaborations.

The first voucher scheme encouraging businesses to engage in knowledge transfer originated in Netherlands in 1997 with the so called “research vouchers”. However, until 2006 only a handful of innovation voucher schemes existed in Europe. Since 2006, more than 20 publicly supported schemes have been launched in OECD countries.

The wide use of innovation vouchers in over 20 countries including Australia (e.g. USA, UK, Canada, Singapore and across Europe) demonstrates that the measure can be easily adopted by countries and regions worldwide, provided that administrative burdens are kept low for small firms and that firms and knowledge institutions are willing to co-operate.

Evaluations of overseas programs demonstrate the capacity of voucher schemes to support collaboration and the introduction of new innovation processes into business:

An [evaluation of the Scottish Innovation Voucher scheme](#) concluded that, from the SME perspective, the scheme supported new formal R&D and consultancy relationships. Without the scheme, relationships established between SMEs and the consultancy would either not have happened, or would have happened at a much slower pace or smaller scale. Academics and commercialisation staff also reported that the program led academics to work with and establish new relationships with SMEs.

[A study of Finnish companies](#) showed that two out of three participating companies had never used any outside expertise in their innovation process before participating in the voucher scheme. A large proportion of voucher recipients continued their association with the academic institutions after the services commissioned through the voucher were completed.

However, the evidence for persistent, long term impact of vouchers on firm behaviour is limited. Vouchers may only facilitate one-off industry-university co-operation, leaving unaltered the long-term attitude of SMEs and universities towards R&D and innovation collaboration with industry.

Innovation Voucher Schemes have been implemented in three Australian States, New South Wales ([NSW TechVouchers](#)), Victoria (Small Technologies Industry Uptake Program, now replaced by the [Technology Voucher Program](#)

and the recently launched [Innovation Voucher Program](#)), South Australia (the recently launched [Innovation Voucher Program](#)) and Western Australia ([Innovation Vouchers Program](#)). While they all aim to promote collaboration between SMEs and researchers, there are key differences between these Schemes in terms of the eligibility criteria of voucher recipients and service providers; and the voucher's monetary amounts.

An independent interim evaluation of the Victorian Government's [Small Technologies Industry Uptake Program](#) (STIUP) was completed in September 2012 by the Allen Consulting Group. The report concluded that vouchers have been an effective way to overcome barriers to engagement between companies and the State's innovation capability. The review informed design and implementation of two new Victorian Government voucher programs – the Technology Voucher Program (replacing STIUP) and the Innovation Voucher Program. High-level findings from the review include:

- In the Program's first 12 months, 59 vouchers were awarded to 45 companies. Of these, 41 companies reported that the voucher led to the development of at least one new product or process.
- The program is acting as a catalyst for investment and focusing parties on a specific project, supporting businesses to leverage more than \$9.25 million in further investment.
- STIUP generates a high degree of additionality. Eighty per cent of voucher recipients surveyed reported that the voucher assisted in bringing their projects into fruition.
- STIUP is facilitating and stimulating the creation of new networks that extend beyond conventional industry lines.
- The brokerage system in particular plays a critical role in connecting businesses with suppliers. Vouchers play an important role in seeing investments materialise but the value of the program's 'business matching' service is also a key factor.

Following the recommendation of ['Thinker in Residence', Professor Göran Roos](#), the South Australian Government has introduced the Innovation Voucher Program program to foster innovation and drive connectivity between the industry and research sectors. Central to the initiative is stimulation of innovation in SMEs to develop new products, systems or manufacturing processes.

The Northern Territory is assessing the value of voucher systems. They are reviewing the experiences, pros and cons of other voucher systems that have been implemented in Australia.

Innovation vouchers are often used to assist in the development of innovation-related products and services. As such, they have proven to be useful instruments for SMEs to generate and sustain collaboration with researchers and deliver innovation to the company.

## Departmental Developments

### Update on Quarterly Credits for the R&D Tax Incentive

To improve access to the R&D Tax Incentive for Small and Medium enterprises, the Australian Government will introduce the option for [quarterly credits](#) from 1 January 2014. DIISRTE is working with the Treasury and the Australian Taxation Office to develop and progress the legislative changes required to implement the quarterly credits option.

A [consultation paper](#) on the design of quarterly credits was released on 3 August 2012. Submissions closed on 31 August 2012. Twenty submissions were received and drafting instructions are currently being developed by DIISRTE.

Consultation on the draft legislation is planned for later in 2012.

### Australian Public Sector Innovation Indicators (APSII) Project Update

The APSII Project is developing a methodology to understand and measure innovation that occurs within the Australian Public Sector (APS).

After 18 months of research, planning and developmental work, the Project entered its second phase with the launch of a Pilot Survey designed to measure public sector innovation across the APS. The survey was conducted by the Australian Public Service Commission on behalf of DIISRTE. The pilot survey was launched after a period of cognitive testing.

Responses were received from 316 out of a total of 946 randomly-selected Senior Executive Service Band 1 officers from across the APS. This represents a response rate of 33 per cent, which is generally consistent with other voluntary surveys.

Analysis of the survey data starts in mid-October 2012. The APSII Project will assess broad innovation trends across the APS based on the findings of the pilot survey. Equally importantly, the preparation of agency-specific data cards will trial the concept of innovation indicators as a tool for measuring innovation capacity across the APS. The project's findings are also of interest to the National Experts on Science and Technology Indicators (NESTI) Working Group of the Organisation for Economic Cooperation and Development (OECD), as this may enable comparisons of public sector innovation performance amongst member countries.

### Industry Innovation Councils

[Industry Innovation Councils](#) (Councils) were formed to contribute to building a strong culture of innovation in Australian industry and perform a leadership role in transforming these industries.

The Councils provide strategic advice on innovation priorities to ministers, champion innovation in industry; and build connections and collaborate with other innovation initiatives and organisations. Their main focus has been to

improve innovation through productivity, competitiveness, skills and sustainability.

The terms of the Councils are now coming to an end, with the Future Manufacturing, Textile Clothing and Footwear; Steel; Automotive; Built Environment; and Space Councils concluding in 2012, and the Information Technology Industry Innovation Council will conclude in 2013. There will be new consultation mechanisms, as the Government has accepted the non-government members of the Prime Minister's Taskforce on Manufacturing recommendation to establish the Manufacturing Leaders Group.

Manufacturing Leaders Group (MLG) is part of a strategic mechanism for the Government to consult with leaders in industry, unions and research. The members of the MLG will continue the important dialogue established by the Taskforce.

The MLG will:

- provide quality research, analysis and strategic advice to Ministers;
- support evidenced based research and analysis to underpin their advice;
- champion capability development to build better firms and workplaces;
- encourage industry led transformation; and
- improve linkages and collaboration between stakeholders, and with other industry policy bodies, to support the development and implementation of a coherent set of Government industry policies and programs.

## **Manufacturing Leaders Group**

Non-government members of the Prime Minister's Manufacturing Taskforce - representing business, unions and the research sector - presented their report '[Smarter Manufacturing for a Smarter Australia](#)' on 16 August 2012.

Recommendation 40 of the report reads:

The non-government members of the Taskforce in partnership with the Commonwealth will be establishing a Manufacturers Leaders Group (MLG) to work on issues such as the perceptions of manufacturing; to hold ongoing discussions about the environment the industry faces and what needs to be considered to build better firms and workplaces; to monitor the development of a manufacturing strategy and to conduct further research into the future of the manufacturing industry. It is recommended that the Commonwealth provide seed funding for the MLG research program for 2013 and 2014 after which the research funding would be reviewed.

The Government accepted the recommendation for an MLG, which it sees as having an important role in assisting the Government to implement its response to the Taskforce's recommendations.

Consideration is currently underway regarding the membership and operating framework for the MLG.

# National Developments

## R&D Tax Incentive

The [IT Industry Innovation Council](#) has made a submission to the Business Tax Working Group discussion paper canvassing options for reducing the company tax rate including by abolishing or limiting the R&D Tax Incentive. The Council's submission strongly supports the retention of the R&D Tax Incentive as vital to the innovation effort particularly in the SME space.

## Beyond the Boom: Australia's Productivity Imperative

Asia's economic and demographic trends point to sustained demand for commodities in the decades ahead, but growth fuelled by demand for natural resources carries risk according to The McKinsey Global Institute (MGI) report [Beyond the boom: Australia's productivity imperative](#), which finds that "one-off" factors—including favorable terms of trade and an investment surge — have driven half of Australia's recent growth.

The magnitude of Australia's resource boom belies some weakening fundamentals. Since 2005, the country has enjoyed 4.1 percent annual gains in income. But growth in labor productivity has fallen to just 0.3 percent. The report identifies four sectors—defined by their proximity to the resource boom and their exposure to trade competition—and pinpoints the major challenges for each of them.

- **Resource sectors: Getting capital productivity right.** Australia is less than halfway through the capital boom, with AU \$443 billion in investment still to come in the resource sector. Major capital projects are prone to inefficiencies and overruns, but the country has an opportunity to boost its capital productivity by up to 30 percent if firms emphasize a top-level focus on value, adopt a best-practice "tool kit," and assemble project teams with superior execution skills.
- **Resource-rider sectors: Improving efficiency.** Transport, utilities, professional services, and other resource-related sectors have grown dramatically because of their links with the mining and energy boom. Yet at the same time, their labor productivity has fallen dramatically. Stakeholders must find ways to develop new infrastructure more cost effectively. Additionally, a more integrated cross-sector approach to resource productivity can reduce the need for some expensive new projects.
- **Local services: Implementing microeconomic reform.** Sectors such as retail trade and telecommunications have been largely unaffected by the resource boom. They have posted solid productivity gains but tend to lag behind international benchmarks. Australia can close the gap through a renewed focus on microeconomic reforms that streamline regulations, encourage innovation, and promote competitive markets.
- **Manufacturing: Creating a foundation for long-term competitiveness.** Like other developed economies, Australia has seen its manufacturing base

erode. Improvement will depend on cost efficiencies, particularly the neglected area of management quality; higher labor mobility; and a shift to innovative manufacturing, which offers the best long-term potential for competitiveness.

## **Imagining Australia in the Asian Century**

The recent Boston Consulting Group (BCG) report '[Imagining Australia in the Asian Century](#)' highlights the enormous growth in the Asian economic market and how Australian firms can capture the 'Asian opportunity'.

The report discusses the experience of some firms capturing opportunities that lie at the intersection between Asia's economic transformation and the capabilities of Australian businesses. The transformation of Asia's economic climate is evident in three areas:

- (1) Asian economies' sustained high investment in infrastructure, housing, industry and human capital sectors;
- (2) Asian economies are increasingly sophisticated and integrated across the region and internationally; and
- (3) Asian household incomes are increasing, driving sustained growth in consumer demand for a broad range of products and services.

Each of these areas represent opportunities for Australian businesses to support Asian investment, connect with Asian markets and meet Asian consumer demand. To capture the opportunities that the Asian economy offers, the report indicates Australian businesses will need to draw on three broad capabilities: adding value to natural resources; operating network industries and tourism; and developing and delivering services.

The Report includes three common themes in the case studies of Australian businesses' experiences in entering Asian markets. Firstly, customers value local specialisation with regional value, as such customers in Asia will see value in an Australian business that uses its ability to customise its product to local preferences. Secondly, the Asian market is highly competitive and relationships are critical. Thus, Australian businesses should identify and enter the right markets and build relationships with partners and customers in Asia. Finally, Asian markets are diverse and dynamic, as such Australian businesses need adaptive, localised operating models.

BCG's case studies in the report have also identified that, from the Australian businesses' experiences, there is an importance of people-to-people contacts above and beyond formal diplomatic relations. They considered that the vital role for government was in facilitating the establishment of grassroots relationships across the region.

## **Springboard: Australia**

[Springboard: Australia](#) is the first venture forum program for women-led technology oriented businesses that are seeking investments for product development and expansion. It was launched in Sydney on 17 May 2012.

Springboard Australia is an off-shoot of U.S.-based NGO [Springboard Enterprises](#), a not-for-profit program to help women start in business.

Since its inception in 2000 in the US Springboard Enterprises has created thousands of jobs and generated \$US 5 billion in capital. Springboard Enterprises provides a platform where entrepreneurs, investors, and industry experts meet to build successful women-led businesses. Springboard educates, sources, coaches, showcases and supports high growth companies seeking equity capital for expansion. To be considered for the Springboard Forum Program, companies wishing to apply must meet certain criteria: (1) a woman in a key management position holding an equity stake in the company; (2) a qualified and profitable market opportunity with a clear competitive advantage; (3) a track record of milestone achievement which may include grants, clients, revenue or "done it before"; and (4) a credible core management team or ability to attract one. The [Springboard: Australia 2013](#) Forum will run through February-May 2013, and will include in-person interview sessions, a one-day Educational Workshop in Australia, as well as and on-going presentation opportunities in the US.

# International Developments

## Advance Global Australians

### Leveraging Australia's Diaspora

Advance – Global Australian Professionals Inc. receives Australian Government funding support to deliver project outcomes to boost Australia's innovation, investment and trade agendas.

The [Advance Innovation Program](#) 2013 workshops will commence in Australia from November 2012, to assist Australian start-up companies prepare for the opportunity to pitch to top-tier US-based investors at Advance's 2013 Summit in Silicon Valley, California. The workshops will be publicised through incubators, Angel networks and DIISRTE program networks. The workshops will comprise 10 weeks mentoring by successful Silicon Valley-based Australian entrepreneurs, practical advice on doing business in the US, and coaching in delivery of their "elevator pitch" - their value proposition in a nutshell - so as to be competitive in the highly transactional Silicon Valley environment.

Nominations have now closed for the [Advance Global Australian Awards](#), designed to recognise and engage high achievers in Australia's diaspora. [Last year's winners](#) in categories spanning biotechnology, social innovation, creative industries, financial services, advanced manufacturing and ICT, are now mentoring selected outstanding Australian undergraduates in the same field for a year. There is also the Advance Global Alumni Award, which recognises the achievements of one of the 2 million alumni of Australian universities around the world who share an affection for Australia.

[Advance TV](#) is growing in popularity among an audience of entrepreneurs, innovators, investors, thought leaders and change makers (27,485 hits Jan - Jun 2012).

## Global Innovation Index 2012

The 5<sup>th</sup> [Global Innovation Index \(GII\) 2012](#) has been released by INSEAD (Institut Europeen d'Administration des Affaires) and WIPO (World Intellectual Property Organization).

The report emphasises the importance of collaboration and the interactions between the different innovation actors to foster innovation linkages. The report also identifies the challenges in designing effective innovation linkages especially as measuring the impact of these linkages is extremely difficult and experiences in this area is still quite scarce.

The GI 2012 provides an overall ranking for 141 countries/economies as well as regional rankings. It is calculated on two sources of input: Innovation Input Sub-index and the Innovation Output Sub Index. The Input Sub-Index is made up of 5 pillars (Institutions, Human Capital and Research, Infrastructure, Market sophistication and Business sophistication. The Output Sub-Index is

made up of 2 pillars (knowledge and technology outputs and, creative outputs).

Australia received a global GII ranking of 23 from 141 countries/economies and received a regional ranking of 5 from 17 countries/economies. Australia's 2011 global GII ranking was 21 from 125 countries/economies.

## **OECD Science, Technology and Industry (STI) Outlook 2012**

The biennial [Organisation for Economic Cooperation and Development \(OECD\) Science, Technology and Industry \(STI\) Outlook](#) was released on 13 September 2012.

The 2012 report discusses the impact that the economic crisis has had on STI and innovation policies. It identifies economies that adapted and continued to innovate during the crisis grew and also discusses the increasing gap between innovating and non-innovating countries.

43 countries (34 OECD countries plus 9 non-members countries) are profiled and hot STI issues are identified for each of them.

The hot STI issues reported for Australia are:

- Transitioning to a low-carbon, globally connected and productive economy through advanced skills;
- Increasing R&D collaboration, commercialisation and internationalisation;
- Improving returns on science and research investments; and
- Exploiting emerging/enabling frontier technologies, in areas such as space and health.

The report identifies that the Australian economy has been extremely resilient over the last five years with Australia's overall performance above the OECD median. Australia has performed at this level across four of the six categories: science base; business R&D and innovation; entrepreneurship; internet for innovation. Australia performed slightly higher on human resources, rating in the top 5 in OECD for the sub-category '15 year old performers in science', and slightly lower on knowledge flows and commercialisation.

## **Africa**

### **Innovation Africa Summit 2012**

[Innovation Africa](#) is a four day summit on Education, ICT, Science & Technology, and Research & Development, held in Cape Town, South Africa from 5-7 October 2012.

The event, supported by the Government of South Africa and co-hosted by AfricanBrains and the University of the Western Cape is to encourage greater investment and partnerships between the private and public sectors in ICT, education, technology, science and research.

The event followed on from the ICT for Education Summit at Victoria Falls in January 2012, and continues the overall aspiration of AfricanBrains to fulfil the need and opportunity for greater public - private partnership in education, science and research in sub-Saharan Africa.

Ministers from 19 African countries, business executives and representatives from the world's top technology companies were present at the summit, as well leaders from leading African educational and research institutions.

## China

### CSIRO Science, Innovation & Trade Group Mission Summary

CSIRO's Chief Executive Dr Megan Clark and a number of senior staff [visited Beijing and Shanghai](#) from 13-18 August. The aim of the visit was to reinforce existing research relationships (through the Chinese Academy of Sciences (CAS)), build partnerships with key industry partners, and review key projects and commercial activities.

During the visit the CSIRO delegation meet with the Ministry of Science and Technology, Vice Minister Cao Jianlin and Ministry of Education, Vice Minister Hao Ping, and signed an MOU to enable CSIRO collaboration with the China Science and Technology Exchange Centre (CSTEC). They participated in the 3rd Annual CAS-CSIRO Joint Steering Committee Meeting (JSCM) held in Beijing on 13-14 August 2012, attended a number of meetings with key strategic partners such as NUTECH, Huaneng Energy, and PetroChina Corporation, as well as hosting an event in Beijing to celebrate the 40th anniversary of diplomatic relations between Australia and China, which was attended by a number of representatives from Chinese research and industry. In addition, Dr Clark gave a business briefing organised by AustCham Beijing Chapter.

The delegation also met with the following organisations in China:

- Institute of Process Engineering;
- China Scholarship Council;
- Chinese Academy of Agricultural Sciences;
- National Administration of Surveying, Mapping and Geoinformation of China;
- Science and Technology Commission of Shanghai Municipality;
- Shanghai Nanotechnology and Promotion Centre;
- East China University of Science and Technology;
- Shanghai Academy of Science and Technology; and
- Suzhou Industrial Park.

The long-term investment and ongoing commitment of CSIRO to their involvement in China is reaping rewards. Dr Clark said about CSIRO's engagement with CAS "this is our number one priority strategic partnership" acknowledging that Asia's investment in R&D has surpassed that of the

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Americas, an outcome that was not expected for at least another 10 to 20 years.

## EU

### EU Commissioner Geoghegan-Quinn discusses Open Access with Key Stakeholders

On 24 September European Commissioner for Research, Innovation and Science [Máire Geoghegan-Quinn](#) met with a number of key stakeholder groups in Brussels in the drive to improve access to scientific information produced in Europe. The Commissioner met separately with traditional scientific publishers, open access publishers, the open access community, and research funders and international organisations.

[According to Commissioner Geoghegan-Quinn](#), "Open access is about giving European taxpayers a better return on their €87 billion annual public investment in research and development. Broader and more rapid access to scientific papers and data will make it easier for researchers and businesses to build on the findings of public-funded research. This will boost Europe's innovation capacity and give citizens quicker access to the benefits of scientific discoveries."

The meetings with the stakeholders followed the publication of the EU Commission [strategy on open access](#) in July. The European Commission is committed to this policy and the need to work together in order to implement open access in Horizon 2020. A close partnership is believed to be indispensable for the long-term success of the strategy.

The Commission has proposed that open access will be the general principle for research funded under Horizon 2020, the future EU research programme beginning in 2014. It also recommended that Member States take a similar approach to the results of research funded under their own domestic programmes. The goal is for 60 per cent of European publicly-funded research articles to be available under open access by 2016.

### EU - Design for Growth and Prosperity

The [Design for Growth and Prosperity report](#) was presented by the European Design Leadership Board on 18 September 2012. The report contains 21 policy recommendations on how the EU could make better use of design as a driver of growth and a tool for competitiveness. The European Design Leadership Board was tasked to consider how links between design, innovation and competitiveness could be strengthened.

The Board submitted its report to Commission Vice President Antonio Tajani at the European Design Innovation Summit in Helsinki. This summit was organised by the European Commission and Aalto University, which is serving as the EDLL Secretariat. Speakers at the summit included international top experts of design and business.

## EU launches prize for innovative public authorities

On 17 September 2012, the European Commission's Directorate General for Research and Innovation launched a competition, the [European Prize for Innovation in Public Administration](#), to find the most innovative public authorities in Europe. In total, up to nine prizes of €100,000 will be awarded to successful operational public initiatives that benefit citizens, firms or the education and research sector. The purpose of the prize is to encourage and highlight modern approaches to public spending, which accounted on average for half of EU gross domestic product in 2010.

There is no pre-defined list of projects that could qualify. Examples could include: support for rural entrepreneurs with e-commerce tools; networking platforms for SME start-ups; initiatives that provide special assistance for the elderly, eco-friendly public transport, new approaches to vocational training or facilitating entrepreneurship of researchers.

The competition is open to public authorities established in an EU Member state, or a country associated to the EU's research framework programme. Submitted initiatives must have been on-going for between one and four years. The deadline for applications is February 15, 2013.

The competition will be judged by a panel of experts in public administration, business and academia. Prize winners will be selected on the basis of four criteria: the economic impact of their initiative; its relevance to challenges facing society; how original and easy to replicate the idea is; and how they plan to use the prize money. It is intended that prize money be used by winning administrations to scale up and expand their initiatives, thereby leveraging and inducing further excellence and innovation in the public sector.

## EU unveils new strategy for international cooperation in research and innovation

On 14 September 2012, the EU Commission adopted a [Communication](#) entitled 'Enhancing and focusing EU international cooperation in research and innovation: a strategic approach' The Communication sets out a new strategy for international cooperation in research and innovation, in particular with a view to implementing Horizon 2020. The Communication is accompanied by a [Staff Working Document](#) providing further background information and analysis.

The Strategy aims to focus cooperation more on EU strategic priorities while retaining the tradition of openness to third country participation in EU research. This includes tackling global challenges, but also making the EU more attractive as a site for research and innovation, and boosting industrial competitiveness.

According to European Commissioner for Research, Innovation and Science Máire Geoghegan-Quinn, "going it alone isn't an option in research and innovation."

"It's critical that Europe reaches out to international partners to access new sources of knowledge and address global challenges."

The EU is responsible for 24 per cent of the world's research spending, 32 per cent of high impact publications, and 32 per cent of patent applications, while representing only 7 per cent of the world's population.

### **Organisation of Islamic Countries Innovation Survey**

The Organisation of Islamic Countries' (OIC) Standing Committee on Scientific and Technological Cooperation (COMSTECH) has launched a [survey](#) it hopes will increase awareness of the importance of the role of science in the development of OIC member states.

COMSTECH intends that information will be collected directly from scientists in terms of academic entrepreneurship and it is hoped that the results will form a benchmarking tool in this area.

The survey, to be completed by April 2013 will be followed by a number of workshops run by the OIC to communicate the outcomes.

If response rates are sufficient, the recommendations will be made not only to the OIC but also to specific countries.

## **Russia**

### **Global Innovation Partnerships Forum 2012**

The third [Global Innovation Partnerships \(GIP\) forum](#) was held in Moscow from 2-4 October 2012. Delegates from venture capital firms and heads of investor associations from South Korea, China and Hong Kong attended.

The forum is to encourage and introduce foreign investment for innovation into Russia. The inspiration to start the GIP forum came from President Dmitry Medvedev's visit to Silicon Valley in 2010 which influenced Russia's view to revisit innovation. The first forum was held later that year.

There are already a number of venture capital firms from the US, Israel, Japan and Europe operating in Russia as a result of the first and second GIP forums. This year's forum was to encourage and open the market to companies in the Pacific region.

## **UK**

### **UK A New Bank To Boost Lending To High-Growth SMEs**

On 24 September, UK Secretary of State for Business, Innovation and Skills, Vince Cable, revealed details of a [new government-backed bank](#) which plans to boost lending to small and medium sized business (SMBs) that operate in high-growth industries.

Cable reiterated the coalition government's commitment to new technologies.

The British 'business bank' will combine a billion pounds worth of new government capital with a 'larger private sector contribution'.

Secretary of State Cable said: "This will apply leverage through guarantees to support up to ten billion pounds of finance to small and mid-sized business – a significant portion of all the lending currently available."

This is the latest government announcement aimed at achieving long-term economic growth through the support of industries that foster innovation, entrepreneurs and start-ups.

The most successful of these being the government's ambition to create a technology hub in the UK, dubbed Tech City, which is based in the Shoreditch area of London. This has led to a number of internet companies investing in the area, including Google.

## UK's Plan For Economic Growth

The National Endowment for Science Technology and the Arts (Nesta) has released its new plan to stimulate economic growth in the UK. Called [Plan I](#), it sets out 12 policy proposals to drive long-term, innovation-led growth. Covering a broad range of issues, the 12 policy proposals include measures for:

- Financial architecture and the creation of new funds for early-stage ventures and new business banks;
- Rebalancing government spending towards innovation by investing in science, technology and innovation;
- Government innovation procurement;
- Infrastructure investment and relaxing planning restrictions around innovation clusters;
- Collective intelligence and establishing higher education funds for radical inventions;
- Incentives for innovation including the establishment of a 'challenge prize' to tackle big technological challenges;
- Measurement, data and standards and reshaping the tax credit system;
- Boosting innovation across the UK by supporting innovation clusters;
- Innovation in the labour market and linking procurement to local jobs, training and apprenticeships and encourage innovation around micro-jobs;
- Public and social innovation to demonstrate the most effective models and approaches to tackle big social challenges;
- Education and the creation of the next generation of digital makers; and
- Removing barriers to entrepreneurship by changing the immigration cap to welcome skilled foreign workers and recast regulation to encourage new market entry.

Nesta is planning to take direct action on some of its proposals by exploiting its role as an investor in innovative firms, a funder of programs, and through initiatives such as the Centre for Challenge Prizes. Nesta intends to release a more detailed version of the proposals set out in Plan I in the coming months.

## US and Canada

### Rising to the Challenge: US Innovation Policy for Global Economy

The US National Academies released [Rising to the Challenge: U.S. Innovation Policy for Global Economy](#) in July 2012. The report is the culmination of the study by the National Research Council 'Comparative National Innovation Policies: Best Practices for the 21st Century', which looks at the challenges facing the US innovation system in the context of today's global innovation landscape, and emphasises sustaining global leadership in the commercialization of innovation as vital to America's security, its role as a world power, and the welfare of its people.

Spanning examinations of the innovation systems of China, Flanders, Germany, India, Japan, Poland, and Taiwan, the report also delves into the issues of regional innovation clusters to promote different high-tech sectors, such as biotechnology, and the critical roles played in the US innovation ecosystem by research universities and federal laboratories.

The Report argues that the US advantages in research and innovation remain strong, with an open innovation system, strong intellectual property laws, bankruptcy laws that protect those who fail, and worker mobility all serve to make the United States the best place in the world to pursue new discoveries and bring them to market.

The Report notes, however, that now many other countries are capable of taking U.S. intellectual breakthroughs and turning them into large-scale industries. This important 'paradigm shift' in the globalisation of innovative capacity in the 21st Century means that ideas developed in the United States can now be more easily developed and commercialized overseas.

The Report argues for a strategic approach to help ensure that the benefits of technological breakthroughs flow more widely to the American people. This requires focusing on innovation as a system – having the best scientists, best IP protection, and best venture capital financing in the world will not result in large gains to the economy if tax policy, regulation and infrastructure work against expanding businesses.

The Report's recommendations fall into four broad categories ("core goals"):

- Monitor and learn from what the rest of the world is doing, to learn from policy successes and failures of other nations;
- Reinforce US innovation leadership, including strengthening the research universities and national laboratories that have been the foundation of the US's technological lead;
- Capture greater value from public investment in research, including rebuilding infrastructure, strengthening manufacturing, and fostering public-private partnerships; and

- Cooperate more actively with other nations, to advance innovations that address shared global challenges in energy, health, environment, and security.

## Actions to Boost US Drug Discovery

In a recently released report, [Propelling Innovation in Drug Discovery, Development, and Evaluation](#), the President's Council of Advisors on Science & Technology (PCAST) recommends a number of actions involving industry, academia, and the federal government. These include support for innovation and the accelerated development of new therapies, including a goal of doubling the output of innovative new medicines that meet critical public health needs over the next 10 to 15 years, while continuing to increase drug safety.

The report states that all three major components of the drug development ecosystem - basic biomedical research in universities and research institutes, clinical research in hospitals, and drug discovery and development in the biopharma industry - face growing challenges as the time, complexity, and cost of developing drugs have increased.

To achieve some of the study's broader goals, PCAST recommends creation of a Partnership to Accelerate Therapeutics, that would involve representatives from the biopharma industry, academic biomedical research and ethics communities, physicians and pharmacists, patient-focused research foundations and advocacy groups, healthcare providers and insurers, and the federal government. The public-private partnership could help identify and plan collaborative actions to accelerate drug development while balancing competing stakeholder interests and minimising duplication of efforts.

## Analysis of Business R&D Expenditures in US in 2008

An analysis by the National Science Foundation's National Center for Science and Engineering Statistics reported that a total \$290.7 billion was spent on research and development by businesses in the US in 2008.

The [report](#) notes that \$232.5 billion of the total spent on business R&D in 2008 was paid for by companies themselves and reflected their corporate priorities and strategies, and was not influenced directly by customers or business partners.

Information was collected by the Business R&D and Innovation Survey (BRDIS) on five application areas where companies spent funds on R&D: health and medical (\$66.4 billion), energy (\$16.1 billion), defence (\$6.9 billion), environmental protection (\$6.9 billion), and agricultural (\$3.9 billion).

Over 86 per cent of the health or medical-related R&D performed in the US by businesses was paid for by the reporting companies themselves. Most defence R&D performed by companies was not paid for by themselves, but by the federal government.

Data in the report are derived from the BRDIS, which collected a variety of information on the strategic focus of business R&D, including areas of

application and technology focus, from a sample of 39,553 for-profit companies with five or more employees that perform or fund R&D activities in the US. This sample represents a population of 1,926,012 companies.

## **Decline In State Funding Of US Public Research Universities Studied**

According to a new report released by the National Science Board (NSB), governing body of the National Science Foundation, [Diminishing Funding and Rising Expectations: Trends and Challenges for Public Research Universities](#), funding declines threaten the ability of major US public research universities to educate new scientists and engineers, recruit and retain the best faculty and students, and continue performing top-quality research.

The report is a companion policy report to the 2012 edition of [Science and Engineering Indicators](#), the NSB's biennial report that provides a base of policy-neutral, quantitative information on the US and international S&E engineering enterprise.

State per-student funding decreased by an average of 20 per cent in inflation adjusted dollars between 2002 and 2010 for the nation's 101 major public research universities. In addition to declines in state funding, enrolment grew 13 per cent nationally (or nearly 320,000 more students) between 2002 and 2010.

Concern is expressed in the report about the "continued ability of these universities to provide affordable, quality education and training to a broad range of students, conduct basic science and engineering research that leads to innovations, and perform their public service missions." The analysis notes that public research universities perform over 60 per cent of the academic science and engineering R&D funded by the federal government and in 2010 alone, research at public universities led to 436 new start-up companies and 2,625 patents.

## **Science, Technology And Policy Forum's First Event**

The [Science, Technology and Policy Forum's](#) first meeting took place on 12 September 2012 and focused on discussion of the human genome and its implications for medicine.

The National Academies worked with the Senate Commerce, Science, and Transportation Committee Chairman Jay Rockefeller to create the forum earlier this year as part of a new effort to elevate the role of science and technology in government. It includes 16 Senators, Nobel Laureates, and National Academies' members who support scientific research as a national priority.

"There's much more that we can do to bring science and the hard analysis of the scientific community into the decision-making realm of Congress," Chairman Rockefeller said. "We need to do everything we can to keep the US at the leading edge of innovation. Knowledge intensive and high-tech industries, like communications, semiconductors, aerospace, and pharmaceuticals, are growing faster than any other sectors. There's no better

way for us to put this talent to use than for us to collaborate with our country's pre-eminent scientists and innovators.”

### **Studies Of US Budget Sequestration Impact**

A recent Information Technology and Innovation Foundation (ITIF) report, [Eroding Our Foundation: Sequestration, R&D, Innovation and U.S. Economic Growth](#), anticipates that cross-the-board spending cuts potentially required by law will hit R&D especially hard.

Starting in January 2013, the Budget Control Act requires sequestration or automatic cuts in discretionary spending to achieve savings of \$1.2-trillion by 2021, and will result in a cut of \$12.5 billion to federally-funded R&D in 2013, with more cuts amounting to \$95 billion when compared to 2011 funding levels through 2021.

These cuts, because of the role played by federally funded R&D in boosting US economic growth, could have a negative affect on the ability of the economy to grow and create jobs. With more than one-third of all R&D, and over 60 per cent of basic R&D, funded through federal sources, the impact on the economy and industry will be significant. ITIF's study, finds that R&D cuts through sequestration will lead to lower productivity, GDP, global competitiveness, employment, and the nation's intellectual property base.

A new American Association for the Advancement of Science (AAAS) brief, [A Look At Sequestration: Potential Cuts to Federal R&D In the First Five Years](#) also estimates impacts of sequestration on state and federal science budgets over the next five years.

AAAS found that, under a set of reasonable assumptions, federal R&D funding through 2017 could be reduced by \$57.5 billion (-8.4 per cent) and that among defence agencies, the Defence Advanced Research Projects Agency (DARPA) would lose about \$1.3 billion in funding over the first five years under sequestration.

For non-defence, most science budgets would stand to lose 7.6 per cent of their funding. This would mean \$11.3 billion less for National Institutes of Health (NIH) research over five years, with budgets reverting to levels last seen a decade ago. The National Science Foundation (NSF) would lose about \$2.1 billion, and the Department of Energy about \$4.6 billion. NASA's budget would decline to levels not seen since the 1980s.

Potential impacts on federal research dollars by state, using NSF data, were also examined by AAAS and it was found that researchers in 19 states would lose at least \$1 billion in federal funding over the next five years.

### **The World's most innovative businesses**

The US business Journal 'Forbes' has ranked businesses worldwide by their innovation level. To determine the business's innovation level, 'Forbes' uses an investor-led method - the more investable and commercially viable the innovation, the higher the business ranks.

In September 2012, Forbes unveiled a [top 100 innovative business list](#), which features only one Australian business CSL which ranked 49th on the list.

The [top five innovative businesses](#) on the list are:

- (1) Salesforce (US): a business that partners with other innovators to push 'innovative computing ideas' ahead.
- (2) Alexion Pharmaceuticals (US): a business that focuses on innovating rare diseases and little-known medical niches. A key part to its success is pricing its innovation highly.
- (3) Amazon.com (US): an online business retailer that continuously undergoes innovative periods of reinvention and renewal in order to stay ahead in the online retail sector.
- (4) Red Hat (US): an open sourced software business that partners with the world to create low-cost, high-value innovative enterprise class solutions.
- (5) Baidu (China): a business that provides online search engine and portal network services in China, with plans to develop a new cloud computing centre.

### **Canadian Science and Technology is Healthy and Growing**

A newly released report by the Council of Canadian Academies, [The State of Science and Technology in Canada 2012](#), provides an analysis of the scientific disciplines and technological applications where Canada excels in a global context.

This report finds that Canadian science and technology is healthy and growing in both output and impact. Over the past five years, real improvements have occurred in the magnitude and quality of Canadian science and technology.

Key findings within the report include:

- The six research fields that Canada excels in are: clinical medicine, historical studies, information and communication technologies (ICT), physics and astronomy, psychology and cognitive sciences, and visual and performing arts.
- Canadian science and technology is healthy and growing in both output and impact. With less than 0.5 per cent of the world's population, Canada produces 4.1 per cent of the world's research papers and nearly 5 per cent of the world's most frequently cited papers.
- In a survey of over 5,000 leading international scientists, Canada's scientific research enterprise was ranked fourth highest in the world, after the United States, United Kingdom, and Germany.
- Canada is part of a network of international science and technology collaboration that includes the most scientifically advanced countries in the world. Canada is also attracting high-quality researchers from abroad, such that over the past decade there has been a net migration of researchers into the country.

# Education and Skills Update

## ICT Skills

The IT Industry Innovation Council made submissions to the Australian Workplace and Productivity Agency discussion paper on [Australia's skills & workforce development needs](#) and the [National Career Development Strategy Green Paper](#). The Council emphasises the need for policy makers to recognise the transformational change taking place across the economy as a result of the impact of digital technologies and to factor this into the development of future workforce strategies.

## My Skills website launch

The [My Skills website](#) is an Australian Government initiative to increase transparency in the vocational education and training (VET) sector. The objective of My Skills is to provide potential and current students, job seekers and employers with information about VET options and to help them find the training organisation that best meets their needs.

My Skills was launched in early October 2012 with users able to search and view:

- authoritative registered training organisation (RTO) head office level information;
- all nationally recognised qualifications, accredited courses and units of competencies;
- Head Office level statistical and descriptive information for RTOs delivering 'publicly funded' training; and
- links to a range of state government websites and other useful resources.

The next phase of My Skills is proposed to be released in late 2012/early 2013 and will include campus level information, prospective course information and campus amenities. The Department will continue to engage and consult key stakeholders during the further development of My Skills.