Innovation Policy Report

May 2013

Table of Contents

Big Data and the Public Sector

The Department of Finance and Deregulation has just released a Big Data Strategy Issues Paper as part of its big data strategy development.

Big data is defined as high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight, decision making, and process optimization.

Big data is emerging as another disruptive ICT technology (others include the Internet, social media, desktop publishing). As computing power and the amount of data created, shared and stored grows, and the appetite increases for more information about systems, behaviours and activities, big data seeks to offer new ways of understanding the world and of exploiting that understanding.

According to Alex Pentland, co-leader of the World Economic Forum Big Data and Personal Data Initiatives,

"…this is the first time in human history that we have the ability to see enough about ourselves that we can hope to actually build social systems that work qualitatively better than the systems we've always had. That's a remarkable change. It's like the phase transition that happened when writing was developed or when education became ubiquitous, or perhaps when people began being tied together via the Internet."

Big data will provide unprecedented understanding of patterns and micro-patterns of human behaviour. This will be a step change from our current economic and behavioural models which depend on averages, aggregates and assumptions, rather than hard data.

Activity within the Public Sector

The Department of Finance and Deregulation Big Data Strategy Issues Paper identifies four areas of potential opportunity for government from big data:

1. Data management – smarter data management offers potential savings;
2. Personalisation of services – by better understanding individuals or groups of individuals, agencies may be able to offer more tailored services;
3. Problem solving and predictive analytics – it will advance problem-solving capabilities and offer better predictive analytics to support decision making;
4. Productivity and efficiency – analysis of big data can identify cost savings and efficiency opportunities.

It also identifies some challenges for government agencies in being able to take advantage of these opportunities:

- Privacy, security and trust – big data may complicate the issues of privacy, security and citizen trust;

- Data management and sharing – managing the challenges of ensuring data is discoverable, accessible and usable as well as accuracy, completeness and timeliness;
- Technology and analytical systems – having access to technology and systems that can support the increase in data and data analysis;
- Skills – attracting and retaining the diverse new skill sets associated with big data (particularly in the face of a likely global shortage of such skills).

On 5 March 2013, the Australian Government Information Management Office and the Australian Taxation Office held an inaugural meeting to establish a Centre of Excellence in Data Analytics across government. The aim is to share information on data analytics skills, tools and techniques, across the public and private sectors. Identified benefits of leveraging analytics capability across government include: driving efficiency; innovation; risk mitigation; quality improvement; support for better services; and provision of insights to shape and inform whole of government policy development.

Broader Implications

As with other disruptive innovations, big data may also offer new ways of doing things challenging existing models, systems and processes used by the public sector. For instance:

- **Distributed sensing and data** - Distributed 'sensing' through mobile devices is already changing how some local governments are managing maintenance (e.g. Fix My Street which is a crowd-sourced platform for reporting local maintenance problems), but the potential could be significantly greater. In May 2012 the US Department of Health and Human Services and the US Environmental Protection Agency collaborated on the 'My Air, My Health Challenge' which was a call to 'innovators to create a personal, portable, near-real-time, location-specific system to monitor and report air pollutants and potentially related physiological parameters'.
- **Evidence-based policy making** - From a policy making perspective big data may offer new understanding of the causes or contributing factors to long-standing problems. For instance, recent research, drawing on extensive data analysis, has proposed that a key contributor to crime rates (and falls in crime rates experienced over the past two decades) is related to the introduction of unleaded petrol and the removal of lead as an environmental toxin from a range of other sources (e.g. paint) as opposed to previous hypotheses ranging from increased police presence, harsher penalties for low-level crimes, legalised abortion, to economic factors. Big data will likely offer more certainty about the correlation of behaviours and contributing factors – but it will not necessarily offer conclusive proof or an understanding of the reasons behind the correlation.
- **Social and legal convention** – it has been suggested that the principle of 'innocent until proven guilty' was an artefact of a data poor era – in a world

with increasingly widespread data ‘exhaust’ (the data that individuals, or those that they interact with, leave behind), the absence of data may become unusual. The ability to know where someone is, who they were with, and even possibly why, at any given moment, could be a real possibility if mobile devices and wearable computing become further embedded in day-to-day lives, and ‘always on’ become the default position for many people.

As with any other disruptive shift, it will not be possible to predict all of the ramifications, but it is likely something that will have a significant impact on the work and infrastructure of public sector agencies and be a valuable source of innovation.

Departmental Developments

A Plan for Australian Jobs: the Australian Government's Industry and Innovation Statement

Industry Innovation Precincts

The Government will invest $504.5 million in the Industry Innovation Precincts initiative. Industry Innovation Precincts will drive collaboration between businesses, researchers and other elements of the innovation system to share knowledge, deploy technology, create products and services, address market gaps and take advantage of business opportunities. Led by industry, the Precincts are designed to build critical mass and create a cohort of world-class growth-oriented businesses. While each Precinct may be headquartered in a specific location, it will focus nationally to provide the tools and services to enable Australian businesses to invest, innovate and grow.

Up to 10 Precincts will be established. Up to five Precincts will be focused on industries where Australia is already a world leader and up to five Precincts will be established in areas of emerging opportunity with global potential. The first two Precincts will focus on Australia's manufacturing and food sectors.

The remaining up to 8 Precincts will be selected via industry-led proposals against identified selection criteria. All Precincts will have core partners, including several businesses and research providers like universities and the CSIRO. An independent National Precincts Board will provide advice and make recommendations to the Minister for Industry and Innovation about which Precincts should be funded.

Public consultation sessions on the program took place around Australia 8-18 March. Written submissions in response to the Industry Innovation Precincts Consultation Paper closed 22 March 2013. It is expected that applications for the program will open in May 2013, pending the finalisation of precinct program guidelines.

Australia-China Young Researchers Exchange Program (YREP)

Applications closed on 8 April 2013, for the second round of the Australia-China Young Researchers Exchange Program organised by the Go8. The YREP program is a joint initiative funded by the Australian Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education and the Chinese Ministry of Science and Technology. It is supported by the Australia-China Science and Research Fund.

The program is managed in Australia by the Go8 and open to all eligible Australian researchers. In China it is managed by the China Science and Technology Exchange Centre.

The YREP program aims to:

- facilitate future long-term science and research collaboration between Australia and China by bringing together future research leaders from both countries in order to foster long term relationships; and
- develop early and mid-career Australian and Chinese researchers by increasing their understanding of the cultures, and particularly the science and research practices and systems, of the two countries and developing their leadership skills as future “science ambassadors” for Australia and China.
- In 2013 the scheme will support exchange between the two countries of up to 16 Chinese participants and up to 16 Australian participants from all universities/research institutions meeting the eligibility criteria.

Thus the scheme will supports the costs of up to 16 Australian participants travelling to China in September 2013. Each Australian participant will be funded for eligible exchange costs, including return airfares from Australia to China, accommodation and meals costs, and domestic travel during their two-week stay in China.

The program is open to early to mid-career researchers who are Australian citizens or Australian permanent residents, and employed by an Australian research institution (including universities, publicly-funded research agencies and research-intensive businesses). An “early to mid-career researcher” is defined as a researcher who has had between 3 and 10 years of research experience since the award of his/her PhD (or equivalent research qualification).

National Developments

Supporting design in innovation – the Australian Design Integration Network

Design-Led Innovation has been recognised as a key contributor to national competitiveness, through the Asian Century White Paper, the Industry and Innovation Statement: A Plan for Australian Jobs and the National Cultural Policy Creative Australia. A pilot Australian Centre for Excellence in Public Sector Design (or DesignGov) has been recently established.

CSIRO, through its Future Manufacturing Flagship (FMF) has over the past year facilitated a number of workshops on design-led innovation with invitees from Australia and overseas. It was evident from these workshops that there are two key areas where FMF could make a difference:

1. A gap in the research base to support design led innovation in Australia: In response, CSIRO invited applications to establish a research cluster on innovation by design, through CSIRO's Flagship Collaboration Fund. FMF is also collaborating with Swinburne University to undertake a capacity mapping exercise to develop an understanding of how design integrates and finds application across the entire manufacturing value chain.
2. Lack of collaboration in design-led innovation across Australia's innovation system: FMF has responded by facilitating, and supporting the establishment of the Australian Design Integration Network, bringing together a wide range of business, public sector and academic leaders to raise awareness and adoption of design integration and link design related activities across Australia's innovation system.

The new Network was announced as part of the national cultural policy, Creative Australia, with a formal launch to take place later in the year. Inaugural membership of the Steering Committee includes representatives from CSIRO, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, Enterprise Connect Creative Industries Innovation Centre, University of Technology Sydney, Queensland University of Technology, Swinburne University and RMIT. Next steps will include linking Australia's research sector to Australian industry. It will also engage across the manufacturing and design communities to boost awareness of the potential for design-led innovation to improve the competitiveness and productivity of Australian enterprises.

GE awards leading innovators in clean energy technology

GE's first ever ecomagination Challenge: Low Carbon Solutions was an open call to action for businesses, entrepreneurs, innovators and students in Australia and New Zealand with breakthrough ideas for reducing our carbon footprint. The competition was open to applications from 22 August 2012 to 30 November 2012. Some 191 entries were received.

On Tuesday 19 March 2013, five winning innovations were awarded $100,000 each for breakthrough low carbon solutions. The five Innovation Award winners were:

- **Engineair** – Melbourne engineer Angelo Di Pietro has invented the Di Pietro Engine, a carbon-free alternative to conventional motors and batteries. The Rotary air engine, powered by compressed air, has up to 94% efficiency and zero polluting emissions.
- **Hydroxys** – an Auckland-based company, started by engineer Daryl Briggs, has designed membrane technology that captures and recycles 90% of water and around 85-90% of energy from industrial processes to be fed back into the manufacturing process.
- **Bombora** – renewable energy generation technology invented by a West Australian company, which takes advantage of Australia's largely untapped wave resource. Each Bombora device could supply electricity for up to 500 homes, reducing carbon dioxide emissions by 3300 tonnes annually - the equivalent of taking 825 cars off the road.
- **Greensync** – Melbourne-based Greensync has developed an electricity network planning tool which typically delivers a three per cent reduction in energy consumption and a 10% reduction in costs by monitoring and managing loads at peak times.
- **Outpost Central** – New Zealand based co-founders James Riddell and Jedd Forbes have developed smart water meters that can help water utilities, mining and farming organisations achieve 20% savings in water usage within the first year.

GE is also actively exploring opportunities for collaboration, commercial agreement and potential investment with a number of the other shortlisted ecomagination Challenge finalists.

The ecomagination Challenge complements the Australian Government's $200 million Clean Technology Innovation Program. Recipients of Clean Technology Innovation grants will potentially be able to use support from GE's ecomagination Challenge as part of the matching funding for their project.

Eco Investor - Eco Innovation Forum 2013

Eco Innovation Forum, a forum for cleantech innovators, entrepreneurs and growth businesses, will be held on 28 May 2013 in Sydney. The Forum brings together Australia's leading environmental innovators, entrepreneurs, investors and advisers. It is for everyone involved in raising equity capital, commercializing environmental technologies and expanding environmental businesses.

The fourth Eco Innovation Forum has an impressive line-up of speakers from leading Australian investors and organizations that help environmental entrepreneurs to commercialize their technologies and businesses.

The 11 speakers include key government agencies, two venture capital firms, two angel investor groups, a cleantech stock exchange, a business planner and cleantech entrepreneurs.

Innovate NSW

Innovate NSW is a new initiative that connects SMEs, researchers, major corporations and end users to develop innovations that address compelling needs in key sectors of the NSW economy. It was announced in April.

Funding will be provided to support SMEs rapidly develop innovative solutions from enabling technologies to address challenges in key market sectors, such as: e-health, advanced manufacturing, energy technologies and services, online and interactive education, and transport, logistics and infrastructure. However, Submissions will also be considered from other sectors of importance and value to the NSW economy.

Innovate NSW includes four funding elements:

- Minimum Viable Product (up to $15,000) supports engagement and partnering with a potential reference customer to address a high growth opportunity or challenge in a key market sector. Activities include demonstrating an idea, proving a concept, developing a prototype or customising a solution;
- TechVouchers (up to $15,000) assists SME and research organisation partnerships to overcome a specific technical challenge;
- Collaborative Solutions (up to $100,000) provides grants of up to 25% of project costs to a consortium to develop an innovative, new-to-market solution within 12 months, using an enabling technology to address a high growth opportunity or challenge in a key market sector. The consortium must include: an innovator with the ability to develop and commercialise the solution (Lead Company), an end-user in the key sector that is willing to test the solution (Pilot Organisation), and at least one partner company that will provide additional technology, research capabilities, or assistance to scale the solution;
- Australian Innovation Showcase (up to $10,000) provides support through seminars, networking and showcasing to local and international markets for innovative, market ready Australian technologies with global market potential. Companies successfully completing an element of the Innovate NSW program will become members of the Showcase, with. SMEs completing the Collaborative Solutions component potentially eligible for matched funding up to $10,000 to access international markets.

Access to support from any of the Innovate NSW program elements is restricted to entities incorporated in NSW for activities that will occur in NSW.

Further information and applications forms can be found at the Innovate NSW Website.

Innovation Symposium 2013: Bridging the Gap between Research and Innovation

On 21 March 2013, the South East Melbourne Innovation Precinct organised "Innovation Symposium 2013: Bridging the Gap between Research and Innovation" to showcase successful examples of companies that have bridged the gap between research and innovation.

The program was led by Professor Ian Chubb, Chief Scientist of Australia and Patron of Science in Industry, who gave a national perspective on this very topical issue. Complementing this were presentations and panel discussions featuring SMEs, many from within the precinct, as well as larger companies eager to work with both SMEs and the research community.

An international perspective was presented by Kees Eijkel, CEO of Kennispark Twente, the shell for commercialisation in and around the University of Twente and Saxion University in the Netherlands.

International Developments

Asia

Indian Workshop - Preparing Action Plans for Innovation in Government Departments

On 5 April 2013, the Indian Government hosted a workshop on the development of innovation action plans within Indian Government Departments. The introduction of innovation action plans in India aims to create an enabling environment for sustainable innovation within government.

The purpose of the workshop was to provide guideance to the secretaries of Indian Government Departments on the development of innovation action plans to support a culture of innovation within Government and to promote administrative and managerial innovation.

Ms Tricia Berman, General Manager, Innovation Policy, Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education attended the workshop and provided a key note address on the Australian Government's work in public sector innovation.

Further information on public sector innovation developments in India is available at http://performance.gov.in/?q=group/innovation

Asia's Largest and Longest-Running Government Transformation Forum

FutureGov Forum Philippines 2013, now in its 3rd year, took place on 10 April, focusing on how emerging technologies are transforming the public sector to increase transparency in governance and improve the delivery of citizen services.

The Forum discussed fresh approaches in the adoption of the Department of Science and Technology's new flagship program called "Smarter Philippines".

The 2nd FutureGov Forum Philippines had over 150 senior decision makers from the public sector to learn the latest trends in e-Government and address common modernisation challenges.

Put together by the editorial team of FutureGov Asia Pacific magazine, this is the country's most awaited public sector ICT event. The participants of the Forum will find out more details on how ICT is transforming the Philippine public sector.

Australia – Indonesia collaboration on innovation

CSIRO and its Indonesian partner BPPT (Badan Pengkajian Penerapan Teknologi (Agency for the Assessment and Application of Technology)) are collaborating on an assessment of the Australian and Indonesian Innovation Systems with a view to exploring comparative strengths, future trajectories

and the ways in which we can work together to address challenges of mutual significance.

A delegation of BPPT executives headed by Chairman Marzan Iskandar visited the CSIRO from 8 – 12 April. On 10 April an innovation workshop was held which undertook a high level innovation system scan and an analysis of innovation hotspots. The workshop has the potential to support future dialogue between the Department of Industry and Innovation and the Ministry of State for Research and Technology (Indonesia) and the wider government dialogue across a number of areas including trade, aid and security.

In addition CSIRO and BPPT will be signing a strategic relationship agreement addressing food production and processing, sustainable development, and innovation.

Advance - Australia's Global Community: engagement of expatriates and international alumni

There are an estimated one million Australians living abroad and two million non-Australian alumni of Australian universities globally, who have some affiliation to Australia. Advance seeks to engage these networks for the benefit of Australia', as a resource rather than a brain drain.

Over the past six months, Advance has focused on identifying and growing high calibre membership in Hong Kong and Singapore covering a diverse array of industries, and it is researching the existing start-up ecosystems in Hong Kong, Singapore, China and India.

Advance sees itself as well positioned to contribute to the following priorities from the Australia in the Asian Century White Paper:

- One third of board members of Australia's top 200 listed companies to have 'deep experience in and knowledge of Asia';
- Building engagement with Asia via the exchange of people and ideas, and building our capabilities, provide access to capital and connect to growing markets;
- Helping companies work more innovatively to grow skills, networks and our workforce to meet the Asian demand for Australian services;
- Helping Australian start-ups and SMEs commercialise their innovations in the region, to build global companies that grow jobs and productivity.

Global

6th ISPIM Innovation Symposium

The 6th ISPIM Innovation Symposium – Innovation in the Asian Century – will be held in Melbourne, Australia 8-11 December 2013. This will be the first time the ISPIM has held an event in Australia – also it is only the second Symposium to be held in Asia as South Korea held a Symposium last December.

Organised by the International Society of Professional Innovation Management (ISPIM), and hosted by the Victorian Universities Innovation Management Network (VUIMN), this event will bring together around 250 innovation experts from 35 countries.

The comprehensive three-day programme includes: Industry-Leading Keynote Speakers; Luminary Speakers; "Hot Topic" Roundtable Discussions; Facilitated Themed Sessions with Academic and Practitioner Presentations; Special Interest Groups; and, Academic Research Development Sessions. The final day of the event is dedicated to "Experience Innovation in Melbourne" and includes Company Visits, Presentations, Discussion Panels and Workshops. As with all ISPIM events, there is an large emphasis on discussion and networking.

With line the Australian Government identifying Asia as a core pillar in its own economic strategy, the 2013 ISPIM Innovation Symposium focuses on “Innovation in the Asian Century”.

A call for submissions from academic, research, consulting, industry, intermediary and policy organisations has been released. Submissions should focus on the following general themes or the Symposium focus theme:

- Innovation in the Asian Century (Symposium Focus Theme);
- Business Models, Entrepreneurship & Financing Innovation;
- Collaboration for Innovation (including Open Innovation);
- Creativity & Idea Generation;
- Green, Public & Social Innovation;
- Innovation Training, Teaching & Coaching;
- Methods, Tools & Measurement for Innovation;
- Networks & Clusters of Innovation;
- Service Innovation;
- Strategic Foresight, Strategic Agility & Future Orientation;
- Transferring Knowledge for Innovation.

Submission outlines are due by 12 September.

ISPIM is a network of researchers, industrialists, consultants and public bodies who share an interest in innovation management.

Unleashing Innovation Executive Conference 2013

The Wall Street Journal Unleashing Innovation Executive Conference 2013 was held in Singapore on 19-21 February. The attendees included over 200 global leaders, entrepreneurs and innovative minds, discussing the most cutting-edge ideas in business and technology today and unleashing practical advice and strategies to drive innovation in large companies, small businesses and society.

Leaders at the Conference agreed on the following agenda items as the priorities to focus on:

1. Driving Innovation in Large Companies
2. Achieving Entrepreneurial Success
3. Developing Public Policies to Encourage Innovation

Governments around the world are eager to adopt policies that will allow innovation and entrepreneurship to flourish. The following actions have been found to promote innovation:

- "Start Young" - Revolutionize education with a curriculum that from a young age stimulates creativity and risk taking;
- "On Message" - Create an innovative national culture with top public officials sending the message that innovation is vital and failure acceptable. Establish the position of an innovation minister to champion these messages;
- "Reward Research" - Promote scientific research and establish channels for linking it with business. Stimulate people to innovate on some of society's biggest challenges by establishing national prizes for solving particular problems;
- "Building Blocks" - Invest in the basics of education and infrastructure so citizens have a solid foundation to be able to take risks and innovate.

Advance Global Australian Awards

The Advance Global Australian Awards, hosted in Sydney on 21 March 2013, are a mechanism to recognise the achievements of expatriates and non-Australian alumni of Australian universities and engage these experts in mentorship arrangements with innovative Australian businesses and students.

There were 11 winners in the total of nine categories (two categories had two winners each).

Advance Global Australian Award winners 2013

Winner	Category
Dr Russell Howard, Founder and CEO, Oakbio (cleantech) and Executive Chairman, Neuclone (platform technology for protein therapeutics production)	Biotechnology category and Advance Global Australian 2013
Dr Jianhua Zhao and Dr Aihua Wang, China Sunergy (UNSW alumni), who hold the record for the world's most efficient silicon solar cells, developed at UNSW with which they maintain connection.	Clean Technology (joint award); and Australia in the Asian Century Honour

John Polson, Founder and Director, Tropfest, the world's largest short film festival, operating in Australia, New Zealand, USA, Israel, China, South-East Asia, United Arab Emirates, India and France.	Creative Industries
Peter Le Lievre, Co-Founder and CEO of Chromasun, manufacturer of high temperature solar panels.	Advanced Manufacturing
• Peter Hall AM, Executive Director and Executive Chairman, Hunter Hall ethical investments; and • Dr Jeni Klugman, Director of Gender and Development, World Bank Group, a thought leader on gender-equitable health, education and status in developing countries.	Financial Services (two awards)
Dr Craig Barratt, former President and CEO, Atheros, a pioneer of WiFi; and Director, Intuitive Surgical robotic assisted surgery.	ICT
Barry Bourne, Chief Geophysicist Global Exploration, Barrick Gold for use of seismic surveys in exploration, borrowing from medical imaging.	Mining and Resources
• Sotheary Ly, Executive Director, Healthcare Center for Children, Cambodia, applying Buddhist as well as legal principles to prevent human trafficking (Monash and RMIT alumnus); and • Brett Solomon, Co-founder and Executive Director, Access global movement for internet freedom, and first Executive Director, GetUp!, and Campaign Director, Avaaz.	Social Innovation (two awards)
Kiran Mazumdar-Shaw, Founder and CEO, Biocon, India's first bio-pharma company.	Non-Australian Alumnus of an Australian University

Europe

UK: Boost for Innovation Funding in Budget 2013

The 2013 United Kingdom Budget included measures to boost innovation and growth.

One key announcement strongly endorsed the Small Business Research Initiative (SBRI), with the Government stating its intention to expand the use of SBRI among key departments five-fold - so that the value of contracts made available through this route increases from £40 million in 2012-13 to over £100 million in 2013-14, and over £200 million in 2014-15.

The SBRI program uses the power of government procurement to drive innovation. It provides opportunities for innovative companies to engage with the public sector to solve specific problems. Competitions for new technologies and ideas are run on specific topics and aim to engage a broad range of organisations. SBRI enables the public sector to engage with industry during the early stages of development, supporting projects through the stages of feasibility and prototyping.

In Australia, the Government announced the Enterprise Solutions Program (ESP) as part of the February 2013 Australian Government's Industry and Innovation Statement "A Plan for Australian Jobs". The ESP, as a pilot program, will be developed by the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, and is expected to commence in September 2013. The budget of the ESP is $27.7 million dollars over 5 years.

The UK Budget also announced further support for the digital media industry. The UK represents a global centre of excellence in digital media production, including visual effects. To further support this high-tech and export-oriented sector, build capacity and support growth, the Technology Strategy Board will design and launch a new £15m Collaborative R&D competition over three years, to encourage small, medium and larger businesses to research and develop new solutions in cross-platform digital media in partnership with industry, educational research facilities and training providers.

The Government's industrial strategy was a strong theme in the Budget, with the Chancellor announcing £1.6bn of funding to support strategies in eleven key sectors - automotive, aerospace, life sciences, agri-tech, professional business services, information economy, construction, education, nuclear, oil and gas, and offshore wind.

In the aerospace sector, the Government announced the creation, in partnership with industry, of an Aerospace Technology Institute (ATI). With equal funding from Government and industry, the Institute will provide a total of £2.1 billion of research and development support. The Technology Strategy Board will have a role in delivering the ATI.

What Works Centres

On 4 March 2013, the UK Government, in conjuction with Nesta and the Economic and Social Research Council, announced plans to establish a new network of 'What Works' evidence centres to drive better decision making accross public services.

The network of 'What Works' evidence centres is a key action in the UK Government's Civil Service reform plan and represents a 'world first' insofar as it is the first example that a government (anywhere in the world) has set up such a model at a national level.

The network will consist of two existing centres of excellence – the National Institute for Health and Clinical Excellence and the Educational Endowment Foundation – as well as four new independent institutions responsible for

gathering, assessing and sharing evidence to inform policy and improve service delivery across a number of key policy areas including: active and independent ageing, early intervention, crime, and local economic growth. These independent specialist centres will produce and disseminate research to local decision makers, supporting them in investing in services that deliver the best outcomes for citizens and value for money for taxpayers. The centres will also feed insights into the heart of government to inform national decision-making.

To coincide with this announcement, Nesta have published a paper outlining, among other things, the role these centres will play, how they will build upon the work already underway, as well as how they will complement existing institutions.

New Innovation Fund

Nesta in the UK has announced a new fund to support public service innovations that harness the capabilities, expertise and resourcefulness of citizens and civil society.

The new £14 million Innovation Fund, as it will be known, will form part of the Cabinet Office's new Centre for Social Action. The fund will build to on existing work supporting social action ventures and initiatives, such as the projects funded through the Innovation in Giving Fund.

The Innovation Fund will operate over the next two years to:

- Develop a pipeline of innovations in social action across a range of priority outcome areas (e.g. older people living great lives, supporting young people into employment);
- Support the most promising to grow their impact, including building robust evidence of what works;
- Enable a small number of proven innovations to achieve impact at significant scale.

Nesta plans to announce more details on the Innovation Fund in the near future.

North America

US Department of Energy launches Clean Energy Manufacturing Initiative

The Clean Energy Manufacturing Initiative (CEMI), a new Department of Energy (DOE) initiative focused on growing American manufacturing of clean energy products and boosting U.S. competitiveness through major improvements in manufacturing energy productivity, was launched last week. CEMI includes private sector partnerships, new funding from DOE, and enhanced analysis of the clean energy manufacturing supply chain to guide future DOE funding decisions.

"We're at a critical moment in the history of energy in our nation," DOE assistant secretary for energy efficiency & renewable energy David Danielson said on 26 March. "In just the last seven years, global investment in the clean energy sector has grown nearly fivefold to over $260-billion and these markets will grow into the trillions of dollars in the years to come." "Our nation faces a stark choice: the energy technologies of the future can be developed and manufactured in America for export around the world," he added, "or we can cede global leadership and import these technologies from other nations."

Report R&D Expenditures at US Federally Funded R&D Centers

According to the Report on R&D Expenditures at Federally Funded R&D Centres (FFRDC), $17.8-billion was spent on R&D activities by the nation's 40 FFRDCs in fiscal year 2011, according to a March 26 report from the National Science Foundation's National Centre for Science and Engineering Statistics [NSF 13-316]. Over $850-million of the FY2011 total was supplied by funds from the American Recovery and Reinvestment Act of 2009. Privately-operated R&D entities financed by the federal government, FFRDCs include national laboratories and observatories.

Federal funding accounted for $17.4-billion (97.6%) of the total expenditures of FFRDCs in FY 2011, with the remaining $190-million in expenditures funded by businesses, non-profit organizations ($61-million), state and local government ($27-million), and other sources ($146-million). Basic research activities accounted for 37% of total FFRDC R&D expenditures in FY 2011, with applied research accounting for 29% and development for 34%.

The NCSES Information Brief notes R&D expenditures in FFRDCs have grown by over $2-billion (+14%) from FY 2008 to FY 2011.

Modest Growth in US Federal R&D

Federal obligations for R&D and R&D plant, which represents facilities and fixed equipment, increased 1.5% to $147-billion in fiscal year 2010, according to a new report from the National Science Foundation's National Center for Science and Engineering Statistics, issued March 26. This growth was driven by a $3-billion, or 81.3%, increase in R&D plant obligations in FY 2010.

Of the $3-billion, $1.1-billion was funding associated with the American Recovery and Reinvestment Act (ARRA) of 2009, and $1.9-billion represented non-ARRA funds. ARRA funding accounted for 6.2% of the $147-billion FY 2010 total. Total federal obligations just for R&D declined 1.4% to $125.9-billion between FY 2009 & FY 2010, with ARRA funds providing $5.9-billion of the total. With all ARRA funds obligated by the end of FY 2010, R&D obligations were estimated to decrease 7.7% to $116.2- billion between FY 2010 & FY 2011.

Howard Hughes Medical Institute invests $22.5M in STEM

On March 18 new steps were announced by the US administration and its partners to meet President Obama's goal of preparing 100,000 excellent math

and science teachers over the next decade, including a new $22.5-million investment by the Howard Hughes Medical Institute that would nearly double the private-sector investment in the president's initiative.

The new investments, which support a national competition to be run by the National Math and Science Initiative (NMSI), will enable a major expansion of the 'UTeach' program beyond the current 35 participating universities.

UTeach allows undergraduate students to receive a bachelor's degree in a science, technology, engineering, or mathfield simultaneously with a teaching certificate, all within a standard four-year period, while also offering early and intensive teaching experiences.

NMSI estimates that, overall, the new $22.5-million grant will provide $20-million for expansion of the UTeach model to an extra 10 leading research universities; $1.25-million for UTeach to develop further curricula and assessment tools; and an additional $1.25-million to offer course-based authentic research experiences to UTeach students through the HHMI Science Education Alliance.

The investments in UTeach will create more than 1,750 math and science teachers over the five-year grant period. NMSI estimates graduates from the first cohort alone of 13 UTeach university sites will have taught over four million students by 2020.

NASA SBIR and STTR contracts to be awarded

NASA 2012 Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program proposals were selected for negotiation and publicly announced on 3 April 2013. A total of 295 proposals from 216 small businesses have been selected, which could lead to contract awards worth $38.7 million. The proposals address specific technology gaps in agency missions while striving to complement other agency research investments.

NASA this year issued two concurrent solicitations for Phase I proposals: a general one, in response to a broad range of research topics, and a select solicitation which was issued for the SBIR program only, and focused on a small group of topics of particular interest to NASA.

This shows the current focus of governments on supporting market pool initiatives in the USA (SBIR), the UK (SBRI), and Australia (ESP).

Education and Skills Update

$4.8 million to boost university teaching quality

The quality of service at Australian universities is set to be boosted with funding for 32 projects to improve learning and teaching at higher education institutions.

On 15 March 2013, the Minister for Tertiary Education, Skills, Science and Research, Chris Bowen MP, announced the Government would invest $4.8 million to support 32 teaching and learning projects at 21 Australian universities. This is part of the Government's commitment to creating world class universities that require high quality university teachers using the most effective teaching techniques.

It is expected that the benefits of the projects will be felt right across the sector and more broadly across the community with a broad range of topics. For instance, the University of Tasmania is leading a project to improve the maths skills of vocational education and training students transitioning to higher education.

AsiaBound Grants Program 2014 Round Now Open

On 6 April, applications opened for the AsiaBound Grants Program for higher education and vocational education and training (VET) institutions. On 31 October 2012, following release of the Asian Century White Paper, the Government announced the $37 million AsiaBound Grants Program (AsiaBound). Approximately 3,600 students each year will be able to study in Asia as part of their academic program.

Key objectives of the program are to increase the overall number of Australian students with a first-hand study experience of Asia through funding for short-term study and language grants as well as increased OS-HELP loans; encourage more students to become Asia-literate by supporting institutions to diversify their mobility offerings in Asia; and increase collaboration and partnerships between Australian and Asian higher education and vocational institutions. AsiaBound supports practicums, clinical placements, internships, research trips and volunteer projects, as well as institution-based study for up to two semesters. From 2014 eligible students will also have access to up to $7,500 through OS-HELP to put towards the costs of their studies in Asia.