



Australian Government
Department of Industry

Innovation Policy Report

March 2014

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Australian Developments

2014 Australian Innovation System Report

The 2014 [Australian Innovation System report](#) will be the fifth in a series of Australian Government reports on Australia's innovation performance. The theme for this year's report will be the role of innovation in upholding the competitiveness of the Australian economy.

The report will present more than 200 innovation related indicators, including numerous international comparisons, to provide a comprehensive picture of Australia's innovation and competitive position in the world. It will include a series of feature articles in which academic specialists in innovation and business experts discuss different aspects of the roles of innovation supporting Australian international competitiveness. The report is expected to be released in October 2014.

\$186 million for industry-led research

Seven Cooperative Research Centres (CRCs) will receive a total of \$186 million to drive industry-led research in fields such as manufacturing, data security, healthcare and agriculture.

Australian Government Minister for Industry, Ian Macfarlane, [announced](#) the outcomes of the 16th selection round with three new CRCs to be created, and four existing CRCs to be extended. These CRCs will bring together more than 130 organisations across Australia and internationally, including more than 60 industry partners and organisations in Asia, Europe and the United States.

The three new CRCs are:

- The Rail Manufacturing CRC (\$31 million);
- The Data to Decisions CRC (\$25 million); and
- The Space Environment Management CRC (\$19.8 million).

The four extended CRCs are:

- The Hearing CRC (\$28 million);
- The Cancer Therapeutics CRC (\$34 million);
- The Capital Markets CRC (\$32.4 million); and
- The CRC for Sheep Industry Innovation (\$15.5 million).

The Advanced Manufacturing and Manufacturing Industry Innovation CRCs

have also been asked to submit a combined proposal for further consideration by the Minister.

Applications for the 17th selection round opened on 3 March 2014 and will close on 3 July 2014. AusIndustry – which delivers the CRC Program – will hold information sessions around Australia for potential applicants. For more information visit the [CRC Program website](#).

Defence Trade Controls Act 2012

The Defence Trade Controls Act 2012 is being implemented to strengthen Australia's export controls by introducing provisions that regulate the 'intangible' supply (for example, by email) of technology relating to defence and strategic goods. The Act will require some researchers or organisations working on sensitive or dual-use technologies to obtain a permit from the Australian Government Department of Defence to transfer certain types of information overseas.

The university and research sectors have identified a number of issues, noting that the Act would restrict research and international collaboration. A two-year implementation period has been put in place to address these concerns and is overseen by the Strengthened Export Controls Steering Group, chaired by Australia's Chief Scientist, Professor Ian Chubb AC.

The steering group meets quarterly and reports to the Australian Government Minister for Defence and the Minister for Industry. The steering group will advise the Minister for Defence on changes to the legislation and regulations which may be required to alleviate sector concerns and reduce regulatory burden.

As part of its [work](#), the steering group has developed a pilot programme to test the impact and administrative burden of the Act and a range of potential solutions to address concerns. The Department of Defence and the Department of Industry have been engaged in ongoing consultation on the Act with affected stakeholders. This engagement will continue throughout 2014.

BIO International Convention 2014

The annual Biotechnology Industry Organization (BIO) International Convention is being held on 23-26 June 2014 in San Diego USA. The Australian Government Department of Industry is working with Austrade, AusBiotech and state governments to ensure a nationally coordinated presence at [BIO 2014](#). States that have committed to participate in the Australian Pavilion are Victoria, South Australia and New South Wales, with Life Sciences Queensland also participating.

Collaborative work with Austrade

The Australian Government Department of Industry has partnered with Austrade to develop a collaborative approach to promote and attract foreign direct investment into a number of agreed sectors including Australia's medical science and technologies sector.

The work being undertaken by the Technology and Services Industries Branch, Department of Industry, and Austrade is initially focussed on two documents: i) the *Medical Science and Technology Core Arguments Framework* (CAF) and ii) a high level capability database, which both focus on the areas of oncology, neurology, tropical medicine and medical devices.

State and territory governments have been consulted during the development of the two documents, which are intended for internal use and not to be published. Austrade will use these documents primarily in their global network and the Department of Industry will leverage off the content of both documents in, for example, developing key messages for BIO 2014.

AIG Statement of Intent supporting Work Integrated Learning in higher education

The Australian Industry Group has signed a [Statement of Intent](#) supporting Work Integrated Learning in higher education. The statement was released on 26 February 2014 at the annual Universities Australia Higher Education Conference.

The statement proposes an approach to improve the scale, breadth and value of work integrated learning to meet the challenges and opportunities of Australia's developing society, economy and environment. The statement is aimed at:

- improving the work-readiness of university graduates and enhancing the opportunities for them to develop and apply their skills and knowledge to best effect in the workplace;
- enabling employers to better utilise the skills and productive capability of their workforce;
- helping to foster an environment in which entrepreneurship and innovation can thrive; and
- strengthening the critical partnerships that will drive Australia's competitiveness.

The Statement has also been supported by Universities Australia, the Business Council of Australia, the Australian Chamber of Commerce and Industry and the Australian Collaborative Education Network.

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Excellence in Research for Australia

The Australian Research Council's (ARC) preparations for [Excellence in Research for Australia \(ERA\) 2015](#) are now well advanced. Following a review of ERA 2012, the ARC released draft ERA 2015 Submission Documentation for public consultation – from 10 January 2014 to 14 February 2014. As a result, the ARC has received significant feedback from a range of stakeholders, including universities, peak bodies, discipline groups, other organisations and individuals.

The ARC is currently reviewing this feedback in preparation for the release of the final ERA 2015 Submission Documentation for mid-2014. In addition, the ARC conducted public consultation for the Draft ERA 2015 Journal List and the Draft ERA 2015 Conference List. This consultation closed on 14 March 2014.

In December 2013, the ARC publicly released an independent review of ERA conducted by ACIL Allen Consulting, titled Benefits Realisation Review of Excellence in Research for Australia. The review, which included stakeholder consultation, found that “ERA has helped to increase the social rate of return of research, generate cost savings, increase university revenue, enhance economic activity and improve accountability, transparency and policy-making.”

The ARC continues to work with the university sector to ensure ERA 2015 is successfully implemented, and to identify opportunities for universities, government, industry and other research users to benefit from ERA outcomes and reporting.

ARC and Research Data – Changes to Funding Rules

The Australian Research Council (ARC) is committed to maximising the benefits from ARC-funded research, including through ensuring greater access to research data. In line with responsibilities outlined in the Australian Code for Responsible Conduct of Research (2007) and international best practice, the ARC has, from 2007, encouraged researchers to deposit data arising from research projects in publicly accessible repositories.

To foster a culture of good data management and practices by both data generators and users, the latest version of ARC funding rules further clarifies the ARC's data management expectations, with researchers required to outline how they plan to manage research data arising from ARC-funded research as part of the application process for National Competitive Grants Program funding.

Whilst the ARC is not mandating open data, the revised wording encourages researchers to consider the ways in which they can best manage, store,

disseminate and re-use data generated through ARC-funded research.

The ARC recognises that some institutions may have infrastructure and/or processes in place for storing, managing and sharing data and that these are valuable resources which should be utilised. Researchers, in consultation with institutions, have a responsibility to consider the management and future potential of their research data, whilst taking into account the differences that may exist between institutions, disciplines and research projects.

Changes to ARC funding rules can be found in the [Funding Rules for schemes under the Discovery Program for the years 2014 and 2015](#). Further guidance is also available through the [Instructions to Applicants and Frequently Asked Questions](#).

Life cycle assessment of bio-based products

[The Australian Life Cycle Assessment Society](#) (ALCAS) has completed a project in the area of sustainability assessment of bio-based products, such as bioethanol and a variety of wood and timber products.

Life Cycle Assessment (LCA) is a key tool to support informed decision making on environmental impacts, as it takes into account the whole life cycle of a product from raw material extraction to end of life disposal. In addition to helping consumers compare different products, LCA also enables industries and businesses to assess how their activities affect the environment.

The Department of Industry, through the National Enabling Technologies Strategy, provided support to ALCAS to undertake the project on biobased products. As part of the project, ALCAS is developing and collating inventory datasets that contribute to the LCA of bio-based products, and will make them publicly available through the [Australian National Life Cycle Inventory Database](#). These are intended to assist companies and others who choose to undertake LCA of their products. ALCAS also held a Roundtable information session in Melbourne on 19 February 2014, with a recording of the event and presentations to be made available on the ALCAS website.

Eastern Australian Domestic Gas Market Study

The eastern Australian market is undergoing substantial change as it moves towards first liquefied natural gas exports from 2014, with gas production expected to triple to nearly 2,300 petajoules per year by 2016. Many long term domestic gas supply contracts will expire during the next few years and replacement contracts for supply need to be secured.

In response to concerns about the dynamics of the eastern Australian gas market, the Australian Government Department of Industry and the Bureau of Resources and Energy Economics released the [Eastern Australian Domestic](#)

[Gas Market Study](#) on 3 January 2014.

The study finds that while there are sufficient gas resources to meet both domestic and export needs, lack of transparency and uncertainty around whether supply can ramp up sufficiently quickly to meet demand and the cost of the new gas developments is affecting price discovery and disrupting contract activity. The study examines drivers of supply and price pressures in the market as a context for policy.

The study also canvasses a number of policy options which focus on helping the market address the major sources of uncertainty through providing more information to the market and encouraging supply responses by addressing regulatory issues. The policy options are categorised under six themes:

- further reform of gas markets;
- promoting gas supply competition;
- improving the commercial and regulatory environment for gas infrastructure;
- improving market data and transparency;
- role for non-market interventions; and
- governance and implementation issues.

The Australian Government is currently consulting with stakeholders on the Study options to inform next steps in its policy agenda. The government will use this information to develop the Eastern Australian Gas Supply Strategy to 2020, and to inform the government's Energy White Paper. The Energy White Paper will set out an integrated and coherent Australian Government position on energy policy.

Giving Electricity Consumers Choice

The Australian Government is working with states and territories to implement a package of reforms to support development of innovative demand side participation (DSP) by energy service companies in the National Electricity Market (NEM).

The reforms put in place frameworks and settings to enable greater flexibility for consumers and industry and allow entry of new types of market participants. An optimal level of DSP in the NEM will promote efficient investment, operation and use of electricity services for the long term interests of consumers.

The Standing Council on Energy and Resources ([SCER DSP reform program](#)) will drive innovation in the NEM in three key ways: by enabling response; informing choice; and improving pricing and incentives.

The reform package aims to support the business-led roll out of smart meters and the services they enable. This will allow energy service providers to offer a range of new energy services to consumers. A rule change proposal was submitted to the Australian Energy Market Commission (AEMC), the independent rule making body for the NEM, in October 2013 proposing such a framework. This proposal is being considered in line with [AEMC](#) process, including public consultation.

A related process considering an [open access and communications framework](#) for smart meters (advanced metering infrastructure) is also underway to ensure that energy market frameworks support innovation in the electricity metering needed to deliver new products and services to customers.

The Australian Energy Market Operator is also considering arrangements that could allow consumers to have trading relationships with more than one retailer and/or other parties at a single site. This reform will enable customers to participate more fully in the electricity market and take advantage of new technologies and opportunities offered by energy service companies. For example, a consumer may be able to sell the output from a small generator to one retailer, purchase household electricity from another retailer, and purchase electric vehicle charging services or demand management services (direct load control) from other specialist providers.

The above are just some elements of this important work stream. Further details can be found on the [SCER website](#).

SA: Action plan for prosperity through science, research and innovation

On 3 February 2014 the South Australian Minister for Science and Information Economy released the South Australian government's plan for science, research and innovation: [Investing in Science: an action plan for prosperity through science, research and innovation](#).

The plan builds on and extends the work already done to boost the State's research and development capabilities. It will translate research into increased productivity and economic value by better linking business and research institutions.

It also highlights the importance of increasing participation in science, technology, engineering and maths (STEM), including through the recently announced STEM portal www.stemaustralia.org.au.

The plan provides \$8 million in new funding for science and research over four years, to create projects leading to jobs growth.

A total of 39 actions are detailed in the plan, some of which include:

- investing \$200 000 to establish the South Australian Renewable Energy Institute which will provide a focus for collaborative research, reduce the cost of renewable energy and allow renewables to compete with traditional fossil fuels. Research priorities include low cost batteries, solar thermal and fuel transformation;
- increasing funding to support Early-Career Researchers to provide the next generation of research leaders experience working with industry;
- establishing a new Student Entrepreneurial Initiative delivered in partnership with universities to support bright and innovative university students to establish new business ventures and commercialise technologies that will assist local industries;
- a \$4.1 million over four years High Value Food Manufacturing Hub which will translate applied research into smarter manufactured products and create greater export opportunities for local manufacturers;
- \$750 000 over three years to expand the Flinders University's Medical Device Partnering Program, which supports the development of hi-tech medical devices through collaboration between researchers, industry, consumers and government;
- funding of up to \$1 million over four years under the SA Research Fellowships program in partnership with our universities, to attract the brightest research leaders to South Australia in areas of strategic priority;
- investing \$6 million over four years in partnership with industry to create a Mining and Petroleum Services Centre of Excellence; and
- \$3 million over three years to 2014-2016 to continue to support the Cooperative Research Centres of strategic importance to South Australia.

The key initiatives in the plan include all 10 recommendations put forward by the Chief Scientist and Premier's Science and Industry Council and also includes additional initiatives announced previously in the 2013-14 State Government Budget announcements.

South Australian Government Our Jobs Plan

The [South Australian Government Our Jobs Plan](#) has been developed to strengthen the state's economy arising from the impending closure of GM

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Holden's operations in 2017. The plan was developed in consultation with the community sector, banks, industry leaders and unions. The State Government has committed \$60 million to the plan over five years. The plan outlines six key actions:

1. retraining displaced automotive workers to secure new jobs in emerging sectors;
2. supporting the northern suburbs communities to generate local activity and jobs;
3. helping the transition of automotive supply businesses into new markets;
4. accelerating the transition of our manufacturing sector into advanced manufacturing;
5. creating new jobs in key sectors through a new jobs accelerator fund; and
6. accelerating significant infrastructure projects to create jobs and lift productivity.

Specific activities include:

- expanding an Automotive Supplier Diversification Program to help supplier firms find alternative markets;
- a Re-Tooling for Diversification Program to co-fund activities such as research and development, re-tooling and proof of concept for new market opportunities, and funding the recently established Automotive Transformation Co-ordinator role (Mr Greg Combet);
- an Innovation Voucher Program will be expanded by increasing the annual turnover eligibility threshold, which currently stands at \$20 million;
- a Business Transformation Voucher Program will provide vouchers up to \$50 000 for qualified service providers to help firms review their business and manufacturing processes;
- a Future Industries for South Australia Program to support smart specialisation clusters and precincts for key sectors across the state, including: Health and Medical devices; Technology Services; Creative Industries; Tourism and Hospitality; Defence and Aerospace Advanced Manufacturing; Mining and Resources; Food and Beverage Manufacturing; and Forestry and Cellulose Fibre;
- establishing a Cluster Co-ordination office to facilitate collaborations between research and industries that creates value in global markets; and

- a Student Entrepreneurship Initiative is currently being developed in partnership with the University of South Australia. This programme will support the establishment of new entrepreneurial firms through the provision of seed grants of up to \$50 000 to student entrepreneurs who have a great product, idea and business plan. Similarly, a micro finance fund will be established to provide seed grants, open to those who are not students, to support the transition of innovative ideas into new businesses.

South Australian Regional Innovation Strategy

A [Regional Innovation Strategy](#) is in development to provide a macro innovation lens through which to view and align economic development at a whole of state level across South Australia. One key goal is for the state to put in place measures and targets for achieving economic success based on its innovation capacity.

Tasmania: Crowbar Initiative

Arts Tasmania is partnering with the popular Australian-based crowd funding platform Pozible to support successfully funded events with additional support. The initiative, called Crowbar, will support up to 50 per cent of a project's successful crowd funding target, with a limit of \$2 000 per project. Crowbar offers the opportunity for popular creative projects that are not normally eligible for Arts Tasmania funding to receive government, alongside community, support. Eligible applicants need to suit both Pozible and Crowbar criteria and register with Arts Tasmania before launching their crowd funding campaign.

Victoria: Driving Business Innovation programme

The [Driving Business Innovation](#) programme is a Victorian Government initiative run by the Department of State Development, Business and Innovation, which invites small to medium businesses to create technology solutions to government challenges. Eleven challenges have been selected for this round. The programme has now progressed to the call for proposal from small to medium enterprises stage. Applications will close on the 31st March 2014.

The current challenges include: algae waste-water treatment; blood glucose technology; gas sensors for sewers; greenhouse gas measurement; virtual fencing on waterways and floodplains; wearable seizure sensor technology; and sewer water quality monitoring. Successful applicants will receive a grant of \$75 000 to undertake a feasibility study into their proposal, which will then be assessed for a further \$1 million grant to develop a proof-of-concept.

International Developments

Africa

Policy dialogue on Science, Technology and Innovation

The United Nations Economic Commission for Africa in collaboration with the Government of the Federal Republic of Nigeria held a [high level policy dialogue](#) on the theme: Science, Technology and Innovation, and the African Transformation Agenda, on 24-25 March 2014. The meeting brought together high level policy makers and experts from across the continent in the areas of science, technology and innovation to discuss and deepen understanding on how technology and innovations can be deliberately and purposefully applied to accelerate the African transformation agenda.

Asia

India: Inclusive Innovation Fund

The [India Inclusive Innovation Fund](#) (the Fund) was launched by the Government of India's National Innovation Council and Ministry of Micro, Small and Medium Enterprises in January 2014. The initiative is co-funded by the Government of India as well as banks, insurance companies, and overseas financial and development institutions. The Fund will also partner with incubators, angel groups, public research and development programmes, and laboratories to support the commercialisation and deployment of socially relevant innovative technologies and solutions.

Japan: Global Forum on the Knowledge Economy

The fourth [Global Forum on the Knowledge Economy](#) will be hosted by the Japanese Ministry of Internal Affairs and Communications, and the Ministry of Economy, Trade and Industry in Tokyo from 2 to 3 October 2014. This event will bring together policy makers, innovation stakeholders and experts from across the globe to discuss the second phase of the OECD horizontal project on [New Sources of Growth: Knowledge-Based Capital](#), in particular its pillar on data. The objective is to exchange at the international level on the collection, analysis and use of data to foster growth and improve well-being.

Europe

EU rules on public procurement

The European Parliament updated European Union (EU) [rules on public procurement](#) in January 2014. The changes include introducing new provisions allowing for environmental and social considerations as well as

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innovation to be taken into account when public contracts are awarded.

The aim of the reform is to open up public tenders to smaller businesses and encourage public authorities to consider how they can better provide their services to taxpayers. The changes also aim to cut red tape, promote value for money, transparency and accountability in how public authorities provide goods and services. Furthermore, the introduction of an “Innovation Partnership” rule enables public authorities to launch a call for tender without pre-empting the solution, enabling the tenderer to come up with innovative solutions together with the public authority.

Connecting Australian European Science and Innovation Excellence

[Connecting Australian European Science and Innovation Excellence](#)

(CAESIE), a bilateral partnership programme between the European Union and Australia, has celebrated its first year of operations. CAESIE establishes partnerships between small and medium businesses and researchers in Europe and Australia and communicates information on opportunities for researchers in Europe. Twenty-eight successful CAESIE Priming Grants are now underway, with partnerships meeting over the next few months. Stage Two Priming Grants will shortly be available. A CAESIE meeting between Australian officials and officials from governments across the European Union will take place in June 2014 to discuss better communication of funding opportunities.

Designing effective public policy to support high growth firms

NESTA has released a working paper [Increasing the Vital 6 Percent: Designing effective public policy to support high growth firms](#). The paper, published in January 2014, examines the nature of high growth firms (HGFs) and how they are supported by public policy. It follows on from the NESTA study on HGFs launched during the time of the financial crisis called ‘The Vital 6 Percent’ (NESTA 2009) which showed that a very small proportion of United Kingdom’s businesses (i.e. the 6 percent) employing more than 10 employees accounted for over half of all of the jobs created within the United Kingdom.

This paper seeks to debunk some of the myths associated with these rapidly growing ventures by taking stock of recent research findings. It suggests that current policies in the United Kingdom directed towards high growth firms are misaligned with the way these firms actually grow and operate. In particular, it focusses on the perceptions that HGFs are new and young, that universities are a major source of HGFs, that HGFs are mostly venture capital backed, undertake steady linear growth and that they grow organically. It offers some suggestions for how entrepreneurship and small business policy could be better formulated to help improve the effectiveness of public policy. The paper

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concludes with some suggestions for future research on high growth entrepreneurship which would further aid policy development in this area.

Design in Public and Social Innovation

NESTA released the [Design in Public and Social Innovation](#) paper in January 2014. This paper looks at the elements of the design method recognising that there has been a flood of initiatives using design methods in order to improve public and social innovation globally.

While the emphasis of design thinking has increased over the last decade with a strong push for application of design thinking to public services and in social innovation, the paper suggests there is very little hard evidence on what works and whether design has achieved creative solutions beyond conventional structures and measures. The paper articulates some of the strengths in public sector and social innovation including understanding user experiences and the insights gained through the design process. It explores the tools of ideation in order to generate a menu of options for a particular problem or service and rapid prototyping - testing an idea fast in order to learn by doing rather than spending years perfecting a new service.

The paper explores some of the weaknesses of design methods including costly ill-suited solutions for cash poor clients and criticism of design consultants lacking expertise in the implementation of creative solutions. The paper suggests that design needs to learn as well as teach if its full potential is to be realised, and suggests that if it doesn't, it will risk being seen as a fad that failed.

European Intellectual Property Rights (IPR) Helpdesk – new edition successfully launched

The new edition of the [European IPR Helpdesk](#) was launched in February 2014. The helpdesk is a free service which aims to raise awareness of intellectual property and associated rights. The basis for this year's activities for the Helpdesk will be the launch of the new European Union Framework Programme for Research and Innovation, Horizon 2020, as well as of the Programme for the Competitiveness of Enterprises and SMEs.

Euroscience Open Forum

The biennial conference [Euroscience Open Forum](#) will be held in Copenhagen from 21-26 June 2014. The Forum aims to provide an opportunity for leading scientists, young researchers, students, entrepreneurs, policymakers, journalists and the general public to discuss new discoveries and debate the direction that research is taking in all the sciences. Speakers include global leaders in science policy and innovation and five Nobel Laureates.

Innovation Leaders Conference

The [Innovation Leaders Conference](#), held in Cambridge, United Kingdom in February 2014 explored the future of current technologies and brought together 300 researchers, business leaders, entrepreneurs, business angels and venture capital providers in the fields of life sciences and clean technology. The event included first-hand advice on starting a technology company, industry career opportunities and how to pitch a business idea. Subjects discussed included recipes for disruptive innovation, how to structure a start-up, breakthroughs in bio-tech, lessons from a clean-tech entrepreneur, and a panel on ‘academia-industry partnerships – what works, what does not and how to fix it’.

Poland: New Rules for Public Procurement for R&D

The Polish Parliament has adopted new rules on public procurement, relaxing the research and development (R&D) services from the legal restrictions by raising the maximum value of procurement-free orders from €14 000 to €30 000. The rules aim to facilitate the use of single source procurement for orders related to R&D projects, which are not directly used for commercial manufacturing purposes. The implementation of the amendments is expected to facilitate R&D projects, conducted by scientists from public universities and research institutes, and facilitate their co-operation with business enterprises.

Record number of European Patent Office patent filings

Preliminary figures released in January 2014 indicate that the European Patent Office received a record number of patent filings in 2013. The Office reported 265,000 patent findings (an increase of 2.8 per cent on 2012 results) and granted and published 66,700 patents (an increase of 1.7 per cent on 2012 results). Of the 2013 filings, 35.3 per cent of them originated from the Office’s 38 member states with Germany leading this group with 12.1 per cent of total filings. Detailed figures on individual countries and sectors are available on the [Office’s website](#).

UK: £60 million support for the Additive Manufacturing Centre

In January 2014 the United Kingdom [announced](#) £60 million of new funding to support development of aerospace technology at the Manufacturing Technology Centre. The United Kingdom Government is providing £30 million in funding, matched by £30 million from industry, towards development of new aerospace technology at the Centre to support creation of a national centre for additive manufacturing (3-D printing technology) for new products for aero-engines, aircraft landing gears, and automotive and medical devices.

UK: International benchmarking of the UK science and innovation system

In January 2014, the United Kingdom (UK) Department for Business Innovation & Skills released its [international benchmarking report of the UK science and innovation system](#).

The analysis showed that the UK has world-class strengths in research excellence, higher education institutions and the business environment. However, there are weaknesses in the talent base, especially in terms of science, technology, engineering and maths (STEM) skills and management skills; and a long-term pattern of under-investment in public and private research and development (R&D) and publicly funded innovation.

The report noted that science and innovation are at the heart of the UK's future success, however, other nations also take this view and are investing accordingly. The UK's total investment in R&D has been relatively stable at around 1.8 per cent of GDP, and was around £27 billion in 2011 - whereas the United States spends around £250 billion (2.8 per cent of GDP) on R&D per annum. China increased its R&D by 28 per cent in 2009 and 15 per cent in 2010, to roughly £125 billion (1.8 per cent of GDP); South Korea doubled its expenditure between 2003 and 2011 to around £35 billion (4.0 per cent of GDP). France and Germany have consistently invested substantially more than 2 per cent of their GDP in R&D, with aspirations to increase this to 3 per cent or more. The report noted that public sector support for innovation is harder to compare, but available data suggest that UK funding is very low.

Considering that the UK only represents 3.2 per cent of the world's R&D expenditure, and that some 80-90 per cent of innovation in advanced economies is based on technology transfer from foreign countries, the report recommends that a key priority should be to increase its ability to exploit cutting-edge global research, and to increase its long-term pattern of R&D investment.

UK: Police Innovation Fund

The Police Innovation Fund will be established from 2014/15 and will be worth up to £50 million a year. A precursor fund of £20 million has been made available to police and crime commissioners in 2013/14. Forty-three police forces in England and Wales have submitted bids for the precursor fund and [successful funding bids](#) announced in January 2014 include investment in body-worn cameras, joint working between police and the fire service and using technology to improve efficiency.

North America

US: \$49 million funding for new vehicle technologies

The United States Energy Secretary [announced](#) funding of US\$49 million to boost research and development of new vehicle technologies in January 2014. Funding will support technologies to make vehicles more efficient and durable, including lightweight materials, cost-effective batteries and improved fuels. The funding includes support for the United States Department of Energy's [EV Everywhere Grand Challenge](#), an initiative launched in 2012 to make plug-in electric vehicles more affordable and convenient to own and drive than gasoline-powered ones within a decade. The Secretary also announced the release of the [EV Everywhere Grand Challenge: Road to Success](#) report, which highlights the progress made in this area.

US: Science and Engineering Indicators 2014

The [Science and Engineering Indicators 2014](#), a broad base of quantitative information on the United States (US) and international science and engineering enterprise, was released in February 2014. The 2014 report is the 21st edition of this biennial publication which is prepared by the US National Science Foundation and contains information on US trends and international comparisons for research and development (R&D). The report notes that despite achieving growth in nominal measures of R&D, both the United States and the European Union experienced substantial declines in the decade 2001-2011 in their shares of global R&D. Meanwhile, economies of East and Southeast Asia and South Asia have seen an increase in their combined share from 25 per cent to 34 per cent of the global R&D total over the same period.

Global

2012 OECD R&D expenditure data

The latest Organisation for Economic Cooperation and Development (OECD) estimates confirm the [recovery of gross domestic expenditure on research and development](#) (R&D) in 2012. In the OECD area, the level of R&D spending rose by 2.7 per cent in real terms from 2011 to stand above pre-crisis levels for a second straight year. This growth has been driven by a strong recovery in R&D performed by business which was in excess of subdued growth of R&D expenditure in higher education institutions and in the government sector. Korea experienced rapidly growing R&D expenditure levels in recent years and now ranks first among OECD countries in terms of its R&D intensity. The data also notes that for the first time, China's

R&D intensity (1.98 per cent) caught up with the European Union (1.97 per cent) in 2012.

2014 Intellectual Property Index

The United States Chamber of Commerce's Global Intellectual Property Center released [Charting the Course: the 2014 International Intellectual Property \(IP\) Index](#), a survey of 25 countries with diverse economies in terms of market size, level of development and geography that offers an empirically-based measurement and comparison of the IP environments of each country in January 2014.

The Index evaluates 30 factors indicative of an IP environment that fosters growth, including protection and enforcement of patents, trademark, copyrights, trade secrets, and participation in relevant international treaties. The United States received the highest score of 28.3, making it the global leader in protecting IP.

National Intellectual Property Systems, Innovation and Economic Development

The OECD released its report, [National Intellectual Property Systems, Innovation and Economic Development with Perspectives on Colombia and Indonesia](#), in January 2014. This publication addresses the role of national intellectual property (IP) systems in the socio-economic development of emerging countries, notably through their impact on innovation. It presents a framework that identifies the key mechanisms that enable IP systems to support emerging countries' innovation and development objectives and country studies on IP systems of Columbia and Indonesia.

OECD Reviews of Regional Innovation

The OECD released its report [Regions and Innovation: Collaborating across Borders](#) in December 2013. This report examines cross-border collaboration on innovation, building on case studies of cross-border areas that include the following countries: Finland, Sweden, Norway, Estonia, Denmark, Germany, Netherlands, Belgium, United Kingdom and Ireland.

The Report notes:

- over 33 per cent of R&D and around 25 per cent of skilled employment occurs in the top 10 per cent of OECD regions (large-scale regions);
- patent activity is 58 per cent in the top 10 per cent of OECD regions (small-scale regions); and

- different measures of the benefits of innovation activities find that the strongest interactions take place in proximity, within a radius of approximately 200 kilometres.

The Report includes a number of recommendations relating to defining the cross-border area, governance of cross-border collaborations and ensuring cross-border instruments work.

OECD R&D statistics

OECD has released latest research and development (R&D) statistics with the publication of the [Main Science and Technology Indicators](#) (MSTI) 2013/2 in January 2014. The MSTI database provides a set of indicators that reflect the level and structure of the efforts undertaken by OECD member countries and seven non-member economies in the field of science and technology from 1981 onwards. The indicators cover the resources devoted to research and development, patent families, technology balance of payments and international trade in R&D-intensive industries.