



SUBMISSION BY THE AUSTRALIAN COMPUTER SOCIETY

NATIONAL INNOVATION SYSTEM REVIEW

The ACS is the representative body for Information & Communications Technology (ICT) professionals, attracting a large and active membership from all levels of the ICT industry. As a member of the Australian Council of Professions, the ACS is the public voice of the ICT profession and the guardian of professional ethics and standards in the ICT industry, with a commitment to the wider community to ensure the beneficial use of ICT and to support and develop the local ICT sector.

Australian ICT Sector

The Australian ICT sector is comprised of around 95% SMEs with few Australian owned international operations.

The ACS Industry Report 2008 indicates there are around 268,000 ICT professionals employed in Australia, (of the 514,000 people performing ICT technical and professional tasks in the country), with over 60% of the 268,000 directly employed within the ICT industry, and the balance interacting with the ICT industry from their roles in business, Government, and academia.

Revenue generated by the Australian ICT sector is growing and is currently around \$85 billion, comprising Telecommunications (\$47B); consulting and software services (\$18B); distribution of hardware/software products (\$17.5B); and manufacturing of hardware/software (\$2.5B).

ICT R&D spending is at around \$600M which comprises software (\$270M), telecommunications (\$175M), distribution (\$125M), hardware (\$75M) and consulting (\$15M). The ACS Industry Report can be found at <http://www.acs.org.au/attachments/2008ACSICTIndustryReport.pdf> .

Compared to other OECD countries, Australia has not been as successful in producing, commercialising and marketing, both nationally and internationally, its ICT innovations. The result is that Australia is an increasingly strong user of other countries ICT innovations and a poor exporter of its own, a fact only too well highlighted by our ICT trade deficit which was around \$21 billion for 2006.

Boosting innovation in the ICT sector will improve our capability, skills development and lead to significant flow on benefits to the economy as a whole. The European Scoreboard 2002 report indicates that “R&D expenditure is positively correlated with GDP per capita”.

(<http://trendchart.cordis.lu/index.cfm?fuseaction=reportinnovationhome>)

“ICT plays a fundamental role in both facilitating economy-wide growth and development and in expanding broader social opportunities. Of course the relationship between ICT and the broader economy is not linear: it is symbiotic.

Developments in ICT – both through the uncovering of new solutions and through the broader adoption of available technologies – create opportunities across the economy which, in turn, add to the demand for ICT products and services.”

Ms Heather Ridout, Chief Executive, Australian Industry Group

Innovation

Innovation policy in Australia seems still largely centered around the concept of innovation as a new invention or breakthrough. However innovation is not limited to new inventions. Innovation covers a broad range of activities that involve application, adaptation and use of existing technologies and knowledge in different ways or creating new markets for existing products – it encompasses technical and non technical applications. Innovation is the application of invention and often results from combining existing technologies or processes or re-engineering technologies or existing products to create the next level of product or service for commercial exploitation.

In developing or supporting an innovation system for Australia, we need to identify what are Australia’s regional specific advantages, capabilities, infrastructure requirements, resources and skills, identify what is missing, any barriers to innovation and what incentives, networking support and regulation are needed to create a thriving culture that supports and exploits our innovation.

The Australian Business Foundation Report “National Innovation Systems: Finland, Sweden & Australia Compared” identifies some of the components and factors that create a successful national innovation system. (http://www.intcap.com/downloads/ICS_Article_2005_National%20Innovation%20Systems%20-%20Finland,%20Sweden%20and%20Australia%20Compared.pdf)

These are:

- the development of a cohesive and deliberate strategy by government to identify and invest productively in each of the elements of the innovation system. Such a strategy should support creativity, entrepreneurship and risk tolerance;

- an economy that is flexible and adaptable with a commitment to reform and a global focus;
- existence of demanding sophisticated leading edge customers and identification of pathways and support to gain access to these;
- high level of networking amongst innovators, and development of leading edge clusters supported by industry bodies, advisory services and investors and the necessary programs to bring all these elements together;
- improved linkages between science and industry to encourage technology transfer and exploitation;
- diversified base of R&D performers in the public and private sectors;
- programs to significantly increase business and government expenditure on R&D and development;
- a supportive financial system that provides the policy/tax/tariff/legal and IP support needed to support and encourage innovation; and
- increased investment in education particularly in teaching, encouraging greater take up of tertiary degrees by students and improved workforce development to ensure we have the necessary skill base to support innovation.

To achieve this the ACS believes the Government must give high priority to developing a cohesive innovation and technology strategy that is focused on deliberate and coherent actions that capitalise and build on our advantages and specific circumstances. Resources must be allocated in such a way as to enhance these advantages and strengthen the linkages between various elements of the innovation system.

With enhancing Australia's ICT sector innovation capability in mind, Australia's 23 ICT industry Associations came together in 2007 to prepare a report "Energising Australian Innovation", that establishes Australia's ICT advantages and discrete areas where Government can focus policy and improve linkages to enhance commercialisation within our ICT sector. A copy of that report is attached with this submission.

Barriers to Innovation

Considerable barriers still exist in Australia between basic research (which is often about creating new invention) and innovation through commercial application and marketing.

Some of these barriers were addressed by the ICT Advisory Group (which comprised 16 of Australia's most eminent ICT professionals, businesspersons and researchers) in its 2006 report "*Playing (ICT) to Win*" (unpublished but available from the Department of Broadband, Communications and Digital Economy). It considered that the nature of the Australian ICT sector means it lacks critical mass in a key area of the innovation system – translating the results

from research into a commercial framework to allow its exploitation – an issue also highlighted in the Australian Business Foundation report.

The ICT Advisory Group recommended that Government funded research commercialisation programs encourage exploitation of research by assessing their achieved commercial outcomes rather than measuring their success on the basis of more traditional research outcomes.

The current and ongoing skills shortage is another barrier affecting the pace of invention and innovation. Skills availability positively affects Australia's ability to absorb, use and adapt new technologies. Without access to appropriate skills, projects and developments will be delayed. Further, with significant decreases in the number of students taking appropriate ICT tertiary degrees, the pool of people qualified and capable to undertake basic research leading to new invention and innovation in ICT is reaching critical (low) levels.

In addition to encouraging more students to take up relevant ICT tertiary courses, Government and industry must improve in forecasting their skills needs. The ACS advocates that industry and Government agencies undertake rolling three year skills forecasting, training and upgrading programs as part of their annual planning processes. This information will allow them to better plan for their ICT skills needs. It could also be used by universities and other education providers to ensure we have the people with the right skills and capabilities in the areas relevant to industry needs, at a time when they will be needed.

Australia needs to emulate the success of many of its near neighbours (Singapore, China, Korea, Japan for example) in commercialising its ICT R&D effort. We need to closely examine the efforts of other relatively small (population) countries like Switzerland, Ireland, Finland and Sweden which have developed international presences based on their innovation. How did they achieve it? How did they choose their priority areas and what can be learned from their experiences?

Our innovation and R&D efforts must be more attuned to current and emerging markets and have as their primary focus generating revenue for shareholders and investors from sales and exports.

Putting into place the incentives to foster innovation and commercialisation of R&D is an area where Government can have a substantial impact on the Australian innovation landscape. The spill-over effects for the economy that will result from successful commercialisation of innovation justify a significant role for Government policy intervention in this area.

In recognition of this, the ICT Advisory Group listed as a key recommendation in its report "*Playing (ICT) to Win*", that "ICT and innovation be recognised as a critical national priority and that a new approach to aligning and assessing the

effectiveness (towards agreed commercial metrics) of ICT policy across the Federal Government be established at Ministerial Level”.

The ACS believes this key recommendation remains very relevant.

AREAS FOR INNOVATION – TERMS OF REFERENCE

1. Set of principles to underpin the role and participation of the public sector in innovation

Government Purchasing

Government can have a significant impact on innovation in the local ICT sector by ensuring its purchasing policies and practices allow local businesses a genuine opportunity to respond to Government tenders. Government can act as an important reference site for local suppliers seeking to enter the export market.

However, doing business with Government is costly and complex with multi-jurisdictional requirements adding to the inhibitors for companies providing solutions to Government.

Government is an inherently risk averse customer. While it is proper to apply sound risk management strategy when dealing with tax-payers money, the current level of risk aversion can preclude more innovative solutions being offered to tenders.

Tenders and requirements are often specified with an eye to a preferred result and have a bias towards existing and known products, capabilities and providers. This invariably favours large multinational ICT providers and does not create an incentive to look to innovative product solutions, cutting out an important development opportunity for local ICT businesses.

The ACS strongly encourages the Government to implement purchasing practices and policies that allow for piloting of new innovations and incorporate risk management strategies to mitigate risks associated with new solutions. This will benefit Government efficiency as well as local suppliers. One possible way of achieving this is to allow a small percentage (say 1.5%) of departmental procurement budgets to be dedicated to pilot testing of innovative solutions to determine their suitability and effectiveness. This would manage risk and the piloted solution could be made available to all Government departments who may have a need for it.

The ACS acknowledges that the role of departmental heads is to provide goods and services in the most efficient and cost effective manner and not necessarily to be concerned with speculative innovation. However to address this concern, AGIMO, for example, could oversee the pilot testing process and create a database of leading edge but feasibility certified Australian technology solutions.

With the Australian Government as a credible reference site, the export potential of the solution is vastly improved.

Ownership of Intellectual Property

Another barrier to innovation and doing business with Government is the position taken by many Government agencies on default ownership of IP rights for ICT innovations developed for them.

The Australian National Audit Office has released two audits on the management of intellectual property by Australian Government agencies in recent years, the latest being Audit Report No 22, 'Management of Intellectual Property in the Australian Government Sector' released in 2007. In this report, the ANAO indicates that despite the recommendations of its earlier report into the same issue, there has been little progress towards a whole-of-Government approach to the management of IP.

In 2000, the Department of Communications, Information Technology and the Arts produced *'The Commonwealth IT IP Guidelines'*, recommending that Commonwealth agencies only acquire the IP necessary for achieving their corporate missions and to be alert to opportunities for financial savings (through not acquiring IP rights). However, in general, this approach seems not to have been taken on board by Commonwealth agencies, with most retaining the IP generated from work commissioned or funded by them.

Ownership of IP is a significant issue for ICT businesses, particularly for SMEs. When Government agencies acquire the IP as part of the contract, it essentially means that the firm cannot have any future interest in developing the innovation further. The developer of the IP cannot use it to invest further or reuse it for future customer contracts. They cannot build on the solution to engage new customers or develop enhancements that might lead to new products and markets.

Since many Government agencies do not use the IP they acquire, the future value that the IP might have generated for the Australian ICT sector and Australian economy is lost.

The ACS believes that ownership of IP should not be the default position of Government contracts in procurement of ICT goods and services.

The ACS believes, that to facilitate innovation growth and maximum use of the innovation developed by Australian ICT firms, Governments should acquire only the IP needed to support their business needs.

The developer of the IP should be able to negotiate to retain the rights to the IP it developed, and, indeed, this should be the default position, since the developer is in the best position to further invest and commercialise the IP to the benefit of the Australian ICT sector.

2. Develop a set of national innovation priorities to complement the national research priorities, ensuring the objectives of research programs and other innovation initiatives are complementary.

Whatever research priorities are decided upon, ICT will form the basis and provide the tools to undertake, analyse and apply the research. ICT is the essential tool with which we all work.

In acknowledgement of the essential role of ICT, as a key research area in its own right as well as its underpinning role for all other research, the ACS believes it should be included as a discrete priority area. Key areas of ICT that require investment and which will significantly aid all other research undertaken in Australia are, for example:

- Research into multi gigabit/sec networks;
- Super computers - gigaflop machines;
- Petabyte shared storage systems; and
- Social and technical infrastructures to enable collaborative research and for research outcomes to be shared.

Before developing a set of national innovation priorities, the Government should investigate and document the different components needed for an effective innovation system in Australia and based on this process identify areas where there are deficiencies. This would help establish those areas that should be given highest priority and that will have the largest impact in improving commercialisation of innovation in the Australian ICT sector.

It would also help Government in developing innovation policies and frameworks that more effectively support the innovation process.

3. Identify regulatory and other barriers to innovation and recommend ways to minimise these.

Regulatory structures and frameworks can impact on the facilitation of innovation and investment.

The ACS considers that an international comparison of regulatory frameworks is warranted to determine if our frameworks are in step with those of our near neighbours and competitors. For example, other relatively small population countries such as Ireland, Sweden, Finland, Switzerland as well near neighbours such as Korea, Singapore, Japan, Malaysia would be worth examining in terms of their regulatory frameworks and innovation policies.

Jurisdictional Barriers

Within the ICT sector, regulations fall into two main categories - those that are in place to benefit end users and those that ensure efficient, fair trade and promote competition. Any review of regulatory frameworks should seek to move toward a regulatory environment where business is able to quickly and consistently bring ideas to market with the least amount of bureaucracy and lowest cost. Developing a consistent national framework across all Government jurisdictions for Government procurement is one area that will have a significant impact for businesses selling to Government. It would reduce costs and complexity for both Government and business.

E-Security

In addition to Government regulation, a comprehensive and trustworthy e-security framework is essential for ICT innovation particularly in e-commerce, e-Government and in the digital content sectors.

High speed broadband technologies and the internet are key facilitators to innovation in ICT and e-security is critical for business and consumers to gain and maintain confidence in innovating and doing business using on-line business models.

The Government must put in place appropriate frameworks to ensure that Australian businesses and consumers are appropriately protected and have the highest confidence in doing business and innovating using online business models.

Risk Reduction and Venture Capital

It is essential that ways be found to reduce the risk associated with the initial capital injection required for R&D and financing innovation. Successful reduction of the risks associated with 'start ups', development and product realisation can improve the flow of capital and willingness to invest in innovation.

To achieve this, our regulatory and taxation regimes should:

- Provide incentives and reward venture capitalists – once successful and provided the rewards and incentives are right, it will encourage them to return and sponsor future investments;
- Reward innovators and researchers; and
- Optimise returns for those who successfully commercialise innovation and succeed in exporting their innovations – the more successful firms are at exporting innovation, the greater the rewards and incentives should be. An incentive scale that increases with the increasing export success of a firm will provide strong encouragement and a model for others to adopt to become successful exporters.

- 4. Examine the scope for simplifying and reducing program duplication and ensuring that any support provided is well targeted and easy to access.**

The ACS has no input under this Term of Reference.

- 5. Consider the appropriateness, effectiveness and efficiency of the R&D tax concession scheme in promoting innovation and make recommendation to improve innovation outcomes**

Fiscal incentives and direct financial support are important mechanisms for Government to attract investment in ICT R&D, stimulate innovation and improve global competitiveness.

Current Incentives of Interest to the ICT Sector

R&D Tax Concession (Section 73B – 73Z of the Income Tax Assessment Act 1936)

This tax concession allows companies that have registered with Innovation Australia to deduct up to 125% of eligible expenditure incurred on R&D activities from their assessable income. To be eligible for this concession, a company must spend more than \$20,000 and a maximum of \$1M on eligible R&D expenditure in the relevant year. An additional 50% deduction may be available in certain circumstances for companies that increase their level of eligible R&D expenditure relative to their average R&D expenditures over the previous 3 years.

R&D Tax Offset (Section 73J Income Tax Assessment Act 1936)

This incentive is a refundable tax offset to the value of the R&D tax concession. It is available to companies with an annual turnover of less than \$5M and whose total aggregate R&D expenditure is more than \$20,000 and less than \$1M per year. This threshold takes into account entire group expenditure. If a company makes a choice to take advantage of the refundable tax offset, there is no entitlement to R&D deduction in that year.

The tax offset is advantageous for certain ICT startup enterprises that are not yet making a profit, because they have the option of taking the tax concession as an offset, providing cash to fund their R&D activities.

Commercial Ready Grant (Large Grant)

The Commercial Ready grant provides innovation grants from \$250,000 to \$5M for eligible projects of up to 3 years duration. The company's annual turnover must be less than \$100M in each of the 3 financial years prior to the application. The applicant must also be able to demonstrate that it will match the grant provided on a dollar for dollar basis over the life of the project and demonstrate that it has access to, or the benefit of use of, any intellectual property necessary to carry out and/or commercialise the proposed project.

Commercial Ready Plus Grant

This grant offers assistance of \$50,000 to \$250,000 for projects for up to 18 months. To be eligible a company must have, or be part of a group that has, an annual turnover of less than \$100 M in each of the 3 financial years prior to the application for the grant. The applicant must also be able to demonstrate that it will match the grant provided on a dollar for dollar basis over the life of the project and be able to demonstrate that it has access to, or the beneficial use of, any intellectual property necessary to carry out and/or commercialise the project.

Suggested Changes to Improve Innovation

Improved Tax Concessions

The value of R&D tax concessions has been reduced from 150% to 125% in the past 10 years. This does not correlate with other OECD countries where R&D tax concessions have been increased.

The reduction of Australian tax concessions coupled, with complex application procedures for tax offsets and grants, is a disincentive, particularly for SMEs, in using the tax concessions.

The UK, for example, offers R&D tax concessions and offsets that specifically target SMEs, recognising that they require more incentive to apply. The UK offers a 125% deduction for qualifying R&D expenses for large firms and a 150% deduction for qualifying R&D for SMEs. These deductions will increase to 130% and 175% during 2008.

The UK has also been proactive in appointing specialist tax inspectors that receive training in the process of R&D for software and engineering related disciplines.

The ACS believes that Australia needs to at least match and preferably exceed tax concessions being offered by other OECD countries, to create an environment favourable to local R&D innovation and to attract firms looking to undertake R&D in ICT to Australia.

The ACS recommends increasing the basic tax concession for eligible R&D back to 150% and the incremental premium concession to 200%.

Additionally, the ACS believes that the basic R&D tax concession for SMEs should be set at 175%.

Multiple Sale Requirements for Computer Software

Section 73B(2A) of the Income Tax Assessment Act 1936 states that computer software is not eligible for the R&D tax concession unless it is developed for sale, rent, licence, hire or lease to two or more non associates of the company – that

is, there is a multiple sale requirement on the tax concession. The intention of this exclusion is that expenditure incurred from developing in-house software should not be deductible.

Anecdotal evidence suggests that only around 10% of software R&D firms claim the tax concessions because of the multiple sale or licence limitations.

The ACS believes this clause should be removed from the tax concession rules. This would allow Australian software innovators to exploit opportunities for one off users of their innovation both in Australia and overseas.

Furthermore, there are many situations where the development of in-house software could lead to innovative solutions and competitive advantage that would enhance the economic value of the firm. So the development of in-house innovative solutions should also attract the tax concessions.

Tax Concession and IP

Section 73B(9) of the Income Tax Assessment Act 1936 states that eligible companies cannot claim a deduction at the concessional rate for R&D expenditure on behalf of any other person. This restricts access to the deduction to companies that:

- bear the financial risk associated with the R&D project;
- have control over the R&D project, and
- effectively own the project results.

This is a significant hindrance to firms doing R&D work related to Government or defence work in claiming the tax deductions for R&D. The existing Government purchasing processes usually mean that the Government department or defence agency owns the Intellectual Property and often, has substantial control over the R&D project, making it difficult for firms doing this work. This creates a disincentive for research and innovation for Government and defence work.

The ACS believes that the IP provisions in the R&D tax concession rules should be relaxed to remove this disincentive.

6. Consider ways to improve the governance of the national innovation system to support higher expectations of Government agencies and industry.

Administration

The administrative burden on firms should be reduced to simplify access to tax and other incentives.

To apply for tax concessions in Australia, a firm must first register with Innovation Australia and also implement other administrative/accounting changes such as

separation of eligible R&D costs from other costs, often resulting in onerous accounting procedures. Failure to register within the required time precludes access to the tax incentives.

Essentially there are 3 portals for applicants to gain information on concessions:

- the ATO;
- Innovation Australia (IR&D Board); and
- the AusIndustry websites.

Applicants directed to the AusIndustry website for an application form, must register with Innovation Australia as well as obtain information from the ATO website and then make the claim in their tax return. This process is unnecessarily complex, difficult and onerous for SMEs in particular, who often require external support to properly complete the process.

Also, the tax concessions are only available to companies. The exclusion of other business structures seems unnecessary and is yet another impediment to accessing the concessions.

The ACS believes that:

- the administrative processes for being eligible to tax concessions must be significantly simplified;
- flexibility in registration dates must be allowed to enable access to concession by businesses that are not aware of the registration process;
- more information and help to businesses must be provided at one single site – a one stop R&D tax concession shop;
- eligibility for all forms of business structures to tax concessions be allowed to improve access and eliminate restructure costs.

Tax Offset Threshold

Companies that have an aggregate R&D expenditure that exceeds \$1M are excluded from the R&D Tax offset. This restricts the number of companies that could benefit from the offset and acts as an inhibitor to innovation.

The ACS believes that the threshold should be significantly increased (at least doubled) to encourage companies that invest large amounts in R&D to look favourably on Australia as a suitable place to establish commercial R&D centres and to encourage local firms to invest more in R&D.

7. Assess the appropriateness, effectiveness and efficiency of the Cooperative Research Centres program and make recommendations to improve innovation outcomes.

The ACS has no input on this Term of Reference.

RECOMMENDATIONS

The ACS makes the following recommendations to the National Innovation System Review.

1. The Government should investigate and document the different components for an effective national innovation system for Australia, using the model put forward in “National Innovation Systems: Finland, Sweden & Australia Compared” by the Australian Business Foundation and based on this process, identify areas where deficiencies exist.
2. The Government should undertake an international benchmarking exercise to benchmark the Australian innovation system, its R&D policy, regulatory, support and incentives against those of other countries who have created a strong international presence in ICT such as Japan, Korea, Malaysia and Singapore along with Switzerland, Ireland, Finland and Sweden, with the aim of emulating the success of these countries in developing a culture of innovation.
3. ICT innovation be recognised as a critical national priority and that assessment of the effectiveness of Government funded commercial research and innovation should be on the basis of agreed commercial metrics (rather than on traditional research based metrics).
4. In developing a set of national research and innovation priorities, the ACS believes the pervasive nature of ICT should be recognised and ICT included as a discrete priority area in its own right.
5. The ACS strongly encourages the Government to implement Government purchasing practices and policies that allow for piloting of new innovation to help mitigate the risks of new solutions. A database of piloted, feasibility certified Australian technology solutions should be created and these solutions made available to all Government departments that wish to use them.
6. A nationally consistent regulatory framework for Government procurement across all jurisdictions should be developed and implemented as a matter of priority.
7. Governments should acquire from solution providers working for it only that Intellectual Property that it needs to support its business. Ownership of Intellectual Property rights should not be the default position of Government agencies for ICT innovations developed for them.

8. The requirement in the R&D tax concessions that stipulates that software development for which the R&D tax concession is claimed must be produced for multiple sales or licenses should be removed.
9. Development of in-house software should be included as being eligible for the tax concessions.
10. The requirements of Section 73B(9) of the Tax Assessment Act restricting the R&D tax concessions to firms that have control over the R&D projects and effectively own the project results should be relaxed.
11. The administrative processes for being eligible for tax concessions must be significantly simplified, including:
 - flexibility in registration dates;
 - development of a single site to provide information and help businesses with R&D tax concessions – a one stop R&D tax concession shop;
 - eligibility for tax concessions should be extended to all forms of business structures and not just companies.
12. The tax offset threshold of \$1M must be significantly increased (at least doubled).

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