

market facing programs

The key actors in innovation in the economy are firms and their people. The effectiveness of the national innovation system is therefore highly dependent on agile firms accessing knowledge and information, adapting it and developing new innovative services, processes and products.

The goal of market enablement is to increase the diversity and range of innovative skills, projects, investments and firms in the Australian economy. Entrepreneurship researcher Professor Scott Stern of Northwestern University says:

*For policy purposes, it is important to emphasise that the benefits from programs and policies that support entrepreneurial ventures cannot be counted simply by examining the success stories. An equally important contribution arises from the experimental process itself – by learning about the constraints and challenges in a particular environment, and by placing pressure on more established firms to improve their technology, market position and organisation.*¹

Governments can create environments that equalize opportunities for learning and experimentation that are the driving force of diverse innovative endeavours.²

Governments can help firms, particularly small and medium-sized firms, to innovate through facilitation of skills development, establishing mechanisms for collaboration and assisting them to access capital.

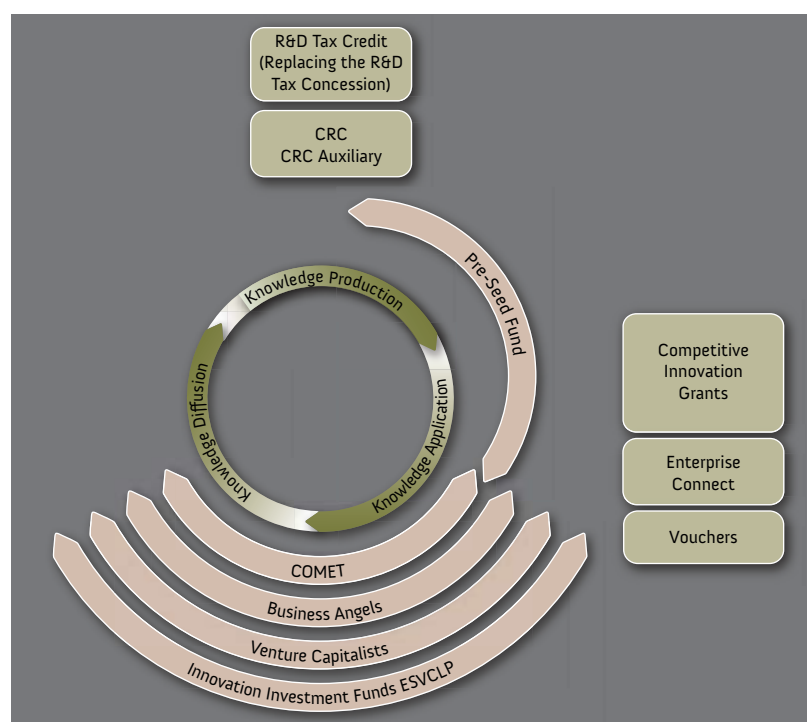
¹ Stern S., *Economic Experiments: The Role of Entrepreneurship in Economic Prosperity*, Melbourne Review, 2(2), November 2006, p.56.

² See also, Nathan Rosenberg, *Economic Experiments, Exploring the Black Box*, Cambridge University Press: Cambridge, 1994.

The range of support mechanisms in Australia directed to assisting firms to innovate was mapped and examined in detail by the Intergovernmental Working Group established by the Panel (see Annex 9). The Panel found that programs fitted into innovation's three facets as illustrated in the diagram below.

Building on Chapters 3 and 4, this chapter sets out where it is appropriate for the Australian Government to support business innovation. It builds on the particular needs of firms in the Australian innovation system, particularly small and medium sized firms, to identify, absorb and adapt innovations from overseas – the 98 percent – and from our own strong public sector research organisations. Importantly, it looks to provide a streamlined approach to business innovation by suggesting a limited number of complementary programs.

Figure 16: Australian Government program coverage of the innovation system



Source: Department of Innovation, Industry, Science and Research.

Having regard to submissions and roundtables, three areas are highlighted for action:

- Building the capacity of firms to absorb and incorporate new knowledge;
- Facilitating collaboration among major players – especially firms and universities and PFRAs; and
- Facilitating capital market formation.

Building the capacity of firms to absorb and incorporate new knowledge

Business innovation involves firms acquiring, absorbing and applying knowledge from all sources.

Proof-of-concept program

Strong representation was made to the Panel about the need for a proof of concept program which assists small and medium sized firms – firms without the necessary capital to test new concepts and at a stage when high risk means that no third party investor is prepared to assist. These firms do not have the cash needed up front to utilise the R&D Tax Concession:

There is an important funding gap for the exploratory stage (proof of concept) of the development of innovation¹.

Lack of ... funding prevents industry being able to assess whether the research is relevant to possible market needs².

The program would be directed at firms who lack the capital to undertake the project and who cannot demonstrate the degree of due diligence required to obtain private sector investment.

The Panel proposes that the program require repayment when profits are achieved through royalty payments.

Such a program will keep our innovative firms in Australia, enabling them to grow here and build expertise, and to leverage private sector funding. We urge that where appropriate firms are identified through Enterprise Connect or COMET, they should be able to get fast track access to the new program and thereby reduce transaction costs at a vital stage of their life cycle.

Recommendation 9.1: A Competitive Innovation Grants Program should be introduced to assist innovative firms, with limited access to capital, in the high risk, proof-of-concept and development stages. This program would be targeted at projects addressing identified national priorities for innovation. Successful firms would be required to repay grants from the royalties or earning streams accruing from commercial success. The program would seek to assist 200 innovative firms annually at a cost of \$150 million per year.

This program will complement the Auxiliary Program proposed in the CRC Review and the proposed Small Business Innovation Contracting program.

¹ Science Industry Australia – Submission no. 610, p. 15

² Australian Institute for Commercialisation – Submission no. 91, p. 4

Extending the Enterprise Connect program

Enterprise Connect is a new program introduced by the Australian Government in 2008 to support the growth and competitiveness of Australian SMEs. It involves manufacturing centres and innovation centres located across Australia. Through the manufacturing centres, firms are able to undertake a business review (undertaken by experienced business advisers) at no cost and obtain matching funding, through the Tailored Advisory Services, to implement changes identified by the business review. The current focus of the business review is on:

- the strengths and weaknesses of the firm;
- strategic business issues;
- potential areas for business improvement; and,
- potential areas for growth.

The Enterprise Connect Innovation Centres have been established to address specific areas: remote enterprises; innovative regions; mining technology; creative industries; and clean energy. Thus the Government is channelling support into key areas of national focus to concentrate resources for the national benefit.

Given the importance of the business innovation skills, the Panel recommends that the Enterprise Connect program be expanded to include assistance to build innovation performance and capability in firms. Services firms are a very important sector of our economy and they should have greater access to support through the Enterprise Connect network. Indeed the definition between manufacturing and services activity is often blurred and services are a critical element of most innovative activity.

Continuing and expanding the COMET program

The COMET program is almost 10 years old – when introduced it was a new style of program which works by providing tailored services to early-growth stage and spin-off companies to help commercialise their innovations. The COMET program was reviewed favourably in 2007–08. It has been able to assist the firms it supports to get third party funds from groups such as business angels, thereby resulting in \$6 being invested for every \$1 expended on the program by the Australian Government.

The COMET program is delivered at arms-length by private sector Business Advisors who assist companies ready to take an idea to market to identify the services they need to attract growth capital. One important success factor is the recruitment of the quality advisors or intermediaries. The COMET program is due

to end in 2010–11, and the level of funding is modest – around \$15 million per annum – for the skills development in firms and the level of private sector investment it facilitates. The Panel sees an opportunity for possible alignment or more formal linkages between COMET and Enterprise Connect in the longer term, but would advise that some time be given to Enterprise Connect to become embedded before this is examined.

Recommendation 9.2: The COMET program be expanded and continued for another five years, noting the scope for greater leverage arising from strong linkages to the Enterprise Connect initiative. A funding increase of at least 25 percent would maintain the levels of service and provide wider coverage across Australia. Further increases to extend the program's coverage should be considered in conjunction with the evolution of the Enterprise Connect network.

Facilitating collaboration among key players – especially firms, research institutions and universities

Collaboration is critical for our relatively small national innovation system. Through collaboration we build skills, we concentrate and focus action and it also assists both building the absorptive capacity of firms and research providers as well as increasing the opportunity for further attraction of investment into Australia.

After all, firms and research providers, whether in Australia or overseas, are the key players in the innovation system.

Collaborating to a purpose

The recent Report on the Review of Cooperative Research Centres, *Collaborating to a purpose*, emphasises the value of collaboration to Australian productivity. It describes the various structures for collaboration: simple partnerships between suppliers and customers; networks linked to common interests; associations of like industries; industry associations; applied research institutes; research collaborations between Australian institutions and research institutions overseas; formal joint ventures and entities such as CRCs; and the ‘mass collaboration’ that is being increasingly enabled through advances in internet and broadband technology.

It acknowledges that government support for collaboration occurs through a number of formal programs, including: the CRC Program; the Industry Cooperative Innovation Program; rural Research and Development Corporations; Australian Research Council (ARC)

programs such as the Centres of Excellence, the Research Networks and the ARC Linkage Grants; National Health and Medical Research Council (NHMRC) Program Grants; and many State and Territory Government programs.

And it emphasises that collaboration:

- enables intellectual and capital resources to be brought together to create higher quality and more effective, integrated and robust outcomes that cannot effectively be achieved by individual players acting alone;
- can be a means of getting scale and overcoming fragmentation caused by distance, diverse jurisdictions and the smaller resource base of Australia;
- enables government and government agencies to be partners not just facilitators, which is of particular relevance in solving social and environmental public good problems;
- promotes cross-fertilisation of ideas and mutual understandings and can help obtain commitment to decisions and outcomes;
- encourages the transfer of skills and knowledge, and the translation of new ideas into products and services; and
- is an important means of providing R&D support to small to medium enterprises (SMEs) and service industries, on which so much of Australia's economy relies.

The Review of the CRC program also refers to two studies: one by the (then) Department of Industry, Tourism and Resources in 2006 which found that businesses which engage in collaboration were found to be 70 percent more likely to achieve 'new to the world novelty' or 'creative innovation'; and an ABS 2005 study which found that Australian firms which do collaborate typically collaborate with other firms and not with research organisations or governments. But it warns against the potential for 'hollow' collaboration – collaboration aimed at accessing funds rather than real benefits – or forced collaboration, which can lead to significant inefficiencies.

The report shows that it is important to ensure that government support for collaboration focuses on promoting the benefits for firms – especially SMEs and firms in the service industries – in drawing on the capacities of research providers, and encourages the development of long-term relationships.

Recommendation 9.3: A portfolio of collaboration and linkage programs be maintained to support productive partnerships in the National Innovation System and with partners globally.

Recommendation 9.4: The recommendations in the Review of the CRC Program Collaborating to a Purpose should be acted on immediately though Government should weigh carefully responses to the CRC Review drawing attention to serious anomalies arising from the recommendation encouraging cash and in-kind contributions from research providers.

An innovation vouchers scheme

Building the absorptive capacity of Australian firms is critical for their uptake, adoption and adaptation of overseas technologies and services. This type of activity makes up over 80 percent of Australian firm innovation. Yet many firms cannot take advantage of the new technologies and services because of low awareness or confidence and capability.

The Innovation Vouchers Subsidy Scheme is an initiative of the Dutch Ministry of Economic Affairs introduced because small and medium sized enterprises are important to the knowledge economy in the Netherlands. Innovation vouchers were introduced to allow ready-to-go knowledge in the research community to play a role in developing new products, processes and services and also to initiate linkages between firms and researchers. An innovation voucher enables SMEs to collaborate with the research community by submitting research questions to them. The vouchers are aimed at promoting the transfer of knowledge between the research community and SMEs.

This initiative has been seen as a best practice program throughout Europe. It has been adopted in other regions of Europe including the United Kingdom.

With the increasing uptake of the scheme there has been a trend towards countries increasing the size of the voucher, up to EUR 100 000 (A\$170,000) in some cases. This customised approach to the scheme has assisted with its adaptation into other jurisdictions. It has also been reported that almost all enterprises are satisfied or very satisfied with their voucher outcomes in evaluated schemes.

Recommendation 9.5: A pilot linkage voucher scheme be introduced via the existing Enterprise Connect and COMET programs to improve innovation linkages between small and medium sized enterprises and the research community. Each voucher would be worth up to \$15,000 and would be used to fund collaboration between the small firms and a public sector research organisation. The program would link 5000 firms per year with public research agencies at a cost of \$50–\$75 million per year.

This proposal varies from the European model which is based on a lottery where the firm can obtain a voucher to be redeemed through a university within a given timeframe. What is proposed here is a system where an intermediary assists the SME to identify the opportunity and to bring the two parties together. The voucher means the university gets the payment, and the intermediary reports through Enterprise Connect and/or COMET on what is achieved.

University-based collaboration

Universities are an additional but often under-recognised base for innovation collaboration.

Professor Allen Hughes¹ analysed the nature of university-industry relationships in the UK and the US in innovation-active firms and made some interesting observations. His study found that licensing and spin-off activity can be significant for some universities and some sectors but are only a small part of the story of how universities contribute to innovation in the broader economy. It found that both US and UK universities are relatively low in frequency of use as direct sources of knowledge for innovation, while customers, suppliers, competitors and the firms' own internal knowledge are the dominant knowledge sources for business innovation. Though the proportion of businesses that reported universities as a source of knowledge was higher in the UK than in the US, in the US the firms place more importance on this knowledge source, suggesting that quality rather than quantity of collaborations is important.

¹ Hughes A., *Innovation policy as a cargo cult: myth and reality in knowledge-led productivity growth*. Centre for Business Research, University of Cambridge Working Paper No. 348. 2007.

Professor Richard Lester identified four broad categories of engagement between universities and the wider economy¹:

1. universities' role in developing human capital;
2. universities' role in adding to the knowledge production (for example technical literature, patents, software and hardware prototypes);
3. increasing local capacity for scientific and technological problem solving; and
4. providing space for open-ended conversations about industry development pathways and new technological and market opportunities.

The role of public space

The fourth category – public space – is very significant and can take many forms including meetings, conferences, industrial liaison programs, standard forums, and entrepreneur and investor forums. Though these conversations are not initiated to solve specific problems, they often generate ideas that become the focus of problem solving and ultimately perhaps commercialisation both in industry and universities.

Governments can use their higher education funding and accountability relationship to encourage this university role.

The Panel recognises the importance of the 'open space' role for universities and considers that this aspect of 'open space' is highly relevant to the university contributing to innovation in the community.

Facilitating capital market formation

The lack of risk capital for early stage ventures is a recurrent theme in the literature on innovation, and the issue was addressed by the Tax Working Group supporting the Panel.

There is a global and systemic funding gap in the availability of finance for early stage ventures and small technology businesses. This, in itself, is not a market failure: it is a signal that markets are working precisely because private equity providers eschew the higher risk investments in early stage ventures.

There are typically four challenges in supporting the emergence of new firms and activities, especially technology based enterprises:

- The first challenge is to bridge the funding gap between R&D or an innovative idea, and its subsequent commercialisation as a viable operation.

¹ Lester R, *Universities, innovation and the competitiveness of local economies*. Industrial Performance Centre, Massachusetts Institute of Technology, IPC Working Paper Series. 2005.

- The second challenge involves recognising the different characteristics of possible start-up strategies,¹ putting the role of venture capital into a wider context, and recognising that there are various models for commercialisation.
- The third challenge, relating specifically to capital markets, is growing and retaining a cadre of experienced professional fund managers and promoting informed financial markets and institutional investors.
- Finally, small ventures face huge challenges with information asymmetries and difficulties with the key ‘search and discovery’ functions that underpin an innovation system.

Attracting international venture capital to Australia

While the venture capital market as a whole is growing in size (as measured by committed capital) and number of firms in the last decade, Australia remains a modestly sized market and is among the smallest in developing private equity markets. The level of venture capital relative to total private equity investment in Australia is also considerably less than in many other countries.² One of the structural impediments to venture capital in Australia is the difficulty of maintaining close links with US venture majors, many of which are influential in downstream funding rounds for companies. We consider there is merit in a near term strategic objective of attracting one or more major US venture capitalists to Australia, perhaps in the context of encouraging them to use Australia as base for their expanding Asian investment interests. Strengthening Australian links into US capital markets should be a major objective.

Recommendation 9.6: The Government consider strategies to attract international venture capital fund(s) to Australia as the base for investment in the Asia Pacific region, with the short term objectives of attracting a major US venture capital firm to Australia and strengthening Australian links into US capital markets.

Increasing the ABS’s data collection capacity

One of the key challenges of managing policy in the area of venture capital is the availability of data. The ABS has undertaken surveys of the venture capital and later stage private equity markets from 1999–2000. It has only been since 2005–06 that the data

¹ Connell D., *Innovation and Procurement Policy - The politics of industry policy changes in the UK*. Innovation Leadership Forum, 3 October 2007. David Connell of the Centre for Business Research at the University of Cambridge provided useful insights here. He expounded these ideas at a forum on government procurement and innovation in Canberra in October 2007.

² Paper by Professor Josh Lerner provided to the Expert Group carrying out the Review of the Australian Venture Capital Industry in 2005.

has been disaggregated and information provided specifically on venture capital. It is important that the collection and reporting of appropriate and reliable statistical data is maintained to monitor trends in the industry and to assist in assessing the ongoing impact and contribution of the venture capital industry and government assistance programs.

Recommendation 9.7: The ABS be appropriately resourced to undertake annual collections of venture capital data to enable effective tracking of the market and the impact of government support.

Maintaining the Innovation Investment Fund Program

The latest available data shows that while total venture capital (pre-seed to early expansion) has increased overall, in 2006–07 capital was being directed away from the very early stages of venture capital to the later early expansion stage. This indicates the need for funds that continue to invest at the pre-seed to start-up stages.

The limited data available reinforces the views expressed in submissions that there remains a systemic market failure in the absence of continuing government support.

Of the current participants in the venture capital industry, the Australian Government is best placed to provide effective policies and programs to address the factors underlying the systemic market failure and foster a sustainable venture capital industry in Australia.

To that end, the effect of the rules governing investment and disinvestment should be monitored and reported on annually by Innovation Australia with a view to its recommending variations in response to any marked market volatilities.

In the case of current measures to address the low levels of early stage equity investment that is available to firms, the panel stresses the importance of continuity and predictability around support measures, the need for and value of which has been demonstrated in the US. This is even more so in periods of global financial volatility. As noted in many of the submissions, and especially those around the termination of the Commercial Ready program, institutional support for venture capital in Australia is very immature, and fragile. Only very limited progress has been made in attracting substantive engagement by the pension funds.

The Government currently has two specific programs supporting capital raising by early stage companies; the Innovation Investment Fund (IIF) and the Pre Seed Fund (PSF).

The Innovation Investment Fund program commenced in 1997 with the aim of encouraging the commitment of private capital by providing capital from the government (at a ratio of 1:2¹ for co-investment in new innovative ventures). Since the first round in 1997, two more rounds have been established.

The review of venture capital conducted in 2005 found that the IIF program was effective and agreed to the Third Round of funding which is now underway, with \$200 million to be matched on a one-to-one basis with private sector funding over five successive years. Each of ten new funds will have \$20 million from the Australian Government. As at the end of 2007, 87 companies have found capital through the IIF scheme.

Recommendation 9.8: The Innovation Investment Fund program be maintained, with a fourth round implemented after 2012. The primary objectives of this fourth round be:

- *to invest in high growth potential firms;*
- *to expand the pool of skilled fund managers;*
- *to build downstream investor confidence in follow-on investment; and*
- *to build institutional fund confidence in supporting early stage Funds.*

To facilitate effective monitoring of the impact of government support to grow early stage ventures in Australia, adequate data on investee firms supported through the program should be collected to support robust longitudinal analysis. Ten new funds over 5 years to be established at a cost of \$300 million over 15 years.

A new round of pre-seed funds

The Pre-Seed Fund program was announced in 2001 to assist commercialisation out of public sector research organisations. Five pre-seed funds were set up and most are now approximately 70 percent committed.²

The Tax Working Group considers that this program has had a major impact on the very early stage of support for ideas emerging from universities and other areas of public sector research. It has encouraged the establishment of similar commercialisation funds by groups of universities, such as Uniseed, and these funds have syndicated with Pre-Seed Funds. A further welcome development

¹ The Government funding is matched by the private sector up to a maximum 1:2 basis.

² Source: AusIndustry, Department of Innovation, Industry, Science and Resources.

in this area has been recent entry of a global pre-seed investment operator,¹ which brings the additional advantage of international market linkages and the ability to broker or aggregate development partnerships globally.

One major problem with the scheme has been the \$1 million cap imposed on investments by the Pre-Seed Funds. The policy intent of the cap was to ensure that investments remained at the very early stage. However, the cap has had the unintended consequence of stranding investee companies when follow-on funding has been difficult to find in a timely manner. The modification of the cap is recommended. The Panel also notes that the initial First Round has committed nearly all funding.

An evaluation of the Pre Seed Fund, not publicly released, has shown that for \$1 of government funding, the investee companies on average raised around \$4.30 of private capital or in-kind support. This indicates a high level of leverage from the government support.

Recommendation 9.9: The Australian Government immediately establish a second round of Pre-Seed Funds. In further rounds the current absolute \$1 million cap per investee firm should be changed to a maximum \$1 million cap on the first tranche of investment, recognising the high risk nature of this early stage of investment where the availability and timing of alternative follow-on investment is uncertain. Four new funds should be established at a cost of \$100 million over 15 years.

Encouraging angel investors

In addition, to the assistance provided by venture capitalists, firms at the early stage also often receive capital assistance from Business Angels. As investors, Business Angels tend to be actively involved in their investee companies, and usually bring considerable business acumen and experience to their start-ups.

A 2007 study² found that the Australian business angel market is active and appears to be growing. It also noted the large investment by business angels in companies that are clients of the COMET program. Although data are not available, indications from comparator countries suggest that business angels are becoming an important source of very early

¹ Imprimatur Capital

² Vitale M., *Study of the Business Angel Market in Australia*. Department of Industry, Tourism and Resources, June 2007.

stage investment. Organised groups of angel investors have recently emerged in Australia and there are reports that this is supporting greater investment syndication and information flows. Tax incentives for investor vehicles (such as the Early Stage Venture Capital Limited Partnership program) operate in closely related markets and there may be a case to extend these provisions to angel investors on some basis.

Recommendation 9.10: Modest facilitating grants to organisations of angel investors should be provided to support an increased profile, networking, and an ability to mount investor-education programs.