

Life Cycle Support and Funding for Innovation and Commercialisation

- 6.1 This chapter examines:
- support for basic or discovery research;
 - support for business research and development (R&D) and start-up enterprises; and
 - support for commercialisation assistance and expansion capital.
- 6.2 Four consensus issues have emerged from the evidence in relation to life cycle support¹ and funding for innovation and commercialisation.
- 6.3 **Consensus Issue 1** – Adequate and appropriate support for basic and applied research occurring in Australia’s publicly funded research institutions (PFRIs) is an important element of a robust innovation system. Some evidence suggested that there is a gap in transitional support (particularly a lack of assistance for proof of concept activities) for the development of innovative concepts emerging from research.
- 6.4 **Consensus Issue 2** – Adequate and appropriate support for R&D and other innovative activities occurring in businesses is essential. Some evidence suggested that the current tax incentives available for new and existing businesses could be enhanced to provide greater impetus for the commercialisation of intellectual property (IP) and innovation.

1 Life cycle support describes the establishment of conditions necessary to foster and sustain the innovation process from initial research through to utilisation. See Australian Research Council, *Submission No. 19*, p. 6.

- 6.5 **Consensus Issue 3** – Access to adequate finance and venture capital is vital to support innovation development in new and existing businesses. Evidence suggested that accessing adequate finance is a significant challenge for many businesses due to:
- insufficient business angel activity and the relative immaturity and the risk averse nature of the venture capital industry in Australia; and
 - the risk averse nature of the traditional finance sector in Australia.
- 6.6 **Consensus Issue 4** – support for later stage commercialisation activities (such as marketing, sales and export) are important for Australian businesses to grow and compete in increasingly competitive and global markets. Evidence suggested a lack of support measures and incentives directed toward these later stage commercialisation activities, and a lack of government support for Australian innovation through its procurement and purchasing practices.
- 6.7 As has been noted however, the innovation support framework is complex, needing to address different innovation needs at various stages of the innovation process, as well as sectoral specific needs. In addition, some innovation initiatives are intended to support a number of steps in the process, so consideration of particular programs in one category as opposed to another is to some degree discretionary.
- 6.8 However, while the Committee acknowledges that the linear model of innovation has now been superseded, it can provide a useful framework for consideration of Australian Government innovation support initiatives and programs. Therefore, the focus of this chapter is on Australian Government innovation support measures and fiscal initiatives that target specific stages of the innovation pathway.²

2 The Commercialising Emerging Technologies (COMET) program and the skills component of the Cooperative Research Centre (CRC) program are considered in chapter four, 'Human Capital – Knowledge and Skills'. The sectoral linkages component of the CRC program is considered in chapter five, 'Connecting Knowledge, People and Markets'.

Support for Basic or Discovery Research to Proof of Concept

- 6.9 In the technology push model of innovation, the generation of new knowledge from basic or discovery research is considered the 'engine' of innovation. Although the majority of innovation does not originate in this way, basic research³ (the majority of which is conducted by PFRIs) represents a potential source of innovation and may contribute disproportionately to radical or step change.⁴

Australian Government Research Funding Agencies

- 6.10 The Australian Government commits a significant proportion of its science and innovation expenditure to supporting PFRIs (64 per cent in 2005–06). In addition to performance-based block funding⁵ to support research and teaching activities, additional research funding for universities is also available through peer reviewed competitive grants administered either by the Australian Research Council (ARC) under the Education, Science and Training portfolio, or by the National Health and Medical Research Council (NHMRC) under the Health and Ageing portfolio.
- 6.11 Issues were raised regarding the level and appropriateness of ARC and NHMRC funding support for basic research with commercial potential, and the most effective means of providing this type of support.
- 6.12 In their submissions to the inquiry, both the ARC and NHMRC expressed the view that an appropriate level of support for basic research is a necessary foundation for a robust national innovation

3 **Basic research:** experimental and theoretical work undertaken primarily to acquire new knowledge without a specific application in view. **Applied research:** original work undertaken to acquire new knowledge with a specific application in view.

4 Professors K Smith and J West, *Submission No. 18*, pp. 6-7; Australian Business Foundation, *Submission No. 64*, pp. 2-3; Mr D Scott-Kemmis, *Submission No. 99*, p. 4.

5 Department of Education, Science and Training, *Submission No. 20*, p. 23. Australian Government funding for higher education is largely provided through two performance-based funding schemes: an institutional grants scheme (IGS) providing block funds for general research and research training infrastructure, and a scheme providing grants to institutions for research training scholarships (RTS). Both schemes are administered by the Department of Education, Science and Training and are distributed to recognised Higher Education Providers as prescribed by the *Higher Education Support Act 2003*.

system.⁶ While neither agency considered the commercialisation of research outcomes to be its principal mission⁷, both acknowledged the increasing imperatives for researchers and their employing institutions to consider and contribute to innovation and commercialisation whenever possible and appropriate.

6.13 Outlining the research funding support available, the ARC noted that the majority of its funding is allocated through the **National Competitive Grants Program (NCGP)**. The NCGP represents a \$2.2 billion commitment under *Backing Australia's Ability*, and encompasses a range of initiatives, including the ARC's Linkage Projects and ARC Federation Fellowships⁸ discussed earlier in the report (see discussion in chapter four). In addition, the NCGP also includes the ARC's **Discovery Project Grants**.

6.14 Discovery Project Grants represent the ARC's largest funding scheme, with a 2004–05 expenditure of approximately \$260 million. With regard to Discovery Projects the ARC noted:

Although the grants are not allocated in order to promote links with industry, they do provide a platform of basic research on which more applied work in a range of areas can build...⁹

6.15 Therefore, while not specifically aimed at promoting linkages with industry or commercial outcomes, the ARC stated in relation to Discovery Project Grants that:

ARC-funded research has led to many outstanding breakthroughs that have served as a basis for the development of new products or processes – examples include the 'bionic ear' medical technology developed by Cochlear Ltd and the solar energy production technology of Pacific Solar that was on show at the Sydney Olympic Games.¹⁰

6 Australian and New Zealand Association for the Advancement of Science, *Submission No. 2*, p. 3; Australian Research Council, *Submission No. 19*, p. 4; National Health and Medical Research Council, *Submission No. 81*, p. 8.

7 Australian Research Council, *Submission No. 19*, p. 2; National Health and Medical Research Council, *Submission No. 81*, p. 1.

8 Australian Research Council, *Submission No. 19*, p. 2.

9 Australian Research Council, *Submission No. 19*, p. 7.

10 Australian Research Council, *Submission No. 19*, p. 7.

- 6.16 The NHMRC supports research in the health and medical sector, including research with commercial potential.¹¹ In addition to the NHMRC Industry Fellowships considered earlier in the report (see discussion in chapter four), NHMRC funding schemes include **Project and Program Grants** and **Development Grants**.
- 6.17 The majority of NHMRC research funding is awarded through its Project and Program Grants schemes. NHMRC expenditure in 2004 comprised approximately \$185 million on Project Grants and \$115 million on Program Grants.¹² 'Development Grants provide funding for research commercialisation at the early proof of concept stage.' The total NHMRC expenditure in 2004 was \$ 4 160 655.¹³
- 6.18 In contrast, the NHMRC's Development Grants implemented in response to the 1999 *Wills Review*¹⁴, are intended to target support for research with commercial potential at the point where:
- ... high quality basic research program [ends] and...
developments [are] required to make the project
commercially attractive to potential investors.¹⁵
- 6.19 In evidence to the inquiry, Professor Pettigrew of the NHMRC noted that Development Grants were specifically directed toward addressing this gap through the provision of support for proof of concept activities.¹⁶ Approximately \$4 million has been awarded through two rounds of Development Grants in 2004.
- 6.20 However, the NHMRC noted that despite targeting a perceived gap in the research development continuum:
- ... the quality and number of [Development Grant]
applications has been disappointing (this may reflect the
negative attitude of researchers to commercialisation).¹⁷

11 National Health and Medical Research Council, *Submission No. 81*, pp. 3-5.

12 Allocations recorded in the most recent National Health and Medical Research Council annual report, tabled in June 2005. See *National Health and Medical Research Council, Annual Report 2004: Investing in Australia's Health*, incorporating the 2005 Grants Book, Appendix XVIII, p. 233.

13 *National Health and Medical Research Council, Annual Report 2004: Investing in Australia's Health*, incorporating the 2005 Grants Book, Appendix XVIII, p. 184-85.

14 *The Virtuous Cycle – Working Together for Health and Medical Research*; Health and Medical Research Strategic Review 1999.

15 National Health and Medical Research Council, *Submission No. 81*, p. 3.

16 Professor A Pettigrew (National Health and Medical Research Council), *Transcript of Evidence*, 12 September 2005, p. 1.

17 National Health and Medical Research Council, *Submission No. 81*, p. 10.

- 6.21 In its submission the NHMRC advised that an evaluation of the Development Grants Scheme had been undertaken, but at the time of writing this report the outcomes are not yet available.¹⁸

Committee Comment

- 6.22 The Committee acknowledges that providing support for the commercialisation of research is not the principal mission of either the ARC or the NHMRC. Nevertheless, both research funding agencies have acknowledged the value of appropriate support for research with commercial potential.
- 6.23 To promote and support the needs of research with commercial potential, the Committee notes that the NHMRC has amended the selection criteria of its existing schemes to encourage commercial outcomes where appropriate and has introduced the Development Grants Scheme.
- 6.24 While not compromising the core objectives of the NHMRC's funding of basic discovery research, it would seem appropriate for a proportion of research funding to be made available to pursue applied research, including research with potential commercial outcomes where these exist. To that end, the Committee commends the introduction of the Development Grants Scheme.
- 6.25 While ARC Linkage Projects are available to strengthen research collaboration between universities and other organisations (including, but not exclusively with industry), the Committee notes that the ARC does not provide specific funding to support commercialisation or proof of concept development.
- 6.26 In relation to access to funding for proof of concept¹⁹ development, the Group of Eight (Go8) advised that this was 'the one policy initiative most likely to result in improved university research commercialisation outcomes'.²⁰ Go8 clarified that, in seeking support for proof of concept, this was not for basic or discovery research but

18 National Health and Medical Research Council, *Submission No. 81*, p. 3.

19 Proof of concept is commonly understood as the process and steps required to move from research to outcomes that can be commercialised. For example, the National Health and Medical Research Council requires applicants for development grants to demonstrate 'the process and steps to a market, the nature of the market; the milestones and risks of the venture; and an understanding of possible means of handling intellectual property connected with the project'. National Health and Medical Research Council, accessed 31 May 2006, <nhmrc.gov.au >.

20 Group of Eight, *Submission No. 21.1*, p. 1.

rather the subsequent stage of the process where the commercial viability of the IP is established.

6.27 Go8 explained the implications of the proof of concept funding gap:

The funding gap from the cessation of research grant funding to the stage necessary to attract investment restricts the flow of new technology ventures.²¹

6.28 In this regard, the Go8 provided a supplementary submission outlining a proposal for a proof of concept funding scheme.

6.29 The proposal would establish an 'Innovation Stimulation Fund' of \$45 million over three years to encourage universities themselves to invest in research of commercial potential at the proof of concept stage. Under the proposal the Australian Government would provide 3:1 investment matching for proof of concept investment, with total funding per project limited to \$100 000.²²

6.30 Under such a scheme, \$15 million a year would be made available on a competitive basis – matched by \$5 million from universities. This would provide a funding pool capable of funding a minimum of 200 proof of concept projects per year, or 600 projects over the proposed initial three year life of the scheme.

6.31 While inevitably some projects funded under such a scheme would fail, some projects would develop through to a later commercialisation stage which is then more attractive to venture capitalists. By providing 3:1 matched funding, universities would be encouraged to invest in research of commercial potential at the proof of concept stage, and a significant gap in the innovation pathway could be addressed.

21 Group of Eight, *Submission No. 21.1*, pp. 1-2.

22 Group of Eight, *Submission No. 21.1*, p. 2.

Recommendation 13

The Committee recommends that the Australian Government introduce a funded proof of concept scheme, based on the Group of Eight Innovation Stimulation Fund proposal and providing the following for university research projects with high potential for commercial outcomes:

- **matched Australian Government and university funding investment in the suggested ratio of 3:1;**
- **a maximum funding per project of \$100 000; and**
- **funded for an initial three year period to a maximum Australian Government investment of \$45 million.**

6.32 In making this recommendation, the Committee notes the concerns, expressed by Professor Pettigrew, that research funding agencies alone cannot, and should not, be responsible for supporting research from basic discovery all the way through to the completion of a marketable product.²³

The Innovation Progression Gap

6.33 As noted in the previous section, some evidence to the inquiry has suggested that there is difficulty in securing support and funding for the further development of research with potential commercial outcomes.²⁴ This is sometimes referred to as the innovation progression or funding gap and represents a gap in funding to support the development of basic research to the level where it becomes a commercially attractive, investment ready proposition.

23 Professor A Pettigrew (National Health and Medical Research Council), *Transcript of Evidence*, 12 September 2005, p. 3.

24 For example see i3 Aerospace Technologies, *Submission No. 1*, p. 4; ATP Innovations, *Submission No. 6*, p. 4; Biomedical Consulting Services, *Submission No. 16*, p. 3; Australian Research Council, *Submission No. 19*, p. 6; Australian Institute for Commercialisation, *Submission No. 29*, p. 23; La Trobe University, *Submission No. 35*, pp. 1-2; CHAMP Ventures, *Submission No. 59*, p. 4; Science Industry Australia, *Submission No. 61*, p. 6; Australian Institute for Marine Science, *Submission No. 65*, p. 5; Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26, Professor A Pettigrew (National Health and Medical Research Council), *Transcript of Evidence*, 12 September 2005, p. 12.

- 6.34 While there is some debate over the extent of the innovation progression gap, it results in a lack of funding support for activities such as proof of concept, prototype/product development. A 2003 Department of Industry, Tourism and Resources (DITR) survey reported:
- The most common assertion is that there is a funding gap in the range of \$250,000–\$1 million, and possibly extending to \$2 million – which is often the range of funding needed at the research commercialisation (pre-seed) stage.²⁵
- 6.35 In its submission the Department of Education, Science and Training (DEST) stated:
- Without access to funds to bridge the ‘proof of concept’ stage an innovation stands a higher chance of failing to attract investors, leaving the innovation in a virtually impossible position and the research investment wasted constituting a market failure.²⁶
- 6.36 With the introduction of *Backing Australia’s Ability (BAA)*, the Australian Government has introduced a number of initiatives intended to close the innovation progression gap. These include programs to improve cross-sectoral linkages such as the Cooperative Research Centre (CRC) program, and funding initiatives such as DITR’s **Pre-Seed Funds (PSF)**.²⁷
- 6.37 The Industry Research and Development (IR&D) Board, which is responsible for assisting DITR with the administration of the PSF scheme, described the initiative as:
- ... a competitive pre-seed fund for universities and public sector research agencies which addresses the gap between promising scientific discoveries and commercialisation.²⁸
- 6.38 DITR noted that the Australian Government has committed \$72.7 million to four PSFs, managed by venture capitalists with experience in research commercialisation and the development of sustainable businesses.²⁹

25 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

26 Department of Education, Science and Training, *Submission No. 20*, p. 16.

27 Pre-seed funding provides investment for the very early stages of innovation. This includes proof of concept activities.

28 Industry Research and Development Board, *Submission No. 53*, p. 2.

29 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

6.39 However, some evidence to the inquiry has suggested that the PSFs do not effectively address the innovation progression gap due to the risk averse nature of the PSF managers.³⁰ Elaborating on this point, Mr Robert Taylor explained:

Whilst pre-seed and VC fund support is being provided by various governments, generally what tends to happen is once you set up the fund then the fund manager moves to a less risky position, which does not help in the very early stage of demonstration and evaluation.³¹

6.40 To address the perceived reluctance of professional fund managers to invest in early stage technology-based innovation, Professor Frank Larkins of the University of Melbourne described an alternative pre-seed fund established jointly by the Universities of Melbourne and Queensland, stating:

Because of the serious gap that we are faced with, the University of Melbourne, along with the University of Queensland, established the company Uniseed ... We each put \$10 million into an investment fund. While there are these investment bodies, as mentioned by others, they are still fairly risk averse ... We found that, in order to get some of these VC funds to invest, we had to be prepared to put some money into protection of IP and possibly into start-up companies' further development.³²

6.41 However, with regard to DITR's PSF (and a number of other Australian Government innovation support measures), some concern was expressed in relation to the requirement to be an incorporated entity to access Australian Government assistance.

6.42 Several submissions have suggested that, particularly for Intellectual Property (IP) emerging from the public sector, company formation may not necessarily represent the optimal pathway for the development of an innovative product, process or service.³³ As a company specialising in the commercialisation of IP, QPSX, noted:

30 ATP Innovations, *Submission No. 6*, p. 5; La Trobe University, *Submission No. 35*, p. 2; Defence Science and Technology Organisation, *Submission No. 83*, p. 8; Dr J Yencken, *Transcript of Evidence*, 4 August 2005, p. 25; Mr R Taylor (Robert Taylor and Associates), *Transcript of Evidence*, 5 August 2005, p. 37.

31 Mr R Taylor (Robert Taylor and Associates), *Transcript of Evidence*, 5 August 2005, p. 37.

32 Professor F Larkins (University of Melbourne), *Transcript of Evidence*, 4 August 2005, p. 5.

33 Knowledge Commercialisation Australasia, *Submission No. 27*, p. 7; Dr J Yencken and Professor Emeritus M Gillin, *Submission No. 41*, pp. 6-7; QPSX, *Submission No. 47*, p. 4;

The spin-off path is only suitable for a small proportion of technologies that have the potential to sustain a whole company. In their current form, many government funding programs such as AusIndustry's Commercial Ready and COMET do not adequately facilitate further development work for the licensing pathway.

Without sufficient support for commercialisation via licensing, many economically useful technologies and process improvements will remain 'on the shelf' in R&D laboratories.³⁴

- 6.43 Similarly, Dr Yencken emphasised that pre-seed funds are needed to support proof of concept activities regardless of whether the objective is to create a new firm or to licence the new technology to an existing company.³⁵ Dr Yencken contrasted the proof of concept funding situation in Australia with that of Singapore, noting:

We were advised that for any reasonable proposal, the University will provide to the student a grant of S\$50 000 towards achieving proof of concept ('technology that works') and identifying the market opportunity. The venture does not have to be incorporated at this stage.³⁶

- 6.44 Another concern expressed by some relates to the \$1 million investment limit associated with the PSF. Commonwealth Scientific and Industrial Research Organisation (CSIRO) suggested that this amount was not adequate to support innovation in certain sectors. Dr Jack Steele of CSIRO concluded:

... if you are after something like capital up to \$1 million, particularly if you are in the half-a-million-dollar space, then there are four pre-seed funds and a number of [business] angels playing in that space. When you are asking for \$5 million, there is a very limited number of places you can go, and that is a serious impediment in the system at the moment.³⁷

Australian Institute for Marine Science, *Submission No. 65*, p. 5; Professor C Rider, *Submission No. 98*, pp. 3-8.

34 QPSX, *Submission No. 47*, p. 4.

35 Dr J Yencken, *Submission No. 41.1*, p. 2.

36 Dr J Yencken, *Submission No. 41.1*, p. 2.

37 Dr J Steele (Commonwealth Scientific and Industrial Research Organisation [CSIRO]), *Transcript of Evidence*, 18 May 2005, p. 7.

- 6.45 Similarly, while generally supportive of the PSF, CHAMP Ventures expressed concern with the limited opportunities for subsequent and more substantial early stage venture capital funding, stating:

The Pre-seed Fund is a great initiative but limits funding to \$1 m[illion] per company. My concern is whether the early stage venture capital will be available for companies within this program to be able to raise next round [of investment finance].³⁸

Committee Comment

- 6.46 On the basis of the evidence presented, the Committee recognises that the innovation progression gap continues to represent a significant challenge for the development and commercialisation of innovation, despite measures intended to support commercialisation through enhanced cross sectoral linkages (e.g. CRC program and ARC Linkage Projects) and the introduction of the PSF scheme.
- 6.47 The Committee considers that the introduction of a university proof of concept funding scheme, as recommended in this chapter, and the continued refinement of the NHMRC's Development Grants will go some way to addressing the innovation progression gap. However, there are limits to the extent that ARC and NHMRC can address the innovation progression gap.
- 6.48 In relation to the PSF, the Committee notes the concerns with regard to the risk averse nature of PSF managers and the \$1 million investment limit. The Committee is also aware that DITR is due to complete an interim evaluation of the PSF by 30 June 2006.³⁹
- 6.49 In light of DITR's evaluation, the Committee does not make specific recommendations with regard to the PSF but anticipates that concerns regarding the risk averse nature of the PSF managers and the investment limit will be addressed.
- 6.50 It is the Committee's view that a scheme such as the PSF which targets the innovation progression gap, particularly investment in the development publicly funded research with commercial potential, is

38 CHAMP Ventures, *Submission No. 59*, p. 4.

39 Department of Industry, Tourism and Resources, *Portfolio Budget Statement 2006-07*, p. 51.

an important element of the Australian Government's support for innovation.

- 6.51 In addition, the Committee has acknowledged the multiplicity of possible pathways to innovation and commercialisation. Therefore, the Committee notes concerns raised by some with regard to the relative lack of Australian Government support that is capable of facilitating the progression and development of innovation through pathways other than the formation of start-up companies. The Committee considers that this issue requires further investigation.

Recommendation 14

The Committee recommends that the Australian Government implement additional support mechanisms to specifically assist the progression of innovation through pathways other than the formation of start-up companies.

Support for Business R&D and Start-up Enterprises

- 6.52 Evidence has indicated that continuing investment in R&D is an important factor for some businesses in maintaining a competitive advantage.⁴⁰
- 6.53 The Australian Government provides a number of incentives to assist businesses with R&D. This assistance is available through a range of Government supported tax incentives, venture capital schemes and competitive grants.

Tax Incentives and Assistance

- 6.54 Evidence to the inquiry from several submissions has emphasised the importance of providing well-structured tax system to encourage innovation within business.⁴¹

40 Citrix Systems Australasia R&D, *Submission No. 5*, p. 1; CEA Technologies, *Submission No. 8*, p. 7; KCS, *Submission No. 24*, p. 4.

41 Professors K Smith and J West, *Submission No. 18*, p. 4; Australian Institute for Commercialisation, *Submission No. 29*, pp. 22-23; Professor C Rider, *Submission No. 98*, p. 1.

- 6.55 One of the principal forms of assistance for business R&D is provided through **R&D Tax Concessions**. R&D Tax Concessions are jointly administered by the IR&D Board, assisted by AusIndustry and the Australian Taxation Office (ATO).⁴²
- 6.56 AusIndustry's *Tax Concession for Research and Development Overview* indicates that the R&D Tax Concessions comprise three key elements:
- a basic 125 per cent Tax Concession for investment in R&D;
 - an Incremental (175 per cent Premium) Tax Concession for additional investment in R&D; and
 - an R&D Tax Offset for small companies. The R&D Tax offset directly reduces tax payable by a company by the amount of approved R&D expenses. If the amount of the offset exceeds the amount of tax that the company would otherwise have to pay, then the excess is refundable.⁴³
- 6.57 Evidence to the inquiry indicated that business R&D activities had benefited from the support provided by R&D Tax Concessions.⁴⁴ However, concerns were raised regarding the level of incentive provided by the R&D Tax Concessions and some aspects of the eligibility criteria.

Incentive

- 6.58 With regard to the incentive provided by R&D Tax Concessions, several submissions questioned whether this was sufficient for businesses to actually increase their expenditure on R&D activities.⁴⁵ For example, Dr Susan Anderson of BAE Systems Australia explained that the R&D Tax Concessions, while useful, were not sufficient incentive to increase R&D investment stating: 'While that [the R&D Tax Concessions] is not a driver it is an enabler and it does help us in our path.'⁴⁶

42 AusIndustry, *Tax Concession for Research and Development Overview*, September 2005, p. 1.

43 AusIndustry, *Tax Concession for Research and Development Overview*, September 2005, p. 1.

44 For examples see Dynamic Hearing, *Submission No. 10*, p. 3; AGC, *Submission No. 71*; Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 42; Dr S Anderson (BAE Systems Australia), *Transcript of Evidence*, 5 August 2005, p. 31.

45 KCS, *Submission No. 24.1*, p. 3; Australian Institute for Commercialisation, *Submission No. 29*, p. 23; Science Industry Australia Inc, *Submission No. 61*, p. 11; Australian Innovation Association, *Submission No. 72*, p. 7.

46 Dr S Anderson (BAE Systems Australia), *T Transcript of Evidence*, 5 August 2005, p. 31.

- 6.59 The erosion of the real value of R&D Tax Concessions as an incentive for businesses over recent years was also highlighted in evidence.⁴⁷ The erosion is a consequence of a 1995–96 reduction of the R&D Tax Concession from 150 per cent to its current level of 125 per cent, and of lower corporate tax rates.
- 6.60 In its submission the Australian Innovation Association (AIA) identified three main problems with the current R&D Tax Concessions framework:
- A 125 percent deduction coupled with a 30 percent corporate tax rate provides only a few cents in the dollar benefit - not likely to change policy at board level.
 - Providing a concession to moderately sized companies spending less than, say, three percent of revenue on R&D is putting money into places with no serious commitment to R&D.
 - The 175 percent concession for improvement is merely a 'one year blip' incentive, of little use to serious R&D spenders in their long term planning.⁴⁸
- 6.61 To enhance the effectiveness of R&D Tax Concessions Dr Fox of the AIA suggested introducing a sliding scale commensurate with the level of R&D investment stating:
- ... I would bias the concession rate towards higher R&D spenders on the basis that a company that spends one or two per cent of its turnover on R&D is probably not going to be a major exporter; it is probably going to be a domestic based company or a commodity producer. But a company that is spending seven, eight or nine per cent of its turnover on R&D would surely be a high-value product or service company selling offshore. There is a way to bias it towards companies that spend more without changing the overall cost of that concession. You can reweight it so that down at one per cent you are at a 100 per cent tax concession and, if you are spending seven or eight per cent of your sales, your tax concession rate might be 175 per cent. You can reweight it towards people who are doing what you want them to do.⁴⁹

47 Science Industry Australia, *Submission No. 61*, p. 11; Dr R Gilmore (Australian Institute for Commercialisation), *Transcript of Evidence*, 5 September 2005, p. 13.

48 Australian Innovation Association, *Submission No. 72*, p. 7.

49 Dr J Fox, *Transcript of Evidence*, 4 August 2005, p. 42.

- 6.62 Evidence to the inquiry suggested increasing the 125 per cent basic R&D Tax Concession to either 150 or 175 per cent.⁵⁰
- 6.63 In considering R&D Tax Concessions as an R&D incentive, the ratio of compliance cost to benefit was also identified as an important factor. The complexity of the application process, monitoring and reporting requirements associated with the R&D Tax Concessions were identified as disincentives, especially for smaller businesses. For example, Science Industry Australia (SIA) expressed its concern that 'the potential benefits that science companies derive from the R&D Tax Concession Program are outweighed by the compliance costs.'⁵¹
- 6.64 Specifically with regard to the Tax Offset which is intended to provide R&D incentives for small businesses (including businesses in a tax loss situation), the AIIA also expressed its concerns with the \$1 million R&D expenditure cut-off noting:

There are some very valuable Government assistance programs in place in relation to R&D support – Tax Concession, BITS, and Tax Offset – but there are gaps. This is particularly the case with start-ups. For example the tax offset cuts out once companies have invested over \$1 m[illion] – a figure easily breached by ICT [information and communications technology] companies with global aspirations.⁵²

Eligibility

- 6.65 In describing eligibility for R&D Tax Concessions, AusIndustry's *Tax Concession R&D Overview* states 'All companies incorporated in Australia and undertaking eligible R&D activities⁵³ are entitled to apply for registration for the R&D Tax Concession.'⁵⁴

50 KCS, *Submission No. 24.1*, p. 3; Mr R Grey (GBC Scientific Equipment), *Transcript of Evidence*, 4 August 2005, p. 51.

51 Science Industry Australia, *Submission No. 61*, p. 12.

52 Australian Information Industry Association, *Submission No. 60*, p. 7.

53 Eligible R&D activities are defined in section 73B of the *Income Tax Assessment Act 1936 (ITAA 1936)* which states that research and development activities means: (a) systematic, investigative and experimental activities that involve innovation or high levels of technical risk and are carried on for the purpose of: (i) acquiring new knowledge (whether or not that knowledge will have a specific practical application); or (ii) creating new or improved materials, products, devices, processes or services; or (b) other activities that are carried on for a purpose directly related to the carrying on of activities of the kind referred to in paragraph (a).

54 AusIndustry, accessed 6 October 2005, *Tax Concession for Research and Development Overview*, September 2005, p. 2, <ausindustry.gov.au>.

6.66 Regarding accessibility of R&D Tax Concessions to start-up companies originating from PFRIs, some evidence expressed concern with eligibility criteria.⁵⁵ The Australian Institute for Commercialisation (AIC) listed the following concerns:

- Grant eligibility - most government grant schemes to encourage ideas to move from proof-of-concept to a business stage require the applicant to be incorporated. For an unincorporated entity, this generates a number of costs and could be a business strategy that is not necessarily the most appropriate or feasible for its stage of development.
- The R&D cash rebate [Tax Offset] scheme has two direct effects on new start-up companies:
 - ⇒ it prohibits any tax exempt organisation to hold greater than 25% ownership to be eligible; and
 - ⇒ it requires a three year financial history to be eligible - start-up companies have cash flow issues.
 - ⇒ Many research institutions are tax exempt, and thus ineligible to apply for tax exemptions, and for many other government grant schemes.⁵⁶

6.67 A submission from Professor Cameron Rider (Professor of Taxation Law at the University of Melbourne) concluded that anomalies in the current taxation framework with regard to the commercialisation of IP present significant impediments to technological innovation.⁵⁷

6.68 Professor Rider explained that the benefits potentially derived from various tax assistance measures (including the R&D Tax Concessions, Pooled Development Funds, Venture Capital Limited Partnerships and Capital Gains Tax discount) may be offset by other costs and taxes associated with the formation an incorporated entity.

6.69 In summary, the four problems arising as a consequence of the requirement to form a company to access tax assistance include:

- the immediate tax impost on unrealised gains associated with the transfer of IP assets to a company in exchange for shares;
- the immediate tax impost on unrealised gains associated with employee share option schemes;

55 Australian Institute for Commercialisation, *Submission No. 29*, p. 22; Professor C Rider, *Submission No. 98*, pp. 3-4; Mr H Hawthorn (ATP Innovations), *Transcript of Evidence*, 18 May 2005, pp. 49-50.

56 Australian Institute for Commercialisation, *Submission No. 29*, p. 22.

57 Professor C Rider, *Submission No. 98*, pp. 3-9.

- the lack of tax relief for company start-up losses which are retained within the company and cannot be deducted against other income of the owners. This is in contrast with the taxation treatment of other business structures such as partnerships or unincorporated joint ventures where losses can be offset against other income of the owners; and
 - the effective loss of tax free status for tax exempt shareholders, including PFRIs, which have to pay company tax on income. Again, this contrasts with a partnership business structure, where the share of income from tax exempt investors remains tax exempt.⁵⁸
- 6.70 Other concerns raised with regard to the R&D Tax Concessions include the definition of eligible R&D activities, specifically the exclusion of R&D occurring in the humanities, social sciences and arts.⁵⁹
- 6.71 A joint submission from the Australian Film Commission (AFC), the Australia Council for the Arts (the Australia Council) and the Australian Film, Television and Radio School (AFTRS) recommended extension of the R&D Tax Concessions to include the digital industry.⁶⁰
- 6.72 The Council for Humanities, Arts and Social Sciences (CHASS) suggested a review of the *ITTA 1936* definition of R&D thereby:
- ... allowing eligibility for the R&D tax concession for research in the humanities, arts and social science by amending the Income Tax Assessment Act.⁶¹
- 6.73 In addition, the inquiry received evidence regarding the inaccessibility of R&D Tax Concessions to foreign owned multinational companies and their Australian based subsidiaries.⁶²

58 Professor C Rider, *Submission No. 98*, pp. 3-9.

59 Australian Film Commission, the Australia Council for the Arts and the Australian Film, Television and Radio School, *Submission No. 67*, p. 15; Council for Humanities, Arts and Social Sciences, *Submission No. 77*, p. 31. Under section 73B(2C)(f) of *ITAA 1936* 'research in social sciences, arts or humanities' are classified as 'activities [that] are taken not to be systematic, investigative and experimental activities'.

60 Australian Film Commission, the Australia Council for the Arts and the Australian Film, Television and Radio School, *Submission No. 67*, p. 15.

61 Council for Humanities, Arts and Social Sciences, *Submission No. 77*, p. 37.

62 Citrix Systems Australasia R&D, *Submission No. 5*, p. 4; Merck Sharp and Dohme Australia, *Submission No. 56*, p. 5; Australian Information Industry Association, *Submission No. 60*, p. 7.

Evidence noted that the potential advantages of encouraging multinational companies to site their R&D activities in Australia include improved access to resources, the provision of employment opportunities, the development of skills and expertise and the establishment of international networks.⁶³

- 6.74 The reasons for inaccessibility of R&D Tax Concessions for Australian based subsidiaries vary, contingent on the precise nature of the relationship with their foreign owned parent company. For example, Citrix Systems Australasia R&D explained why it, as part of a global technology company, found the benefits from R&D Tax Concessions to be less accessible, stating:

In Citrix's case, our R&D facility exists as a separate legal entity and typically, this Centre will generate minimal profits and dividends for its holding company. When applied to this small profit, the R&D tax concession produces minimal savings, which are largely marginal in nature when sent back in the form of a dividend to our corporate holding company. As such, the full impact of the measure in alleviating the cost of undertaking R&D in Australia by a multinational cannot be realised.⁶⁴

- 6.75 However, it is worth noting that the major objective of the R&D Tax Concessions Scheme is to support Australian innovation. This requires companies to be incorporated in Australia, and places strict eligibility requirements with regard to Australian content and ownership of IP.
- 6.76 Nevertheless, evidence has indicated that innovation, knowledge flows and networks are becoming increasingly international.⁶⁵ In certain sectors (e.g. pharmaceuticals), the high risk nature of the innovation and lengthy timeframes involved in development mean that often it is only multi-national companies that have the capacity to support the necessary R&D. Evidence has suggested that if Australia wants a share of these lucrative markets, then this is more likely to eventuate through support for Australian based subsidiaries of multinational companies.⁶⁶

63 Citrix Systems Australasia R&D, *Submission No. 5*, p. 6.

64 Citrix Systems Australasia R&D, *Submission No. 5*, p. 4.

65 Mr D Scott-Kemmis, *Submission No. 99*, pp. 3; 6.

66 Merck Sharp and Dohme Australia, *Submission No. 56*, p. 5.

- 6.77 Not all evidence however, was supportive of increasing the accessibility of Australian Government support to foreign owned multinational companies. For example, one submission stated that 'Australia should demand and consider its own ROI [return on investment], before subsidising foreign-owned research.'⁶⁷

Committee Comment

- 6.78 The Committee does not underestimate the importance of an appropriate tax system to encourage greater business investment in R&D, technological innovation through IP commercialisation and the formation of start-up enterprises.
- 6.79 The Committee notes that tax assistance was considered in some detail previously by the House of Representatives Standing Committee on Science and Innovation in its 2002–03 inquiry into business R&D expenditure in Australia.
- 6.80 The resulting inquiry report *Riding the Innovation Wave: The Case for Increasing Business Investment in R&D* made a number of recommendations relating to the tax assistance available for R&D and start-up enterprises.⁶⁸
- 6.81 In summary, recommendations made relating to tax assistance and R&D Tax Concessions included:
- reviewing the taxation treatment of employee share options schemes;
 - simplification of the process of applying for R&D Tax Concessions and a reduction of the compliance burden through more streamlined reporting requirements;
 - extension of the allowable activities to include the costs of IP application and protection; and
 - modification of the current eligibility criteria for R&D Tax Concessions, including adjustment of the current turnover thresholds for the Tax Offset Program.

67 GBC Scientific Equipment, *Submission No. 76*, p. 9.

68 House of Representatives Standing Committee on Science and Innovation, *Riding the Innovation Wave: The Case for Increasing Business Investment in R&D*, June 2003.

- 6.82 The Committee notes that the majority of the report's recommendations on tax assistance were not supported by the Australian Government.⁶⁹ Further, with regard to R&D Tax Concessions, DITR's 2003 evaluation concluded that the 125 per cent R&D Tax Concession is an appropriate and effective policy measure.
70
- 6.83 Several concerns have been raised in evidence relating to the 175 per cent Premium Tax Concession and the Tax Offset, for example the 'one off' nature of the incentive offered by the Premium Tax Concession and the \$1 million expenditure threshold associated with the R&D Tax Offset.
- 6.84 The Committee notes that DITR's 2003 evaluation of R&D Tax Concessions concluded that there was insufficient data to review the 175 per cent Premium Tax Concession and the Tax Offset as both were comparatively new (having been introduced in 2001-02). A future evaluation of both measures was recommended.
- 6.85 The Committee is therefore pleased to note that DITR is due to complete a formal evaluation of the 175 per cent Premium Tax Concession and the Tax Offset components of the R&D Tax Concessions package by the end of June 2006.
- 6.86 The Committee notes the evidence regarding the administrative compliance burden associated with accessing R&D Tax Concessions, which may act as a significant disincentive, especially for small businesses. With regard to this, the Committee is pleased to note that measures introduced in the 2006-07 Australian Government Budget include an additional \$28 million over four years to support administration of the R&D Tax Concessions.
- 6.87 In relation to this measure, the 2006-07 Budget papers state:
- The funding will meet growing demand for the tax concession and increase compliance monitoring and legal oversight to minimise inappropriate claims.
- This measure includes \$5.4 million in capital funding over two years for the Department of Industry, Tourism and Resources to develop a new information management system
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69 *Australian Government Response to the House of Representatives Standing Committee on Science and Innovation Report: Riding the Innovation Wave: The Case for Increasing Business Investment in R&D*, March 2004.

70 Department of Industry, Tourism and Resources, accessed 23 March 2006, <industry.gov.au>.

to manage registrations and programme participation, and to provide for improved risk management.⁷¹

- 6.88 The Committee anticipates that the new information management system will improve the efficiency of the scheme's operation for the administrators (i.e. IR&D Board, AusIndustry and the ATO). However, it is unclear to what degree this new system might decrease the administrative and compliance burden experienced by businesses attempting to access the scheme. The Committee strongly urges DITR to ensure that the new system is also effective in reducing the administrative and compliance burden for business.
- 6.89 The Committee also notes other amendments to the R&D Tax Concessions proposed in the 2006–07 Budget. These include:
- ... amending taxation legislation to clarify the law, remove unintended consequences and ensure that the law reflects the original policy intent. Some measures will broaden the range of potential claimants; others will streamline their claim processes.⁷²
- 6.90 Evidence to this inquiry has differed regarding the overall advantages or disadvantages to Australia deriving from the activities of foreign owned multinational companies. The Committee recognises that the debate regarding the contribution of multinational companies to the national innovation system and to the Australian economy is complex.
- 6.91 However, the Committee considers that for Australia to participate in and contribute to innovation in certain fields, such as pharmaceuticals, business must be competitive in the global market. If adequate incentives are not made accessible for multinational companies to conduct business R&D activities in Australia then Australia will risk providing a production 'labour pool' rather than accessing the potential benefits of skills transfer and skilled employment opportunities through R&D involvement.
- 6.92 The Committee notes that the major objective of R&D Tax Concessions is to support Australian innovation. This requires companies to be incorporated in Australia and places strict requirements with regard to Australian content and ownership of IP. While it is appropriate for most Australian Government innovation programs to support Australian owned companies, the Committee

71 Australian Government 2006, *Budget 2006-07, Budget Paper No. 2*, p. 308.

72 Australian Government 2006, *Budget 2006-07, Budget Paper No. 2*, p. 319.

considers that the case for making the R&D Tax Concession available to Australian-based subsidiaries should be investigated and assessed.

Recommendation 15

The Committee recommends that the Australian Government assess the revenue implications and potential economic returns of extending the R&D Tax Concessions eligibility to include Australian based subsidiaries of multinational companies.

Support for Commercialisation and Business Growth

- 6.93 In addition to support for R&D, the Australian Government provides support for commercialisation and business growth through a range of initiatives. These initiatives include schemes intended to encourage investment in, and growth of, innovative Australian businesses and to enhance export.
- 6.94 Evidence to the inquiry has suggested that securing adequate investment at various stages of a company's development is a significant challenge for many innovating businesses.⁷³ In reviewing this evidence, the Committee is aware of other significant Australian Government activities in this area. These activities include:
- DITR's Review of the Venture Capital Industry; and
 - Department of Communications, Information Technology and the Arts (DCITA) Review of Business Angel Networks in Australia.
- 6.95 DITR's Review of the Venture Capital Industry was announced by the Minister for Industry, Tourism and Resources in May 2005. The review's terms of reference were to investigate the venture capital and later stage private equity investment industry, and the

73 For example see i3 Aerospace Technologies, *Submission No. 1*, p. 1; ATP Innovations, *Submission No. 6*, p. 4; Australian Research Council, *Submission No. 19*, p. 6; Australian Institute for Commercialisation, *Submission No. 29*, p. 23; La Trobe University, *Submission No. 35*, pp. 1-2; CHAMP Ventures, *Submission No. 59*, p. 4; Science Industry Australia, *Submission No. 61*, p. 6; Australian Institute for Marine Science, *Submission No. 65*, p. 5; Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

appropriateness, effectiveness and efficiency of existing Government support.⁷⁴

- 6.96 The review was completed in late 2005. In response to key findings, the Australian Government announced measures in its 2006–07 Budget. The measures affect a number of existing Government venture capital schemes (including the Innovation Investment Funds, Pooled Development Funds and Venture Capital Limited Partnerships) and result in the introduction of a new venture capital scheme – the Early Stage Venture Capital Limited Partnership (ESVCLP). These schemes are discussed in more detail later in this chapter.
- 6.97 With regard to DCITA’s Review of Business Angel Networks in Australia, the Committee notes that the report of the investigation is due to be finalised during 2006.⁷⁵

Finance for Small to Medium Enterprise and Start-up Companies

- 6.98 While acknowledging that technological innovation occurs frequently under the auspices of already established larger businesses, much of the evidence to this inquiry has concerned the challenges faced by SMEs or start-up companies in accessing finance to support technological innovation.
- 6.99 Typically, finance for new SMEs from start-up to mature business will progress through a stage of informal investment to a stage of formal investment sourced from professional business investment companies.
- 6.100 Informal investment is often provided initially either by the company principals, and/or relatives and friends of the principals – the so-called ‘three Fs’ – friends, families and fools.⁷⁶
- 6.101 Following this initial informal stage of early investment, additional finance may be sought from business angels, defined as high net worth individuals who are willing to invest their own capital in innovative firms.

⁷⁴ Department of Industry, Tourism and Resources, accessed 14 March 2005, <industry.gov.au>.

⁷⁵ Department of Communications, Information Technology and the Arts, *Annual Report 2004–05*, pp. 187–88.

⁷⁶ Department of Industry, Tourism and Resources, *Submission No. 82*, p. 24.

- 6.102 As enterprises develop and the quantum of finance required increases, additional investment is usually sought through formal channels, either from professional venture capital firms or from banks and other financial institutions.
- 6.103 In addition to pre-seed investment considered earlier in this chapter, the three basic financing stages for a company are:
- Seed finance: support for the growth of early stage ventures which typically do not have fully established commercial operations, and require funding to assist in launching new products or services. It may also involve some level of continuing research and product development.
 - Early Stage or Start-up finance: innovation development has been completed but the new product or service has not been sold commercially. Funding is required to initiate pilot production, commercial manufacturing and sales.
 - Late Stage or Expansion finance: manufacturing and commercial sales of the innovation have been established, but capital is required for growth and expansion to meet growth targets and to seek out new markets.

Seed and Early Stage Finance

- 6.104 A significant body of evidence to the inquiry has identified a shortage of early stage venture capital in Australia as a major impediment to the commercialisation of innovation.⁷⁷ In particular it has been suggested that obtaining capital beyond the initial 'three Fs' investment is particularly problematic for technology-based start-ups.
- 6.105 Describing the consequences of this funding gap, and the lack of accessible early stage finance in Australia generally, i3 Aerospace Technologies stated:

The absence of 'seed capital' to finance the earliest stages of technology innovation and demonstration up to the

⁷⁷ For example see i3 Aerospace Technologies, *Submission No. 1*, p. 1; ATP Innovations, *Submission No. 6*, p. 4; Australian Research Council, *Submission No. 19*, p. 6; Australian Institute for Commercialisation, *Submission No. 29*, p. 23; La Trobe University, *Submission No. 35*, pp. 1-2; CHAMP Ventures, *Submission No. 59*, p. 4; Science Industry Australia, *Submission No. 61*, p. 6; Australian Institute for Marine Science, *Submission No. 65*, p. 5; Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

'prototype stage' creates a huge barrier to technology innovation.⁷⁸

- 6.106 Essentially, two possible explanations for the lack of early stage finance have been proposed. These are that:
- the venture capital sector in Australia is too risk averse due to its immaturity and lack of investors with sufficient expertise; and/or
 - there is a lack of quality investment opportunities for investors.⁷⁹
- 6.107 As suggested by DEST, it is likely that both factors contribute to the lack of capital investment in early stage technology-based start-up companies.⁸⁰

Business Angel Investment

- 6.108 Given the limited capacity of most individuals to raise sufficient capital to support the entire commercialisation process of technological innovation, investment from business angels offers an alternative source of additional finance.
- 6.109 The potential contribution of business angels to supporting innovative activity in Australia was described by a global information and communications technology (ICT) firm, Citrix Systems Australasia R&D:

An angel investor is an individual or company who injects funds into a start up company at its inception, commonly when the company is in a high risk or precarious phase. Typically the company's product development cycle is in its infancy and sometimes there is no product but merely an idea or concept in existence. An angel investor will inject capital at the 'ground floor' to kick the company off. Once the company has matured somewhat - say a product has been developed or customers have been signed up - then a venture capitalist may chose to become involved.⁸¹

78 i3 Aerospace Technologies, *Submission No. 1*, p. 1.

79 Department of Education, Science and Training, *Submission No. 20*, p. 16; ATSE, *Submission No. 49*, p. 8; QPSX, *Submission No. 47*, p. 5; Science Industry Australia, *Submission No. 61*, pp. 6-7; Department of Industry, Tourism and Resources, *Submission No. 82*, pp. 25-26.

80 Department of Education, Science and Training, *Submission No. 20*, p. 16.

81 Citrix Systems Australasia R&D, *Submission No. 5*, p. 5.

- 6.110 However, it has been suggested that there is a lack of business angel activity in Australia.⁸² Furthermore, i3 Aerospace Technologies argued in its submission that the relatively low level of business angel investment in Australia is exacerbated by a failure of potential investors to recognise the value of IP and human capital.⁸³
- 6.111 i3 Aerospace Technologies contrasted this situation with that in the United States, stating:
- In the U. S. my experience (and that of others) is that sophisticated investors recognize **that the ideas and intellectual property are the CORE assets of a technology business and the primary source of value creation, and should be recognized by the investor as a highly valuable contribution by the entrepreneur and his team.**⁸⁴
- 6.112 Several submissions suggested that business angel activity could be increased by the introduction of appropriate tax incentives on any capital gains realised from the investment.⁸⁵ As Mr Matthew Griffith, a COMET business advisor, explained:
- ... if I looked at one thing that would make a massive difference in our space, it would be lowering the tax rate for [business] angels to invest in start-ups, making it far more financially attractive for them because there is so much more risk attached to it.⁸⁶
- 6.113 In addition, it has been suggested that business angel activity may be enhanced via the establishment of business angel networks.⁸⁷ For example, the SIA suggested:

82 Citrix Systems Australasia R&D, *Submission No. 5*, p. 5; Metrics of Research Commercialisation Working Group, *Submission No. 7*, p. 2; Science Industry Australia, *Submission No. 61*, p. 7; Mr M Griffiths (Commercialising Emerging Technologies [COMET] program Business Adviser), *Transcript of Evidence*, 18 May 2005, p. 33; Mr B Johansson (Gazelle Monitoring), *Transcript of Evidence*, 18 May 2005, p. 72.

83 i3 Aerospace Technologies, *Submission No. 1*, p. 4.

84 i3 Aerospace Technologies, *Submission No. 1*, p. 4.

85 Citrix Systems Australasia R&D, *Submission No. 5*, p. 5; Australian Institute for Commercialisation, *Submission No. 29*, p. 23; Mr B Johansson (Gazelle Monitoring), *Transcript of Evidence*, 18 May 2005, p. 72.

86 Mr M Griffiths (Commercialising Emerging Technologies [COMET] program Business Adviser), *Transcript of Evidence*, 18 May 2005, p. 33.

87 i3 Aerospace Technologies, *Submission No. 1*, p. 4; ATP Innovations, *Submission No. 6*, p. 5; Science Industry Australia Inc, *Submission No. 61*, p. 9; Mr M Duursma (Citrix Systems Australasia R&D), *Transcript of Evidence*, 18 May 2005, p. 53; Mr K Besgrove (Department of Communications, Information Technology and the Arts), *Transcript of Evidence*, 5 December 2005, p. 24.

Establish[ment of] a national register of business angels. This could be developed by the relevant industry associations using any existing business angels listings that they may have. Government could also provide some assistance through its existing programs.⁸⁸

Committee Comment

- 6.114 The Committee acknowledges the potential contribution of business angel investment to technological innovation in Australia. It considers that the introduction of tax incentives and support for business angel networks are both strategies that might be applied to promote business angel investment in technology-based start-up companies.
- 6.115 As indicated earlier in this chapter, the Committee notes that DCITA is in the process of conducting a review of business angel activity in Australia. Given the expected release of DCITA's Review of Business Angel Networks in Australia (i.e. during 2006), the Committee does not wish to foreshadow the findings of that review.
- 6.116 From its discussions with DCITA the Committee is satisfied that the Department is aware of the concerns relating to angel investors and the Committee looks forward to the outcomes of the DCITA review.

Venture Capital Investment

- 6.117 The venture capital sector also provides a formal mechanism for those seeking early stage investments to support technological innovation. Venture capital, as defined by the Australian Bureau of Statistics (ABS) is 'high risk private equity capital for typically new, innovative or fast growing unlisted companies'.⁸⁹
- 6.118 While noting that the size of the venture capital market in Australia is relatively small, being less than one per cent of Australia's capital market, there are indications that suggest Australia's venture capital market is increasing.⁹⁰
- 6.119 Nevertheless, evidence to the inquiry suggested that there continues to be a shortage of venture capital finance in Australia and that the

88 Science Industry Australia, *Submission No. 61*, p. 9.

89 Australian Bureau of Statistics, *Venture Capital Australia 2004-05*, Catalogue No. 5678.0, p. 20.

90 *Australian Government's Innovation Report 2004-05: Real Results Real Jobs*, p. 15; Australian Bureau of Statistics, *Venture Capital Australia 2004-05*, Catalogue No. 5678.0, p. 5.

industry is generally too risk averse and lacking in experienced investors.⁹¹

6.120 For example, Momentum Funds Management expressed the following concern:

For the large number of early stage technology companies that are being encouraged by various governments and government programs to advance their businesses there is likely to be almost nowhere to go when the time comes to raise sums of capital in excess of the initial 'angel' capital from family and friends.⁹²

6.121 The AIC also noted the following challenges experienced by companies attempting to access venture capital finance:

In assessing potential deals, venture capitalists will demand:

- differentiated IP that has been de-risked and is unencumbered;
- an articulate champion to spearhead the scientific development;
- proof of a market and customers with a demonstrated need; [and]
- a defined exit strategy.⁹³

6.122 The Australian Government has a number of measures which seek to encourage greater venture capital investment early stage innovation. These initiatives include the **Innovation Investment Funds (IIF)**, **Pooled Development Funds (PDF)** and **Venture Capital Limited Partnerships (VCLP)**.

6.123 All three of these programs are administered by DITR, which described the nature of the programs in the following way:

The IIF and Pre-seed Funds are 'co-investment' programs where the Government has established licensed funds with part government and part private sector investors. The investment decisions are made by the funds, within guidelines established for the programs. There are also tax

91 i3 Aerospace Technologies, *Submission No. 1*, p. 3; Biomedical Consulting Services, *Submission No. 16*, pp. 2-3; Department of Education, Science and Training, *Submission No. 20*, p. 16; DSTC Pty Ltd, *Submission No. 69*, p. 2.

92 Momentum Funds Management, *Submission No 51*, p. 3.

93 Australian Institute for Commercialisation, *Submission No. 29*, p. 5.

incentive based programs to encourage investment in early stage ventures, including the PDF and the VCLP.’⁹⁴

- 6.124 Describing the investment incentives offered by these venture capital programs, Ms Amanda Heyworth of Playford Capital explained:

Where the government subsidises a venture capital fund, it effectively lowers its required rate of return on any individual business. Therefore, the number of businesses ... that can be funded increases. In effect what we are doing is saying if the hurdle was a \$100 million exit with no subsidy, that is a very significant business that can achieve that in such a short time frame. The effect of the subsidy is to lower that hurdle from \$100 million downwards, thereby allowing the next best of the opportunities through.⁹⁵

Innovation Investment Funds

- 6.125 The co-investment IIF program was announced by the Australian Government in 1997 and is administered by AusIndustry and the IR&D Board. The IIF is intended to provide capital to support small technology-based companies and the development of a ‘self-sustaining Australian early stage, technology-based venture capital industry’.⁹⁶
- 6.126 The IIF requires the Australian Government investment of \$221 million to be matched by the private sector up to a maximum ratio of two to one. Nine private sector venture capital fund managers have been licensed through two rounds of the program to date.⁹⁷ The licensed funds administer the pool of investment capital, making all investment decisions relating to their IIF money.
- 6.127 Despite the intent of the IIF, some evidence to the inquiry has suggested that the IIF venture capital managers are too risk averse and inexperienced to invest in early stage ventures.⁹⁸ For example, i3 Aerospace Technologies stated:

... the government sponsored Innovation Investment Fund (IIF) designed specifically to support early stage companies

94 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

95 Ms A Heyworth (Playford Capital), *Transcript of Evidence*, 5 August 2005, p. 46.

96 AusIndustry, *Round Two IIF Guidelines*, 14 December 1999, pp. 1-2.

97 Industry Research and Development Board, *Submission No. 53*, p. 2.

98 i3 Aerospace Technologies, *Submission No. 1*, p. 3; Dr J Yencken, *Transcript of Evidence*, 4 August 2005, p. 26.

are in fact limited, through the policies of their venture capital managers, to those firms that have already removed the technology development risk from the table, preferably using the entrepreneur's internal resources.⁹⁹

- 6.128 In addition, with regard to the development of a self-sustaining early stage technology-based venture capital industry in Australia, submissions from two venture capital investment groups emphasised the importance of a long-term commitment by the Australian Government.¹⁰⁰
- 6.129 Both Momentum Funds Management and CHAMP Ventures called for further rounds of the IIF program that are also open to venture capital funds that have previously been successful in accessing assistance through the scheme. In this regard, Momentum Funds Management noted that in Australia 'IIF licences were "one-off" events' and that '[a]lmost all the existing IIF Fund Managers have struggled to raise new funds.'¹⁰¹

Pooled Development Funds and Venture Capital Limited Partnerships

- 6.130 The two remaining Australian Government venture capital programs, the PDF and the VCLP program, both provide tax incentives to investors to encourage investment in early start-up companies.
- 6.131 Describing the objectives of the PDF program, DITR stated that the program:
- ... is designed to increase the supply of equity capital for growing Australian SMEs. PDFs are private sector investment companies established under the PDF Act [*Pooled Development Funds Act 1992*] which raise capital from investors and use it to invest in Australian companies.'¹⁰²
- 6.132 PDF investments are made by acquiring newly issued shares in small and medium enterprises (SMEs) with total assets of less than \$50 million. The investee company must have issued shares for the purpose of raising capital to:
- establish a new business activity;

99 i3 Aerospace Technologies, *Submission No. 1*, p. 1.

100 CHAMP Ventures, *Submission No. 59*, p. 4; Momentum Funds Management, *Submission No. 51*, p. 3.

101 Momentum Funds Management, *Submission No. 51*, p. 3.

102 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 26.

- expand production capacity or services; and/or
 - expand or develop markets.¹⁰³
- 6.133 PDFs operate by providing tax benefits on the income derived from equity investments in SMEs. The PDFs are taxed at 15 per cent on income and gains derived from equity, and PDF shareholders are exempt from tax on the income and gains derived from holding and disposing of PDF shares.¹⁰⁴
- 6.134 The stated objective of the VCLP program is to:
- Facilitate foreign investment in the Australian venture capital industry by providing incentives for increased investment which will support patient equity capital investments in relatively high risk start-up and expanding businesses that would otherwise have difficulty in attracting investment through normal commercial means.¹⁰⁵
- 6.135 DITR described the operation of the VCLP program as follows:
- ... [it] provides for the registration of limited partnerships as venture capital limited partnerships and is designed to increase the supply of venture capital to Australian companies by providing tax incentives to non-resident investors in Australian VC.¹⁰⁶
- 6.136 These tax incentives apply to investors from Canada, France, Germany, Japan, United Kingdom and the US. Since the program commenced in 2002, eight VCLPs have been registered and \$950 million in capital commitments have been obtained from VCLPs.¹⁰⁷
- 6.137 The inquiry received only a small volume of evidence with regard to the operation and effectiveness of the PDF and VCLP. However, in relation to the VCLP Mr Nelson of Divergent Capital expressed concern with regard to potentially restrictive requirements for Australian ownership and business location, stating:
- ... I still believe that a company with its shareholders in Australia, that has since successfully migrated to the States and is exporting all around the world, if that company sends

103 AusIndustry, *Pooled Development Funds Fact Sheet*, 23 November 2004.

104 AusIndustry, *Pooled Development Funds: Tax Concessions Fact Sheet*.

105 AusIndustry, *Program Profile Venture Capital Limited Partnerships (VCLP) Program*, p. 1.

106 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 27.

107 AusIndustry, *Program Profile Venture Capital Limited Partnerships (VCLP) Program*, p. 1.

\$50 million back to its Australian shareholders, that is a better outcome than not having had that company at all. That furthers the legacy of entrepreneurship and early stage innovation. Therefore, I guess, I would be against rules that prescribe certain amounts of the company having to stay domiciled in Australia.¹⁰⁸

- 6.138 This comment reflects concerns expressed more broadly in the media with regard to Government over-regulation of VCLPs, which it is claimed is acting as a disincentive for overseas investors.¹⁰⁹

Banks and Financial Institution Investment

- 6.139 Investment from banks and other financial institutions potentially offers an alternative source of financial support for technological innovation. However, a significant volume of evidence to the inquiry has suggested that banks and financial institutions are reluctant to invest in the venture capital sector unless loans are secured against property or other liquefiable asset.¹¹⁰

- 6.140 For example, AWS Clinical Waste noted:

The banking sector has assisted with overdraft lending secured by private assets but have [sic] been of no assistance with risk investment due to a lack of understanding or interest in our activities despite a relationship of more than 20 years with the one bank. Banks in fact tend to be least helpful at the time of greatest need.¹¹¹

- 6.141 It has also been suggested that the risk averse attitude of banks and financial institutions with regard to supporting technology-based innovation is exacerbated by a general reluctance to recognise the value of human capital and knowledge assets, and a poor understanding of the risk-reward profile of innovative businesses.¹¹²

108 Mr D Nelson (Divergent Capital), *Transcript of Evidence*, 18 May 2005, p. 33.

109 J May, 'Foreign Money Scared Off', *Business Review Weekly*, December 1-7, 2005, pp. 18-19.

110 For examples see Science Industry Australia, *Submission No. 61*, p. 8; Momentum Funds Management, *Submission No. 51*, p. 2; AWS Clinical Waste, *Submission No. 63*, p. 4; S Hudson and Associates, *Submission No. 80*, p. 5.

111 AWS Clinical Waste, *Submission No. 63*, p. 4.

112 i3 Aerospace Technologies, *Submission No. 1*, p. 4; Mr S Jeffrey, *Submission No. 25*, pp. 8-9; Momentum Funds Management, *Submission No. 51*, p. 2; S Hudson and Associates, *Submission No. 80*, p. 5.

6.142 In addition, the issue of how to encourage more investment in early stage technological innovation from superannuation funds was raised on several occasions. As with the traditional banking and financial institution sector, the risk averse nature of superannuation funds and the absence of a 'track record' for early stage innovation investment in Australia are seen as significant impediments.¹¹³

6.143 Dr James Fox of the AIA emphasised the difficulties faced by superannuation funds in making seemingly 'risky investment decisions' unless offset by financial incentives provided by government, stating:

That is where you have an overarching set of financial rules that will encourage them [superannuation funds] to not allocate 0.001 per cent but 0.5 per cent. Why will they do that? They will do that because the risk they perceive has been now balanced by a return profile that is in part underwritten.¹¹⁴

6.144 Similarly, in its submission the AIC suggested that superannuation fund investment in innovation could be 'encourage[d] through legislation or rebates'.¹¹⁵

6.145 Mr Brett Morris of Neo Technology Ventures suggested that the imperative should be for the technology-based innovation sector to demonstrate its worth, stating:

What we should not do is mandate that a certain percentage of those funds be bigger. What we need to do is prove that this alternative asset subclass is worthy of investment. We need to put the different pieces of the puzzle together that can demonstrate to the guardians of that superannuation money that this deserves their attention, that the data or performance is worth putting 10 per cent, to use your example, into this area. We need to be coordinating all these different things and that is why our ultimately our aim should be about attracting capital into this area.¹¹⁶

6.146 Also emphasising the importance of establishing a track record to encourage investment in technology-based, Ms Patricia Kelly of DITR suggested that some of the Australian Government's venture capital

113 Mr D Nelson (Divergent Capital), *Transcript of Evidence*, 18 May 2005, pp. 31-32; Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 44.

114 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 45.

115 Australian Institute for Commercialisation, *Submission No. 29*, p. 32.

116 Mr B Morris (Neo Technology Ventures), *Transcript of Evidence*, 18 May 2005, p. 30.

programs were assisting in this process. However, Ms Kelly suggested that even with a better established track record, superannuation funds would most likely invest at a later rather than earlier stage of the innovation process, stating:

... once they [Australian Government venture capital programs] have the track record of managing a fund successfully for a period they then have a much better chance of attracting funds from people like superannuation funds. They are going on to raise funds which are mostly for a little bit further up the food chain, in that they are not the very early stage but the follow-on investments.¹¹⁷

6.147 Ms Kelly also advised the Committee that issues associated with superannuation fund investment in innovation were being considered in DITR's Review of Venture Capital in Australia.¹¹⁸

6.148 To address the lack of accessible early stage finance, evidence from some submissions and witnesses suggested the introduction of a Government funded or subsidised loans scheme targeting business innovation.¹¹⁹ Outlining a potential advantage of accessing finance via a loan rather than through venture capital investment, one witness explained:

You have to look at loans because the liquidity event against a loan is a lot easier; it is revenue. If you bring in revenue, you can pay your debts. You can pay back a loan. You do not have to sell your business in order for your shareholders or stakeholders to get their money back. That is the issue.¹²⁰

6.149 While the details of how such a Government funded commercialisation loans scheme might operate varied between submissions and witnesses, the common elements for consideration included:

117 Ms P Kelly (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, p. 22.

118 Ms P Kelly (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, pp. 11-12.

119 Professor K Smith and J West, *Submission No. 18*, pp. 13-14; S Hudson and Associates, *Submission No. 80*, pp. 12-21; Dr K Williams (Proteome Systems), *Transcript of Evidence*, 18 May 2005, p. 21; Mr M Griffith (Commercialising Emerging Technologies [COMET] program Business Adviser), *Transcript of Evidence*, 18 May 2005, p. 32; Mr M Johansson (Gazelle Monitoring System), *Transcript of Evidence*, 18 May 2005, pp. 71-72.

120 Mr M Griffith (Commercialising Emerging Technologies [COMET] program Business Adviser), *Transcript of Evidence*, 18 May 2005, p. 32.

- rigorous eligibility and due diligence requirements (e.g. well-developed business plans and staged loan payments contingent on achieving agreed progress);
- selection of investments by independent private investors with no conflict of interest, rather than by Government employees;
- a level of co-investment from the loan recipients to guard against extremely high-risk or inappropriate investment behaviour;
- loans which are fully repayable plus royalties if the venture is successful, but non-repayable if the venture fails; and
- the capacity for any returns loans to replenish the pool and be reinvested.

Later Stage Commercialisation Assistance and Expansion Capital

- 6.150 While much of the evidence regarding capital risk and investment has emphasised a lack of early stage funding for technology-based companies, concern has also been raised with regard to the availability of later stage commercialisation assistance and expansion capital.¹²¹
- 6.151 Later stage capital is required to support expansion by already established businesses and may be used either to develop new innovations or to access new markets. Referring to the lack of later stage capital to support the growth of SMEs, Mr Gaul of CEA Technologies stated:
- On the issue of management and financial credibility, again it is in policy areas that we are letting ourselves down a bit in Australia. Our venture capital industry is not mature enough or big enough and does not have the critical mass to provide the funding that is so necessary to grow SMEs and give them the backing so that they can implement their innovation.¹²²
- 6.152 The shortage of expansion capital has also been highlighted in the 2005 Prime Minister's Science, Engineering and Innovation Council (PMSEIC) Working Group Report *Growing Technology-based SMEs* which noted:

121 CEA Technologies, *Submission No. 8*, p. 10; Queensland Government, *Submission No. 74*, p. 6.

122 Mr D Gaul (CEA Technologies), *Transcript of Evidence*, 20 June 2005, p. 9.

The Government makes a substantial investment in early stage businesses, through financial and other assistance for innovation, early commercialisation of products and export promotion and should capitalise on its investment by backing the transition of these businesses through the expansion stage and beyond.¹²³

- 6.153 Similarly, the Queensland Government outlined a perceived need for the Australian Government to consider the provision of more support for:

Development of later stage venture capital funds capable of injecting investment into mid-sized knowledge-based companies, taking them to the point where they can raise sufficient capital to be internationally competitive. Investment at this level is not available from the Commonwealth Innovation Investment Funds, and there are very few other funds operating in Australia capable of making such large investments. This is a key area the Commonwealth should be directing investment into.¹²⁴

- 6.154 Emphasising the importance of providing support for innovation occurring within already established businesses, Mr Laver of the ATSE stated:

Real innovation takes place where people already have money, where people do not have to mortgage the house and borrow from grandfather but where they work under the shelter of an existing company that has cash flows that actually allow them to do these things. Policy really needs to do some thinking about how to encourage those companies to act in a more entrepreneurial way.¹²⁵

- 6.155 Similarly, Dr James Fox of AIA suggested:

... I think there should be a bit more emphasis on encouraging the other form of start-up [under the protection of an established company], which would reduce the risk to taxpayers who fund various programs and schemes.¹²⁶

123 *Prime Minister's Science, Engineering and Innovation Council Working Group Report: Growing Technology-based SMEs*, 2005, p. 3.

124 Queensland Government, *Submission No. 74*, p. 6.

125 Mr P Laver (ATSE), *Transcript of Evidence*, 4 August 2005, p. 32.

126 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 43.

- 6.156 Elaborating on the benefits of growing a start-up business under the protection of an already established company, Dr Fox explained that the start-up could take advantage of existing 'infrastructure, R&D, finance, legals, offshore marketing and selling'.¹²⁷ In contrast, self-standing start-ups needed to 'Find a business manager, tame the scientist, get an accountant, [and] throw seed capital at it'.¹²⁸

Committee Comment

- 6.157 As mentioned earlier, the Committee notes that the Australian Government has announced a number of measures through its 2006-07 Budget to address key issues arising from DITR's Review of the Venture Capital Industry.
- 6.158 In summary, the Budget has resulted in three reforms to the venture capital sector to stimulate greater investment in early stage innovation and commercialisation of Australian products and services. These are:
- provision of \$200 million for a third round IIF. The new round will appoint up to two new Venture Capital managers each year for five consecutive years with \$40 million per annum in funding available for successful fund managers. The government funding will be matched dollar for dollar by the private sector¹²⁹;
 - establishment of a new ESVCLP investment vehicle which will progressively replace the existing PDF by 31 December 2006. The ESVCLP will provide tax benefits to domestic and foreign investors, with the income received by the partners being exempt from taxation¹³⁰; and
 - amendments to the operation VCLP to remove restrictions on the country of residence of investors and minimum partnership capital required for registration.¹³¹
- 6.159 The Committee is pleased to note that a number of issues raised in evidence to the inquiry have been addressed through these measures, including the removal of restrictions associated with the VCLP and the provision of funding for a third round of the IIF.

127 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 43.

128 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 43.

129 Australian Government 2006, *Budget 2006-07, Budget Paper No. 2*, p. 310.

130 Australian Government 2006, *Budget 2006-07, Budget Paper No. 2*, p. 36.

131 Australian Government 2006, *Budget 2006-07, Budget Paper No. 2*, p. 36.

- 6.160 Regarding the third round of the IIF, the Committee notes that the scheme will assist in growing Australia's venture capital base by enabling new venture capital fund managers to enter the industry. However, IIF managers funded through earlier rounds of IIF have reported difficulties in raising new funds. Consequently the Committee is concerned that issues of sustainability beyond the life of the scheme have not been addressed and urges that further consideration be given to this matter.
- 6.161 Further, the Committee agrees with the assertion that the focus of venture capital programs is skewed toward the provision of support for new start-up companies, while there is a lack of equivalent initiatives for later stage investment to promote innovation within existing businesses.

Commercial Ready Program

- 6.162 In addition to support for commercialisation offered through the Australian Governments venture capital programs considered above, AusIndustry's **Commercial Ready Program (CRP)** which commenced in 2004, provides \$200 million a year until 2011 to:
- ... encourage the growth of innovative Australian companies and to ensure that new innovative products, processes and services make it onto the market.¹³²
- 6.163 The CRP builds on the success of three earlier innovation programs, namely R&D Start, the Biotechnology Innovation Fund (BIF) and Innovation Access which have now concluded and been replaced by the CRP.¹³³
- 6.164 The main aims of the CRP are to:
- encourage the growth and successful innovation of Australian companies by increasing the level of research and development, proof-of-concept and early stage commercialisation by Australian businesses;
 - increase the international competitiveness of Australian businesses;
 - foster greater collaboration between industry and industry and research institutions; and
 - generate national benefit for the Australian economy.¹³⁴

132 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 9.

133 Department of Industry, Tourism and Resources, *Submission No. 82*, p. 9.

134 AusIndustry, *Commercial Ready Customer Information Guide*, 31 August 2005, p. 3.

- 6.165 To be eligible to apply for CRP applicants must:
- be a non-tax exempt company incorporated under the *Corporations Act 2001*;
 - have, or be part of a group, that has an annual turnover of less than \$50 million in each of the three financial years prior to the application;
 - be able to demonstrate that it will match the amount of the grant from non-government and other approved sources 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 proposed project.
- 6.166 While the CRP aims to support product innovation through to commercialisation stage, evidence contended that the program should complement its early stage focus with more support for late stage transition into the market place.¹³⁵
- 6.167 In commenting on the scope of activities supported under the CRP, S Hudson and Associates noted that there is no funding for the ‘most crucial’ stage of product and service development, the ‘marketability stage’¹³⁶, stating:
- [t]here is no funding available for established companies with new product innovation that will fund the rollout of the product into the market. Without this funding there is no ROI [return on investment] on the R&D investment and thus that key profit driver for R&D investment is diminished.¹³⁷
- 6.168 Similarly, the ACS recommended that:
- ... grants and awards provided by the Government to help SMEs must allow (and encourage) part of the assistance

135 CEA Technologies, *Submission No. 8*, p. 10; Proteome Systems, *Submission No. 55*, p. 2, and see discussion below.

136 S Hudson and Associates, *Submission No. 80*, p. 8. Marketability is defined as ‘that stage of development that occurs prior to gaining the first order. For Innovation this is also known as pre-launch and includes the activities of: gearing up for production; implementation of the marketing and sales plans; investment in people, services and systems to ensure a successful launch. With Export this includes: stocking up; product modification; export marketing; distribution establishment; and technology and training.’

137 S Hudson and Associates, *Submission No. 80*, p. 4.

package to be used for sales and marketing and not insist that it be used for research and development purposes alone.¹³⁸

- 6.169 Another issue was the exclusion of PFRI originated spin-off companies from accessing CRP funding, under the 'majority ownership rule'.¹³⁹ ATP Innovations, a university-owned technology commercialisation hub¹⁴⁰ which supports start-up businesses in the biotechnology, ICT and electronics sectors, advised:

This is a major hurdle for these companies. It is our experience that access to matching 'Commercial Ready dollars' is the one of the critical circuit breakers in assisting a new venture to establish itself through accelerated investment in product development and is a key driver in enabling an entity to successfully migrate from the university environment to a more commercial setting.¹⁴¹

- 6.170 As a consequence, PFRI spin-off companies are also disadvantaged when attempting to obtain investment from other venture capital sources:

It is a key issue for being able to leverage investment. If you have two similar deals on the table and a venture capitalist is looking at both, if they are able to leverage dollar-for-dollar their investment in company A versus no opportunity of leveraging company B, you are at a substantial disadvantage.¹⁴²

- 6.171 In addition to accessibility restrictions relating to PFRI spin-offs, evidence was also received that raised concerns with regard to the accessibility of the CRP to SMEs and start-up companies. Specifically in this regard, a number of submissions identified difficulties for

138 Australian Computer Society, *Submission No. 38*, p. 3.

139 During the early phase of development many of these spin-off companies are majority owned by the university or research institution. This excludes them from accessing the program. See ATP Innovations, *Submission No. 6*, p. 5 and see Knowledge Commercialisation Australasia, *Submission No. 27*, p. 7; Group of Eight, *Submission No. 62*, p. 4.

140 Joint ownership by the University of New South Wales, the University of Sydney, the University of Technology Sydney and the Australian National University.

141 ATP Innovations, *Submission No. 6*, p. 5.

142 Mr H Hawthorn (ATP Innovations), *Transcript of Evidence*, 18 May 2005, p. 43.

SMEs in raising the 50 per cent matching finance required to receive CRP funding.¹⁴³

- 6.172 The risk averse nature of CRP support was emphasised in the submission from i3 Aerospace Technologies, which claimed that:
- ... we have found that senior Commercial Ready program managers do not have an appetite for start-up businesses, and proposals submitted from start-up firms seeking R&D funding are hitting a wall.¹⁴⁴
- 6.173 Evidence from two submissions also noted that Australian subsidiaries of multinational companies are unable to access assistance from CRP due to Australian ownership and control rules, and the capped \$50 million turnover eligibility criterion.¹⁴⁵
- 6.174 Specifically, with regard to the capped \$50 million turnover, the SIA expressed concern that for the science industry, this criterion is 'unrealistic and it acts as an impediment to further investment in R&D'.¹⁴⁶ The SIA suggested that the science industry 'considers that a limit of \$200 million would be more realistic.'¹⁴⁷

Committee Comment

- 6.175 While acknowledging that the CRP has only been in operation since 2004, the Committee notes the evidence presented to the inquiry raising concerns with some aspects of the CRP support and accessibility.
- 6.176 The CRP provides funding for early commercialisation activities such as trial production runs, IP management and protection, trials and demonstrations and market research. However, it does not support later stage commercialisation activities such as the implementation of marketing and sales plans or assistance with product launch.
- 6.177 Given the importance of marketing and sales activities to commercialisation, the Committee is concerned by evidence that

143 CEA Technologies, *Submission No. 8*, p. 10; Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Submission No. 32*, p. 11; i3 Aerospace, *Submission No. 1*, p. 8.

144 i3 Aerospace Technologies, *Submission No. 1*, p. 1.

145 QPSX, *Submission No. 47*, p. 4; Science Industry Australia, *Submission No. 61*, p. 12.

146 Science Industry Australia, *Submission No. 61*, p. 12.

147 Science Industry Australia, *Submission No. 61*, p. 12.

suggests there may be a lack of Government support for those activities at the later stages of the commercialisation process.

- 6.178 Therefore the Committee recommends that DITR introduce appropriate measures to support marketing and sales activities either by extending the range of activities eligible for CRP support, or by establishing an alternative scheme to support these later stage commercialisation activities.

Recommendation 16

The Committee recommends that the Australian Government Department of Industry, Tourism and Resources extend the support available to provide for later stage commercialisation activities, such as market identification, marketing and sales strategies.

This support may be provided either by extending the range of activities eligible under the Commercial Ready Program or by establishing alternative mechanisms of assistance which are compliant with World Trade Organisation and other trade agreement conditions.

- 6.179 Regarding the ineligibility of PFRI spin-off companies, the Committee notes that the concerns expressed are similar to those expressed with regard to the R&D Tax Concessions. Again the Committee considers that this highlights the absence of adequate transitional measures to support commercialisation of IP originating from the public sector and that recommendations made earlier in the report are pertinent.
- 6.180 Similarly, the Committee notes the concerns raised regarding accessibility of CRP support to Australian subsidiaries of foreign owned companies. The Committee suggests that this be considered again in light of its earlier comments made with regard to the accessibility of R&D Tax Concessions for Australian subsidiaries of multinational companies.
- 6.181 The Committee strongly suggests that other eligibility issues, including the requirement for companies to provide matching funds and the current annual expenditure turnover threshold, are investigated further over the next 12 months. Their impact on accessibility of support through the CRP should be specifically addressed when the program is first formally reviewed with a view to

ascertaining whether the co-contribution requirements are too onerous and the turnover threshold too restrictive.

Recommendation 17

The Committee recommends that the Australian Department of Industry, Tourism and Resources conduct a formal review by 30 June 2007 of the effectiveness of the Commercial Ready Program, giving particular consideration to the following possible program amendments:

- **extending eligibility to spin-off companies from publicly funded research institutions;**
- **extending eligibility to Australian-based subsidiaries of foreign owned companies; and**
- **reducing the co-contribution requirements and increasing the turnover thresholds.**

Government Agency Investment and Procurement

6.182 Some evidence presented to the inquiry has also suggested that the Australian Government should consider a review of its purchasing and procurement policies to make them more supportive of Australian innovative and technology-based SMEs.¹⁴⁸

6.183 For example, the ATSE suggested that:

Australian Governments should encourage, and if possible, adopt a policy of government buying from selected Australian innovative industries.¹⁴⁹

6.184 Describing the benefits of Australian Government support through the purchasing of local innovative technology, the AIC noted:

The importance of innovation can be highlighted and branded both within government itself and through

148 CEA Technologies, *Submission No. 8*, p. 4; Albox Australia, *Submission No. 14*, pp. 1-2; Australian Institute for Commercialisation, *Submission No. 29*, p. 28; Australian Computer Society, *Submission No. 38*, p. 1; Wave Global, *Submission No. 43*, p. 1; ATSE, *Submission No. 49*, p. 9; Australian Information Industry Association, *Submission No. 60*, p. 8.

149 Australian Academy of Technological Sciences and Engineering, *Submission No. 49*, p. 9.

government focus on the application of new technology.

Government purchasing initiatives can be used as a tool.¹⁵⁰

- 6.185 Similarly, CEA Technologies emphasised the potential advantage of government support for Australian innovation when seeking to access international markets, noting ‘the perceived need by overseas buyers for “sales endorsement” by one’s own home Government.’¹⁵¹
- 6.186 A number of submissions drew attention to the **Small Business Innovation Research (SBIR)** program administered by the US Federal Government’s Small Business Administration.¹⁵²
- 6.187 ATP Innovations described the operation and objectives and of the SBIR as follows:
- By reserving a specific percentage of federal R&D funds for small business, SBIR protects the small business and enables it to compete on the same level as larger businesses. SBIR funds the critical start-up and development stages and it encourages the commercialisation of the technology, product, or service, which, in turn, stimulates the U.S. economy.¹⁵³
- 6.188 i3 Aerospace Technologies also noted:
- Many technology businesses have been launched using SBIR contracts as the ‘seed funding’, and the government has accepted the risk of dealing with ‘start-up’ companies recognizing [sic]that the people in these companies are highly motivated, and will work tirelessly to convert their ideas to successful products.¹⁵⁴
- 6.189 The submission also noted that a secondary benefit of the SBIR program was the strengthening of linkages between government and businesses of all sizes.¹⁵⁵

150 Australian Institute for Commercialisation, *Submission No. 29*, p. 28.

151 CEA Technologies, *Submission No. 8*, p. 3.

152 i3 Aerospace Technologies, *Submission No. 1*, p. 7; ATP Innovations, *Submission No. 6*, p. 7.

153 ATP Innovations, *Submission No. 6*, p. 7.

154 i3 Aerospace Technologies, *Submission No. 1*, p. 7.

155 i3 Aerospace Technologies, *Submission No. 1*, p. 8.

Committee Comment

- 6.190 The Committee notes concerns expressed with regard to a perceived lack of support from Australian Government through its purchasing and procurement of innovative products, processes or services from Australian based SMEs.
- 6.191 The Committee notes that Australian Government Procurement Guidelines state that '[t]he Government is committed to FMA¹⁵⁶ agencies sourcing at least 10 per cent of their purchases by value from SMEs'.¹⁵⁷
- 6.192 The director of one company expressed the view that in applying the 10 per cent purchasing rule, the focus tends to be on non-technology-based consumables rather than technologically advanced and innovative products. Dr Williams of Proteome Systems stated:
- When you look at the 10 per cent rule at the moment it is mostly toilet paper and computers sold by Harvey Norman. The support of the local technology industry does not get translated in that process, and that is an issue that needs to be looked at pretty carefully.¹⁵⁸
- 6.193 The Committee is aware that the Australian Government procurement policies must balance measures to support Australian business with the principles of 'value for money'. Notwithstanding this, the Committee notes the comments made regarding the reluctance for Government to direct the 10 per cent purchasing rule to innovative technologies.
- 6.194 Therefore, the Committee recommends that the Australian Government report publicly on the proportion of the 10 per cent purchasing from SMEs that is directed toward technological innovation.

156 FMA agencies include all departments and agencies prescribed for the purposes of the *Financial Management Accountability Act 1997* (FMA Act), including all Australian Government departments.

157 Department of Finance and Administration, *Australian Government Procurement Guidelines January 2005*, p. 19.

158 Dr K Williams (Proteome Systems), *Transcript of Evidence*, 18 May 2005, p. 21.

Recommendation 18

The Committee recommends that the Australian Government:

- **direct all Government agencies to report publicly on what proportion of the 10 per cent purchasing from small to medium enterprises, which is set out in Australian Government Procurement Guidelines, is directed toward technological innovation; and**
- **investigate mechanisms to encourage Government procurement of technological innovation from Australian small to medium enterprises where available.**

Austrade and Export Market Development Grants

6.195 A number of submissions highlighted the importance for businesses of accessing international markets.¹⁵⁹ Partnering with multi-national or foreign owned companies has been identified in evidence as one strategy available to facilitate access to international markets. Restrictions on access to some Australian Government innovation assistance initiatives associated with the adoption of this strategy have been considered earlier in the chapter.

6.196 However, the Australian Government does provide some targeted assistance for aspiring and current exporting businesses. This assistance is provided primarily through the Australian Trade Commission (Austrade) which is a statutory authority within the Foreign Affairs and Trade portfolio.

6.197 In its submission to the inquiry, Austrade outlined its role as:

... the Australian Government's principal trade and international business facilitation agency. Austrade assists Australian companies prepare for and succeed in exporting to international markets.

159 Citrix Systems Australasia R&D, *Submission No. 5*, p. 5; ATP Innovations, *Submission No. 6*, p. 6; CEA Technologies, *Submission No. 8*, p. 2; Dynamic Hearing, *Submission No. 9*, pp. 3-4; Australian Institute for Commercialisation, *Submission No. 29*, p. 24; GRP Technologies, *Submission No. 45*, p. 8; Industry Research and Development Board, *Submission No. 53*, p. 3; Flavourtech, *Submission No. 84*, p. 3.

Through its network of offices in Australia and in 58 countries worldwide, Austrade is able to provide practical advice, market intelligence and ongoing support, including financial support under the Export Market Development Scheme, to Australian businesses looking to develop international markets. Austrade also offers advice and guidance on overseas investment and joint venture opportunities and helps Australian businesses to make contact with potential overseas investors.¹⁶⁰

- 6.198 Evidence submitted to this inquiry has been generally positive with regard to the assistance received from Austrade. In describing the value of the assistance received from Austrade in accessing international markets, one witness told the Committee:

Austrade have been absolutely sensational for us in really difficult corners of the world ... They are a sensational group and have provided key assistance to us. I personally would double Austrade's Budget tomorrow as a key step in this innovation process because, if you are not selling offshore, you will go bust.¹⁶¹

- 6.199 Elaborating on the nature of the support available through Austrade, Dr Fox explained:

I was [in] a meeting in Japan a few weeks ago. We had a youngish – relative to me – Austrade guy there, who had great business sense, could speak fluent Japanese and could read Japanese. He sat in on the meeting we had with our business partner of about 10 years, who we were having a blue with. He would say, 'X has just said Y and you need to respond. They did not say it that way but that is what is going on.' It was absolutely invaluable. He had a business brain and a capacity to open doors.¹⁶²

- 6.200 Several submissions also identified Export Market Development Grants (EMDG) as being instrumental in facilitating access to international markets or expanding export markets.¹⁶³

160 Austrade, *Submission No. 68*, p. 1.

161 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 43.

162 Dr J Fox (Australian Innovation Association), *Transcript of Evidence*, 4 August 2005, p. 48.

163 For example see Citrix Systems Australasia R&D, *Submission No. 5*, p. 5; CEA Technologies, *Submission No. 8*, p. 1; Dynamic Hearing, *Submission No. 10*, p. 3; Science Industry Australia Inc, *Submission No. 61*, p. 6; AWS Clinical Waste, *Submission No. 63*, p. 3; Australian Geoscience Council, *Submission No. 71*, pp. 44-45.

- 6.201 The EMDG scheme encourages Australian SMEs to develop and expand export markets by reimbursing up to 50 per cent of expenses incurred on eligible export promotion activities, less the first \$15 000. To access the scheme for the first time, businesses need to have spent \$15 000 over two years on eligible export marketing expenses.¹⁶⁴
- 6.202 In the 2004–05 financial year, 3 277 grants paid \$123.9 million to businesses under the EMDG scheme. For grants relating to the 2003–04 grant year (paid in 2004–05), the average grant was \$37 145. Over three-quarters of businesses receiving an EMDG reported an annual income of \$5 million or less.
- 6.203 Some evidence to the inquiry has recommended that Austrade could improve its services by making better use of its website to promote Australian businesses and innovation internationally¹⁶⁵, and by increasing its ability to support particular sectors with specific market requirements.¹⁶⁶ One submission also suggested that the assistance available through Austrade was also expensive and not always appropriate for early stage companies.¹⁶⁷

Committee Comment

- 6.204 The Committee notes that in 2004–05, in accordance with the *Export Market Development Grants Act 1997*, an evaluation and review of the EMDG was conducted. The review resulted in a series of recommendations for improving the scheme's performance by:
- increasing the incentive for SMEs to internationalise by visiting overseas markets;
 - updating the scheme to better support new and emerging export sectors and practices;
 - reducing risk and administration costs; and
 - improving the certainty of payment.
- 6.205 The review concluded that the EMDG scheme should be extended until 2010–11, noting:

Extending the scheme indefinitely would offer greatest certainty to industry. However, a five-year extension, with a

164 Austrade, accessed 23 October 2005, <austrade.gov.au>.

165 GRP Technology, *Submission No. 45*, p. 7.

166 CEA Technologies, *Submission No. 8*, p. 10.

167 ATP Innovations, *Submission No. 6*, p. 6.

review before the end of that period, would ensure accountability and give business, industry, governments and the broader community an opportunity to again review the program's performance. A five-year extension would balance the need for certainty with the need for accountability and transparency.¹⁶⁸

- 6.206 In light of the comprehensive nature of the EMDG review¹⁶⁹, its recommendations to improve the scheme's performance and the generally positive views expressed in evidence to this inquiry, the Committee considers that no further action is required.
- 6.207 The Committee also notes the recommendation that there should be another review of the scheme with a report provided to the Minister for Trade by 30 June 2010.

168 Austrade, accessed 18 November 2005, *Review of Export Market Development Grants Scheme 2005*, p. 7, <austrade.gov.au>.

169 Austrade took into account: strong business and industry views, expressed in public submissions and through the review facilitation process; the independent survey of recent Export Market Development Grant scheme recipients and analysis of the results; and Austrade's own experience as the administrator of the scheme.