

Innovation and Commercialisation Policy and Program Framework

- 3.1 This chapter examines:
- Australia's innovation policy, its implementation and evaluation;
 - models of innovation;
 - the plurality of Australian Government and other innovation support programs and associated accessibility and navigation issues;
 - the cost and administrative burden associated with innovation support application processes and reporting frameworks; and
 - the coordination and complementarity of the Australian Government's innovation support framework.
- 3.2 In relation to the innovation and commercialisation policy and program framework, three consensus issues emerged from the evidence.
- 3.3 **Consensus Issue 1** – Effective innovation policy must balance a range of innovation needs, some of which may be viewed as complementary and others as competing. Evidence to the inquiry questioned whether such a balance was currently appropriate.
- 3.4 **Consensus Issue 2** – The large number of innovation support programs, and the complexity of the application and compliance processes associated with accessing innovation support, imposes cost

burdens on applicants and recipients. Evidence questioned the accessibility and value of innovation support given the administrative burden and costs associated with lodging applications for support, the relatively low chances of being successful, and the cost of compliance if successful.

- 3.5 **Consensus Issue 3**— Australia’s innovation support is provided through a range of targeted programs and fiscal incentives. Some evidence suggested that innovation support programs lack coordination and complementarity across the framework.
- 3.6 With links between innovation, economic growth and productivity being documented, there is evidence that science and innovation are receiving greater policy attention across OECD countries.¹ As noted by Professors Smith and West in their submission to the inquiry:
- Innovation policy is central to innovation performance, and hence to wider economic performance. All major theories and all empirical analyses of economic development treat innovation as the key explanatory factor in growth.²
- 3.7 Therefore, it is critical that Australia achieves an innovation support framework that is appropriate for the varying needs of research agencies and businesses, is accessible and cost-effective for applicants and is well coordinated.

Innovation and Commercialisation Policy

- 3.8 In January 2001, the Australian Government commenced its largest coordinated package of measures to support science and innovation. The package, *Backing Australia’s Ability (BAA) – an Innovation Action Plan for the Future*, constituted a whole-of-government program to support and foster Australian innovation. It was founded upon earlier Australian Government innovation policy, including the 1997 *Investing for Growth* initiative.

1 Organisation of Economic Cooperation and Development (OECD), *Highlights – Science, Technology and Industry Outlook 2004*, p. 4.

2 Professors K Smith and J West, *Submission No. 18*, p. 3.

Backing Australia's Ability

- 3.9 The BAA initiative commenced with a five-year funding commitment from the Australian Government of \$3.0 billion³, and now totals \$8.3 billion.⁴ The initiative was the outcome of a February 2000 National Innovation Summit convened by the Australian Government and the Business Council of Australia (BCA), and of the Chief Scientist's report, *The Chance to Change*, presented to Government in November 2000.⁵
- 3.10 The National Innovation Summit assessed the strengths and weaknesses of Australia's innovation system and formulated ways to improve performance. The Chief Scientist's report reviewed the effectiveness of the nation's science, engineering and technology base in supporting innovation.
- 3.11 A Ministerial Taskforce⁶ was established to oversee the development of the policy framework and to ensure an appropriate balance between competing priorities. The resulting BAA policy package targeted three key elements of Australia's innovation system:
- strengthening Australia's ability to generate ideas and undertake research;
 - accelerating the commercialisation of ideas; and
 - developing and retaining skills.⁷
- 3.12 The three key elements of the Australian Government's funding commitment to BAA are presented in Table 3.1.
- 3.13 Details regarding the range of BAA initiatives and program funding commitments are at Appendix D. Descriptions of selected Government innovation / commercialisation programs is at Appendix E. Specific issues relating to enhancing innovation and commercialisation through the development of collaborations and linkages, developing and retaining skills, and the provision of

3 Commonwealth Government 2001, *Backing Australia's Ability – An Innovation Action Plan for the Future*, p. 14.

4 Due to the 2004 announcement of an extension of funding to the 2001 *Backing Australia's Ability* initiative. The extension is referred to as BAA-II. Department of Education, Science and Training, *Submission No. 20*, p. 6.

5 Commonwealth Government 2001, *Backing Australia's Ability – An Innovation Action Plan for the Future*, pp. 8-9.

6 The taskforce comprised Senator the Hon Nick Minchin, then Minister for Industry, Science and Resources, the Hon David Kemp MP, then Minister for Education, Training and Youth Affairs, and Senator the Hon Richard Alston, then Minister for Communications, Information Technology and the Arts.

7 Department of Education, Science and Training, *Submission No. 20*, p. 24.

innovation and commercialisation programs support available under BAA are considered in subsequent chapters of the report.

Table 3.1 Overview of the Australian Government's 10 Year Total Funding Commitment to *Backing Australia's Ability*

| BAA Key Elements | Funding (\$ million) | Percentage of BAA Funding |
|-------------------------|-----------------------------|----------------------------------|
| Research & Development | 5 277.6 | 59.6 |
| Commercialisation | 2 355.6 | 26.6 |
| Skills Development | 1 227.8 | 13.8 |
| Grand Total | 8 861.0 | 100.0 |

Source Adapted from Australian Science and Innovation System: A Statistical Snapshot 2005, Table 2.1.27 Overview of the Australian Government's Funding Commitment to *Backing Australia's Ability*, p. 44.

National Research Priorities

- 3.14 In late 2002, the Prime Minister announced the Government's **National Research Priorities (NRPs)**⁸:
- to identify and address areas of strength, opportunity or need where an increase in research effort – including collaboration, coordination or investment – would make a significant contribution to national wealth and/or well-being;
 - to determine what shift in research effort is needed, what new or improved research activities are required, and how the targeting of research effort can best be achieved.⁹
- 3.15 The development and adoption of national priorities by a number of other countries (e.g. the United States of America [USA], Japan, France, the European Union [EU] and Netherlands) to focus their research efforts was also noted.¹⁰
- 3.16 Australia's NRPs were identified following extensive public consultation and liaison with the Prime Minister's Science, Engineering and Innovation Council (PMSEIC). They are areas of particular social, economic and environmental importance to

8 In 2003 the national research priorities were enhanced and refined to take greater account of the contributions of the humanities and social sciences research.

9 Department of Education, Science and Training, accessed 18 April 2006, *Developing National Research Priorities Issues Paper*, <dest.gov.au>.

10 Department of Education, Science and Training, accessed 18 April 2006, *Developing National Research Priorities Issues Paper*, <dest.gov.au>.

Australia where a whole-of-government focus has the potential to improve research and broader policy outcomes.

- 3.17 Four broadly thematic NRPs were identified:
- an environmentally sustainable Australia;
 - promoting and maintaining good health;
 - frontier technologies for building and transforming Australian industries; and
 - safeguarding Australia.
- 3.18 All Australian Government funded research and research funding agencies have been required to develop and implement strategies to address the NRPs. The guidelines for developing NRP implementation plans state that research and research funding bodies should describe how they will link with related key Government or industry initiatives. In this way it is anticipated that the NRPs will strengthen collaboration.¹¹
- 3.19 A NRP Standing Committee, chaired by the Australian Government's Chief Scientist, was established in February 2005 to assess agency progress in the implementation of the NRPs. The NRP Standing Committee is required to report back to the Government on NRP implementation progress.

How is Innovation Policy Evaluated?

- 3.20 To measure the effectiveness of innovation policy and inform future policy development, on-going evaluation of innovation policy is essential. As outlined earlier, the limitations associated with innovation metrics and their interpretation pose particular challenges to the objective evaluation of innovation policy.
- 3.21 Nevertheless, monitoring and evaluation of innovation policy are essential for accountability purposes and to inform the continued development and implementation of effective policy. Therefore, the Australian Government has instituted measures to regularly assess its innovation policy and initiatives.

11 Department of Education, Science and Training, accessed 10 April 2006, <dest.gov.au >.

The Australian Government's Innovation Reports

- 3.22 Since the introduction of *BAA* in 2001, assessment of innovation policy has taken the form of an annual whole-of-government report, *The Australian Government's Innovation Report*. The innovation report reviews Australia's science and innovation performance and outlines progress in implementing *BAA* policy initiatives. There have been four innovation reports published since the commencement of *BAA*:
- The 2001-02 *Innovation Report* focused on the Australian Government's aim to strengthen the foundation of innovation across the nation.
 - The 2002-03 *Innovation Report* reviewed Australia's innovation structure, summarised the Government's programs and included the first Australian Innovation Scorecard.
 - The 2003-04 *Innovation Report* provided details on progress and achievements of Government science and innovation initiatives and programs. The report also highlighted examples of collaborations between the public and private sectors, between universities and industry partners, and between national and international partners.
 - The 2004-05 *Innovation Report* included the second Australian Innovation Scorecard, provided details of the progress of the range of Government innovation initiatives and programs, and reported on the implementation of the NRPs.

Mapping Australian Science and Innovation Report

- 3.23 In 2003 the Australian Government provided a detailed overview of Australia's science and innovation system in its *Mapping Australian Science and Innovation Report*.¹²
- 3.24 Among its other contributions, the report identified strengths, weaknesses and gaps in Australia's science and innovation performance, as well as complementarities and areas of possible greater cooperation between the Australian Government and the state and territory governments.
- 3.25 The innovation strengths identified in the report included:
- Australia's overall strong contribution to scientific knowledge;

12 Australian Government 2003, *Mapping Australian Science and Innovation: Main Report*.

- a high take-up of information and communications technology (ICT) by businesses;
- an intellectual property (IP) protection framework consistent with world's best practice;
- a high level, by international standards, of government expenditure on R&D; and
- a well qualified workforce to underpin science and innovation.¹³

3.26 Examples of weaknesses identified in the report included:

- the limited visibility and impact of Australian science and patented technology on the development of world technologies;
- weak innovation performance involving R&D and the development of new technologies (including ICT) of Australian businesses;
- a focus in government innovation policy on building R&D capacity rather than enhancing commercialisation;
- challenges in fostering collaboration and linkages between publicly funded research and industry; and
- a lack of entrepreneurial and innovation skills.¹⁴

3.27 In response to the weaknesses and gaps identified in the *Mapping Australian Science and Innovation Report*, in 2004 the Australian Government launched its \$5.3 billion *BAA-II* extension to the existing *BAA-I* policy.

3.28 Together *BAA-I* and *BAA-II* constitute an \$8.3 billion Australian Government funding commitment stretching from 2001-02 to 2010-11 to strengthen innovation and commercialisation (see Table 3.1).

3.29 While retaining the three key elements of *BAA-I* (i.e. strengthening Australia's ability to generate ideas and undertake research, accelerating the commercialisation of ideas, and developing and retaining skills), the *BAA-II* package has:

... a strong focus on encouraging the growth of innovative Australian companies which produce internationally

13 Australian Government 2003, *Mapping Australian Science and Innovation: Summary Report*, pp. 6-20.

14 Australian Government 2003, *Mapping Australian Science and Innovation: Summary Report*, pp. 21-48.

competitive goods and services, increase productivity and create jobs.¹⁵

- 3.30 In addition, *BAA-II* identified another key element of innovation policy, namely the continuing endeavour to strengthen collaboration across the science and innovation system on the basis that:

Collaboration helps to create the necessary critical mass of expertise, infrastructure and resources and provides more pathways to the marketplace.¹⁶

- 3.31 By announcing *BAA-II* two years ahead of the conclusion of *BAA-I*, the Australian Government stated its intention to provide a more predictable science and innovation policy environment with greater certainty and continuity in funding for researchers, businesses and universities.¹⁷ The majority of the *BAA-II* extension funding is due to commence in 2006–07.

Committee Comment

- 3.32 The Committee notes that efforts to evaluate performance through the *Innovation Reports* and the *Mapping Australia's Science and Innovation Report* are important to identify strengths and weaknesses, and to target further Government assistance. Several recent reviews and evaluations of Australia's science and innovation performance¹⁸ have concluded that addressing issues such as collaboration and linkages, research infrastructure, research quality assessment and university research funding forms an essential basis for the development of sound innovation policy. The 2004–05 *Innovation Report* stated that many of these issues will be addressed through *BAA-II*.¹⁹

15 Joint Ministerial Announcement, May 2004, *Backing Australia's Ability – Building Our Future through Science and Innovation*.

16 Joint Ministerial Announcement, May 2004, *Backing Australia's Ability – Building Our Future through Science and Innovation*.

17 Joint Ministerial Announcement, May 2004, *Backing Australia's Ability – Building Our Future through Science and Innovation*.

18 The reviews and evaluations include: *Mapping Australian Science and Innovation*; *Evaluation of Knowledge and Innovation Reforms*; *National Research Infrastructure Taskforce and Review of Closer Collaboration Between Universities and Major Publicly Funded Research Agencies*. All of these reviews can be accessed through the Department of Education, Science and Training website at <dest.gov.au>.

19 *The Australian Government's Innovation Report 2004-05: Real Results Real Jobs*, p. 110.

- 3.33 While the Committee recognises the substantial investment provided for innovation through *BAA*, it considers that it is important to review the debate on the balance of innovation policy, i.e. targeting support to meet differing needs of the public and private sectors and fostering strengths and skills in the national innovation system that are conducive to innovation.

Support for Public Sector and Private Sector Innovation

- 3.34 A number of submissions have emphasised the different innovation needs of the public and private sectors and have suggested that Australia should implement policy approaches which recognise the different but complementary roles and contributions of these sectors.²⁰

- 3.35 For example, elaborating on the different policy needs of public sector-based knowledge infrastructure (i.e. PFRAs and universities) and private sectors businesses, Professors Smith and West stated:

The problem is not to incentivise the knowledge infrastructure to provide commercialisable knowledge. Rather, it is necessary to separate out the [knowledge] infrastructure problems and the business development issues.²¹

- 3.36 With regard to support for commercialisation, Professors Smith and West noted further that:

Commercialising innovations is the task of business, for which new financial mechanisms are needed to create incentives and control risk. This requires new approaches to tax policy (providing genuine incentives for innovation investment) and to risk management (including in the form of a system of income-contingent loans for investment).²²

- 3.37 Evidence to the inquiry has emphasised the importance of accomplishing an appropriate policy balance between government

20 For examples see Mr T Roach, *Submission No. 3*, Attached Paper, p. 4; Professors K Smith and J West, *Submission No. 18*, pp. 2-4; Mr D Scott-Kemmis, *Submission No. 99*, p. 7; Mr R Grey (GBC Scientific Equipment), *Transcript of Evidence*, 4 August 2005, p. 50.

21 Professors K Smith and J West, *Submission No. 18*, p. 2.

22 Professors K Smith and J West, *Submission No. 18*, p. 2.

support for building and maintaining a strong public system of science and basic research²³, and the provision of support directed toward R&D and commercialisation activities occurring in businesses and industry.²⁴

- 3.38 Some have questioned whether Australian Government innovation policy has achieved an appropriate balance. Specifically, it has been suggested that the Australian Government's innovation policy has been developed on the basis of a simplistic linear understanding of innovation founded on the assumption that basic research is the origin of the majority of innovation.²⁵
- 3.39 Early models of innovation describe a linear process with research as the prime driver of innovation. In this model innovation is considered to be driven by '**technology push**'. An alternative early model of innovation attributed the major driver of the innovation process to '**market pull**', with research and development being tailored to meet market demand.
- 3.40 More sophisticated models of innovation have now superseded both the technology push and market pull linear models. The newer models of innovation have attempted to capture the non-linearity and complexity of the innovation process, placing a strong emphasis on supporting sectoral interactions and feedback loops, through developing human capital and promoting linkages or networks to enhance knowledge flows and transfer.
- 3.41 Despite the evolution of innovation models and contemporary advances in understandings of innovation, following a detailed analysis of Australian Government innovation policy Dr John Yencken and Professor Emeritus Murray Gillin concluded:

We [Australia] are strong exponents of 'Technology Push'.
The programs we have studied all operate on this premise.
Something has been invented, whether through the

23 Basic research is defined as experimental and theoretical work undertaken primarily to acquire new knowledge without a specific application in view. In contrast, applied research is defined as original work undertaken to acquire new knowledge with a specific application in view.

24 Professors J Smith and K West, *Submission No. 18*, pp. 3-15; Australian Institute for Commercialisation, *Submission No. 29*, p. 4; Australian Business Foundation, *Submission No. 64*, p. 7; Mr D Scott-Kemmis, *Submission No. 99*, p. 2; pp. 5-8.

25 For examples see Dr M Sceats, *Submission No. 23*, p. 21; Australian Institute for Commercialisation, *Submission No. 29*, p. 29; Dr J Yencken and Professor Emeritus M Gillin, *Submission No. 41*, Attached paper, p. 5; Mr D Scott-Kemmis, *Submission No. 99*, p. 4.

endeavours of a lone maverick or a multi-institution coordinated research project. Then money is found to move this to the development stage, and then finally capital is sought to commercialise the whole thing and take it to the market. Too often too little attention is paid to actually finding out if anybody is actually interested to purchase it.²⁶

- 3.42 Similarly, while advocating a balance between technology push (i.e. supply of new ideas and concepts) and market pull (demand for innovative products, processes and services) the AIC also suggested that the current balance of Australian Government innovation policy is skewed in favour of technology push stating:

There is a tendency in the commercialisation of research to focus on the supply side alone and to assume that the supply adjusts itself to meet demand. That adjustment process can be quite inefficient and wasteful.²⁷

- 3.43 Other submissions to the inquiry have also highlighted features of the Australian Government innovation policy framework which may be indicative of a technology push bias. These features include:

- a policy focus on radical, R&D intensive innovation associated with the high technology sector²⁸, contrasting with insufficient recognition of incremental, non-R&D intensive innovations associated with the low-to-medium technology sector²⁹; and

26 Dr A Yencken and Professor Emeritus M Gillin, *Submission No. 41*, Attached paper, p. 18.

27 Australian Institute for Commercialisation, *Submission No. 29*, p. 29.

28 Under International Standard Industrial Classification (ISIC Rev. 3) **high technology industries** include aircraft and spacecraft; pharmaceuticals; office, accounting and computing machinery; radio, TV and communications equipment; and medical, precision and optical instruments while **medium-high technology** industries include electrical machinery and apparatus, not elsewhere classified; motor vehicle, trailers and semi-trailers; chemicals excluding pharmaceuticals; railroad equipment and transport equipment, not elsewhere classified; and machinery and equipment, not elsewhere classified.

29 ISIC Rev. 3 defines **Medium-low technology industries** as covering the building and repairing of ships and boats; rubber and plastics products; coke, refined petroleum products and nuclear fuel; other non-metallic mineral products; and basic metals and fabricated metal products. **Low technology industries** include manufacturing, not elsewhere classified; recycling; wood, pulp, paper, paper products, printing and publishing; food products, beverages and tobacco; and textiles, textile products, leather and footwear. Professors K Smith and J West, *Submission No. 18*, p. 7; Australian Business Foundation, *Submission No. 64*, p. 4; Mr D Scott-Kemmis, *Submission No. 99*, p. 2; Mr K Besgrove (Department of Communications, Information Technology and the Arts), *Transcript of Evidence*, 5 December 2005, p. 23.

- the high level of government expenditure directed toward supporting public sector R&D and a comparatively low level of expenditure for business R&D and commercialisation activities.³⁰

Government Support for Radical High Technology Innovation versus Incremental Medium to Low Technology Innovation

3.44 Indicative of a technology push bias, some evidence has suggested that there is an innovation policy focus on support for radical, R&D intensive product innovation, especially associated with high technologies.³¹

3.45 Noting that such an innovation policy focus is not unique to Australia, Professors Smith and West stated:

Much recent innovation policy, in Australia as elsewhere, has focused on 'high technology', 'knowledge intensive' industries, and the so-called 'frontier' technologies that support these industries. In Australia – as in virtually all other advanced countries – this leads to priority research policy areas placing a strong emphasis on ICT, biotechnology, and nanotechnology.³²

3.46 Concern has been expressed that a ramification of a possible policy focus on radical 'high technology' innovations is that other types of innovation, particularly incremental, non-R&D-based and process innovation occurring in the low-to-medium technology sector, are not adequately recognised by innovation policy makers.³³ This is of particular concern given the predominance of medium and low technology businesses in Australia and the importance of incremental non-R&D-based forms of innovation to these businesses.³⁴

3.47 With regard to incremental innovation, in its submission to the inquiry the Australian Business Foundation (ABF) stated:

30 CEA Technologies, *Submission No. 8*, pp. 10-11; Professor T Cole, *Submission No. 40*, p. 5.

31 See for examples Clusters Asia Pacific, *Submission No. 17*, p. 5; Professors K Smith and J West, *Submission No. 18*, p. 5-6; Mr D Scott-Kemmis, *Submission No. 99*, p. 2.

32 Professors K Smith and J West, *Submission No. 18*, p. 5.

33 See for example Clusters Asia Pacific, *Submission No. 17*, p. 5; Professors K Smith and J West, *Submission No. 18*, pp. 5-6; Australian Film Commission, the Australia Council for the Arts and the Australian Film, Television and Radio School, *Submission No. 67*, p. 3; Mr D Scott-Kemmis, *Submission No. 99*, p. 4; Dr L Boldeman (Department of Communications, Information Technology and the Arts), *Transcript of Evidence*, 5 December 2005, p. 19.

34 Australian Bureau of Statistics, *2003 Innovation in Australian Business (ABS 8158.0)*, p. 8.

... that when examining successful technological innovation, the importance of incremental change and continual small improvements typically are under-estimated.³⁵

3.48 Similarly, emphasising the relative importance of non-R&D contributions to innovation, Professors Smith and West stated:

Non-R&D inputs to innovation include, for example, market research, design skills, trial production and testing, prototyping and engineering experimentation, and software development. These non-R&D inputs are essential to innovation across all industries, but they are often a larger component of low-tech activities. Non-R&D expenditures on innovation are usually significantly larger than R&D expenditures, so they should not be neglected by innovation policymakers.³⁶

3.49 In addition, while Mr Keith Besgrove of the Australian Government Department of Communication, Information Technology and the Arts (DCITA) advised that innovation policy does in fact provide support for process innovation, he expressed concern that the importance of this form of innovation was generally not adequately acknowledged, stating:

... it is not the case that we [the Australian Government] do not fund them [process innovation]. I think DCITA's concern is that there is not really a lot of recognition about how important to the Australian economy process innovation really is. I believe it tends to get less focus within media commentary and within people's minds.³⁷

3.50 Mr Besgrove suggested that it could make accessing early stage finance and markets more challenging, especially for smaller less established businesses attempting to gain credibility in the marketplace.³⁸

3.51 While advocating a balance in the support provided for both incremental and radical innovation, Australia's then Chief Scientist, Dr Robin Batterham, suggested that radical innovation or step change

35 Australian Business Foundation, *Submission No. 64*, p. 4.

36 Professors K Smith and J West, *Submission No. 18*, p. 7.

37 Mr K Besgrove (Department of Communications, Information Technology and the Arts), *Transcript of Evidence*, 5 December 2005, p. 23.

38 Mr K Besgrove (Department of Communications, Information Technology and the Arts), *Transcript of Evidence*, 5 December 2005, p. 22.

technologies warranted 'special attention' to offset the increased difficulties and higher risks involved:

... I am particularly focusing on step change technologies here and asking, 'What can we do to make this easier?' Because, in the long run, the lesson of history is that incremental innovation is always welcome and always worth while. In fact, without innovation you are dead in any marketplace. But the big changes are equally worth while, yet the risks associated with big changes are much greater – to state the obvious – and they are fewer and further between.³⁹

- 3.52 The importance of government policy makers taking a broad view of innovation has been emphasised. Specifically, effective innovation policy needs to acknowledge the different drivers of innovation and provide appropriate levels and mechanisms of support to facilitate all forms of innovation.⁴⁰

Australian Government Science and Innovation Expenditure

- 3.53 Evidence to the inquiry has emphasised Australia's comparatively high levels of science and innovation expenditure directed to supporting its PFRI's. This contrasts with the comparatively low levels of expenditure directed toward supporting the R&D and non-R&D commercialisation activities of businesses.⁴¹
- 3.54 Table 3.2 shows the Australian Government's expenditure on science and innovation over recent years. For 2004–05 the Australian Government's science and innovation expenditure totalled \$5 184.5 million, and expenditure is expected to reach \$5 538.1 million in 2005-06.

39 Dr R Batterham (Chief Scientist to 31 May 2005), *Transcript of Evidence*, 30 May 2005, pp. 2-3.

40 Professors K Smith and J West, *Submission No. 18*, p. 6; Mr D Scott-Kemmis, *Submission No. 99*, p. 7.

41 See chapter 2, Table 2.1.

Table 3.2 Australian Government Support for Science and Innovation 2000–01 to 2005–06

| | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 | 2005-06 |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| (In million dollars at current prices) | | | | | | |
| Australian Government Research Agencies* | | | | | | |
| DSTO | 261.0 | 275.0 | 283.4 | 293.9 | 314.4 | 329.7 |
| CSIRO | 496.7 | 509.6 | 532.1 | 568.6 | 577.1 | 593.9 |
| ANSTO | 157.7 | 173.2 | 205.7 | 157.7 | 153.6 | 138.1 |
| Other R&D Agencies | 338.3 | 385.9 | 402.7 | 441.5 | 245.6 | 262.0 |
| Total for Research Agencies | 1 096.0 | 1 170.5 | 1 218.1 | 1 304.1 | 1 290.7 | 1 323.7 |
| <i>Percentage of total expenditure</i> | 25.3% | 25.6% | 25.9% | 25.2% | 24.2% | 23.9% |
| Business Enterprise | | | | | | |
| IR&D Tax Concession | 510.0 | 370.0 | 416.0 | 406.0 | 456.0 | 491.0 |
| R&D Start | 176.8 | 237.9 | 158.6 | 230.8 | 62.6 | 87.4 |
| Other Innovation Support | 124.7 | 284.3 | 244.4 | 216.3 | 358.8 | 396.3 |
| Total for Business Enterprise | 811.5 | 892.2 | 818.9 | 853.1 | 877.4 | 974.7 |
| <i>Percentage of total expenditure</i> | 18.7% | 19.5% | 17.4% | 16.5% | 16.5% | 17.6% |
| Higher Education | | | | | | |
| Australian Research Council | 247.8 | 265.8 | 298.3 | 394.4 | 481.4 | 556.5 |
| Performance Based Block Funding | 942.5 | 1012.5 | 1086.5 | 1 172.2 | 1 179.0 | 1 251.3 |
| Other R&D Support | 614.0 | 598.9 | 588.0 | 594.8 | 589.1 | 449.5 |
| Total for Higher Education | 1 804.3 | 1 877.2 | 1 972.8 | 2 161.4 | 2 249.5 | 2 257.3 |
| <i>Percentage of total expenditure</i> | 41.7% | 41.0% | 41.9% | 41.7% | 42.3% | 40.8% |
| Other Science and Technology | | | | | | |
| NH&MRC and Other Health | 309.7 | 248.3 | 273.7 | 369.0 | 419.5 | 431.9 |
| Cooperative Research Centres | 139.7 | 145.3 | 148.6 | 201.1 | 194.0 | 208.2 |
| Rural | 141.3 | 197.5 | 204.3 | 210.7 | 193.7 | 207.2 |
| Energy & Environment | 20.9 | 33.6 | 29.1 | 35.8 | 43.4 | 63.7 |
| Other Science Support | 6.7 | 12.5 | 38.4 | 49.3 | 54.9 | 71.4 |
| Total for other Science and Technology | 618.3 | 637.2 | 694.1 | 866.0 | 905.4 | 982.4 |
| <i>Percentage of total expenditure</i> | 14.3% | 13.9% | 14.8% | 16.7% | 17.0% | 17.7% |
| Total Australian Government Support | 4 330.1 | 4 577.1 | 4 704.0 | 5 184.5 | 5 323.0 | 5 538.1 |

Source The Australian Government's 2005-06 Science and Innovation Budget Tables, pp. 1–7.

3.55 These data confirm that a significant proportion of Australian Government expenditure on science and innovation is directed toward support for Australia's PFRIs. Specifically, 40.8 per cent of the 2005–06 expenditure is directed to Australia's higher education sector, while support for the major Australian Government research agencies (including the Commonwealth Scientific and Industrial Research Organisation [CSIRO] the Australian Nuclear Science and Technology

Organisation [ANSTO] and the Defence Science and Technology Organisation [DSTO]) comprises 23.9 per cent.

- 3.56 In contrast, a relatively small proportion of Australian Government funding (approximately 17.6 per cent in 2005–06) is directed to provision of support for the R&D and non-R&D commercialisation activities of Australian businesses.
- 3.57 International comparisons show that the level of Australian Government support for publicly funded R&D is higher than the OECD and EU averages.⁴² Also, while business expenditure on research and development (BERD) has increased steadily since the mid-1980s (albeit from a very low starting point), the percentage of BERD financed by the Australian Government remains below the OECD and European Union (EU) averages.⁴³
- 3.58 While these expenditure patterns may suggest a bias toward a technology push policy approach, not all evidence to the inquiry has supported the view that the current policy balance is inappropriate.
- 3.59 For example, one submission expressed concern that an increasing focus of innovation policy on commercialisation and marketing may actually compromise Australia's R&D strength. Considering the innovation programs offered through the Industry Research and Development (IR&D) Board⁴⁴ and the appropriation of IR&D funds, Salmond and Associates R&D Services stated:

There are indications that this altered focus [away from R&D support and towards commercialisation support] – against the intent of the [IR&D] Act [1986] – is harming Australia's R&D effort and is undermining our later efforts in the commercialisation of R&D. A weak R&D support basis leads to a weak commercialization effort – while conversely, a strong under-pinning of R&D leads to a strong commercialisation status.⁴⁵

42 Department of Education, Science and Training, *Australian Science and Innovation System: A Statistical Snapshot 2005*, pp. 117-18; and pp. 128-29.

43 Department of Education, Science and Training, *Australian Science and Innovation System: A Statistical Snapshot 2005*, pp. 93-95.

44 The IR&D Board is an independent body responsible for assisting the Australian Government encourage research and development (R&D) and commercialisation in Australian businesses. The Board operates under the auspices of the *Industry Research and Development Act 1986* to assist the Government in its administration of a number of innovation programs including the R&D Tax Concessions, COMET (Commercialising Emerging Technologies program) and the Commercial Ready Program.

45 Salmond and Associates R&D Services, *Submission No. 44*, p. 2.

Committee Comment

- 3.60 The Committee acknowledges the concerns expressed by some that Australian Government innovation policy is based on a linear technology push view of innovation. However, submissions received from Australian Government departments and agencies with responsibility for the development and implementation of innovation policy have generally demonstrated a good conceptual understanding of the complexity and non-linearity of the innovation process.⁴⁶
- 3.61 The Committee also notes that the bulk of the Australian Government's science and innovation funding continues to be directed to supporting public sector R&D. While this expenditure pattern may be suggestive of a technology push policy bias, the Committee cautions against an overly simplistic view that equates dollar for dollar expenditure with policy prioritisation.
- 3.62 Nevertheless, international comparisons indicating higher levels of government support for public sector R&D and lower levels of support for private sector innovation activities may be indicative of an innovation policy technology push bias.
- 3.63 The Committee recognises that the goal is to achieve an appropriate balance between R&D expenditure and support for the public and private sectors. To this end, the Committee supports the regular evaluations of innovation policy and innovation performance outcomes conducted by the Australian Government in the form of its annual *Innovation Reports* and in the monitoring of NRP implementation.
- 3.64 In addition, the Committee notes that the Australian Government introduced BAA-II to address innovation weaknesses and gaps identified in the Department of Education, Science and Training (DEST)'s *Mapping Australia's Science and Innovation Report 2003*. Notably, BAA-II includes a range of measures intended to enhance skills, strengthen linkages across the science and innovation system, as well as to provide greater support for R&D activities and commercialisation. The majority of BAA-II initiatives are due to commence in 2006-07.

46 See for example Department of Education, Science and Technology, *Submission No. 20*, p. 6; Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Submission No. 32*, pp. 6-8; Department of Industry, Tourism and Resources, *Submission No. 82*, pp. 5-6; Department of Communications, Information Technology and the Arts, *Submission No. 87*, pp. 20-22.

3.65 The Committee does not underestimate the challenge associated with determining the appropriate balance of innovation policy, given the difficulties associated with the metrics of innovation as outlined in chapter two (including the potential for differential interpretation of data) and the issues raised above with regard to government support for R&D versus other key elements of the innovation system.

3.66 Further, with regard to determining the balance of the Australian Government's science and innovation policy, the Committee notes that the Productivity Commission is conducting an inquiry into the economic, social and environmental returns on public support for science and innovation in Australia.⁴⁷ Among other considerations, the inquiry terms of reference request that the Commission:

Evaluate the decision-making principles and programme design elements that:

- influence the effectiveness and efficiency of Australia's innovation system; and
- guide the allocation of funding between and within the different components of Australia's innovation system;

and identify any scope for improvements and, to the extent possible, comment on any implications from changing the level and balance of current support.⁴⁸

3.67 In its evaluation, the Committee urges the Productivity Commission to examine the evidence received during this inquiry and to consider the findings of this report. The Committee also anticipates that the Commission will undertake a comprehensive evaluation of the balance of Australian Government support provided for:

- market pull versus technology push types of assistance;
- specific support to enhance business R&D and commercialisation activities versus equivalent support for the public sector; and
- specific support for incremental innovation in low-to-medium technology sectors versus radical innovation in the high technology sector.

⁴⁷ Productivity Commission, accessed 5 April 2006, <pc.gov.au>.

⁴⁸ Productivity Commission, accessed 5 April 2006, <pc.gov.au>.

Government Innovation Program Framework

3.68 This section of the chapter examines the perception that Australia's innovation support framework is too complex and consequently difficult to access. It considers the plurality of programs and the measures that the Australian Government has introduced to assist users to navigate and access its innovation support. The section also considers evidence regarding the burden of application processes and reporting requirements.

Plurality of Innovation Programs

3.69 An increasing government focus on innovation as a driver of economic growth and productivity has resulted in the introduction of significant innovation policy initiatives over the last decade. This in turn has led to a proliferation of innovation assistance programs.

3.70 Evidence to the inquiry has indicated that the complexity of the innovation program framework continues to pose problems for many applicants.⁴⁹ For example, the CSIRO noted in its submission:

Many SMEs struggle to understand the range of options available to them. CSIRO has spoken with several SMEs that are either unaware of their options or are confused by the myriad of programs available. Additional efforts to clarify, communicate and possibly coordinate the benefits of the many programs available would help encourage SMEs to utilise the programs that are the best fit with their needs.⁵⁰

3.71 Table 3.3 provides data from 2003 on the number of Australian Government and state/territory governments programs available to support innovation in firms.⁵¹ In total there were 169 different innovation programs available – 54 programs available through the Australian Government, and 115 programs available through state/territory governments. The 54 Australian Government programs were administered across 11 different departments and agencies.

49 For example see Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Submission No. 32*, p. 15; SIA, *Submission No. 61*, p. 12.

50 Commonwealth Scientific and Industrial Research Organisation (CSIRO), *Submission No. 32*, p. 15.

51 Department of Industry, Tourism and Resources, *Commonwealth and State Government Programs Supporting Innovation in Firms: January 2003*.

Table 3.3 Australian/State/Territory Government Programs Supporting Innovation in Firms

| Australian (Commonwealth) Government | Number of Programs |
|--|---------------------------|
| Industry, Tourism and Resources | 20 |
| Aboriginal and Torres Strait Islander Commission | 1 |
| Austrade | 5 |
| Australian Greenhouse Office | 4 |
| Australian Research Council | 2 |
| Agriculture, Fisheries and Forestry | 2 |
| Communications, Information Technology and the Arts | 7 |
| Defence | 6 |
| Education, Science and Training | 3 |
| Employment and Workplace Relations | 2 |
| Health and Ageing (National Health and Medical Research Council) | 2 |
| Sub-total | 54 |
| State/Territory Government | |
| Australian Capital Territory | 9 |
| New South Wales | 20 |
| Northern Territory | 2 |
| Queensland | 18 |
| South Australia | 12 |
| Tasmania | 15 |
| Victoria | 26 |
| Western Australia | 13 |
| Sub-total | 115 |
| Total Number of Australian Government Programs | 169 |

Source Department of Industry, Tourism and Resources, Commonwealth and State Government Programs Supporting Innovation in Firms: January 2003.

3.72 In addition, a range of innovation initiatives and programs are also supported at local government level.⁵² While equivalent data on the number of innovation initiatives supported at local government level is not available, there are currently more than 700 local government bodies in Australia with responsibility for supporting local infrastructure and provision of a range of services.

3.73 Illustrating the difficulties associated with navigating the innovation program framework and identifying the most appropriate

52 University of the Sunshine Coast, *Submission No. 31*, pp. 1-3; Sutherland Shire Council, *Submission No. 92*, pp. 1-6; Mr R Taylor, *Transcript of Evidence*, 5 August 2005, p. 39.

government support scheme, Mr Bruce Johansson of Gazelle Monitoring System outlined his experiences:

In May 2003, we [the Gazelle Monitoring System] applied for COMET [Commercialising Emerging Technologies program] funding. We were told we were too early [the development of the technology was not sufficiently advanced]...And it went on until September 2004 [sic] when we approached somebody who told us we were too advanced – this is six months after we were told we were too early: ‘You are eligible for R&D Start but that finishes this week; you will be eligible for Commercial Ready, which starts in October.’ ... In October, the email arrives. I apply for Com-ready. We were confirmed that we were too advanced for COMET, but we did not have enough software development for Com-ready...We basically thought this was just too hard, and we kept on going down the path of running our business without government funding.⁵³

3.74 Commenting on the large number of government innovation programs Ms Patricia Kelly of the Department of Industry, Tourism and Resources (DITR) explained:

... within our portfolio we have a range of programs because we do not think there is any one answer. There is a range of market impediments out there and there is a range of ways to tackle them, so a number of programs have grown up in response to those particular issues.⁵⁴

3.75 In addition, Ms Kelly informed the Committee that where possible the Department of Industry, Tourism and Resources (DITR) had introduced measures to streamline its innovation program framework, noting the recent amalgamation by DITR/ AusIndustry of three previously separate innovation support programs ‘under one umbrella’.⁵⁵

53 Mr B Johansson (Gazelle Monitoring System), *Transcript of Evidence*, 18 May 2005, p. 70.

54 Ms P Kelly (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, p. 3.

55 Ms P Kelly (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, p. 3. Ms Kelly was referring to Department of Industry, Tourism and Resources’ Commercial Ready Program introduced in 2004, which combines the former R&D Start Program, Biotechnology Innovation Fund and elements of the Innovation Access Program.

Navigation and Accessibility of Innovation Support

- 3.76 As early as 2000 the complexity of the innovation support framework was acknowledged with the Innovation Summit Implementation Group stating in its interim report to PMSEIC:

The Group considers that ease of access, time and complexity associated with obtaining assistance from innovation programs could be improved by implementing an Internet-based, single point of access for interested businesses. This could be complemented with an advisory service to provide customised advice on the availability and appropriateness of programs to the specific needs of each organisation.⁵⁶

- 3.77 DITR, the Australian Government department with primary responsibility for the provision of innovation support to businesses, responded to these concerns through the introduction of a number of initiatives. Specifically, AusIndustry (the agency of DITR responsible for the implementation of DITR's innovation programs) provides a range of advisory and support services through its **Small Business Field Officers Program**. This service provides assistance to businesses that want to know where and how to access AusIndustry's innovation support. The advice is accessed through an AusIndustry 'hotline' telephone number as a first point of contact.⁵⁷ Small Business Field Officers assistance, which is delivered free of charge, is funded until 2008.⁵⁸
- 3.78 More broadly, evidence also indicates that the various agencies with responsibility for innovation across Government portfolios and different tiers of government (e.g. Australian, state/territory and local) provide information on innovation assistance through designated websites which aim to publicise the range of innovation assistance programs available and improve accessibility.⁵⁹

56 Department of Education, Science and Training, accessed 13 February 2006, *Interim Report of the Innovation Summit Implementation Group to the Prime Minister's Science, Engineering and Innovation Council*, 2 June 2000, p. 4, <dest.gov.au>.

57 Mr B Peel (AusIndustry), *Transcript of Evidence*, 28 November 2005, p. 3; pp. 11-14.

58 Department of Industry, Tourism and Resources, accessed 12 December 2005, <industry.gov.au>.

59 For example see Queensland Government, *Submission No. 74*, Attachment 1, p. 1; NSW Government, *Submission No. 91*, p. 2; p. 4; Mr B Peel (AusIndustry), *Transcript of Evidence*, 28 November 2005, pp. 11-14; Mr E Arthur (Department of Education, Science and Training), *Transcript of Evidence*, 5 December 2005, p. 11.

- 3.79 One initiative undertaken by the **National Innovation Council** (NIC)⁶⁰ provides a centralised repository of information on its innovation website, which includes a series of links to key innovation assistance and programs available to SMEs through the various Australian Government portfolios and through state/territory governments.
- 3.80 To further promote the innovation assistance available to businesses, AusIndustry also has a marketing budget which it uses to support advertising and other publicity and promotional activities, including showcasing successful companies that have benefited from AusIndustry innovation assistance.⁶¹
- 3.81 Some evidence to the inquiry has revealed the widespread use of similar advisory services and promotional activities such as showcases by state and territory governments to publicise the range of innovation assistance available.⁶²
- 3.82 Despite these initiatives, some evidence has indicated that there are continuing concerns with regard to the complexity of government innovation program frameworks as a consequence of the large number of different support programs available, their administration through a number of different Australian Government departments and across the three tiers of government.⁶³

Committee Comment

- 3.83 The Committee notes concerns expressed, particularly by businesses, with regard to the large number of government innovation programs and associated difficulties in identifying the assistance available. The Committee recognises that the plurality of programs, while posing some difficulties, is a necessary feature of a comprehensive suite of

60 The National Innovation Council was formed by the Minister for Industry, Tourism and Resources to provide advice to the Australian Government on building an innovative culture in Australia. The Council also provides strategic guidance on how best to communicate the benefits of innovation to small to medium enterprises, youth and the broader community.

61 Mr B Peel (AusIndustry), *Transcript of Evidence*, 28 November 2005, p. 12.

62 Queensland Government, *Submission No. 74*, p. 8; Tasmanian Government, *Submission No. 86*, pp. 8-9. NSW Government, *Submission No. 91*, p. 1.

63 For examples see Anssen Technologies, *Submission No. 13*, p. 1; Momentum Investment Group, *Submission No. 51*, attached report, p. 27; Australian Information Industry Association, *Submission No. 60*, p. 6; SIA, *Submission No. 61*, p. 12; Mr B Morris, *Transcript of Evidence*, 18 May 2005, p. 25.

innovation support to address different innovation needs at various stages of the process and sectoral specific requirements.

- 3.84 In addition, the Committee emphasises that a clear means of navigating through the range of innovation support is essential. Given the important role of the AusIndustry Small Business Field Officers and the NIC website in assisting businesses to find appropriate innovation support, the Committee suggests that all government agencies involved in supporting business innovation ensure that the assistance available through the AusIndustry hotline number and the AusIndustry/NIC web-based resources is publicised and made readily accessible.
- 3.85 In this regard, the Committee considers that agencies have demonstrated a generally sound approach to addressing difficulties associated with the complexity of the innovation program framework through the implementation of a range of publicity activities and navigational support initiatives. However, evidence to the inquiry indicates on-going difficulties experienced by some businesses in navigating and understanding the range of innovation assistance initiatives available.
- 3.86 Therefore, the Committee recommends that the Australian Government enhance promotional activities or consider additional mechanisms to further publicise the program navigational assistance already available through AusIndustry's Small Business Field Officers Program and the NIC website.
- 3.87 The Committee also considers that there is an onus on industry organisations and peak bodies to publicise and disseminate information to the businesses they represent on the range of government innovation assistance and support available.

Recommendation 1

The Committee recommends that the Australian Government better promote the assistance that is available for businesses to locate the most appropriate innovation support programs.

Increased promotion to be considered includes:

- **the provision of prominent links in all publicity materials and on Australian Government innovation websites to program assistance available through AusIndustry initiatives and the National Innovation Council website; and**
- **disseminating promotional information and liaising more closely with industry organisations and peak bodies.**

The Burden of Application Processes and Reporting Requirements

3.88 Evidence to the inquiry has emphasised the costs to businesses associated with applications for innovation assistance and, if successful, the compliance reporting requirements which are perceived by some to be 'onerous'.⁶⁴ Consequently, it has been suggested that accessibility to innovation support may be qualified by requirements that are especially burdensome for SMEs.

3.89 In its submission the Australian Information Industry Association (AIIA), the peak national body representing suppliers of information, communication and technology goods and services, noted:

Management load in most SMEs is generally significant, without needing to complete excessively onerous processes to access government assistance. Some SMEs feel that government R&D programs are tailored more to larger businesses and are difficult for SMEs to access. Any steps that could be taken to reduce the complexity would encourage

⁶⁴ For examples see Anssen Technologies, *Submission No. 13*, p. 1; Momentum Investment Group, *Submission No. 51*, attached report, p. 27; Australian Information Industry Association, *Submission No. 60*, p. 6; SIA, *Submission No. 61*, p. 12; Mr B Morris, *Transcript of Evidence*, 18 May 2005, p. 25.

companies to take a closer look at the business benefits of becoming involved in R&D.⁶⁵

- 3.90 Similarly, Mr Brett Morris of Neo Technology Ventures, a venture capital firm specialising in start-up and early stage investments in the information, media and telecommunications sectors, explained:

The feedback we get from potential investee companies that we talk to ... is that just trying to understand and access each of those programs individually is tough. It produces a lot of friction, takes a lot of time and is costly. We need to find a way to try to reduce the friction by a better over arching coordination.⁶⁶

- 3.91 Mr Johansson suggested that the challenges faced by businesses in accessing innovation programs were exacerbated by the different communication styles and language of business and bureaucracy stating:

... [business people] go and see the people from COMET and the other government grant people whom you get to meet, and they cannot get the idea across. It just falls; there is a mismatch. So it dies or, more to the point, they try to do it unfunded, and it dies. That is a terrible tragedy. They [business people] find it too hard, and they do not use the right words. That is a big problem.⁶⁷

- 3.92 Mr David Nelson of Divergent Capital suggested that better coordinated administration could assist in providing more cost effective support with less demands on business:

If [businesses] had an account manager at AusIndustry who knew your business and knew where you were on the commercialisation pathway, and that you are now eligible for COMET, he could feed the existing information on file for you into that program and see whether it was successful or not. Then you could move forward to the next step, and the next step. It would be more seamless and less of a drain on AusIndustry resources in terms of time as well on the investee company.⁶⁸

65 Australian Information Industry Association, *Submission No. 60*, p. 6.

66 Mr B Morris (Neo Technology Ventures), *Transcript of Evidence*, 18 May 2005, p. 33.

67 Mr B Johansson (Gazelle Monitoring System), *Transcript of Evidence*, 18 May 2005, pp. 70-71.

68 Mr D Nelson (Divergent Capital), *Transcript of Evidence*, 18 May 2005, p. 34.

Committee Comment

- 3.93 The Committee acknowledges the cost to businesses associated with applying for government innovation support and strongly advocates simplification of application processes and streamlining of reporting requirements where possible.
- 3.94 The Committee recognises that any streamlining also needs to balance accountability requirements faced by government departments and agencies with regard to the appropriation and acquittal of public monies.
- 3.95 Again, the Committee notes initiatives introduced by AusIndustry to simplify innovation support application processes for businesses and streamline reporting requirements. Mr Peel of AusIndustry explained to the Committee:

We have different [application] forms for each of our programs, because the programs are different. We try to make the front end of the forms as similar as possible for the information that we need to collect. One of our biggest challenges is to make them as simple as possible for the people to fill out. We are bureaucrats, and sometimes we fall into the trap of thinking that people know what we mean by certain terms, so we have hired plain English editors and those sorts of people to help us with the design of the forms.⁶⁹

- 3.96 Mr Peel also advised the Committee that AusIndustry customer satisfaction surveys, which include questions regarding the complexity of application and reporting forms, have indicated generally high levels of customer satisfaction with the services provided. With regard to feedback from these surveys, Mr Peel stated:

Some people say to us that the forms are too complex. We take that feedback on board and see what we can do. Others quite regularly say to us, though, 'In filling out the form for that program, you raised with me a range of questions that I would never have thought about and, as a result of considering those questions, I have now got a better understanding of my business and where I want to go... So, yes, on the one hand, we get criticised for the complexity of the forms but, on the other hand, we have equally been

69 Mr B Peel (AusIndustry), *Transcript of Evidence*, 28 November 2005, p. 13.

complimented for the process that people need to go through.⁷⁰

- 3.97 With regard to the transportability of company data from one program application to another (as suggested by Divergent Capital), the Committee acknowledges the difficulties this poses in relation to maintaining the currency of information. The Committee urges AusIndustry and other agencies with responsibility for the implementation of innovation programs to consider avenues where this might be possible. The need to ensure the privacy and currency of company information used in program applications would have to be considered.

Coordination and Complementarity of Innovation Support

- 3.98 The complexity of the innovation program framework raises issues for businesses trying to identify and access appropriate innovation support. It also raises issues with regard to the coordination and complementarity of innovation policy and programs across various tiers of government and between different portfolios.
- 3.99 As noted previously, innovation support is available from all three tiers of government and the Committee has already commented on the need to better promote the program framework navigational assistance. In considering the complementarities of innovation support available through the Australian Government and state/territory governments, DEST's *Mapping Australian Science and Innovation Report* concluded:

There are some major areas of complementary interest between the Australian Government and the state and territory governments. Complementarities are particularly evident in research infrastructure and emerging sciences and technologies, where increased cooperation could yield benefits for the national interest.⁷¹

70 Mr B Peel (AusIndustry), *Transcript of Evidence*, 28 November 2005, p. 14.

71 Department of Education, Science and Training, *Mapping Australian Science and Innovation: Summary Report 2003*, p. 52.

3.100 One submission to the inquiry noted that innovation support from all three tiers of government had been valuable in developing a regional 'knowledge hub', stating:

Each level of government [Australian Government, state and local] brings a unique perspective, expertise (including that of departmental officers) and funding opportunities that are essential for a project of this magnitude. All three tiers of government share a commitment to strong regions and the importance of developing knowledge based industries where a foundation already exists in which they can flourish.⁷²

3.101 Representatives of DITR advised the Committee of regular dialogue and meetings to minimise duplication and ensure complementarity of innovation support available through the Australian Government and through state/territory governments.⁷³

3.102 It was also noted that the innovation support available through state/territory governments is generally more directed to very early stage business planning and development, and provides smaller quanta of money than the majority of Australian Government innovation support initiatives.⁷⁴

3.103 Consistent with its role and responsibilities, most innovation assistance at local government level comes in the form of supporting innovation infrastructure, business networks and providing business advisory services. This is well illustrated in the submission received from the Sutherland Shire Council which outlined a number of local initiatives it has implemented.⁷⁵

3.104 In contrast to the apparent complementarities achieved across the three tiers of government, some evidence to the inquiry has suggested that there is scope for improvement with regard to the coordination of innovation initiatives between the different Australian Government portfolios, departments and agencies. For example, Mr Morris of Neo Technology Ventures stated:

We think there is an opportunity to have better overarching coordination across departments and agencies in relation to

72 University of the Sunshine Coast, *Submission No. 31*, p. 1.

73 Various witnesses (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, pp. 3-4.

74 Various witnesses (Department of Industry, Tourism and Resources), *Transcript of Evidence*, 28 November 2005, pp. 3-4.

75 Sutherland Shire Council, *Submission No. 92*, pp. 1-6.

those programs. This would lessen the friction experienced by potential commercialisation entities and allow for better replication of their processes. Potential investees that we are looking at almost have to reinvent themselves every time they go to a different agency seeking assistance, which is expensive, time consuming and complex. We think that coordination could be much more start-up and commercialisation centric, rather than program centric.⁷⁶

- 3.105 In response to a question from the Committee regarding coordination of Australian Government support programs for innovation, Professor Pettigrew of the National Health and Medical Research Council (NHMRC) expressed the opinion that there needed to be greater dialogue between the agencies responsible for administering the various programs stating:

We have to get a much better understanding of where our [NHMRC] funding fits into that overall set of schemes. I think there does need to be better coordination of that activity.⁷⁷

Committee Comment

- 3.106 The Committee notes that evidence to the inquiry has been indicative of innovation support complementarity between the various tiers of government. However, some evidence suggests that there is room for improvement with regard to coordination between Australian Government portfolios with shared responsibility for innovation.
- 3.107 The Committee also notes the OECD's highlighting of some of the challenges faced by governments striving to achieve coordinated innovation policy that spans portfolio boundaries.⁷⁸ The OECD has identified a range of potential impediments to innovation policy integration, including:

Fragmented governance structures often represent a loss of strategic capacity, and governments should pay more attention to improving mutual understanding of innovation-related issues across ministries.⁷⁹

76 Mr B Morris (Neo Technology Ventures), *Transcript of Evidence*, 18 May 2005, p. 31.

77 Professor A Pettigrew (National Health and Medical Research Council), *Transcript of Evidence*, 12 September 2005, p. 7.

78 Organisation of Economic Cooperation and Development (OECD), *Governance of Innovation Systems: Volume 1, Synthesis Report*, 2005.

79 Organisation of Economic Cooperation and Development (OECD), *Governance of Innovation Systems: Volume 1, Synthesis Report*, 2005, p. 13.

- 3.108 Clearly Australia is not alone in facing these challenges. With regard to promoting and facilitating the development of coordinated innovation policy, the Committee acknowledges the value of establishing whole-of-government bodies such as the Coordinating Committee on Science and Technology (CCST).⁸⁰
- 3.109 In particular, the Committee notes that membership of the CCST brings together Deputy Secretaries and heads of Australian Government departments and agencies with an interest in science and technology.⁸¹ The Committee also notes one of the CCST Working Group's functions is to:
- Promote consistency, coherence and effectiveness of Australian Government science and technology policy and programmes.⁸²
- 3.110 The Committee considers that, on the basis of evidence presented, more needs to be done to improve coordination and complementarity of innovation policies and programs, especially in light of rapidly evolving understandings of the scope of innovation activities.
- 3.111 Therefore the Committee recommends that the CCST establish a working group to investigate issues associated with the coordination and complementarity of Australia's innovation policy framework and make recommendations for improvements.
- 3.112 Specifically the working group should consider and make recommendations on strategies or approaches for:
- strengthening cross-portfolio dialogue to enhance whole-of-government understanding of innovation needs; and

80 Department of Education, Science and Training, accessed 15 February 2006, <dest.gov.au>.

81 Coordinating Committee on Science and Technology membership includes the Chief Scientist of the Australian Government, representatives of Australian Government departments (e.g. Department of Education, Science and Training; Department of Industry, Tourism and Resources; Department of Communications, Information Technology and the Arts; Department of Foreign Affairs and Trade), government agencies (e.g. IP Australia and Geosciences Australia) and of research funding agencies (e.g. Australian Research Council and National Health and Medical Research Council) and publicly funded research agencies (e.g. Commonwealth Scientific and Industrial Research Organisation [CSIRO]); Australian Nuclear Science and Technology Organisation; Defence Science and Technology Organisation; and Australian Institute for Marine Science).

82 Department of Education, Science and Training, accessed 15 February 2006, <dest.gov.au>.

- improving innovation program coordination, particularly with regard to cross-portfolio program continuity and complementarity.

Recommendation 2

The Committee recommends that the Australian Government Department of Education, Science and Training establish a working group to improve the coordination of Australia's innovation policy framework.

Specifically the working group should consider initiatives to:

- **further strengthen cross-portfolio dialogue to enhance the whole-of-government understanding of innovation policy needs; and**
- **improve cross-portfolio program coordination, so as to ensure continuity of support throughout the innovation process.**