

Findings of the Intergovernmental Working Group

A coherent national innovation system

The 2008 Review of the National Innovation System has enabled a working group of representatives drawn from governments across Australia to assess and review the support they provide to stimulate innovative activities in the economy.

It has confirmed a changing view amongst governments in Australia about the nature of the national innovation system. Where previously the national system, to the extent that it was recognised as a system at all, was seen to be an amalgam of regional systems, it is now recognised as a coherent national system with regional differences.

The regional differences reflect both the differing natures of regional economies and the different stages of the innovation cycle that regions are focussed on.

It is also more clearly understood now that the Australian innovation system is part of a global innovation system and therefore needs to respond not only to the changes in the national environment but also to changes internationally.

This changed understanding has important implications for the way in which interventions are considered, designed and implemented. Innovation systems are dynamic, highly interconnected and evolve over time in response to global and national drivers. Therefore, there will need to be an awareness of these drivers and the types of interventions available to meet any challenges and opportunities that arise.

It is also clear that changing one part of the system is likely to have implications for other parts of it, and the impacts will need to be carefully considered in order to ensure the complementarity of policy approaches.

The role of governments

Governments at the national and state and territory level have important roles to play in leading and facilitating innovation. This extends beyond the well recognised and critical role of governments in addressing market failures and in better positioning the economy to take advantage of opportunities.

To support the development and effectiveness of the innovation system, governments must also be innovative in the services that they deliver and the way in which they operate. This is particularly important given that governments account for a significant share of the economy and are a key customer of the private sector.

Governments support and facilitate innovation through a range of interventions which vary in nature according to the aspect of the system they governments wish to target. It is important to note these interventions are part of a broader suite of initiatives aimed at business generally and as such, need to be integrated with them.

The key areas in which governments appropriately intervene in the innovation system can be categorised as follows:

- *Creating a supportive environment to encourage and facilitate innovation:* this includes creation and management of the regulatory and taxation environment, ensuring provision of

necessary infrastructure, ensuring the supply of educated and skilled people (through the education and training system and immigration), stable political and financial systems, recognition of geographical and global contexts, global competition and setting goals or targets.

- *Building innovative capacity to enhance innovation*: this includes focusing on people and organisations such as innovation readiness (research and development infrastructure, precincts and/or clusters, technology and knowledge diffusion, creativity and design, research-industry interaction and collaboration), facilitating business process improvements, greater levels of education, open access to information, improved efficiencies in capital and factor markets, and greater financial market sophistication.
- *Leveraging returns from innovation*: maximising improvement and outcomes from innovation and enhancing Australia's business sophistication. This includes research and development outputs, development of intellectual property regimes and related expertise, support for commercialisation of innovation outputs, business mentoring, leadership and coaching programs, access to finance and capital, and enhancing entrepreneurial and management skills.

These interventions occur through a variety of legislative, policy and practical instruments such as tax concessions/exemptions, financial incentives, target-setting, strategic investments, grants, funding models, programs and networks. They can be delivered by government in its own right or in partnership with others.

The roles of the Commonwealth and State and Territory Governments in developing the national innovation system are different but complementary. Division of responsibilities should, at the general level, reflect the approach to governance taken by COAG, thus ensuring that the governance of innovation is compatible with the broader approach across jurisdictions.

At the more specific level, the value of Commonwealth Government leadership on aspects of the innovation system that are common across jurisdictions is recognised, as is the strength of the States and Territories in being close to the point of service delivery and thus highly responsive to the needs of players in the innovation system. Both factors should be reflected in the roles and responsibilities accorded to the States, Territories and the Commonwealth.

Given how important change is in the innovation process, the governance of the national innovation system needs to be flexible and sufficiently robust to respond quickly to changes in the economic, social and political environment.

As well, maximising the effectiveness of the collective roles and responsibilities of the various governments requires the delivery of complementary, collaborative and integrated programs and services. It also needs to be recognised that governments have limited resources and priority setting is important to ensure maximum benefits are realised from government interventions. In practice, ongoing and regular dialogue between governments will be important for these issues to be addressed effectively.

The current situation

In announcing the Review, the Federal Minister for Innovation, Industry, Science and Research, Senator Carr, drew attention to the "bewildering array" of programs established by

governments across Australia and specifically requested advice on how to make it easier for firms to identify and access relevant programs.

The Review, through the collaborative work of the Commonwealth, State and Territory Governments, has identified 221 separate programs aimed at supporting innovation in firms with 135 of those claiming to have a direct impact on innovation and the remaining 86 supporting the foundation conditions of innovation. Another 101 programs were identified as either having an incidental impact on innovation or were more general business development programs.

A detailed analysis of the 221 innovation programs supporting innovation in firms has found that:

- 31 percent of the programs are provided by the Commonwealth, 69 percent by States/Territories;
- Commonwealth programs account for 90 percent of funding;
- There is no obvious systematic or significant duplication in programs although there is some overlap:
 - many programs are intended to leverage off other programs;
 - many of the State/Territory programs are sector specific reflecting local priorities; and
 - many of the programs are very small raising questions about impact;
- Only 36 percent of the programs have been reviewed;
- Many programs have unclear and unmeasurable KPIs;
- Few programs have on-line application processes –only 10 percent of Commonwealth, 28 percent of State/Territory; and
- Most programs are aimed at the early phases of the commercialisation chain (R&D and early commercialisation) or the initial two phases of the Cutler Innovation Cycle (knowledge generation and knowledge application).

A more detailed report on the analysis of the current suite of programs is at Attachment 1.

The Review has confirmed that for many if not most potential users the current suite of programs is ‘bewildering’ - that is, it is difficult to find and access the assistance firms need and should be able to get. There is therefore a compelling need to ‘de-bewilder’ the suite of innovation programs for firms.

Implications

Responsibility for the operation of the Australian national innovation system is shared between the Commonwealth and the State and Territory Governments. An agreed approach to the development and delivery of the appropriate suite of programs and other interventions is therefore essential.

There are overlapping responsibilities between governments so it is likely that there will be overlapping interventions. As long as any overlap is well considered and adds value to the overall suite of interventions this is not a bad thing. There is however a danger that the larger the number of interventions, the less clear they will be and the less easy it will be for target firms to access them. Effective coordination between governments in the way that interventions are designed and delivered will be essential to make them effective and efficient.

There is currently a lack of clarity in the suite of interventions that makes it more difficult for firms to access the assistance that they need than should be the case. This needs to be addressed by governments, both across jurisdictions and within them.

It is proposed that only those initiatives primarily aimed at improving the innovation capability and performance of firms be identified in the core suite of innovation programs. Other programs that have an indirect impact on the innovation performance of firms should be removed from this suite in the interest of clarity and ease of access. They are nonetheless valuable and important parts of what governments do to raise the innovation capability and capacity of the economy and should, where effective, be continued but in a way that does not make it more difficult for firms to identify and access the core suite of programs.

The proposed approach will require new disciplines to be adopted by all Governments in the way that interventions are designed and delivered.

It also suggests that a simpler access mechanism is required to make it easier for firms to find the assistance that they need. This in turn indicates that wherever possible the number of programs should be reduced, and the flexibility of the programs to adapt to changing circumstances and needs be increased.

Different parts of Australia have different needs depending on their local conditions. The suite of interventions needs to recognise this in a way that does not produce confusion for users of the interventions. For example, a small targeted program in a small state may be very effective while a similar sized program in a larger state may lack the critical mass needed to be effective.

In order to achieve an appropriate balance, common metrics and performance indicators need to be adopted to facilitate effective evaluation of both the individual interventions and the impact on the system as a whole. This will also require comprehensive data to be collected on the system as a whole, including at regional level, to enable informed assessments of its operation and performance.

Given the role of multiple governments in the national innovation system, an efficient mechanism is required to ensure on-going cohesion in approach to the development and delivery of innovation interventions.

Recommendations

The Intergovernmental Working Group proposes a number of recommendations in response to the issues outlined above and its terms of reference:

1. That Governments adopt a framework of principles for innovation interventions (at Attachment 2) to enhance consistency in approach across governments and improve the overall accessibility and efficiency of the suite of interventions.

The intention of the principles is not to prevent governments continuing to develop and take appropriate action to support and improve innovation activity; rather, they are intended to guide how such interventions are developed. This approach is expected to ensure the competition between jurisdictions to improve their 'innovation offer' continues, but in a way that ensures the overall suite of interventions is not negatively impacted.

2. That Governments review the existing suite of programs and develop any new programs in the light of these principles with a view to:

- offering the least number of programs to achieve the desired effect;
- increasing program size and flexibility, where appropriate, in order to allow for more efficient response to changing circumstances and needs;
- harmonising the way in which programs are presented across the country; and
- assessing the suite of programs for coverage across the stages of the innovation cycle to ensure there is an appropriate level of attention being paid to all parts of the innovation system (noting that circumstances and priorities vary across the country).

Since the termination of Commercial Ready and Commercial Ready Plus there is no longer any generic national program supporting commercialisation activity. The Working Group regards this as a major gap in the range of assistance now available and this should be considered in the design of any future interventions.

3. That senior Government officials develop a collaborative mechanism to ensure that the agreed approach is adhered to by all Governments and that the approach can be varied quickly and easily when needed. The exact form of this mechanism will need to be determined in light of the overall governance decisions taken in White Paper. Any body should be authorised by and report periodically to relevant Commonwealth and State and Territory Ministers.
4. That common metrics, performance indicators and mechanisms for collecting and sharing data be developed and adopted by all jurisdictions.
5. That Governments together develop a simple and coordinated mechanism for providing information about and access to the full range of Commonwealth and State and Territory programs. This will need to be supported by an agreed approach to the provision of required information, the use of appropriate descriptors, and the development of streamlined/similar application processes. Such a mechanism should be linked to the data collection processes.
6. To facilitate the above, the data base of Commonwealth, State and Territory programs developed by the Working Group during the Review process be maintained and kept up to date.

**Intergovernmental Working Group Report on
Programs/Initiatives Supporting Innovation in Firms**

Executive Summary

The Intergovernmental Working Group (IWG) collected and analysed information on a suite of State/Territory and Commonwealth programs/initiatives supporting innovation in business. The analysis was aimed at examining the scope for simplifying innovation assistance programs and reducing duplication, making it easier for firms to identify and access relevant programs.

Data was collected from a survey of all jurisdictions. Due to differing interpretations of what constitutes an innovation program, and the influence of ongoing budget changes to jurisdictional programs, the database is not exhaustive. Rather, the following report provides an informed view of the suite of government programs operating in the national innovation landscape rather than a series of individual program assessments.

Findings

- Two hundred and twenty one programs supporting innovation in firms were identified, comprising 31% Commonwealth and 69% State/Territory. Commonwealth programs account for 90% of the total average expenditure for these programs, which is approximately \$3.7b¹ per annum.
- There is some apparent intra- and inter-jurisdictional overlap in programs but this is neither systemic nor likely to have a significant impact.² Many programs are targeted to leverage off other programs.
- Most programs are at the early phases of the research commercialisation chain (R&D and early commercialisation) or the initial two phases of the Cutler innovation cycle (knowledge production and knowledge application).
- Only 36% of the programs have been reviewed. Many programs have unclear and/or unmeasurable KPIs.
- Only 10% of Commonwealth and 28% of State and Territory programs have on-line application processes.

In addition, an analysis of the more than 640 written submissions to the NIS Review was done in order to understand business and other groups' views on the NIS and innovation assistance programs.

The results supported the general agreement that there are a large number of government innovation programs, and that this may complicate the National Innovation System, particularly through having programs delivered by a range of government departments.

Most submissions commenting on programs agreed that there is some overlap and/or duplication, though there were no examples provided, and most thought there should be some reduction in program numbers. However, overlap was not necessarily seen as negative and many submissions argued the importance of maintaining the current assistance levels.

Many firms, especially SMEs, are not aware of eligible programs or where to go to find information on programs. Application processes were seen as too lengthy, cumbersome and/or expensive when weighed against potential gains.

There was strong support for an integrated, national innovation strategy and a governance platform to manage current issues with the program suite. A number of submissions advocated

¹ Annual expenditure figures are taken from reported Total Budgeted Expenditure divided by the number of years the program is reported as running. In aggregate these numbers provide an average approximation only.

² An exception may be export programs which are dealt with by the Mortimer Review and therefore not further discussed here.

a 'one-stop-shop' approach to providing information on government support, with communication and promotion seen to be an important part of the solution.

Table of Contents

Executive Summary	7
Table of Contents	9
Table of Tables & Figures	9
Terms of Reference	10
Introduction	11
Findings and Discussion	13
Programs and initiatives that support innovation in firms	13
Program/initiative design elements	20
Integration with other programs	22
Key Performance Indicators (KPIs)	24
Assessment/Review	24
Online Application	25
Overlap/Duplication	26
The sectoral nature of innovation programs	31
Mapping programs against the National Innovation Priorities	32
Ways of Improving Access for the Business Community to Programs supporting innovation in firms	34
A single portal for information on government programs	34
Communication	36
On-line access for completing and submitting application forms.	37
Commonality across application forms.	37

Table of Tables & Figures

Table 1. Australian Government Programs Supporting Innovation in Firms	14
Table 2. The top five Commonwealth direct assistance programs ranked by total averaged expenditure	19
Table 3. The top five State/Territory direct assistance programs ranked by total averaged expenditure	19
Table 4. The top five Commonwealth indirect support programs ranked by total averaged expenditure	19
Table 5. The top five State/Territory indirect support programs ranked by total averaged expenditure	19
Table 6. Services and Intermediary analysis of Commonwealth and State/Territory programs	20
Table 7. Program/initiative impact on innovation	20
Table 8 . Presence/Absence of key performance indicators	24
Table 9. Clarity and Measurability of KPIs	24
Table 10 . Program evaluation frequency	25
Table 11. Online application frequency	25
Table 12. A list of examples of programs within each jurisdiction that may overlap	29
Table 13. Industry sector targeted programs	31
Figure 1. Terry Cutler's model of innovation	12
Figure 2. The total number of programs for the Commonwealth and the States and Territories categorised by delivery mechanism.	15
Figure 3. Mapping of innovation programs and their annualised expenditure to Terry Cutler's model of innovation	16
Figure 4. The percentage of innovation programs/initiatives, providing direct and indirect assistance to firms, designed to operate in conjunction with another program	23
Figure 5. The percentage of applications that can be submitted online.	25
Figure 6. A map of Commonwealth and State/Territory programs providing direct support and indirect support for firms across the commercialisation chain.	27
Figure 7. A map of Commonwealth and State/Territory programs providing direct support and indirect support for firms across the draft National Innovation Priorities	33

Terms of Reference

In the context of the Review of the National Innovation System, the Working Group will act as a central point of liaison between the Commonwealth, State and Territory Governments, and representatives of local government, and respond to requests from the expert Panel conducting the Review.

The Working Group will also:

1. Identify and assess the complex mix of current and proposed State, Territory and Commonwealth innovation support and assistance programs against agreed national innovation priorities
2. Map these programs against the priorities and identify the extent to which these priorities are appropriately covered
3. Examine the scope for simplifying support for business innovation and reducing duplication, so that it is easier for business to identify and access relevant programs
4. Provide advice on a framework to ensure ongoing complementarities between State, Territory and Commonwealth programs; and
5. Identify metrics and means of improving data collection and the ongoing measurement, evaluation and optimisation of outcomes.

Introduction

The Intergovernmental Working Group (IWG) collected and analysed information on a suite of State/Territory and Commonwealth programs and initiatives supporting innovation in business. The analysis aimed to examine the scope for simplifying innovation assistance programs and reducing duplication, making it easier for firms to identify and access relevant programs. Data was collected from a survey of all jurisdictions.

Jurisdictions were asked to provide an exhaustive list of programs running in the last five years that support innovation in firms, using an electronic survey instrument agreed to by the IWG. The survey instrument was accompanied by explanatory notes. A further input to the analysis came from the public submissions to the review.

For the purposes of this report, an innovation program is any program that supports innovation or innovation-related activity in business. The definition of innovation and innovation-related activity is taken from the OECD Oslo Manual in order to have some consistency in deciding which programs are included in the analysis (See Appendix A). Using this process some 31% of programs submitted are not included in the analysis. This highlights the restrictive nature of the Oslo Manual definition of innovation (designed for measurement of innovation) and/or variation in understanding between jurisdictions and their agencies of what constitutes an innovation program. Given that a limited number of these programs have neither been evaluated nor have key performance indicators that explicitly target increased innovation, the decision to submit a program was a subjective one on the part of the survey respondents. Programs/initiatives that did not directly aim to supporting business innovation and only had an incidental impact on innovation were not included in the analysis.

The survey period overlapped with the budget process of many jurisdictions. Where possible, any program changes due to 2008-09 budgets have been incorporated. This has not been possible for all jurisdictions. In addition this database is not a proxy for science and innovation budget tables. Therefore projects that are still running but not accepting new applications are not considered in the following analysis.

For the above reasons, and the fact there is a large number of programs to be analysed, the following paper provides an informed view of the Australian innovation landscape rather than an individual program by program assessment.

The utility of this database in analysing the suite of Commonwealth, State and Territory innovation policies/programs operating in the National Innovation System should be recognised. This database offers a unique resource for policy development and benchmarking. The maintenance of the database into the future will also bring with it a new longitudinal dimension that will aid in the ongoing assessment of the national innovation system.

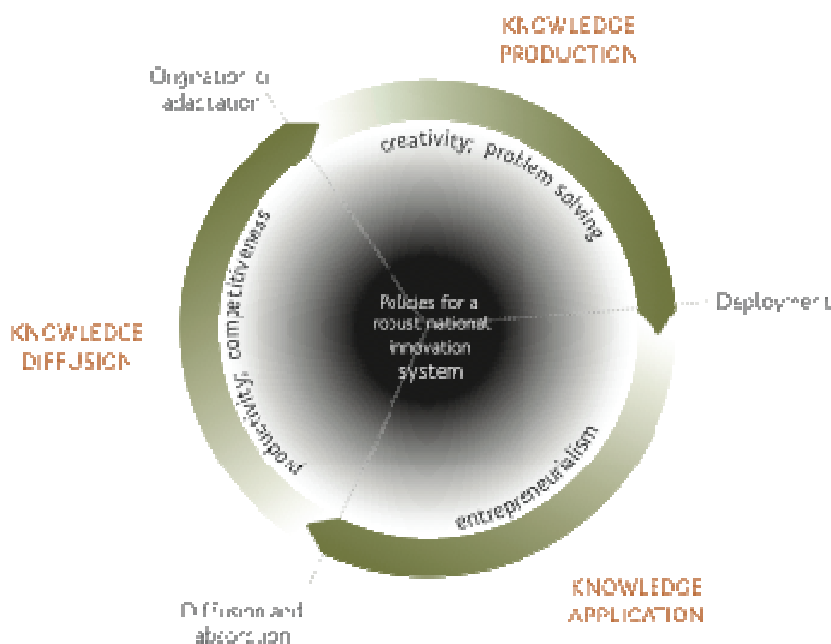
Program mapping to a model of innovation

All ongoing government innovation programs from the database were mapped to the model of innovation provided by Dr Terry Cutler (Figure 1). For each program/initiative, we relied on the rationale, objective, key performance indicators and in some cases whether or not it gave direct assistance or secondary support to firms to identify where every program would sit in the model. Verification/clarification was requested from State and Territory jurisdictions.

This particular exercise is limited in its scope: It was apparent that this simple diagram did not adequately match the model proposed by Dr Cutler in terms of stocks and flows. Given that the database gathered information only on programs that support innovation in firms subsequent modelling does not take into account underlying government investment in creativity and knowledge i.e. education, training and research and, due to the nature of the definition of

innovation, the mapping exercise has limited scope to take account of the many government programs that build basic business management skills.

Figure 1. Dr Terry Cutler's model of innovation



Source: Cutler, T, Submission to the Productivity Commission Inquiry into Public Support for Science and Innovation, 2006

Definitions for the mapping exercise

We were asked to start from scratch and to limit each program to one component of the cycle where possible. Inevitably some programs were classified against multiple components. Although every attempt was made to categorise each program/initiative some could not be clearly identified from the submitted information. Remaining black box programs are where the jurisdiction responsible has not responded to requests for clarification.

Knowledge Production (KP) Programs classified under KP aim in general terms to directly assist or indirectly support innovation in firms by increasing the amount of business-relevant knowledge e.g. R&D tax concession and Smart State Research Facilities Fund and Innovation Building Fund.

Knowledge Application (KA) KA refers to the knowledge base needed to identify ideas with commercial potential, transform these ideas into new products, processes, and organisation or marketing methods and appropriate their value in the marketplace. Programs classified under KA in general terms directly assist or indirectly support these activities, e.g. Market Ready Commercialisation Program and the Innovation and Commercialisation Grant.

Knowledge diffusion (KD) Programs classified under KD aim in general terms to support the diffusion or transfer and subsequent take-up of successful/best practice innovation in the market. Any program where the main objective is to build absorptive capacity of firms is considered here, e.g. Capability and Technology Demonstrator Program and Eco-efficiency Toolkit.

System Integration (SI) Programs classified under SI systemically facilitate the entire innovation cycle (could be sector specific or innovation at a regional/national level). These might be government strategies to broadly enhance innovation or programs that promote a culture of innovation or entrepreneurship. In cases where the objective of a program/initiative targets KP, KA and KD, SI was the component chosen, e.g. Western Australian Inventor of the Year Award.

Findings and Discussion

Programs and initiatives that support innovation in firms

A number of submissions to the review supported the view that there were a large number of business programs available:

Since 1996, the volume and variety of Federal Government grants has ballooned. We are now familiar with over 290 different grant programs for business nationally, awarded by State and Federal Governments. Our researchers are finding new grant programs weekly and this list is not yet definitive.³

Since the advent of government innovation initiatives in the 1980s, there have been a myriad of specific programs aimed at addressing key perceived shortcomings and impediments.⁴

and while there was some agreement to reduce the number of programs:

Programs need to be reduced in number and access simplified.⁵

This review should seek to....streamline available programs and eliminate unnecessary duplication between jurisdictions.⁶

there was general agreement that the level of support currently provided should not be reduced:

The Government is looking to find significant budgetary savings. While it is very important for the Government to take action to contain inflation, this should not be done at the expense of programs that increase productivity and Australia's international standing and competitiveness.⁷

Do not decrease funds for existing R&D support programs when implementing the priority process.⁸

[We recommend] that the Government maintain all other existing innovation at their current level of funding in real terms, without seeking offsetting savings, so that Australia can enjoy a sustained period of comprehensive support for innovation.⁹

This survey and analysis identified 221¹⁰ Commonwealth, State and Territory programs and initiatives supporting innovation in firms (Table 1).¹¹

The Commonwealth has a relatively small percentage of the total number of programs (31%) which accounts for some 90% of the \$3.7b total averaged annual expenditure, compared with the large percentage (69%) of State and Territory programs that account for only 10% of the total annual averaged expenditure.¹²

The 221 programs supporting innovation in firms were further categorised according to whether the program is 'direct assistance' i.e. chiefly designed for business or the commercial

³ GrantReady – Submission no. 443

⁴ Momentum Funds Management – Submission no. 358

⁵ Engineers Australia – Submission no. 433

⁶ Australian Coal Association – Submission no. 434

⁷ CRC Committee – Submission no. 212

⁸ Engineers Australia – Submission no. 433

⁹ Momentum Funds Management – Submission no. 358

¹⁰ This number will vary as program changes are introduced in the 2008-09 budget process for jurisdictions are introduced. The number is also dependent upon the definition of an innovation program.

¹¹ This number does not equate to the total number of industry development programs available nationally. Subsequent tables will not always add up to 221 programs since not all questions were completed by the survey respondents.

¹² Annualised expenditure was calculated by dividing the number of years reported in question 13 into the total budgeted expenditure reported in the same question.

sector and can be accessed by industry (e.g. Climate Ready) or 'indirect support' i.e. where the outcomes of the program benefits industry but industry does not receive direct assistance (e.g. Cooperative Research Centres) (Table 1).

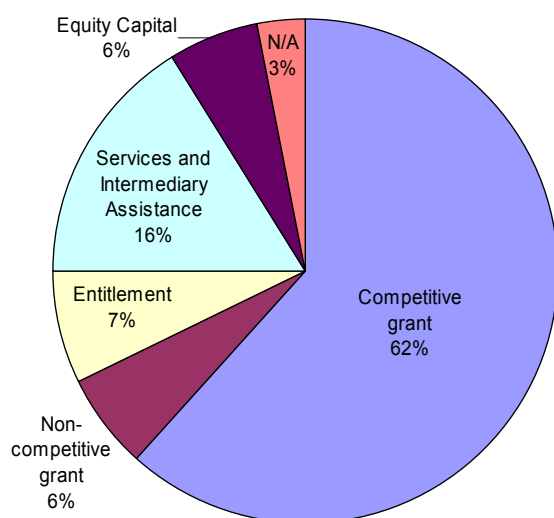
Table 1. Australian Government Programs Supporting Innovation in Firms				
	Direct assistance to business e.g. grant		Indirect support for business e.g. infrastructure	
Commonwealth Government	No	Averaged annual expenditure, \$m	No	Averaged annual expenditure, \$m
ARC	-	-	10	727
Austrade ¹³	3	145	-	-
CSIRO	3	58	2	220
DAFF	1	9	4	234
DBCDE	-	-	2	61
DEEWR	1	1	-	-
Defence	4	61	1	4
DEWHA	4	334	1	28
DIISR	14	941	8	253
DRET	7	228	-	-
IBA	1	32	-	-
Questacon	-	-	1	2
NHMRC	-	-	2	3
Sub-total	38	1808.6	31	1531.5
State/Territory Governments				
Australian Capital Territory	5	2.1	3	6.2
New South Wales	20	12.8	14	85.9
Northern Territory	3	1.0	3	0.4
Queensland	31	47.1	13	40.9
South Australia	16	29.2	1	2.8
Tasmania	11	3.1	-	-
Victoria	10	48.1	4	63.1
Western Australia	9	2.2	9	10.2
Sub-total	105	145.5	47	209.4
Sub-total all jurisdictions	143	1954.1	78	1740.9
All Australian Government Programs		221		3695.0

In terms of program/initiative delivery mechanisms, 62% of Commonwealth programs were delivered in the form of competitive grants (Figure 2). Commonwealth expenditure on the five entitlements, particularly the R&D Tax concession and the Automotive Competitiveness and Investment Scheme, together provide the largest direct assistance to firms (\$753.9m p.a.). Naturally, the States/Territories offer no tax-based entitlements. Direct Commonwealth assistance to firms heavily supported R&D (Tables 2 & 3). Some commercialisation activity was supported but this was generally sector-specific (most notably the Defence programs). Since the termination of Commercial Ready and Commercial Ready Plus there is no longer any

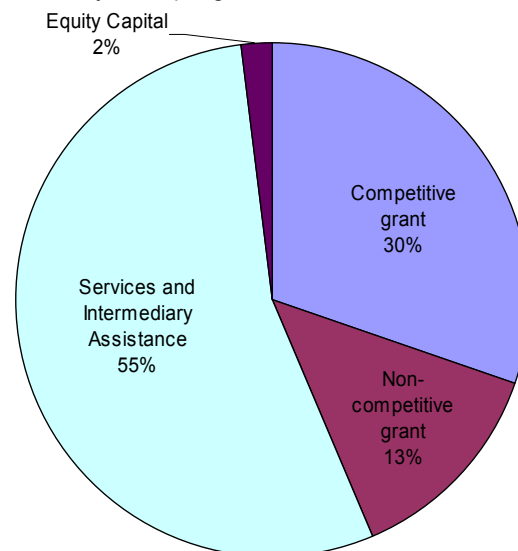
¹³ Austrade has not yet reported budget information for the New Exporter Development Program or the Global Opportunities program.

Figure 2. The total number of programs for the Commonwealth (A) and the States and Territories (B) categorised by delivery mechanism.

A. Commonwealth, 68 programs



B. State/Territory, 165 programs



generic national competitive grant supporting commercialisation activity.¹⁴ There was general agreement on a lack of support for commercialisation activity from the submission analysis and many were submitted before the termination of Commercial Ready:

There is a real need for support for the “proof-of-concept” stage of the commercialisation chain to bridge the gap between good ideas, lodging provisional patents and the development of a more secure patent position, market assessment and a program which is a reasonable prospect for industry investment and commercialisation¹⁵.

There is a need for programs that support innovators early in the creative process, helping them experiment or further develop ideas, find potential partners or develop skills and knowledge before they establish business structures¹⁶.

While the Government spends billions of dollars supporting R&D, most sectors receive no support in commercialising a product into the market. As a result, much of the support and funds are wasted as companies become stranded and unable to further their project¹⁷.

Most innovation support programs in Australia actually support only one component of innovation – formal R&D.¹⁸

The results from the mapping exercise show that the program coverage is fairly even across all innovation components for the Commonwealth but that total annual expenditure is focussed towards Knowledge Production (Figure 3). The Commonwealth government has a higher proportion of programs providing indirect support to business (45%) compared to the States/Territories (31%). Emphasis was on provision of infrastructure (e.g. NCRIS), national priority research, and encouraging collaboration between publicly funded research

¹⁴ Both the Renewable Energy Fund and the Climate Ready programs only support projects that address the climate change challenge.

¹⁵ University of New South Wales – Submission no. 497

¹⁶ National Association for the Visual Arts – Submission no. 628

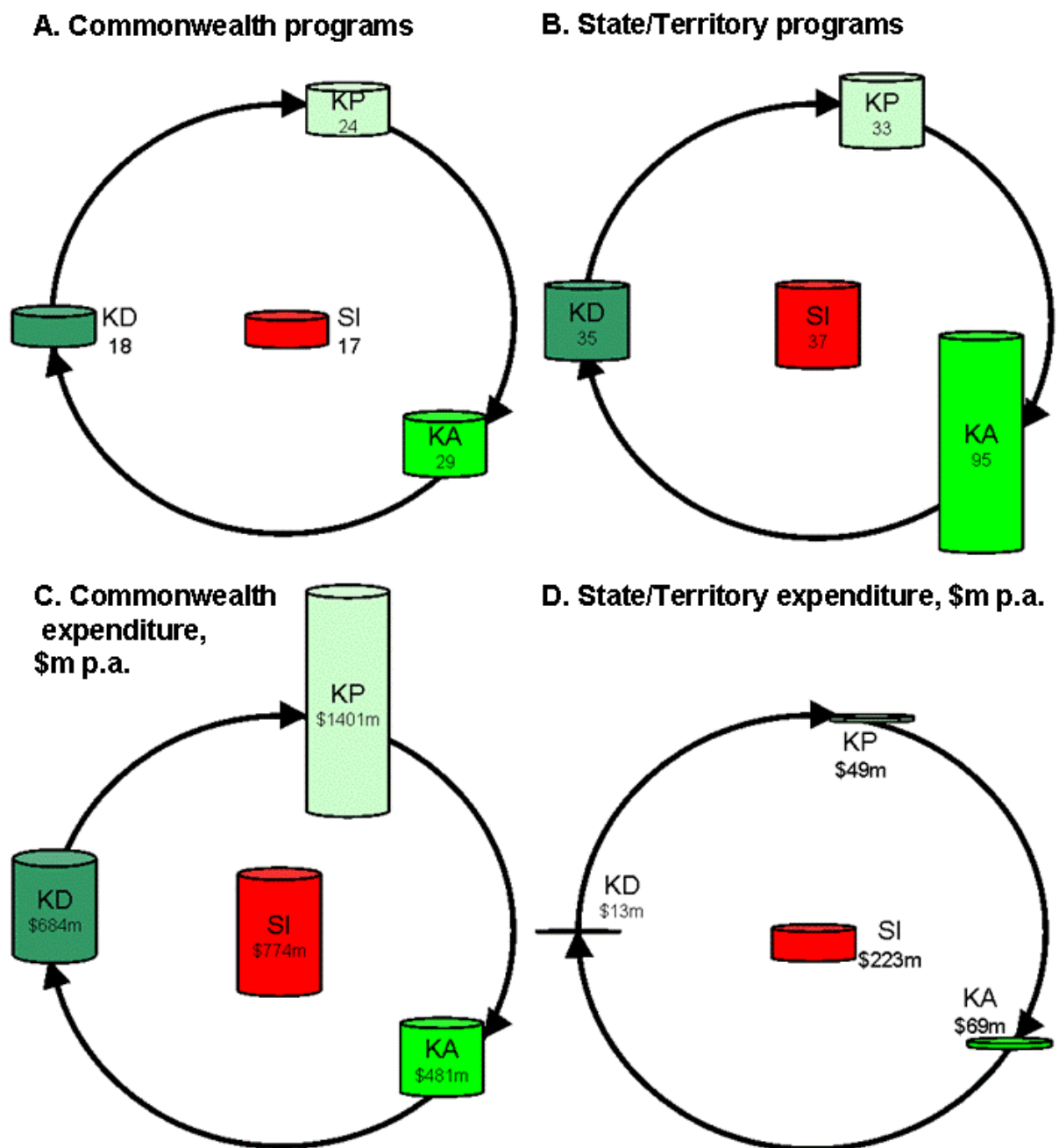
¹⁷ GrantReady – Submission no. 443

¹⁸ Innovation Research Network – Submission no. 332

organisations and industry (e.g. National Research Flagships). This investment is represented by the high annual expenditure in the knowledge production component in Figure 3.

In contrast to the Commonwealth, 105 programs (69%) of the 152 State/Territory programs provide direct assistance to business. The majority of these programs (54%) of were delivered through services and intermediary assistance. Despite this high proportion of service and intermediary assistance programs they account for only 32% of the total average annual expenditure. Grants were the major expenditure for the States and Territories, taking up 68% of total annualised expenditure. Interestingly, non-competitive grants (grants provided on a discretionary basis) were a high percentage of total annualised expenditure (22%) for the States and Territories.

Figure 3. Mapping of innovation programs and their annualised expenditure to Terry Cutler's model of innovation. See Figure 1 for details.



Support to firms for commercialisation of research was a major theme for State and Territory governments and is clearly visualised in the knowledge application component of the innovation model (Tables 4 & 5, Figure 3). When ranked by expenditure, the top five direct assistance programs were dominated by competitive grants given to firms for research, development and commercialisation (Table 4). State/Territory governments focus expenditure on the System Integration component and to a lesser extent Knowledge Application (Figure 3).

For the States and Territories there was a proportionately low investment in knowledge diffusion (Figure 3). Although investment in knowledge diffusion is apparently high for the Commonwealth, this component is dominated by the sector-specific Water Smart Australia program (Table 2). Many submissions argued that current programs do not adequately serve the businesses which seek to operate and integrate into the international environment:

Businesses now operate in an international space, and many grant programs do not account for this.¹⁹

Under the majority of existing programs, market visits are limited to export promotion. However, AI Group has identified a need amongst companies to travel overseas to gain insights into innovative practices for their industry.²⁰

There should be greater scope for programs, such as Commercial Ready and CRCs to allow a greater portion of eligible expenditure, not just on research, to occur overseas – schemes that exclusively generate benefit to Australia can lead to an insular mindset.²¹

Given the poor rate of program evaluation (discussed later) it is difficult to determine if this small or highly sector-specific investment is a cause for concern. Innovation is about the application of ideas and that ideas have to be made or discovered only once and can then be used by many others without diminishing their usefulness. If most productivity growth stems from the diffusion of innovations and their subsequent adaptation and, Australia itself has a estimated 2% contribution to the world's generation of science and engineering knowledge, then this low investment in knowledge diffusion may be a significant under investment by all jurisdictions. Although the Commonwealth's new Enterprise Connect initiative aims to improve the absorptive capacity of approximately 10,000 Australian firms per annum it will be sometime yet before the impact of the program will be known.

Given the high percentage of State and Territory programs included in 'Services and Intermediary Assistance', this area was broken down further to show the range of delivery mechanisms it contained (Table 6). The highest proportion of Service & Intermediary programs were in the sub-categories of education, mentoring and awareness raising and also business information and advisory services. The information and advisory services typically provided general business information as well as innovation-specific information and advice. A high number Government regulations and strategies were reported by the States and Territories and the majority of these 'programs/initiatives' were of indirect support to firms. Interestingly one of the lowest reported sub-categories was Intermediary Assistance suggesting that the delivery mechanism 'Services and Intermediary Assistance' could be split into more than one category in the future.

It is important at this point to highlight the effect of the definition of innovation and what is an innovation program on the analysis of this report. All jurisdictions were asked to determine to what level value-adding innovation is a focus and outcome of the initiative (Table 7). Out of the 221 reported programs supporting innovation in firms only 135 programs/initiatives were claimed to have a direct impact on innovation within business. The remaining 86 programs

¹⁹ GrantReady – Submission no. 443

²⁰ Australian Industry Group – Submission no. 265

²¹ South Australian Government – Submission no. 566

supported the foundational conditions necessary for innovation but were not claimed as having a direct impact on innovation in business. There were an additional 101 programs that were submitted that are not included in the analysis. These additional programs:

- Did not meet the definition of innovation and/or innovation-related activity or,
- Were not directly aimed at supporting innovation (not its core rationale) but had an incidental impact on innovation.
- Were mostly basic business development and export programs.

This data highlights the importance of a consistent definition of innovation and the issue of whether business development or export programs should be included in any future analysis of programs supporting innovation in business in the context of a national innovation system.

Table 2. The top five Commonwealth direct assistance programs ranked by total averaged expenditure, \$m per annum (annualised estimate)

Program/Initiative	Agency	Commercialisation Chain	Innovation cycle	Expenditure, \$m p.a.
R&D Tax Concession	DIISR	Research & Development	Knowledge Production	550
Water Smart Australia program	DEWHA	Development	Knowledge Diffusion	320
Export Market Development Grants (EMDG)	Austrade	Export	Knowledge Diffusion	145
Automotive Competitiveness and Investment Scheme	DIISR	Research & Development	Knowledge Production	131
Renewable Energy Fund	DRET	R&D, Commercialisation	System Integration	71

Table 3. The top five State/Territory direct assistance programs ranked by total averaged expenditure, \$m per annum (annualised estimate)

Program/Initiative	Jurisdiction	Commercialisation Chain	Innovation cycle	Expenditure, \$m p.a.
Energy Technology Innovation Strategy	Victoria	R&D, Commercialisation	System Integration	38
Innovation and Investment Fund for South Australia	SA	Entire chain	System Integration	25
Clearing House (a business information service)	Queensland	R&D, Commercialisation	Knowledge Application	17
Innovation Projects Fund	Queensland	R&D, Commercialisation	System Integration	15
Centre for Energy and Greenhouse Technologies	Victoria	Development, Commercialisation	Knowledge Production/Application	5

Table 4. The top five Commonwealth indirect support programs ranked by total averaged expenditure, \$m per annum (annualised estimate)

Program/Initiative*	Agency	Commercialisation Chain	Innovation cycle	Expenditure, \$m p.a.
Discovery Projects	ARC	Research and Development	Knowledge Production	281
National Research Flagships	CSIRO	Research and Development	System Integration	217
Rural Research and Development Corporations	DAFF	Entire chain	System Integration	210
Future Fellowships	ARC	Research and Development	Knowledge Production	169
Cooperative Research Centres Program	DIISR	R&D, Commercialisation	Knowledge Production/Application	136

Table 5. The top five State/Territory indirect support programs ranked by total averaged expenditure, \$m per annum (annualised estimate)

Program/Initiative	Jurisdiction	Commercialisation Chain	Innovation cycle	Expenditure, \$m p.a.
Future Farming	Victoria	R&D, Commercialisation, Export	System Integration	51
Research and Extension Projects	NSW	R&D, Commercialisation	System Integration	50
Medical Research Support Program	NSW	Research, Commercialisation	Knowledge Production	20
Research and Development	Queensland	R&D, Commercialisation	System Integration	18
Queensland Renewable Energy Fund	Queensland	Development, Commercialisation	Knowledge Application/Diffusion	10

	Direct assistance programs	Indirect support programs	Total
	No	No	No
Education, Public/Industry Awareness & Promotion	19	3	22
Government Strategy, Policy and Regulation	4	5	9
Information and Advisory service	27	2	29
Intermediary Assistance	7	-	7
Network/Cluster/Incubator Development	7	3	10
R&D Service	2	4	6
All of the above	1	-	1
Unclear	5	2	7
Total	72	19	91

Jurisdiction	Impact on Innovation		
	Direct	Direct and Indirect	Indirect
Commonwealth	11	25	33
States/Territories	12	51	20
Subtotal State/Territory	23	76	53
Subtotal all jurisdictions	34	101	86

Program/initiative design elements

Evaluation should be an integral part of program design and management, and the review process must be based on clear, measurable and relevant KPIs, which are a function of good program design. It is also important that the review process itself be robust and consistent:

It is important to acknowledge that each program has a different objective and when being reviewed, needs to be measured against that objective. However, there is a case for a common set of methodologies, or at the very least, principles to govern the undertaking of reviews.²²

It is essential that programs be reviewed or assessed in order to find out what has worked and what hasn't, and so inform future policy development, and allow evidence based program rational and design to produce programs that are well targeted and deliver real assistance.

²² CRC Committee – Submission no. 212

The Intergovernmental Working Group will recommend a set of framework principles that should contribute to a more standardised development of innovation interventions, including programs. These new principles would contribute to a more standardised development of innovation programs and interventions, and would allow for the better collation and coordination of information coming out of initiative reviews and feeding into future policy development and program design.

Submission analysis revealed there is strong support for an integrated, national innovation strategy and governance platform to manage issues with the current program suite:

*To encourage novel programs and ideas and help reduce duplication, [Australia should] adopt an integrated approach to governance of the innovation system, which facilitates cross-portfolio cooperation at federal level and cooperation across jurisdictions.*²³

*The National Innovation System should...establish a collaborative environment for the different levels of Government to jointly pursue policy and program development and where appropriate the joint and seamless delivery of programs and services.*²⁴

*There is strong evidence that some programs within the NIS are not well integrated: the various programs should be synergistic, not competitive.*²⁵

*I think the shortage, or shortcoming, in our innovation system is due to a lack of a coherent strategy or framework for supporting innovation and entrepreneurship in both the profit and not-for-profit sectors, and the lack of good implementation.*²⁶

Key features of this integrated system would be:

1. Its holistic approach to supporting innovation in firms:

*Programs should support innovators at various stages of the development process, be designed from the perspective of the innovator and be able to accommodate all types of businesses from sole traders upwards.*²⁷

2. A harmonisation of program design and program evaluation processes:

*Reporting and compliance requirements of all programs should be reviewed to ensure they are harmonised and appropriate for the level of funding provided, particularly those programs targeted at SMEs.*²⁸

*It is the view of the CRC Committee that there would be a major improvement to governance in the National Innovation System if there were a commonly established, rigorously tested method of evaluation of outcomes from programs designed to foster innovation.*²⁹

*Treasury or other central agency should be tasked to develop a framework for rigorous evaluation of Government funding programs in the innovation space and oversee, or at least review, all innovation program evaluations.*³⁰

It is important to acknowledge that each program has a different objective and when being reviewed, needs to be measured against that objective. However, there is a case

²³ National Association for the Visual Arts – Submission no. 628

²⁴ Queensland Government – Submission no. 459

²⁵ Woffenden, Mark – Submission no. 379

²⁶ Balan, Peter – Submission no. 328

²⁷ National Association for the Visual Arts – Submission no. 628

²⁸ CRC Committee – Submission no. 212

²⁹ *Ibid*

³⁰ *Ibid*

for a common set of methodologies, or at the very least, principles to govern the undertaking of reviews.³¹

DIISR should, in conjunction with the Treasury Department, develop guidelines for the measurement of outcomes delivered by all programs within the National Innovation System.³²

The Australian Government should consider...[supporting] the concept of integrated and/or seamless delivery in developing innovation programs.³³

3. *The evaluation of applications and programs should focus on the objective of the program, not the bureaucratic detail:*

Program administrators should act according to the intent behind the program. Administrators in some programs have become too focused on applying red tape, ticking boxes, guaranteeing successful outcomes or applying pedantic interpretation of the wording with in program guidelines.³⁴

The goal is to ensure that the different program objectives are aligned, programs are mutually beneficial, and finally programs would be able to share a repertoire of communal resource in terms of language, artefacts etc. This will help to maximise benefits of shared synergies within the different programs and eliminate inefficiencies.³⁵

...the key measure for a successful grant program should be the effectiveness of the program in achieving its aim.³⁶

The following results describe several elements of program/initiative design that are relevant to the above submission commentary.

Integration with other programs

Sixty one percent of all programs are integrated in the sense that they were designed to operate in conjunction with other programs (e.g. by assisting applicants to access support from another program) (Figure 4). The percentage of direct assistance programs that are integrated is higher for State/Territory programs (61%) compared to the Commonwealth (44%). Of the Commonwealth programs that were integrated, these programs were integrated predominantly with other Commonwealth programs (75%). Few programs were designed to be integrated with State/territory programs (22%).

In contrast the State/Territory direct assistance programs were designed to integrate predominantly with other State/Territory programs (26%) or both Commonwealth and State/Territory programs (69%).

³¹ *Ibid*

³² CRC Association – Submission no. 320

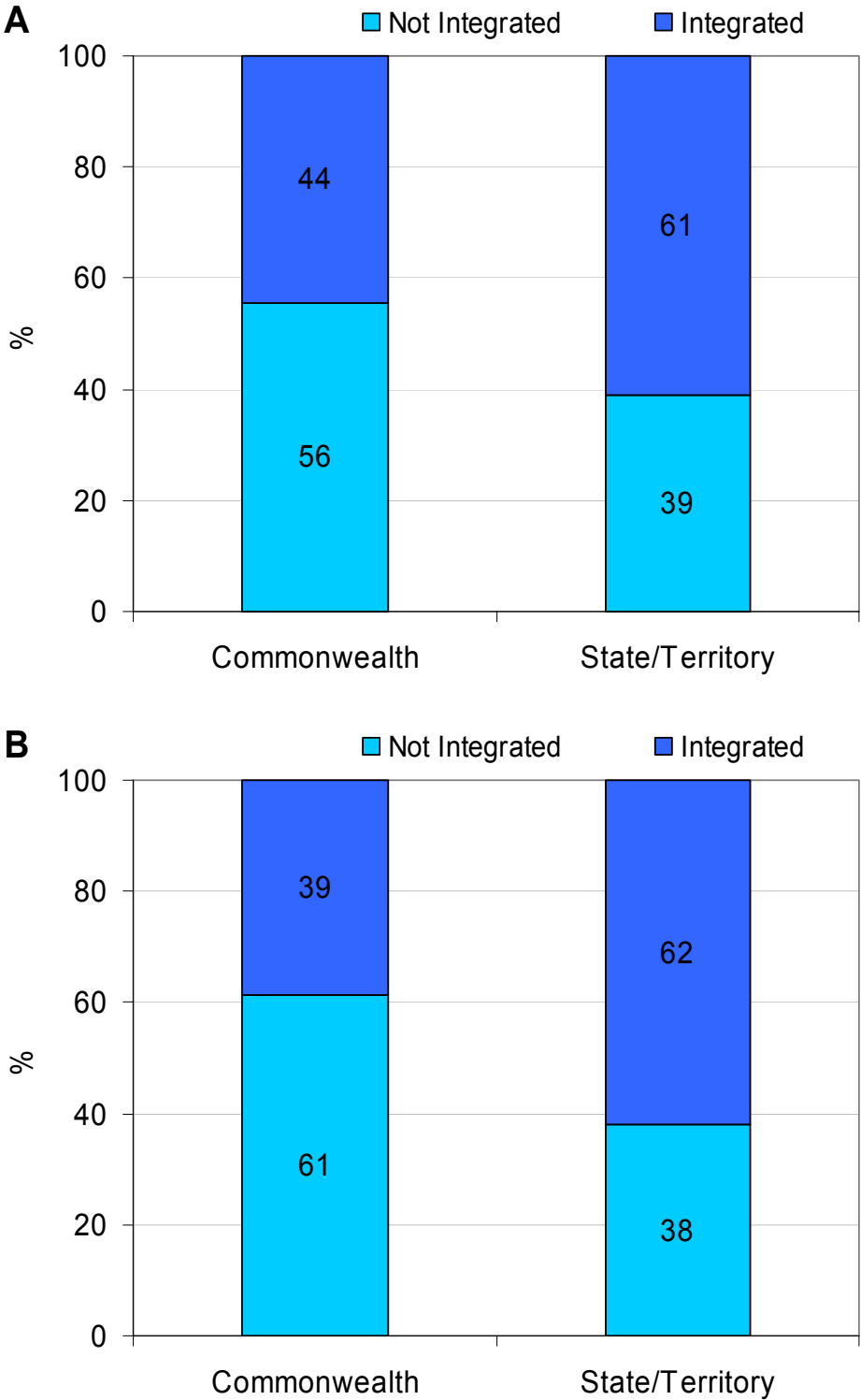
³³ Queensland Government – Submission no. 459

³⁴ GrantReady – Submission no. 443

³⁵ Hyland, Paul – Submission no. 118

³⁶ GrantReady – Submission no. 443

Figure 4. The percentage of innovation programs/initiatives, providing direct (A) and indirect (B) assistance to firms, designed to operate in conjunction with another program ('integrated').



Key Performance Indicators (KPIs)

The survey data indicated that approximately 24% of all Commonwealth, State, and Territory programs that support innovation in firms did not have KPIs, and the suitability of those that were present was variable.

	No		Yes
	No	No	%
Direct assistance programs			
Commonwealth	8	24	75
States/Territories	17	88	84
Sub-total all jurisdictions	25	112	82
Indirect support programs			
Commonwealth	16	13	45
States/Territories	10	35	77
Sub-total all jurisdictions	26	48	65
All Australian Government Programs	51	160	76

A analysis of 100 randomly selected programs was made to establish the strength of the KPIs associated with them (Table 9).

	%
Programs with clear and measurable KPIs	11%
Programs with generally clear KPIs that may be measured but with some difficulty	26%
Programs with unclear or immeasurable KPIs	28%
Programs with no KPIs or none specified	35%

While the exercise was somewhat subjective, the objectives and KPIs of programs were often found to be unclear, making it difficult to assess what the program was meant to achieve (Table 9).

Even where clear KPIs were supplied, these were often difficult to measure, and where measurement was possible, they often did not provide meaningful information on the performance of the program. For example 'number accessing or assisted by the program' was a common indicator given; while this is easily measurable it does not give a true indication of whether the objectives were met.

Clear, measurable and relevant KPIs are important to the design of any program, without them, it is difficult to hold program implementation accountable against the policy objectives of the program. KPIs that provide robust information on the performance of the program are essential in providing an accurate assessment of the program effectiveness.

Further, clear objectives and KPIs will provide information on the intent of the program, making it easier for potential clients to pick a program appropriate to their needs.

Assessment/Review

The survey found that only 36% of all programs have been evaluated (Table 10). This low number of programs that have been reviewed or have received any type of assessment is a cause of concern. When taking into account the age of programs, the percentage of program evaluation increases from 23% to 62% for programs running 5 years or longer. However, this rate is still startlingly low. Only Commonwealth programs running 5 years or longer providing direct assistance to firms has a moderately high rate of evaluation (82%). However, the lowest rate of

evaluation was for Commonwealth indirect support programs (14% and 47% for programs <5 years old and ≥5 years, respectively).

Table 10 . Program evaluation frequency			
Direct assistance programs	No	Yes	Underway
Commonwealth			
<5 years	18	4	4
≥5 years	2	7	2
State/Territory			
<5 years	56	10	7
≥5 years	11	16	5
Sub-total	86	40	19
Indirect support programs			
Commonwealth			
<5 years	12	1	1
≥5 years	9	7	1
State/Territory			
<5 years	28	5	3
≥5 years	5	6	0
Sub-total	54	19	5
Total	141	56	23

Online Application

Jurisdictions were asked if their programs could be applied for online (Table 11; Figure 5) in order to assess the ease of access to programs by business. Only 22% of all programs directly accessible by business have an online application process. This percentage is higher for State/Territory programs (28%) than for Commonwealth programs (10%).

Figure 5. The percentage of applications that can be submitted online.

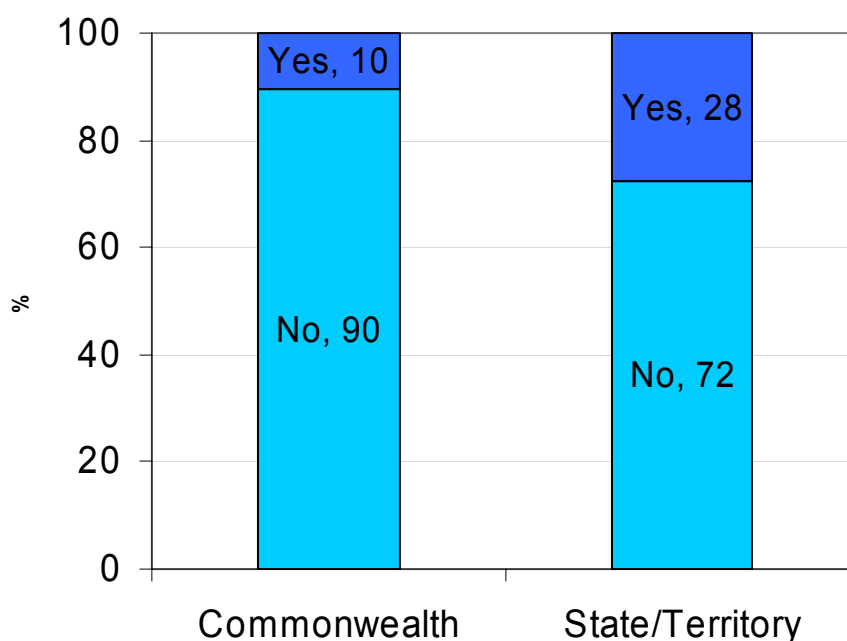


Table 11. Online application frequency

Direct assistance programs	No		Yes
	No	No	%
Commonwealth	26	3	10
States/Territories	42	16	28
Total	68	19	22

Overlap/Duplication

We looked at possible overlap and duplication among the 221 identified government programs supporting innovation. This large number of programs nationally might suggest that overlap and duplication is likely. However, one should consider this issue from the perspective of a firm. A firm based in NSW should in principle, be able to access NSW and Commonwealth government programs and would not have access to programs provided by other jurisdictions. Our main concern is therefore to address any unnecessary duplication of programs and resources between the Commonwealth and each States or Territory.

Assessment of overlap is based on the rationale and objectives of each program. Given the lack of clarity of objectives and key performance indicators the ultimate assessment of overlap rests with the jurisdictions concerned. It can be expected that given the national focus of the Commonwealth and the regional focus by the States and Territories that some similarity of programs or programs with overlapping objectives will exist among them. Many jurisdictions have programs that are designed to leverage Commonwealth programs and may therefore appear to overlap.

*Queensland has many examples in which Commonwealth programs have been leveraged by the addition of State Government funded programs and vice versa.*³⁷

Although a number of submissions to the Review made mention of overlap and duplication, none provided specific examples.

*IRU Australia supports the government's view that there is a need to address the current uncoordinated and duplicated nature of innovation strategies and programs operating in various jurisdictions...*³⁸

This was not a universal view.

*In my view, at the Commonwealth level there is little or no duplication of science and innovation programs. Use of the term "vast" cannot be justified in relation to Commonwealth science and innovation programs, and most State and Territory Government programs are applicable only within a single jurisdiction. There is a lot of merit in having programs which are targeted at specific definable goals.*³⁹

*Innovation in the Australian mineral industry has not been notably affected by program duplication, except to the extent that inefficiencies resulting from duplication may have reduced the proportion of funding available to the industry.*⁴⁰

ATSE is not aware of any significant overlap or duplication between Commonwealth and State/Territory Programs and notes that a 2003 study found good complementarity in this area. The 169 programs that are

³⁷ Queensland Government – Submission no. 459

³⁸ Innovative Research Universities Australia – Submission no. 95

³⁹ Bell, John – Submission no. 37

⁴⁰ Minerals Council of Australia – Submission no. 445

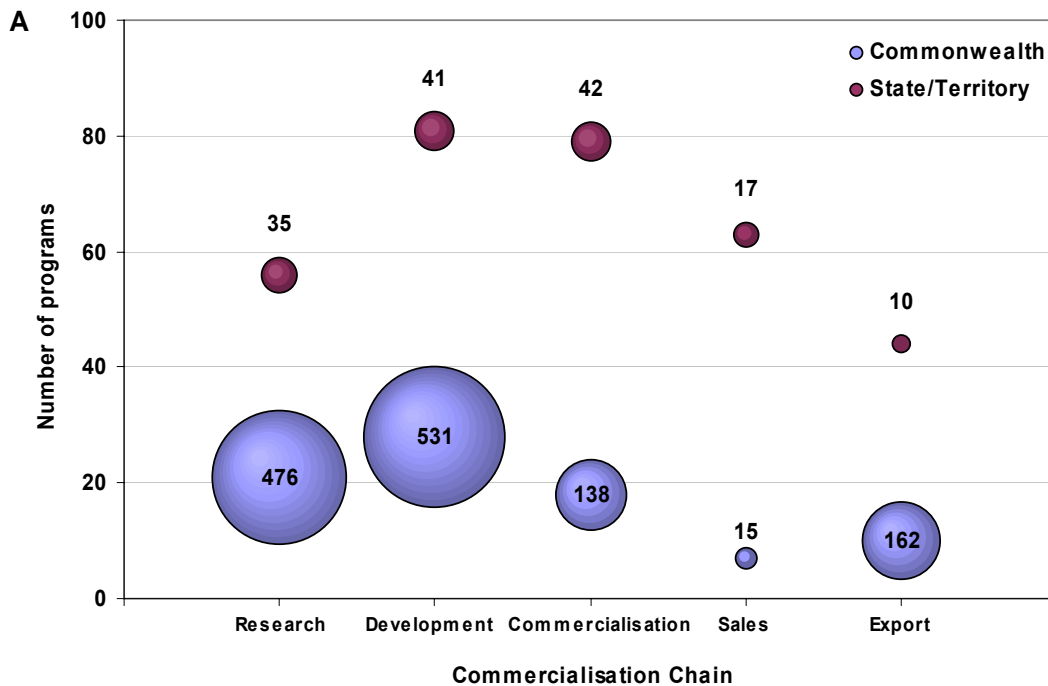
*sometimes mentioned include programs offered by individual State/Territory governments to firms located within their jurisdictions which are therefore not available to firms located elsewhere.*⁴¹

Mapping the programs against the commercialisation chain (Figure 6) for both direct and indirect programs highlights a similar coverage for both Commonwealth and State and Territory programs. The large number of programs, especially with their focus on the early parts of the commercialisation chain (Figure 6), suggests a large degree of duplication and overlap. However, this is not the case.

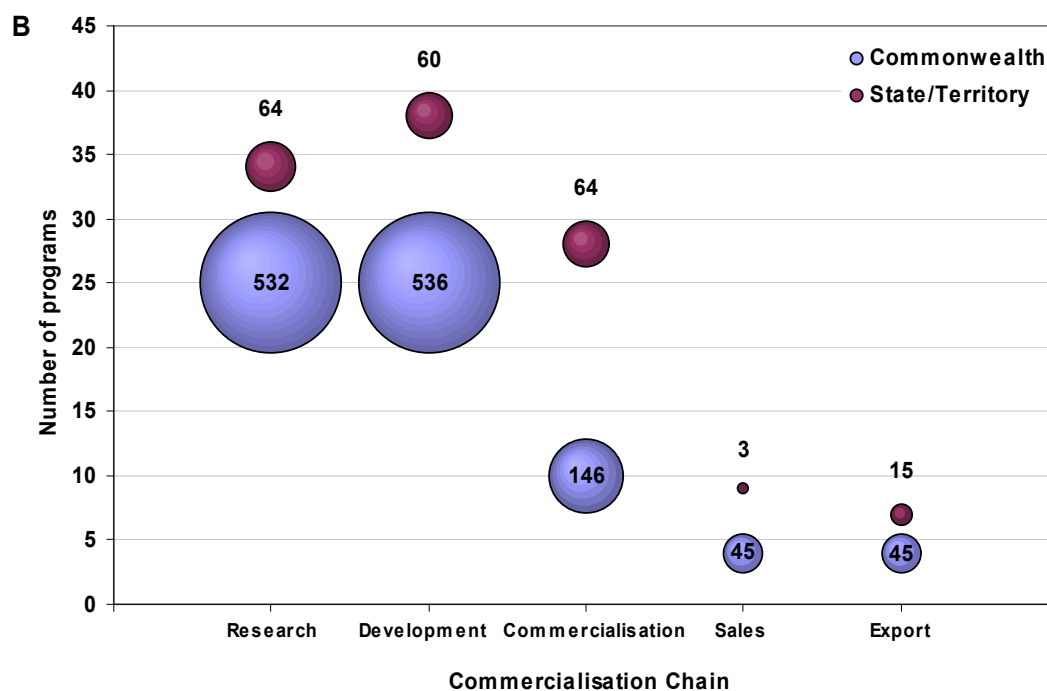
Where the States and Territories have programs that do essentially the same thing, this is duplication, but not overlap, as firms can only access the program in the jurisdiction they are based in, and not the program in another jurisdiction. Successful programs in a particular jurisdiction can serve as a model for other states and territories. This can even be seen as a healthy development.

Program duplication and overlap is not necessarily a problem if the programs’ objectives and outcomes are complementary. A 2003 report on behalf of the then Department of Education, Science and Training (The Contribution of the States and Territories to Australia’s Science and Innovation System) found good complementarity between State/Territory and Commonwealth programs.

Figure 6. A map of Commonwealth and State/Territory programs providing direct support (A) and indirect support (B) for firms across the commercialisation chain. The size of the bubble and the number annotation represents total averaged annual expenditure in \$m.



⁴¹ Australian Academy of Technological Sciences and Engineering – Submission no. 567



Innovation is also a risky business and Governments need to accept that impacts and outcomes from investment in any national innovation system must tolerate...some degree of national/local program overlaps (not bad per se if reinforcing each other).⁴²

There are two situations which can lead to true overlap of programs: *intra-jurisdictional*, where a jurisdiction has multiple programs that provide the same service; or *inter-jurisdictional*, where the States and Territories have similar programs to Commonwealth programs.

Intra-jurisdictional overlap - where a jurisdiction has multiple programs. Based on information provided by all jurisdictions, there are several cases where intra-jurisdictional overlap of program objectives is apparent (Table 12). Where this is identified sometimes the delivery mechanism or the sector differs. For example the South Australian governments' Growing Global ICT Companies and Market Access Program appear to overlap in objective, however, the former is a sector-specific service & intermediary assistance program and the latter is a generic competitive grant. Instances of intra-jurisdictional overlap are most frequent for information and advisory service programs. Of these programs:

- Half are aimed at small or small to medium sized businesses;
- Around 80% have an expenditure of \$2M per year or less;
- Most are aimed at general business practice but several include or targeted commercialisation elements;
- Few target industry sectors but of those that do these are mostly for manufacturing. Also, several targeted export and several targeted rural/regional business; and
- Where multiple programs in this category are identified for a jurisdiction, these are almost all run out of the same department.

⁴² South Australian Government – Submission no. 566

Table 12. A list of examples of programs within each jurisdiction that may overlap and could be combined (none for WA, NT, VIC).

Commonwealth	Climate Ready & Renewable Energy Fund Emerging Indigenous Entrepreneurs Initiative & Business Development Assistance (Advisory service component)
ACT	PYKSIS Commercialisation Program & Canberra Business Point.
NSW	Stepping Up Program, Business Advisory Services, Innovation Advisory Services.
QLD	Advanced Manufacturing Advisory Service & QMI Solutions
SA	Innovation and Commercialisation grant & Innovation Development Grant
TAS	Springboard Accelerator program & Market Ready Commercialisation Program.

Table 12 highlights programs that were included in the analysis. Additional overlap was identified from the suite of general business development and export programs that were excluded from the analysis e.g. Small Business Mentoring Program (Vic) & Under New Management (Vic).

Inter-jurisdictional overlap - where the States and Territories have similar programs to Commonwealth programs. Given the mirroring of program focus between Commonwealth and State and Territory programs (Figure 6) overlap would be expected. However, even where there appears to be overlap, this may not actually be the case, as many State and Territory programs assist firms through the provision of services rather than the grants provided through Commonwealth programs (Figure 2).

All jurisdictions have programs to assist biotechnology companies within their jurisdictions (Table 13), which overlap with the Commonwealth programs, particularly for R&D. However, jurisdictions reserve the right to set up programs focussed on locally important economic sectors over and above what is available from the Commonwealth in order to stimulate the local economy and will continue to do so in any Commonwealth/State/Territory cooperative effort to streamline assistance programs. Even within the Biotechnology/ Pharmaceuticals/Life science/Medical industries sectoral programs), there appears to be little scope for overlap as these programs were from a range of States (with 2 from the Commonwealth), and had a range of objectives and delivery mechanisms. Several of these programs provided infrastructure but given the nature of and scope for infrastructure in this broad sector this is not unreasonable.

Such programs are also deliberately designed to leverage Commonwealth programs, rather than simply duplicating what the Commonwealth program does. Many actually provide a different service and have a different delivery system to the Commonwealth program.

Commonwealth and Victorian Research Programs

An analysis of Commonwealth and Victorian research programs was undertaken to determine the extent of overlap and duplication. Based on the program objectives, the following categories were developed and research programs classified accordingly to facilitate the analysis as *business assistance*, *collaboration*, *infrastructure*, *leverage* or combinations of them. For example, *business assistance*, some similarities were found in terms of sectoral targeting (renewable energy, resources, pharmaceuticals and health sciences). However, the delivery mechanisms are significantly different, with Commonwealth programs using competitive grants in 70% of the assistance programs while only 33% of Victorian programs use this delivery mechanism.

The differences are more dramatic when considering research programs where collaboration was the main objective. In Commonwealth programs only one out of 11 (9%) are sector specific, while 3 out of 4 Victorian programs are sector targeted. Delivery mechanisms are also very different. The Commonwealth uses competitive grants as delivery mechanism in 10 out of 11 programs, while Victorian programs use this delivery mechanisms in only in 1 out of 4 programs, services intermediary assistant and non-competitive grants are also used as program delivery mechanisms in Victoria.

In research programs which have as a main objective infrastructure support, Victorian programs are more industry-targeted than Commonwealth programs. Again Victoria uses non-competitive grants and services and intermediary assistance as delivery mechanisms while Commonwealth uses mainly competitive grants.

Specific examples of apparent inter-jurisdictional overlap are detailed below:

The Water for Industry (Vic) program appears to overlap with the Water Smart Australia program and/or the On-farm Irrigation Efficiency pilot program delivered by the Commonwealth (DEWHA).

The Research and Development (Qld) program appears to overlap with the Rural Research and Development Corporations program delivered by the Commonwealth (DAFF).

Some elements of the new Commonwealth (DIISR) Enterprise Connect program have similar delivery and objectives to many of the State/Territory business information and advisory service programs listed in Table 12. However, Enterprise Connect has a narrower target market in that it only assists business with greater than \$2m a year turnover. Enterprise Connect will also work with local providers rather than duplicate services.

A number of State programs aiming to increase business expertise in export; particularly the Trade Fairs and Missions (Vic), the Trade Support Scheme (NT), the Business Boost Program and Practitioner Development-Travel (Tas) and the Market Access Program (SA) appear to overlap with the Export Market Development Grants (EMDG) delivered by the Commonwealth (Austrade). Several of these programs were excluded from the analysis of the database and are examined in detail by the Mortimer Review of Export Policies and Programs.

Additional overlap was identified from the suite of general business development and export programs that were excluded from the analysis e.g. The Aboriginal Business Development Program (NSW) appears to overlap with the Commonwealth's Emerging Indigenous Entrepreneurs Initiative (DEEWR).

In summary, there are some overlapping programs where the objective and delivery mechanism is apparently duplicated. This is the case within most jurisdictions and also between States and the Commonwealth. Further investigation of the impact of these

apparent overlaps may be warranted between the jurisdictions concerned. This overlap is not systemic, neither is it likely to have a high impact given the generally large difference in scale between Commonwealth and State/Territory expenditure.

The sectoral nature of innovation programs

Of the 143 innovation programs that provide direct assistance to firms, 85 (59%) are sector-specific (Table 13). There is significant inter-jurisdictional variation in the percentage of State/Territory direct assistance programs that are sector-specific (0-75%) however, the overall 58% is similar to the Commonwealth (63%) in terms of sectoral targeted innovation programs.

Biotechnology, pharmaceuticals and health sciences top the number of single sector-specific innovation programs (Table 13) with 16 programs (20% of all sector-targeted programs). Manufacturing follows with 14 programs (17% of all sector-targeted programs).

Table 13. Industry sector targeted programs	Total	Commonwealth	State/Territory
Biotechnology; Pharmaceuticals; Therapeutics; Life Science; Medical; Health	16	2	14
Manufacturing; Automotive; Aerospace; Tooling	14	3	11
Energy	9	6	3
ICT	6	1	5
Arts; Film; Creative industries	6	0	6
Agriculture; Food	6	3	3
Defence	4	4	0
Other	2	1	1
Science; Research; Technology	2	0	2
Regional; Rural; Remote	5	0	5
Education; Training	1	0	1
Several (cover a range of the above)	14	4	10
Total targeted programs	85	24	61
Total non-targeted or not clearly targeted programs	58	14	44

The higher proportion of sectoral programs identified raises the question whether the innovation system has enough generality built into it. The termination of Commercial Ready certainly highlights this generality/specificity issue. Does this high proportion of sectoral programs create any gaps in the innovation system? A number of submissions identified gaps in sectoral coverage.

The arts are frequently overlooked in innovation policy, the result being that few programs are accessible to the sector. Of the suite of available AusIndustry programs, for example, only one offers support that artists and small or micro businesses could access and that program is very targeted in its scope.⁴³

...in the areas of ICT and other sectors, most of the funding has now dried up and there is very little available at either the State or Federal level. There is also a distinct lack of direct support for: companies travelling and working in

⁴³ National Association for the Visual Arts – Submission no. 628

*certain countries, collaboration, development of online technology [and] start-up businesses.*⁴⁴

In general, the variety of Commonwealth and State/Territory innovation support programs reflect some logical separation and are complementary rather than substitutes. The comparison between Commonwealth and Victorian research projects shows in most of the cases, the levels of sectoral targeting and delivery mechanisms are different. Overall this is in accord with the Department of Education, Science and Training 2003 report, *The Contribution of the States and Territories to Australia's Science and Innovation System*, which found:

. . . a major focus for these governments has been to ensure that they are able to leverage Commonwealth funding programs for science and innovation. (p. x)

These findings do not support a significant or systematic overlap/duplication of Commonwealth/State and Territory programs supporting innovation in firms leaving little scope for a significant reduction in the number of programs. There may be scope for streamlining future programs, either by having a single supplier, or with a single owner and jurisdiction-based delivery – especially if the programs are relatively generic and do not have significant local economic factors

There is certainly still scope for States and Territory to provide the on-the-ground basic business management assistance to smaller firms and this is arguably a suitable role for States and Territories.

Since the States and Territories have a large number of programs with limited budgets, it may be better to bring some of these programs together and provide an integrated suite of services from a smaller number of programs. This would produce a smaller number of more broadly based programs with larger budgets, and reduce the overall administration costs associated with a large number of small programs.

Mapping programs against the National Innovation Priorities

All programs/initiatives were mapped to a draft of the National Innovation Priorities provided by the NIS Review Panel on the 12th June 2008. To date there is no improved list of priorities. The draft priorities were provided as follows:

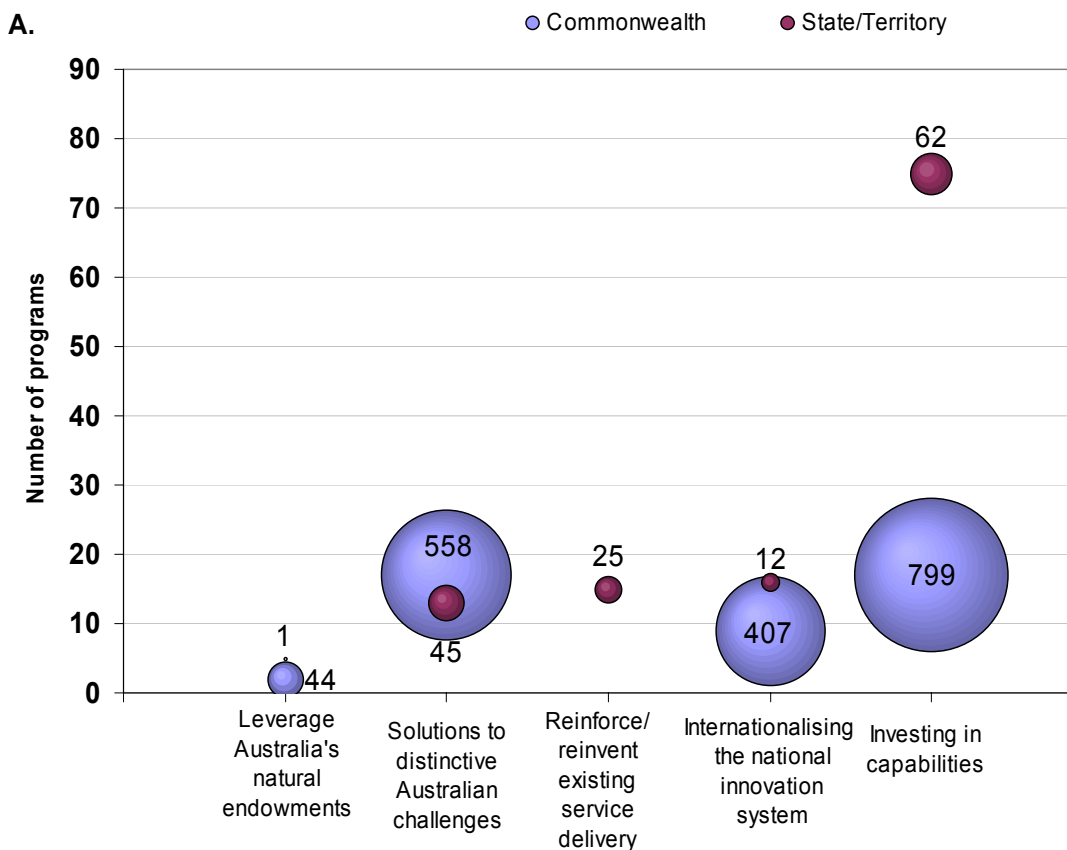
1. Leverage Australia's natural endowments/build strengths (minerals, agriculture/food, health, sport, resources, education)
2. Distinctive Australian situation/challenges (solutions to problems for Australia and the world) – multicultural, health, cities, marine, tropics, deserts, sparsity, sun, space, climate, water salinity
3. Scope to reinforce/reinvent existing service delivery (competitively)
4. Internationalising the NIS (absorptive) – inwards innovation investment, hubs, Diaspora, trade intensity
5. Investing in capabilities – education, reinstate social accord

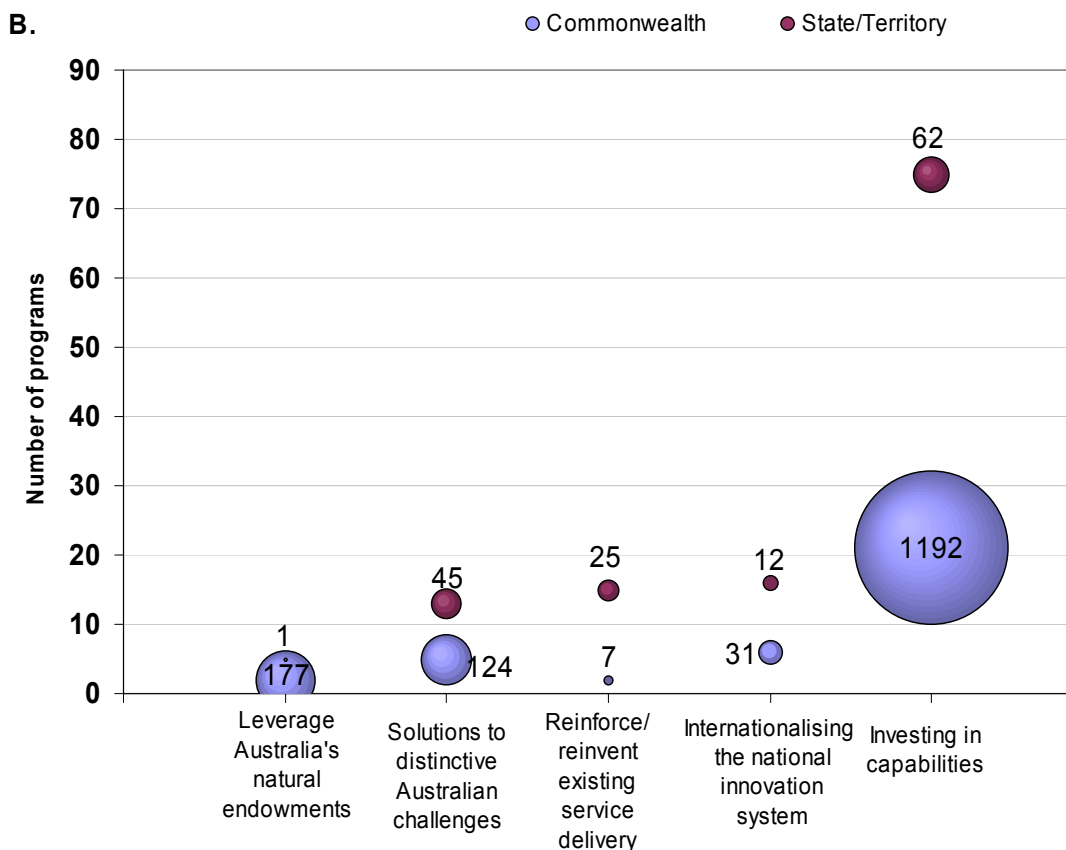
Given that we do not have explicit descriptions of each priority the mapping exercise can be described as completely subjective. As with the model of innovation, the mapping of each program/initiative relied on the rationale, objective and key performance indicators to identify whether it would map against any of the national innovation priorities.

⁴⁴ GrantReady – Submission no. 443

The innovation priorities are not meant to be a complete model of the innovation system therefore we should not expect that all programs/initiatives will neatly fit into one priority or another. In practice, however, all but three programs could be mapped to one or more of the draft national priorities. The results suggest that the majority of the programs target the fifth priority, investing in capabilities, which we interpreted as more than just investment in education and social inclusion (Figure 7). This result is expected since this exercise is not exhaustive representing a map of only one form of government investment/regulation i.e. programs/initiatives supporting innovation in firms. There were fewer programs that aimed to leverage Australia's natural endowments/build strengths. Both Commonwealth and State/Territory governments have invested significantly in solutions to Australian challenges. These direct assistance programs are targeted at managing water resources, tackling climate change and encouraging innovation in indigenous firms. State/Territory governments have an additional focus on regional issues.

Figure 7. A map of Commonwealth and State/Territory programs providing direct support (A) and indirect support (B) for firms across the draft National Innovation Priorities. The size of the bubble and the number annotation represents total averaged annual expenditure in \$m.





Ways of Improving Access for the Business Community to Programs supporting innovation in firms

A single portal for information on government programs

There appears to be little opportunity to significantly reduce the number of innovation programs without also significantly reducing the amount of assistance provided. However, there is no doubt that firms have difficulty in finding out information on such an array of programs.

There are many programs to provide support for SMEs. Unfortunately, many SMEs are not even aware of the programs that are available to them and don't have the time to navigate the Government labyrinth to identify the scheme relevant to them. Even when they can find the right program they are often too busy running their business to work through the various requirements to access the support.⁴⁵

Among small business, a general lack of understanding and awareness about how and where to access capital for new and growing business ventures may impede innovative companies to realise opportunities.⁴⁶

Research conducted by the CRCSI suggests that a substantial 64 percent of companies in the Australian spatial information industry felt that the time and effort taken to find out about government support programs for R&D is an impediment to innovation in their company.⁴⁷

⁴⁵ CRC Committee – Submission no. 212

⁴⁶ WA Department of Industry and Resources – Submission no. 603

⁴⁷ CRC-Spatial Information – Submission no. 303

Companies are not aware of grant programs for which they are eligible, including rebates they are entitled to receive.⁴⁸

The process of finding grant information and confirming eligibility through Government channels is complicated and confusing. Most companies abandon the system.⁴⁹

Currently, the schemes available in both state and federal government are not widely understood or accessible.⁵⁰

The sheer complexity of the current programs at state and federal level makes it difficult to discern what is available for industry to pursue.⁵¹

The number of programs need not necessarily lead to a "bewildering array". What is important is not the number of programs, but the ease of access to information on programs relevant to the particular circumstances of the firm seeking assistance.

IRU Australia...sees a need to significantly enhance the coordination of access to information about the different initiatives and programs in place across the country.⁵²

According to a submission by GrantReady (a firm providing a service to assist businesses identify suitable Commonwealth, State or Territory grants),

The current array of grant programs we have found are represented on over 115 different websites. Federally, there are over 55 websites detailing grant programs; which is extraordinary since there are about 19 Federal Government departments, of which approximately half are business related. They are presented in different formats, with different information and different terminology.⁵³

Other submissions to the NIS review also point out the need for a single portal providing grants and incentives for innovation.

Successful International models and commercialisation programs are loosely based around a pipeline or one stop shop model and incorporate a critical pathway of programs and services.⁵⁴

Consolidation of [innovation] support into a single interface would enable responsiveness to the rapidly evolving needs of SMEs throughout their life cycle of innovation, and needs to be supported by a suite of programs structured under broader definitions of innovation than currently apply to programs such as R&D Tax concession and Commercial Ready.⁵⁵

A single point of access with a searchable database on all State, Territory and Commonwealth programs that provide direct assistance to firms, and a search engine that

⁴⁸ GrantReady – Submission no. 443

⁴⁹ *Ibid*

⁵⁰ AMITL – Submission no. 505

⁵¹ Boeing Australia – Submission no. 259

⁵² Innovative Research Universities Australia – Submission no. 95

⁵³ GrantReady – Submission no. 443

⁵⁴ Hyland, Paul – Submission no. 118

⁵⁵ AMITL – Submission no. 505

will allow a search to quickly identify relevant programs, would go a long way to easing the current difficulty faced by firms in seeking assistance.

This would also obviate the need for radically re-organising the current suite of assistance programs, which would lead to significant disruption to the provision of assistance to firms.

The recommended solution is to establish a common governmental portal for innovation support, including standardised reporting for common features. Where possible include State/Territory innovation support programs in the same portal. This shared process could be trialled in a small jurisdiction like that of the NT.⁵⁶

Firms generally do not differentiate between innovation programs and other industry development programs. Such a database should, therefore, also contain similar information on all other direct assistance industry development programs. This would offer a one-stop shop for advice on all programs, but also would offer firms a complete suite of programs covering the majority of the commercialisation path – a continuous coverage over the entire journey of companies, from start up to export success.

An 'end-to-end' suite of program support is needed, simple in design and of low transactional cost that spans R&D, business processes and support for global export.⁵⁷

An example of a web site that offers relevant information about a range of businesses support, and is a comprehensive gateway to government information and services for both the Commonwealth and the States is www.business.gov.au.

Communication

An essential component of any portal to program information for business is a communications strategy to raise awareness of the portal. A portal would be of little use if the firms that are meant to benefit from it are not aware of its existence. A number of submissions emphasised that such a strategy is needed.

It [is] also important that innovation programs be publicised widely.⁵⁸

We need to look at how we can better coordinate and communicate government support programs for SMEs and minimise the administrivia [or trivial administration] in all the relevant funding programs.⁵⁹

For the Government to be more effective [at promoting programs], a more targeted campaign may be required. This could involve broad advertising around general grant concepts, rather than promoting a single grant. A simple message that can be pushed out through multiple channels could be more effective in reaching a wider audience with better awareness.⁶⁰

Such a strategy would need to be developed in consultation with those who would benefit from the portal to ensure that how firms search for information is captured, understood and incorporated into any communications strategy

⁵⁶ NT Research and Innovation Board – Submission no. 242

⁵⁷ South Australian Government – Submission no. 566

⁵⁸ National Association for the Visual Arts – Submission no. 628

⁵⁹ CRC Committee – Submission no. 212

⁶⁰ GrantReady – Submission no. 443

...there appears to be a clear disconnect with the grant promoters understanding of how companies become aware of grant programs.⁶¹

On-line access for completing and submitting application forms.

Analysis from the database of Commonwealth, State and Territory innovation programs indicates that, of the 88 programs that have application processes, only 22% have on-line access for completing and submitting application forms (10% Commonwealth and 28% States and Territories).

Recognising that some grants programs required detailed information, full online application should be a priority.

Having an online application process would speed up the application process, providing a faster turnaround of assessment. This is important as many businesses have to devote valuable resources to applications and so require a rapid response from government.

GKNAES has regularly looked at government grants to complement its R&D expenditure. However, the preparation time versus possible funds on offer makes the effort difficult to justify. Grant money is supposed to minimise risk, however, the risk of not getting the grant after the lengthy application process is in itself risky due to the large amounts of resources required (often including costly consultants). Further to this, long lead times associated with many of the grants can inhibit the solution to urgent problems.⁶²

The time it takes from submission of a grant application to receiving a response is a key indicator of the worth of a program to an applicant. If that timeframe takes longer than one month, most companies are not interested.⁶³

Having an online application process also supplies jurisdictions with electronic and easily searchable applications that provide easy access for data extraction and review/assessment.

Commonality across application forms.

There is very little commonality in the application processes of government innovation programs. The present system for program application is far from standardised. Firms need to deal with a myriad of formats for obtaining program information and for the application process.

The sophistication of grant programs, detailed in large and unyielding documents is a deterrent to potential applicants.⁶⁴

This is especially onerous on small businesses

...small businesses are disadvantaged by the cost involved with the paperwork in making an application under [the R&D Start] program. As this is a competitive program, bigger businesses have the advantage of being able to hire outside expertise to do the paperwork.⁶⁵

⁶¹ *Ibid*

⁶² GKN Aerospace Engineering Services – Submission no. 408

⁶³ GrantReady – Submission no. 443

⁶⁴ *Ibid*

⁶⁵ WA Department of Industry and Resources – Submission no. 603

Having a certain degree of commonality for application forms (recognising that different programs may require differing information) would reduce the significant array of forms currently required, and provides a degree of familiarity to firms that subsequently apply for different programs

A move to online applications provides an opportunity to produce a more similar suite of application forms. And potentially provides an option to "auto fill" a number sections of an application with information from previously applications.

Appendix A

Definitions of Innovation and Innovation-related Activities ⁶⁶

An **Innovation** is the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

- A **Product Innovation** is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. Product innovations can utilise new knowledge or technologies, or can be based on new uses of combinations of existing knowledge or technologies.
- A **Process Innovation** is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products.
- An **Organisational Innovation** is the implementation of a new organisational method in the firm's business practices, workplace organisational or external relations. Organisational innovations can be intended to increase a firm's performance by reducing administrative costs or transaction costs, improving workplace satisfaction (and thus labour productivity), gaining access to non-tradable assets (such as non-codified external knowledge) or reducing costs of supplies.
- A **Marketing Innovation** is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales.

Innovation-related Activities are all scientific, technological, organisational, financial and commercial steps which actually, or are intended to, lead to the implementation of innovations. Examples of innovation-related activities are:

- All forms of R&D (intra- & extra-mural R&D and R&D that is not directly related to the development of a specific innovation);
- Acquisition of disembodied technology and know-how;
- Acquisition of embodied technology;
- Tooling up and industrial engineering;
- Industrial design;
- Other capital acquisition;
- Production start-up; and
- Marketing for new or improved products.

Important Notes

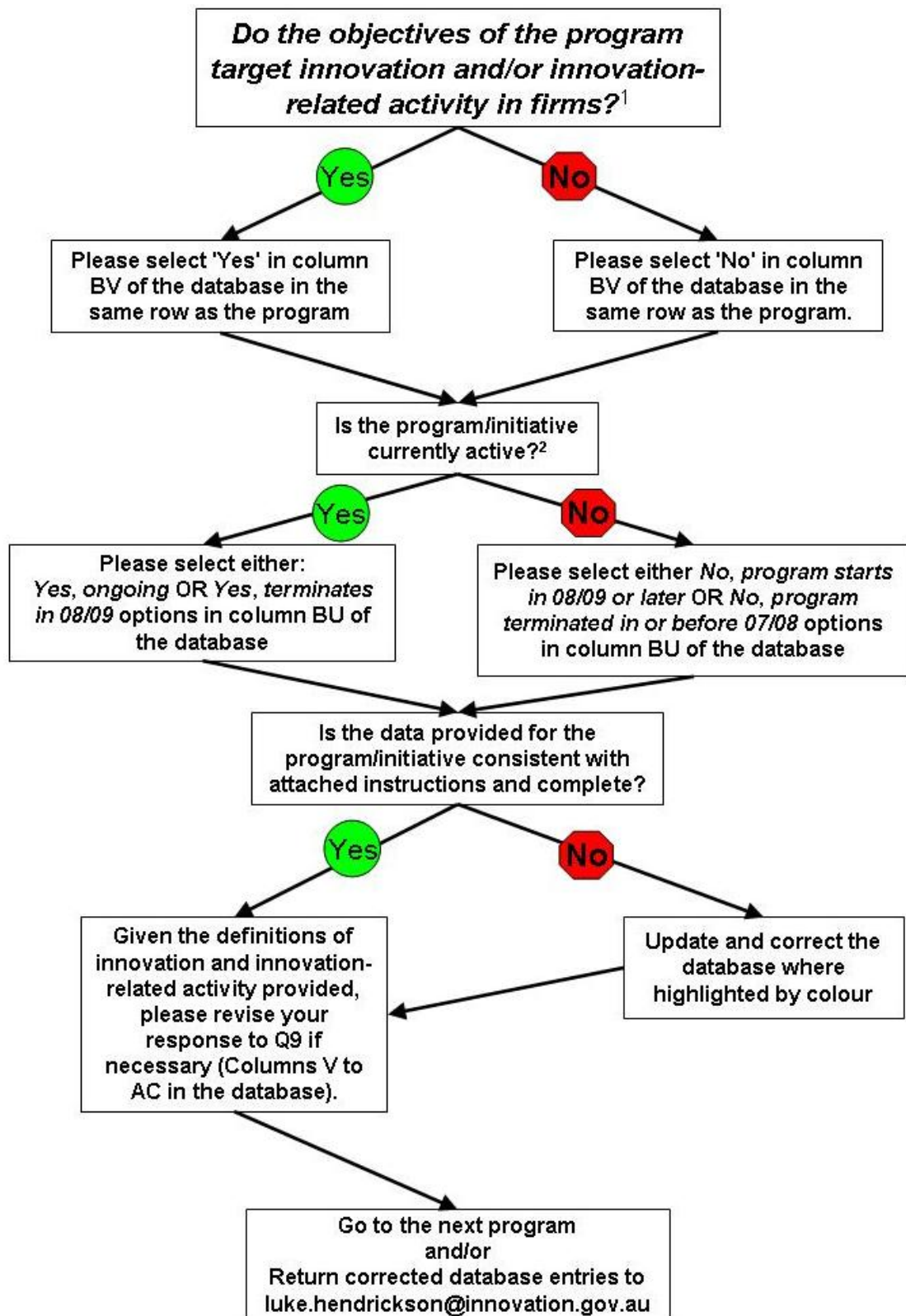
- An innovation must have been *implemented*: (i) a new or improved product is implemented when it is introduced on the market; (ii) new operational processes, organisational methods or marketing methods are implemented when they are brought to actual use in the firm's operations.

⁶⁶ See Chapter 3, Oslo Manual, OECD, 2005

Annex 9

- The minimum requirement for an innovation is that it must be *new (or significantly improved) to the firm*.
- Innovations can be either *radical* or *incremental*.

For every program under your jurisdiction please follow this flow chart:



Notes: 1) In the database provided to you missing data is highlighted in blue, data that is inconsistent with earlier questions is highlighted in red and data identified as requiring confirmation or clarification is highlighted in green. 2) An active program is defined as a program with a budget allocation.

Innovation Interventions – Framework of Principles

Preamble

To ensure that the National Innovation System reflects and responds effectively to changing demands, a coordinated and flexible innovation system is of vital importance. As noted in the *Findings of the Intergovernmental Working Group* all Governments have a role to play in supporting the development of Australia's National Innovation System.

A Framework of Principles for Innovation Interventions is therefore proposed to enhance consistency in approach and support the overall accessibility and efficiency of the suite of interventions.

The underlying intent of the Framework is to maximise the effectiveness of individual and collective actions by Governments in support of the development of the National Innovation System; with a particular focus on ensuring the suite of interventions reflect and respond to changes in demand side needs and priorities and improving coordination and consistency (where possible) across jurisdictions. The Framework does not seek to prevent governments continuing to develop and take appropriate action to support and improve innovation activity.

The Framework covers only those initiatives primarily aimed at improving the innovation capability and performance of firms. Focusing on this core suite of innovation initiatives will help to minimise confusion with initiatives aimed at other aspects of the innovation system or business capabilities more generally (e.g. in areas such as skills and small business support).

New disciplines and behaviours will need to be adopted by all Governments to support the implementation and ongoing operation of the Framework. In particular, an efficient mechanism will need to be established (potentially building on existing Inter-Governmental forums) to ensure ongoing commitment to and management of the Framework and related actions.

DRAFT Framework Principles for Innovation Interventions

Principle	Guiding Considerations
<p>1. Supports the development and effectiveness of the National Innovation System.</p>	<ul style="list-style-type: none"> • Does the initiative seek to enhance the capacity, capability and/or cohesion of the National Innovation System? • Does the initiative address an identified national innovation priority? • Does the initiative add value to the existing suite of National Innovation System interventions (consider gaps, opportunities to leverage from existing initiatives, regional needs, potential confusion, etc)? • Has interplay with other policy levers impacting on innovation (e.g. tax, regulation, education and training) been considered and accounted for? • Is there a capacity to replicate the initiative across the National Innovation System? • Has initiative design incorporated any commonly agreed language, descriptors, and evaluation/risk management methodologies etc? • Does the initiative consider the impact of the targeted priority with other elements of the innovation system? • Has collaboration with other jurisdictions been considered or undertaken with a view to: <ul style="list-style-type: none"> - Maximising opportunities for shared learning and efficiencies across the system? - Identifying opportunities for streamlining of initiatives and delivery mechanisms?
<p>2. Reflects and responds to demand side needs and priorities.</p>	<ul style="list-style-type: none"> • Has the market or demand for the initiative been tested? • Does the design of the initiative facilitate flexibility to respond to changing and emerging demand side needs and priorities? • Does initiative design facilitate ease of understanding and access by target users (consider design, delivery, compliance burden, and marketing and communication elements)? • Does the initiative facilitate ease of understanding and access by target users? • Are marketing and communications coordinated with existing mechanisms (where possible)?

Principle	Guiding Considerations
3. Rationale for intervention and role of government is clearly identified.	<ul style="list-style-type: none"> • Does the initiative address a national innovation priority or an identified element of the National Innovation System? • Is the innovation system issue or opportunity to be addressed clearly identified (i.e. in terms of market or system failure, or on economic/social development grounds)? • Has the initiative considered the least cost intervention for maximum benefit (i.e. what alternatives have been considered; including government doing nothing)? • Is the rationale for intervention and identified approach supported by a sound evidence base?
4. The best placed jurisdiction(s) is/are responsible for design and delivery.	<ul style="list-style-type: none"> • Has an assessment been made regarding the best placed jurisdiction(s) to design and deliver the initiative? – Does the initiative trigger any constitutional or other considerations of responsibility? – Is the initiative related or similar to other initiatives already being delivered or developed by government(s)? – Is there a strong national dimension to the initiative? (suggests the C’wlth) – Does the initiative target a specific local or regional objective? (suggests State/Territory) – Is there a service delivery element to the initiative? – Are there any economies of scale in the provision of the initiative? – Is there a strong international component to the initiative? – Has collaboration with other jurisdictions been considered or undertaken with a view to supporting the identification and allocation of responsibility?
5. Innovation risk is assessed, accepted and incorporated into initiative design.	<ul style="list-style-type: none"> • Does the initiative recognise and account for elevated risk associated with innovative activity? • Is the assessed risk level accounted for in risk management strategies, key performance indicators, application process, and evaluation methodologies? • Does initiative design provide for fast failure recognition and a subsequent ability to change or terminate the initiative quickly?

Principle	Guiding Considerations
	<ul style="list-style-type: none"> • Does the initiative assist the delivery agent to incorporate risk in delivery? • Has the initiative considered pilot programs/prototyping as a risk management strategy?
<p>6. Initiatives are well designed with clarity about:</p> <ul style="list-style-type: none"> • Purpose; • Expected outcome; • Key performance indicators; • Evaluation processes; • Return on investment (financial, economic, or social); and • User/target. 	<ul style="list-style-type: none"> • Has the market or demand for the initiative been tested? • Are the intent and expected outcomes from the initiative clear? • Are the key performance indicators for the initiative clear and measurable? • Do reporting and data collection requirements facilitate initiative evaluation? • Have review processes been established to support ongoing evaluation of the initiative? • Does the design of the initiative facilitate flexibility to respond to changing and emerging needs (i.e. linked to evaluation)? • Are the eligibility criteria clear, transparent, and aligned with the rationale for intervention? • Does the initiative design seek to minimise the compliance/administrative burden for end-users and delivery agent(s)? • Has the initiative identified the most effective delivery mechanism for the initiative (any jurisdiction or private sector agent); having regard for ease and efficiency of delivery? • Does the design of the initiative assess, accept and incorporate risk into initiative design and evaluation mechanisms?
<p>7. Initiatives evaluated for impact on regional/national innovation system.</p>	<ul style="list-style-type: none"> • Have appropriate data items/measurement/benchmark tools been identified and incorporated into program evaluation? • Do evaluation mechanisms account for issues/difficulties in measuring innovation system outcomes? • Has the need for external input/expertise been considered? • Have or will evaluation results been shared across jurisdictions? • Does evaluation inform future scale and scope of program?

