Business Council of Australia

A final submission to the Productivity Commission Inquiry into Public Support for Science and Innovation

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Introduction

In broad terms, innovation can be defined as the application of knowledge, creativity and collaboration to create additional value and wealth. Australia's capacity to innovate will be an increasingly important catalyst for capitalising on future opportunities, meeting the challenges presented by an increasingly connected and competitive global economy and sustaining economic growth and living standards.

The Business Council of Australia (BCA) recognises the important contribution that science and research make to innovation. It continues to be one of a number of sets of activities that make a vital contribution to the creation of additional value within the economy.

At the same time, innovation extends much more broadly than research, discovery and invention. Through the application of knowledge and technology to create new products and services and to improve production processes, innovation can enable Australia to increase our competitiveness, create high-quality jobs, and achieve greater value for what we make and export. Our capacity to innovate is directly linked to the knowledge, skills and broader capabilities of people at all levels.

The BCA welcomes many of the specific assessments and policy options identified in the Productivity Commission's draft report on Science and Innovation of November 2006. The draft findings that we support are identified in this submission.

We also consider, however, that the majority of assessments and policy options contained in the draft report are concerned with science, research and development policy initiatives.

In giving consideration to the range of relevant policy settings to support innovation capabilities, the BCA recommends adopting a broader approach than that represented by the key areas considered by the Commission in its draft report. We recommend that the Commission extend its focus to incorporate assessments of the full range of activities that contribute to innovation in Australia, including non-technological innovation activities, the effectiveness of linkages and collaboration between organisations and coordination with other relevant policy areas. This submission refers to a number of proposals aimed at introducing a broad based innovation strategy for Australia. Most of the proposals are drawn from recent consultations undertaken by the BCA.

In November 2006 the BCA, together with the Society for Knowledge Economics (SKE), outlined the case for the establishment of a National Innovation Framework to address weaknesses in Australia's current innovation system. The Framework identified five key priorities:

- the recognition of innovation as a critical national priority commencing with setting innovation as a new national reform priority for the Council of Australian Governments;

- strengthening the linkages and collaboration between all elements of the innovation system;

- the implementation of specific policy and investment measures to strengthen research networks and institutions;

- developing a culture of innovation through strategic investment in education and skills and the further development of leadership and management skills in order to lift overall innovation capabilities; and

- continuing microeconomic reforms to improve and sustain a business environment suitable for innovation, including infrastructure, taxation and regulatory reform.

The BCA is urging the Federal and State and Territory Governments to work together to implement a National Innovation Framework and establish a new central structure 'Innovation Australia' to take responsibility for providing policy coordination across governments and public sector institutions. Given the relatively small size of Australia's domestic market we need to prioritise and coordinate innovation policy on a national basis.

The development of the November 2006 framework paper titled '*New Pathways to Prosperity. A National Innovation Framework For Australia'* involved extensive collaboration with about twenty leading experts on innovation who formed an Advisory Committee. The process also involved drawing on the findings of previous research conducted by the BCA, including the *New Concepts in Innovation* report released in March 2006.

The BCA, together with the SKE, has endeavoured to develop a common view that is representative of interested public and private sector organisations on what innovation is and what needs to be done by way of a comprehensive policy response from key institutions to capture its benefits.

What is innovation?

How innovation is defined is of fundamental importance to the framing of policy settings aimed at improving national capabilities. The framework paper defines innovation in the following terms:

> "Creating or doing new things or doing things in new or better ways, drawing on knowledge, creativity and collaboration to add value to products, services and processes."

The importance of approaching innovation as a broad concept is that it has the potential to result in benefits to all parts of an organisation both in the private and public sectors. The innovation framework paper recognises the important contribution that research and development make to innovation. At the same time, it is one of many sets of activities which make important contributions to innovation.

The definition contained in the Productivity Commission's draft report is similar to the BCA's definition of innovation.

> "In this study, innovation is defined as deliberative processes by firms, governments and others that add value to the economy or society by generating or recognising potentially beneficial knowledge, and using such

> knowledge to improve products, services, processes or organisational forms. From the perspective of this study, these improvements may be specific to the entity, to the industry, country or world and could be incremental or novel. Innovation can be distinguished from knowledge generation per se, since to comprise innovation, any knowledge must be productively incorporated into an entity's activities and outcomes, often using core resources and decision making processes (Rogers 1998). Innovation is not just technological in nature. Entities can be highly innovative but undertake little or no R&D.[1]"

Despite the inclusion of this broad definition, the Commission's draft report is for the most part concerned with science, research and development policies and outcomes. Furthermore, the key assessments of these policy settings are made in the context of the present economic and technological environments.

The BCA submits that the Commission might consider innovation policy in a broader sense in two ways.

First, by considering how governments and other institutions might support broader areas of innovation such as process innovation, organisational innovation and other activities that involve the application of existing knowledge. Public support for innovation is far broader than financial support for research and development.

Second, current policy settings might be assessed against the challenges and opportunities to be faced by Australia's economy and in particular by our organisations over the next decade and beyond. This would necessarily involve giving consideration to the nation's current and future innovation capabilities and the potential for Australia to take advantage of new opportunities as they develop.

The reasons for proposing that the Commission consider innovation in this broader context are provided below.

Why innovation is important

Many nations around the world are increasingly investing in their innovation capabilities. One of the major reasons for this is that innovation is a source of increased productivity.

The BCA and SKE framework paper points to the changing nature of the Australia's economic challenges and the need to consider how to continue to increase productivity in order to support economic growth into the future. The major challenges to economic growth in future years are expected to include:

- constraints on the growth of Australia's workforce;
- diminishing returns in terms of productivity growth from past microeconomic reforms; and
- the changing nature and increasing intensity of global competition.

[1] Public Support for Science and Innovation, *Productivity Commission Draft Research Report, November 2006, pp. 1.7 – 1.9*

From research considered in the development of the framework paper, it is evident that the most successful societies in future decades will be those that effectively grasp the opportunities and challenges of innovation. This will involve setting out a vision of the future and translating it into reality through strategic focus and action. Australia must ensure that it is one of these societies if we are to maintain and further build on our current economic prosperity.

The BCA believes that our current period of economic expansion should be seen as the time to put in place such a vision with a focus on developing our national innovation system and lifting the capabilities of organisations and individuals alike.

Australia's innovation system

The framework paper identified the following institutions as having key roles responsibilities in relation to lifting Australia's innovation capabilities:

- governments;
- research and education institutions;
- businesses; and
- finance and venture capital institutions.

Australia's future innovation performance will rely on these key institutions and their capacity to provide the leadership and changes needed to support improved outcomes, particularly the creation of greater value and wealth.

Overcoming impediments to innovation

The BCA's recent research has found that a lack of effective leadership, policy coordination across different areas, collaboration, skills development and the absence of a supportive culture are the main inhibitors to innovation in Australia.

In order to address these impediments, the following priority actions are needed:

- national leadership especially in achieving inter-governmental coordination and the right public policy settings to encourage innovation by business and the development of innovation capabilities by the research and education sectors;
- leaders and managers creating the right environment for innovation;
- bridging "silos" inside and between organisations including the public and private sector;
- people at all levels collaborating within and between organisations;
- building skills, knowledge and a workplace culture that support innovation;
- providing universities and public research organisations with access to expertise and support for commercialisation planning and activities; and

- linking the innovation agenda with the need for broadly based infrastructure, taxation and regulatory reforms.

In relation to the specific policy changes recommended by the BCA, these are contained in the *New Pathways to Prosperity. A National Innovation Framework* paper, which is attached to this submission.

Strengthening linkages and collaboration

The framework paper concludes that while Australia's innovation system does have areas of excellence, there is some degree of weakness in each of the necessary components outlined above.

Chief among the nation's challenges is to improve collaboration amongst key national institutions. At a national level, the quality and effectiveness of Australia's future innovation capabilities will depend on achieving cooperation and coordination of policy development and implementation at the highest levels of Government.

The extent and quality of collaboration between businesses, universities and research institutions is also vital to achieving innovative outcomes. Research conducted by Howard Partners in 2005 found that many businesses view access to new knowledge from external networks as providing the main source of ideas for innovation.[2]

While there continue to be examples of effective collaboration in Australia, there remains considerable room to improve our capabilities in this area. The recent framework paper identified strengthening collaboration between key elements of the national innovation system as a major policy priority.

One important step towards achieving this priority would be to further build the capacity of both private and public sector organisations to engage in effective forms of collaboration. The framework paper includes recommendations to develop innovation resource centres for businesses and shared service centres for universities and research institutions.

The BCA agrees that attention should be given to options for supporting collaboration between business, public sector research agencies and universities in ways that involve greater flexibility.

In light of this, the BCA supports the Commission's draft findings in relation to Cooperative Research Centres (CRCs). In particular, we agree with the assessment that the CRC program is currently better suited to larger research users pursuing longer-term objectives.

Research and development

The Commission's draft report concludes that there is evidence from a number of assessments that publicly funded research and development generate benefits over and above the costs involved.

[2] Howard Partners (2005), *Knowledge Exchange Networks in Australia's Innovation System: Overview and Strategic Analysis,* Report of a Study Commissioned by the Department of Education, Science and Training, Canberra.

This finding is supported by the BCA and SKE framework paper, which states that research and development make a very important contribution to innovation.

The framework paper also reinforces the importance of viewing this area as one set of activities relating to knowledge creation that make a contribution to innovation. Other sets of activities are also very important, for example, process innovation, organisational innovation and collaboration across structures.

The focus of research: pure research versus commercial research

The Commission's draft report also suggests that there is a tendency for many organisations with an interest in innovation to urge that public sector research should have an increasing focus on commercial applications and on the commercialisation process. The draft report raises concerns about this approach, and concludes that a balance needs to be maintained between pure basic research and commercial product development.

The BCA strongly supports maintaining a prominent place for pure basic research. We support public research bodies and individuals having the capacity to choose to undertake independent basic research and to disseminate the results widely.

However, we are also of the view that there is scope to improve the current level and effectiveness of commercialisation resulting from public sector research. The potential for the effective commercialisation of a higher proportion of public sector research is not being realised due to weaknesses in establishing linkages and in obtaining access to expert services and advice.

The BCA submits that the need for more effective linkages to support commercialisation requires a policy response from governments as well as from research institutions and business.

One potential component of a policy response is identified in the Commission's draft report by way of an option to develop more flexible arrangements for the commercialisation of research including the use of private sector intermediaries. The BCA supports this approach. We view this option as being consistent with the proposal contained in our framework paper to provide shared service centres that would facilitate access to private sector expertise for groups of universities. An initiative such as this would make an important contribution to building the capacity of organisations to engage in more effective collaboration.

A new Research Quality Framework

The draft report proposes delaying the implementation of the new Research Quality Framework (RQF) because of anticipated costs.

While there are expected to be some additional costs associated with the new RQF, the BCA's assessment is that these will be outweighed by the benefits. The benefits will flow from allowing the future funding of university research to reflect the impact of research in the form of economic, social, cultural and environmental benefits. When these benefits are combined with the requirement that the information about research should be made available to end users, we are of the view that this will result in better outcomes for the nation from our investment in public research.

Education, knowledge and skills

The knowledge and capabilities of people and the application of their skills is vital to all aspects of the innovation process. This places education and training systems firmly at the centre of the development of an effective innovation policy framework for Australia's future.

Increasing the nation's innovation capabilities will require effective learning and the development of appropriate skills in our people. Of particular value are skills for creating new knowledge, both technological and non-technological, skills for recognising opportunities in using new knowledge and re-combining old knowledge, and skills for practically applying such knowledge to achieve real value.

The BCA and SKE framework paper highlights the importance of the development of strong technical skills in the workforce, as well as those associated with communication, teamwork, problem solving, entrepreneurship and leadership. The paper also emphasises the increasing importance of management skills associated with managing knowledge and innovation within organisations.

The framework paper suggests a number of recommendations for reforms to education and training systems including: the development of a new subject on business innovation to include in year 11 and 12 curricula; and a review and development of the recommendations of the 1995 Karpin Report to further build innovation management and leadership capabilities in Australia.

By improving the attainment of knowledge and skills that contribute to innovation, Australia can build a culture that supports working collaboratively to produce additional value and wealth.

The BCA also recognises the critical role of teachers and recommends supporting their professional development, particularly in areas that build their teaching capabilities in maths, science and technology.

The BCA supports the recognition given to the critical role of teachers in the Commission's draft report.

R&D tax concession arrangements

The draft report has suggested changing the research and development (R&D) tax concession arrangements for business by giving greater weight to rewarding incremental increases in R&D.

Care should be taken to ensure that individual companies that are already spending a relatively high proportion of revenue on R&D are not disadvantaged by any proposed changes. It is worth noting that in 2004-05 only 1,182 companies accessed the incremental concession out of a total of 5,961 companies registered with AusIndustry for the R&D tax concession program.

Moving exclusively to an incremental program would also create an overall environment of uncertainty and provides no basis for budgeting, planning and long term investment. Under an incremental program it will not be until year end, when

the realities of the business and R&D effort are calculated, that companies will have any certainty as to the benefit of the R&D tax concession, if any.

Overall, the BCA advocates comprehensive tax reform that aims to ensure personal income tax rates and taxes that impact on businesses in Australia are internationally competitive. We need to attract and maintain business investment and highly capable people if we are to be an innovative nation, and the competitiveness of our taxation system is vital to achieving this.

Investment in innovation: access to capital

The issue of public investment in high risk ventures was considered in developing the BCA and SKE framework paper.

We note that in the draft report the Commission indicated that it does not favour support for capital investment in highly risky commercial ventures by the public sector.

However, it is not clear that financial markets currently provide appropriate levels of capital for some new and innovative proposals.

The BCA recommends that further research be conducted on the extent of and reasons for private sector under-funding of certain innovative activities. We also recommend examining what further arrangements could be introduced to improve funding for innovative activities such as early-stage venture development and activities that involve the creation or use of intangible assets.

Intellectual property

The assessment of the draft report that legal uncertainty in relation to the use of patents has the potential to act as a barrier to the dissemination of knowledge is strongly supported by the BCA. Although, it is noted that the draft report also stated that the extent to which legal uncertainty affecting patents acts as an impediment to innovation is not clear.

The BCA also suggests that consideration of intellectual property (IP) issues extend more broadly than patents, to include design, circuit layout design, copyright, trade marks and other areas of IP which are important to broad based innovation.

The BCA's framework paper proposes that current IP arrangements, particularly as they apply to university research, should be reviewed with the aim of finding ways to improve the sharing and transfer of intellectual property with business and other outside organisations.

Conclusion

The BCA welcomes the important and timely inquiry by the Productivity Commission into science and innovation policy in Australia.

A number of the assessments and policy options identified by the Commission are supported by the BCA, including the vital importance of support for research and development.

At the same time, the BCA notes that the focus of the Commission's draft report was primarily on current science, research and development policy settings.

Both the recent framework paper released by the BCA together with the Society for Knowledge Economics and this submission have emphasised the need for a broad based national innovation strategy.

In conclusion, the BCA suggests that the Commission extend its focus to incorporate assessments of the broad innovation system in Australia, including non-technological innovation activities, the effectiveness of linkages and collaboration within the broader system and coordination with other relevant policy areas.

A broader approach to innovation combined with consideration of Australia's future economic and social needs are what should determine the decision making principles and program design of Australian innovation policy.

The BCA's assessment of both Australia's future competitive position and economic and business trends internationally has concluded that our innovation capabilities will become increasingly important determinants of our future productivity, growth and living standards.

It is essential that there is greater integration of policy development and implementation provided by improved coordination and cooperation both between the Federal and State and Territory Governments and within each government.

This covering submission together with a copy of the framework paper are provided to the Productivity Commission for consideration in the preparation of its final report.