
# Business Council of Australia

## Submission to the Productivity Commission Study on Public Support for Science and Innovation

**July 2006**

## Introduction

A nation's prosperity and standard of living is fundamentally determined by its productivity. Innovation is an important determinant of productivity in the economy. Innovation not only improves productivity by allowing greater efficiencies in production but also through increasing the value of products and services that a nation produces.

Innovation is becoming ever more significant in driving the productivity performance and international competitiveness of many developed economies. More than ever before, developed economies are competing on the basis of unique value delivered through the application of knowledge in the production process.

Over recent years, debate on innovation policy in Australia has primarily focused on research and development (R&D) expenditure and public support for science and research related to the discovery and development of disruptive new technologies and products. Such research, if proven and successfully commercialised, offers major new growth opportunities for industries in Australia.

Such breakthrough innovation can be characterised by the following elements:

- a high level of dependence on research;
- the development and commercialisation of a world first technology or product;
- an intensive process of market development and preparation for release;
- successes create significant new economic opportunities; and
- a high level of risk reflecting the fact that attempts at this form of innovation often fail.

The Business Council of Australia (BCA) recognises the vital importance of such innovative activity to the economic prosperity of Australia. The BCA strongly supports government policies aimed at enhancing innovation success in technological research-based breakthrough innovation, in particular policies which build a strong science and research base in the public sector.

In considering what innovation involves and how it is achieved, it is necessary to take account of the activities and influences in a broad context, particularly when analysing future opportunities for Australia.

The BCA is concerned that there is a perception throughout the community, and in policy making circles in Australia, that major technological product innovation is the only form of innovative activity occurring in the economy.

The BCA submits that this widely held perception has resulted in an innovation policy framework in Australia that is too focussed on a linear technology-push concept of innovation. A key objective of a future policy framework should be to support both:

- research and development activities; and

- the broader range of activities that contribute to innovation, including activities that involve the application of existing knowledge in new and different ways.

In response to our concern about the need for a more comprehensive policy framework, earlier this year the BCA released the report, *New Concepts in Innovation: The Keys to a Growing Australia*.

The report was based on case studies of innovation processes within 19 BCA Member companies. The aim of the case studies was to examine the nature of innovation approaches within BCA Member companies and to assess the various public policy frameworks that influence innovation as it occurs in Australia.

The key findings of the report highlight that innovation is a complex non-linear process. Innovative activity encompasses a wide range of activities which can be technological or non-technological in nature, can focus on the products, processes or organisational aspects of innovators, and can involve breakthrough ideas or continuous improvements to current operations.

The report found that businesses in Australia are undertaking innovation through a variety of different means, which are highly dependant on the characteristics of their markets and industries.

In particular, the case studies indicate that:

- innovative activity extends across all parts of a business – it is not confined to research work;
- the imperative to deliver customer value drives the need for, and nature of, innovation; and
- business innovation relies on the human capital of its employees and how their skills and capabilities are applied.

The report provides an important insight into the innovation process within Australian businesses and aims to inform public understanding of how innovation occurs throughout the economy. As a result, we have attached a copy of the report for consideration by the Productivity Commission with respect to the current review.

However, more importantly for the current review of public support for science and innovation, the report makes it clear that once we better understand how innovation occurs within the economy, it becomes evident that increased and broader public policy support in Australia is required to encourage innovation success. In particular, the report finds that a more holistic view of the range of policy structures that influence innovation is needed. A strong focus on science and technology policy is still required, and will remain very important as the international economy continues to place a greater value on knowledge and its application. However science and technology policy ought to be seen as one component of an integrated and comprehensive innovation policy framework that spans a number of public policy areas which influence innovative activity in all its various forms. It is this general conclusion which informs much of the BCA's submission to the current review.

## Innovation policy settings

Research on innovation, both in Australia and overseas, has shown that innovative activity occurs under numerous guises throughout the economy, and its nature varies significantly between sectors and as industries evolve over time.

This amorphous concept of innovative activity was recently summed up by Don Scott-Kemmis from the ANU in his submission to the parliamentary inquiry report: *Pathways to Technological Innovation*. Scott-Kemmis noted that:

> 'Innovation is typically a complex process of combining new and old knowledge and in-house and external competencies in addressing the technological and non-technological challenges of opportunities and problems'.

Despite the growing recognition of the varying nature of innovative activity in an economy, innovation policy in Australia is still firmly centred on the concept of innovation as major technological product invention.

The BCA recognises that this area of innovation is very important and supports a continuation of the commitment to research in this area.

However, we also submit that overall policy settings should reflect the broader range of activities supporting innovation in Australia.

## Science, research and technology policy

The concept of innovation as major technological product invention or breakthrough innovation has resulted in an innovation policy framework that has focused on building a substantial science and research base in the public sector. This is reflected in the significant commitment made by governments to public research conducted in universities and research institutions.

A focused research and technology policy framework provides the foundation for activities required for breakthrough innovation. A strong scientific and research capability also contributes to the collection and dissemination of knowledge for the education system and throughout the wider economy. Indeed, in a global knowledge-based economy a strong scientific and technological base is a necessity.

The BCA submits that a future challenge for Australian policy is in deriving increased economic returns from its investment in research and development, primarily from breakthrough innovation.

We consider that there are three main areas where the current science and research policy framework could be strengthened.

Firstly, publicly funded research could be more informed by and better directed at needs or opportunities identified by Australian industry and the wider community. The level of effective collaboration between businesses and universities and research institutions needs to be improved. In particular, the process of collaboration needs to commence before initial research is undertaken wherever possible. The experience of business is that far too often it only becomes involved in

collaborative ventures with universities or research institutions at the end of the research process.

In relation to research funding generally, and especially in the area of knowledge transfer policy, an increased effort to establish genuine partnership with business from the beginning of the process is needed.

In this context, the BCA supports the development of a new Research Quality Framework for the allocation of future research funding to Australian universities that is based on the assessment of the impact of research as well as quality.

At the same time, the BCA recognises and supports a continuing place for blue sky basic research. What is needed is an increased effort to provide adequate public support for the two important strands of blue sky and industry focussed research.

Secondly, the current public research framework would benefit from a greater emphasis on commercialisation. Furthermore, the form of commercialisation that is often supported is the traditional start-up/licensing model of public sector R&D, which fails to take into account the commercialisation support needs of established businesses and the variety of knowledge transfer mechanisms between the public and private sectors that can be exploited in a modern economy.

In relation to further supporting the commercialisation of intellectual property (IP), one approach is to examine whether simplified arrangements could be introduced that would facilitate the transfer of IP held by public sector organisations to private businesses. The aim of such an examination should be to facilitate increased collaboration between public research bodies and business in this area. This issue has been previously identified by the BCA and more recently by the Prime Minister's Science, Engineering and Innovation Council's Working Group on Asia.

Thirdly, the BCA submits that research policy settings could be strengthened by an increased awareness and commitment to innovation in services. It is increasingly necessary to view the value of research with respect to its contribution to services sector innovation. This reflects both the size of the services sector within the Australian economy as well as the fact that a productive and innovative services sector is vital to the overall competitiveness of the economy. Such an approach will require a concerted policy effort to identify opportunities for research which could provide Australian service providers with unique value benefits internationally, and ensuring more generally that public R&D better addresses the innovative needs of service providers and that links between the services sector and public research institutions are developed.

**Policies that influence business innovation**

The traditional approach which equates Australia's science and technology policy as Australia's innovation policy has meant that the wide variety of public policy frameworks that can influence innovative activity in Australia are often not considered in a comprehensive fashion when setting innovation policy. The BCA's *New Concepts in Innovation* report highlighted that once it is recognised that innovation is a complex process that involves a wide variety of often interdependent activities, the scope of innovation policy quickly moves beyond encouraging R&D or technology commercialisation.

The *New Concepts in Innovation* report highlighted that companies place a high priority on stability in macroeconomic conditions, delivered by macroeconomic policy, for business innovation success in Australia. They also noted the importance of microeconomic reforms to workplace relations and the financial services sector in enabling a strong innovation performance.

Companies also raised concerns about a variety of public policy frameworks and how they impacted on innovative activity in Australia. They noted that many policy frameworks, including competition policy, were set in a national or local context which prevented them from competing or innovating effectively in a global market place.

Many companies were concerned that the overall regulatory environment in Australia, in particular the corporate governance framework, is becoming focused on compliance, engendering risk aversion in corporate Australia and restricting the ability to transform businesses and innovate by using assets in new ways.

Various aspects of the taxation system were raised as inhibitors to innovative activity in Australia, including: a personal taxation system which acted as a major constraint to the attraction and retention of skilled workers; a R&D tax concession framework that was too restrictive to science-based innovation and provided insufficient support for encouraging greater R&D activities; and a capital depreciation system which did not adequately support new capital investment.

The poor state of the nation's infrastructure assets was also raised as an inhibitor to innovative activity in Australia, particularly in the area of supply chain management and logistics. In particular, continued focus needs to be placed on further developing a quality broadband system in Australia with comprehensive access.

Other policy frameworks that were considered important for influencing innovative activity in Australia included industry policy, university intellectual property policy, collaboration and knowledge transfer frameworks between the research community and industry, and trade policy.

**Education and training policies**

Significantly, the report highlighted the importance of the ability of the education and training systems in Australia to deliver the skills essential for innovative activity. The vital role of human capital in the innovation process places the education and training systems firmly at the centre of a credible innovation policy framework in Australia.

Many business leaders are of the view that the education and training system has the potential to better provide students and trainees with the requisite skills for innovation success. They noted concerns about the technical skills being delivered through a number of course offerings – for example the lack of industry relevant skills being taught in university engineering degrees and business school offerings. Furthermore, many companies argued that the education and training systems in Australia are not providing students with the requisite 'soft skills' that innovative workers need in a modern economy, such as those associated with communication, teamwork, problem solving, ongoing learning, creativity, cultural understanding, entrepreneurship and leadership.

These concerns have also been echoed by a number of submissions to the recent parliamentary inquiry report: *Pathways to Technological Innovation*, as well as a number of employer surveys including the recent AIG report: *World Class Skills for World Class Industries*.

**Human capital**

The importance of Australia's education and training system is part of a broader consideration of the role of human capital in achieving innovation.

Innovation is the application of knowledge to create additional value and wealth. The role of people and the application of their skills is vital in all aspects of the innovation process.

Innovation success requires the development of appropriate skills in our people. 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.

Innovation success in Australia requires an innovation policy framework that values education, skills and the ongoing development and contribution of people.

**Current considerations**

The above discussion emphasises the need in Australia for a broad-based approach to innovation policy. While the BCA recognises that reform to a number of separate public policy frameworks is required, it is essential that these are integrated through the implementation of a whole-of-government concept of innovation.

This whole-of-government concept of innovation is what should determine the decision making principles and program design of Australian innovation policy.

However, in order to develop such a whole-of-government view of innovation, broad agreement on what Australia's innovation system looks like, and policy priorities for innovation success, needs to be achieved.

To this end, the BCA is currently working to develop a summary of the key drivers and components of the innovation system in Australia, as well as priority areas for reform, which has broad agreement throughout the community. The BCA is attempting to achieve this through a process of consultation with various groups within an interest in innovation in Australia. These groups include innovation researchers, industry leaders, members of different parts of the education and training sector, the research community and government departments. The BCA will release this paper for general consideration later in the year and it is hoped that it will provoke a public discourse that will eventually lead to the development of a whole-of-government concept of innovation that reflects the realities of the innovation process and drives the implementation of appropriate innovation policy.