

**PRIME MINISTER'S SCIENCE, ENGINEERING AND INNOVATION
COUNCIL**

FOURTH MEETING - 26 NOVEMBER 1999

AGENDA ITEM 1 (b)

THE NATIONAL INNOVATION SUMMIT

EXECUTIVE SUMMARY

The importance of innovation as a driver of sustainable economic growth in a knowledge-based economy cannot be overestimated. Innovation leads to increased competitiveness, which in turn leads to employment generation and wealth creation in our economy.

The National Innovation Summit is a vehicle to identify what needs to be done to accelerate the rate at which new ideas are translated into commercially successful products and services - so contributing to the future economic and social well-being of all Australians.

The Summit provides a platform to redefine our understanding of innovation. The focus will be on what actions are required for developing new products and technologies and innovative management, marketing and other business methodologies.

Australia's opportunities for innovation cover the full spectrum from 'incremental innovation' - improvements to existing products or processes - to 'radical innovation' - developing new ideas, products, processes and ways of doing business.

Within this spectrum, the Summit Working Groups are identifying options and proposing potential outcomes which can be categorised under three common themes:

1. Creating a competitive environment: this includes maintaining a competitive public sector research and education base, improving coordination mechanisms within government structures, regulatory responsiveness, establishing a climate to build venture capital, and management of intellectual property.
2. Investing in new ideas: this includes improving commercialisation of technology, rewarding entrepreneurial behaviour, increasing business investment in research and development, and leveraging private support - both business and non-business.

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3. Building industry-research linkages: this includes developing a robust information network, encouraging collaboration between firms, research institutions, education centres and government, catalysing the formation of clusters and international links.

The options from the expert Working Groups will not be finalised until mid December. Nevertheless, the Innovation Summit Steering Committee seeks comment on the following contentions:

1. **The National Innovation Summit, in February 2000, be endorsed by PMSEIC as a vital national initiative to facilitate the development of practical policy options to strengthen our national innovation system in the 21st century.**
2. **The Summit provides a platform for the Government portfolios to work cooperatively with industry and the academic community towards developing a joint innovation vision for the next millennium: promoting investment in new ideas, building industry-research linkages and creating a competitive environment.**
3. **Agreed options to be taken forward through the establishment of ongoing mechanisms over the next 2 years involving coordination and implementation activities. PMSEIC to be a leader in supporting a range of options from the Summit Working Groups.**

Background

Australia enters the 21st century with a record of relatively high and stable economic growth as a result of our program of micro-economic reform and the past strength of our commodities base. We have weathered the storm of the regional economic crises surrounding us and emerged to face the global market place in a position of some strength.

However, to continue this growth and seize our international opportunities, Australia must now enhance and expand the competitive edge it has established.

As the world moves toward a globalised economy where knowledge-intensive goods and services dominate the market, the importance of innovation as a driver of sustainable economic growth cannot be overstated. Innovation leads to increased competitiveness, which in turn leads to employment generation and wealth creation in our economy.

Our efforts in innovation to date have been substantial and form a sound foundation to build on. We should all celebrate recent Australian success stories, such as Biota and LookSmart. There is little doubt that with renewed and joint attention from industry, government and the research sector our future achievements will be even greater.

The National Innovation Summit, being held in the second month of the new millennium, is a major step in developing a national culture of innovation. It presents a key opportunity to identify what needs to be done to accelerate the rate at which new ideas are translated into commercially successful products and services - so contributing to the future economic and social well-being of all Australians.

The National Innovation Summit

The National Innovation Summit is a ground breaking initiative developed through a partnership between the Federal government and the Business Council of Australia. It aims to create 'a new vision for Australian innovation by bringing together industry, government and the research community to develop a strong national innovation system'.

The Innovation Summit is a crucial milestone in the innovation process. The pre-Summit research and consultations, this meeting of PMSEIC, the Summit itself and the post-Summit activities (over the next two years) will all contribute to a better national innovation system in Australia. The recent work of the OECD on innovation opportunities, together with an academic analysis of our current innovation system provide a rich context for change.

It is important to recognise that the Summit is a starting point for uniting all the participants in the innovation system to a common course of action. The

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implementation of agreed outcomes by all parties will be critical in demonstrating our commitment to this change process.

The pre-Summit process is developing a range of practical policy options to improve Australia's innovation capacity. It is identifying impediments to innovation and opportunities to build on our strengths. The Summit itself is designed to act as a catalyst, prompting a cultural shift towards innovation in Australian industry, government, research and educational institutions.

With direction from the national Steering Committee, six expert Working Groups are exploring innovation in Australia and identifying outcome options for presentation to the Summit. The six Working Groups are focussing on:

- Industrial Innovation
- Managing Intellectual Property
- The Human Dimension
- Institutional Structures and Interfaces
- Innovation and Incentives
- Resource and Infrastructure Consolidation and Cooperation

New definitions of innovation

Through the pre-Summit deliberations, it has become clear that past definitions of innovation have centred around traditional concepts of industry research and development and the commercialisation of new products and/or process technologies.

There is growing recognition that this past characterisation of innovation is increasingly restrictive in today's global, knowledge-based market. The OECD is now including 'organisational improvements' in its definition of innovation. As we embrace a future where service-based industries comprise over 75% of our GDP and where knowledge is the new foundation of economic activity, organisational improvements must be part of our consideration of innovation.

Innovation results not only from conventional research and development, but also from responding to customer demands, problem-solving and adapting to an ever changing environment. Our national system of innovation must be comprehensive and flexible enough to embrace all forms of innovation.

The National Innovation Summit will redefine our understanding of innovation to encompass not only new products/technologies, but also innovation in management, marketing, and other business methodologies.

Opportunities for Innovation

The industry-government Summit partnership has broadly divided opportunities for innovation into two categories: 'incremental innovation' and 'radical innovation'.

'Incremental innovation' refers to any improvements made to existing products or processes (including organisational, financial and commercial). Improving current

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systems will generally require little investment but may result in substantial profit increases. The main impediment to this type of innovation is a complacent culture where there is little competition or accountability for performance, and a lack of appreciation for diversity.

The Summit will increase awareness of the benefits of ‘incremental innovation’ in industry, government and the research community - prompting a cultural shift in the business environment which rewards innovation. Case studies will draw attention to our successes for the broader community.

‘Radical innovation’ involves new ideas, developing or adapting new technology, or new ways of doing business, is usually more risky and often requires substantial new investment. Australia is widely perceived to be under-investing in this type of innovation. Reasons for this under-investment range from a lack of information or risk assessment, to high capital costs for business, poor systemic linkages along the innovation chain and an insufficiently supportive environment.

The Summit will identify the impediments to ‘radical innovation’ by, for example, developing and strengthening linkages between all players in the innovation system and building a business environment which supports innovation and risk-taking. Again, case studies and cameos will illustrate successes.

Innovation - both ‘incremental’ and ‘radical’ - is critically dependent on strategic leadership. Other essential ingredients include incentives to explore new options, knowledge-intensive activities and a strong resource and skills base. We contend that an organisational culture of innovation is more a product of strategic business skills, leadership and planning than a result of serendipity.

To foster a national innovation culture, the development of a national vision and common purpose shared by all the participants in the innovation system is critical.

Themes of the Summit

The Summit is centred around three broad themes:

- **creating a competitive environment;**
- **investing in new ideas; and**
- **building industry-research linkages.**

These themes are both interrelated and interdependent. All contribute to the totality of the innovation system, and many of their sub-components could just as easily be classified under each of the headings. For example, strengthening our innovation skills base is characterised under the theme of ‘creating a competitive environment’, but for its effectiveness has undeniable elements of building linkages and investing in new ideas.

The outcomes currently emerging from the Working Groups are encapsulated under these broad themes.

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Creating a competitive environment:

The creation of a business and research environment that embraces innovation is the principal concern under this theme.

The emphasis here is on ensuring our intellectual property framework, competition policy and educational infrastructure are conducive to innovation. Improvements to coordination mechanisms within and between government structures are also relevant.

Efforts are focussed on developing world class managers and improving our innovation skills base, in addition to encouraging our expatriate entrepreneurs to return to Australia. Furthermore, the availability of seed and venture capital is an issue under consideration, aimed at creating an environment which fosters innovation.

Significant efforts to improve the competitive business environment have already been made by government in relation to tax reform. Further improving the management of intellectual property, both within industry and public sector agencies, has been identified as significant to the commercialisation of Australian innovation.

a) The innovation skills base:

Traditional strengths in general education, basic research and research training have promoted Australia's international reputation for scientists and engineers. However, while student interest in biotechnology and information technology is increasing, there has recently been a drop in interest in the physical sciences. Furthermore, evidence points to increasing numbers of Australian academics leaving their profession or moving overseas in response to more competitive wage/salary conditions and careers prospects. It is important not only promote an entrepreneurial spirit among our researchers, but also to ensure we continue to strengthen our education system.

b) Developing world-class business managers:

There is a shortage of skilled technology business managers in Australia, with many of our trained experts working overseas. This expertise is essential if we are to build a new cohort of technology based firms.

A related concern is the lack of innovation and entrepreneurship training included in the curriculum of our management schools. The importance of innovation in management practices and business methodologies is often overlooked in traditional concepts of 'innovation'.

c) Intellectual property management:

The intellectual property protection framework has far reaching ramifications for the successful commercialisation of Australian innovation. The IP framework is often characterised as unresponsive, the management of intellectual property within universities/research institutes could be improved and both researchers and managers are poorly trained in the area.

d) Venture capital:

Lack of early stage capital and joint venture opportunities are potential areas of concern in the commercialisation of R&D and have often been viewed as gaps in the innovation system.

The Review of Business Taxation (Ralph Review) is anticipated to have a significant impact on investment in venture capital funds - encouraging domestic and international investors. However, the need for seed capital and focussed support at early stages to help incubate high growth technology firms is still an area of concern.

1. Investing in new ideas:

This theme focuses on raising the levels of business expenditure on research and development (BERD) and the commercialisation of new technologies. It encompasses entrepreneurial and innovative behaviour in business, and encompasses organisational and financial practices and new management methodologies.

Investment in new ideas relates not only to innovation based in Australia, but also to the uptake and diffusion of international, leading edge technologies and business practices. Placing ourselves at the forefront of new global developments and adopting world's best practice will enable us to capitalise on emerging market opportunities.

This theme also covers incentives to encourage non-business investment in innovation. Endowment and research foundation mechanisms in Australia, corporate philanthropy and overseas business expert interest are all considered under this theme.

a) Increasing business expenditure in R&D (BERD):

Incentive structures aimed at increasing business expenditure on R&D are the main area of concern under this theme. Greater business spending on R&D is essential if we are to develop sustainable economic growth through innovation. Past evidence points to the link between growth of BERD and economic benefits both directly for firms and through spillover benefits more broadly.

Business supported research has traditionally been characterised as business expenditure on R&D. This terminology does not accurately reflect the nature of investment in R&D and the long term business benefits that flow on. Replacing the term "expenditure" with "investment" may more accurately reflect the commercial benefits associated with R&D and innovation.

Innovation aimed at understanding and adopting international innovations is just as important as basic R&D. This diffusion of technology promotes an intimate understanding of world's best practice, develops new Australian skills and familiarity with the latest developments in the field. Business investment in all areas of R&D should be encouraged and the potential for benefits flowing from effective adoption of products and processes already in use elsewhere should be recognised and applauded.

b) Improving commercialisation of R&D:

Commercialisation of both public and private research has been identified as a significant gap in our innovation system. There have been notable successes, for example the Biota influenza drug, but to date they are the exception rather than the rule.

Australia has a sound public R&D infrastructure, but commercialisation of technology and technology products has been weak in the past. We clearly gain significant 'national benefit' from R&D, but our commercial return on investment in R&D is comparatively low when compared against our overseas counterparts.

c) Leveraging private non-business support:

Private endowment, research foundation mechanisms and private/corporate philanthropy are important sources of innovation funding for many of our overseas counterparts. Ways of promoting a culture of innovation philanthropy in Australia to increase private, non-business sector support should be investigated.

2. Building industry-research linkages:

The importance of a robust information network in a knowledge-based economy, with comprehensive linkages throughout the national innovation system, cannot be overstated. Collaboration between firms, research institutions, educational centres and government is paramount and encompasses the formation of clusters between the business and research communities and the encouragement of international linkages - particularly business to business.

Establishing linkages between industry and the research community, and between firms, may not yield immediate results. Innovation often requires an intimate knowledge of each party's needs and the broader operating environment. Innovation will likely to result from the establishment of long term relationships and sustained exposure to the details of business market needs.

Our Co-operative Research Centres program, upcoming information technology incubator initiatives (Building on Information Technology Strengths program) and the Technology Diffusion Program are contributors to this area. There is a view that industry should be taking a more active role in establishing linkages and the current incentives for encouraging industry driven cluster formation are under consideration.

The need for a central advisory and coordination point within the national innovation system has been raised. Identification of inconsistencies, gaps or overlaps along the innovation chain is critical. A stable, reliable network and information source overarching the complete and complex system would streamline processes and develop new and diverse linkages.

Broad Outcomes of the Innovation Summit

Broadly, the National Innovation Summit process aims to develop a common purpose between government, industry and the research community, including:

- A clear understanding and agreement on the opportunities to improve Australia's innovation performance;
- A realistic appraisal of the things which industry, the research community and government can solve now and which will require further work in the future;
- Agreed strategies based on an enhanced partnership between all parties in the innovation system, with commitment to a two year and five year course of action;
- Commitment from governments to deal with issues of innovation policy in a comprehensive and coordinated fashion with a reciprocal commitment from other participants to pursue realistic outcomes;
- A culture of innovation and entrepreneurship for Australia, embracing the new approach to innovation emerging from the Summit.

The Summit is seen as the beginning of an extensive work program for all participants, with post-Summit activities planned for an initial two year span.

The way forward:

The National Innovation Summit is a key step in focussing the discussion of innovation in Australia. It is a unique opportunity for all players in the innovation system to create a strategic vision for the future and foster a national culture of entrepreneurship. Government, industry, academia and the research community must collectively recognise the importance of innovation to our sustainable growth in a knowledge-based economy and commit to a stronger innovation culture in the new millennium.