

# ***Innovation – What it is and Why it Matters***

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Thanks Alexander Gosling, and all of you, for welcoming me today despite the fact I am not the advertised Minister for Innovation, Industry, Science and Research. I shall not even attempt to imitate the Minister or to second guess what he might have said had he been present. But I do know that he would have left you feeling that here is a Minister who is incredibly passionate about innovation and industrial research, a Minister and Government who are committed to building a more competitive and productive Australia, and a Minister and Government who want to strengthen the partnership between the private and public sectors towards building sustainable and competitive industries in Australia.

A month ago all my plans for the year changed. A review of the National Innovation System was announced. Today, therefore, provides a timely opportunity to begin a dialogue with you about the issues associated with this Review.

One thing the Review Panel can't complain about is limiting terms of reference. The Terms of Reference for the Review provide the Panel with the latitude necessary to consider the system in its entirety. In particular, the panel is tasked to:

- *Identify a set of principles to underpin the role and participation of the public sector in innovation.*
- *Develop a set of national innovation priorities to complement the national research priorities, ensuring the objectives of research programs and other innovation initiatives are complementary.*
- *Identify regulatory and other barriers to innovation and recommend ways to minimise these.*
- *Examine the scope for simplifying and reducing program duplication and ensuring that any support provided is well-targeted and easy to access.*
- *Consider the appropriateness, effectiveness and efficiency of the Research and Development (R&D) Tax Concession Scheme in promoting innovation and make recommendations to improve innovation outcomes.*
- *Consider ways to improve the governance of the national innovation system to support higher expectations of government agencies and industry.*
- *Assess the appropriateness, effectiveness and efficiency of the Cooperative Research Centres (CRC) Program and make recommendations to improve innovation outcomes.*

The intent and range of the Review is indeed wide. In parallel, there will be two parallel sectoral reviews looking at auto and textiles. There are also related Reviews being conducted into trade programmes and business regulation. The chairs of these various reviews will be working together to coordinate and harmonise their efforts.

Three Working Groups under the Review Panel have been established to consider specific areas of the current innovation system that have been highlighted for special attention in the Terms of Reference. The three working groups are:

- A joint Commonwealth and State and Territories Task Force to look at current innovation programmes. This Task Force will examine the vast array of programmes that have evolved across the nation to assist companies innovate and identify inefficiencies and overlap within the programmes with a view to simplifying them and making access to these easier for companies.

- There will be a special working group on tax issues and the R&D Tax Concession.
- Finally, there is a working group on collaboration programmes and the Cooperative Research Centres (CRC). As part of the work of the Review, the panel will consider all aspects of the CRC programme, including its overall strategic direction, governance, overall scope and effectiveness.

I will come back and talk in some more detail about these particular aspects of tax and collaborative programmes a little later.

### ***Who is the Review Panel?***

The Review Panel is made up of a group of highly regarded experts who, individually and collectively, have a wide experience in the innovation arena and represent a cross section of industry, research and academia. The Panel members are:

- Dr Megan Clarke (VP technology, BHP Billiton);
- Professor Glyn Davis AC (VC University of Melbourne);
- Professor Steve Dowrick (School of Economics, ANU);
- Dr Nicholas Gruen (CEO, Lateral Economics);
- Ms Narelle Kennedy (Chief Executive, Australian Business Foundation);
- Ms Catherine Livingston AO (former Chair of CSIRO and Director, Macquarie Bank and Telstra);
- Professor Mary O'Kane (research and technology);
- Professor John Foster (School of Economics, University of Queensland);
- Dr Jim Peacock AC (ex-officio, the Commonwealth Chief Scientist); and
- Patricia Kelly (ex-officio, Deputy Secretary, DIISR).

The Review Panel will be assisted by distinguished international innovation experts. Hopefully we can generate considerable public and open discussion around their visits.

### ***The Timeframe for the Review***

A Green Paper is to be provided to the Minister by the end of July 2008.

While some may say this is too short a timeframe to review the entire National Innovation System, I disagree. It is a challenging timeframe, but achievable because:

- a great deal of information about the innovation system already exists and there is little point in 'reinventing the wheel'; the challenge is to build on the foundation of what we already know; and
- The Review Panel itself represents a wealth of knowledge and experience and the members are at the forefront of their respective fields.

Reports of similar importance and scope have been undertaken overseas in comparable timeframes. A tight timetable brings discipline and focus to the fore. It means that the Panel must concentrate on the big and important issues.

Our process is as follows:

- we will be issuing a call for submissions this week, and would like to receive submissions before the end of April;

- we will be holding initial stakeholder consultations in the weeks beginning 3 March; and
- in parallel, we will begin conducting special issue workshops to investigate particular issues in depth.

We also plan to promote public forums over the course of the Review to encourage discussion and to promote awareness of the issues.

### ***The terms and scope of the Review***

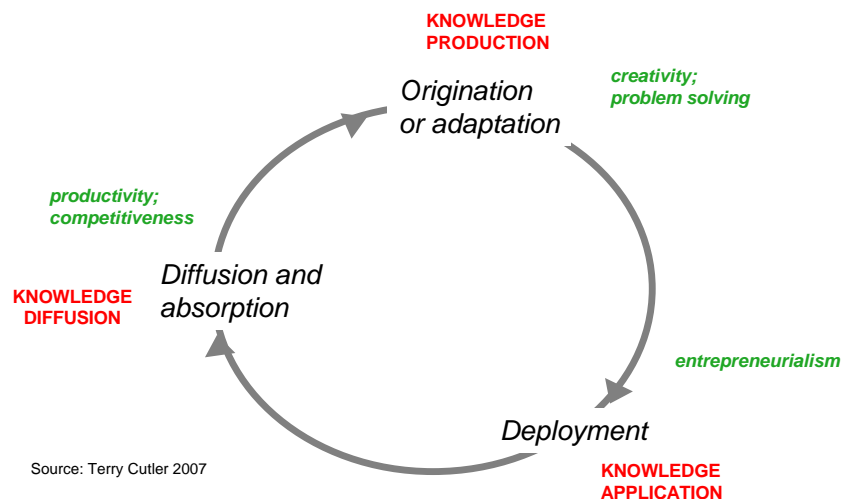
Innovation is a term that is in danger of being over-worked and over-hyped. (Someone recently described it as “an aerosol term”, being sprayed around everywhere).

*Innovation* is commonly described as “creating value by doing things differently” or as “creating value through doing something in a novel way”. From this viewpoint, however, we can only identify innovation after the event, *ex post*.

If we are going to influence innovation outcomes, then we also need an active appreciation of the dynamic processes associated with innovation that *lead to change*. I describe *innovating* and *being innovative* as the creative problem solving designed to produce practical outcomes. The outcome of this process is the introduction of novel solutions to real problems, needs or opportunities.

There are three inherent facets to innovation:

- the origination of new knowledge and ideas – knowledge production;
- the deployment of ideas within a real world context – knowledge application; and
- the diffusion of this applied knowledge and its adaptation in use – knowledge diffusion and absorption. These elements combine to form a virtuous and open-ended cycle of learning and responsiveness to new inputs.



We need to invest in the capabilities required around each element, as well as investing in the linkages and flows between them.

The elements of innovation involve both ‘stock’ and ‘flows’: stocks of knowledge and capability, and the flows of the innovation capital around these. I would also argue strongly

that resources applied to innovation should be regarded as *investment* in the future, not as expenditure. I have just been reading the recent biography of the innovation economist Joseph Schumpeter, and I was reminded of just how central in his thinking is this notion of credit and risk capital – the funding and underwriting of future opportunity and risk.

### ***What is a national innovation system?***

For any country, innovation has a triple bottom line:

- (i) industry challenges, and market-oriented changes to increase productivity and improve competitiveness;
- (ii) innovations and changes in public policies and service delivery around the production of public goods; and
- (iii) innovations and changes to address societal and environmental aspirations and challenges, and the mobilisation of private and public sector capabilities around these challenges.

This triple bottom line reminds us that the pursuit of innovation involves broad socio-economic change, and change processes within a societal or community context. It involves the promotion of *purposeful* and meaningful change within this complex system. This engages both the private and public sectors, and how they work together.

Government has a central interest in a robust innovation system because such a system is a public good in its own right. Government also has an interest in promoting the pursuit of innovation within the private sector where such activity enhances the national good. Finally, it behoves government to be innovative in the conduct of its own affairs and in the delivery of public services.

Thus a *national* innovation system is the sum of multiple and inter-dependent institutions, players and roles. It incorporates regional and sectoral clusters of activity. This is why the Review is putting a spotlight on the relative roles of the Commonwealth and our States and Territories within the innovation system.

Within a globalised economy, a national innovation system also needs to be positioned within a global innovation ecosystem. How do we best *internationalise* our innovation system and capabilities? This question, I suspect, will be a major theme in the Review.

### ***The innovation challenge***

What are the problems and challenges we are trying to address?

What do we see as Australia's contemporary challenges, and the issues looming over the horizon? The public policy framework around a national innovation system needs to be forward-looking, and concerned with addressing the challenges and opportunities over the longer term. This Review needs to have a **ten year plus** perspective.

In thinking about the nature of the possible challenges and opportunities, it is instructive to reflect on the major changes within the socio-economic environment over the past twenty or so years. Many of today's innovation and industry assistance programmes and policies were developed in the 1980s. Much has changed since. So we will need to ask what conventional wisdoms and policy and programme assumptions might need now to be re-examined and questioned.

As Australians, we think of ourselves as inventive and resourceful people. However, the world is changing. The pace of change is rapid.

Competition is fierce.

Low cost manufacturing, footloose multinational companies seeking attractive markets, and the growth in innovative services across all countries have raised the stakes for all countries.

You will know well that some of the drivers for change include:

- the shift from in-house R&D laboratories to networks of 'open innovation';
- the rise of globally networked operations and 'cyber-infrastructure';
- the rise of user-generated innovation and demand-driven searches for applicable knowledge and solutions;
- the dominance of service industries in advanced economies;
- the internationalisation of more and more activity;
- a huge lift in investment by many national and regional governments in research infrastructure;
- the shifting dynamics of global competition, especially with the surge of activity from countries like Brasil, Russia, India and China; and
- the increased sense of urgency around finding solutions to global and national challenges like climate change, future energy sources, water supply, and a healthy population.

The innovation goal posts keep shifting. And standing still means going backward.

We need a capacity for innovating that addresses emerging national challenges. We need a capacity and aptitude for innovating that can evolve over time, and respond to changing circumstances. Innovating is an open-ended process, and the challenge never ends.

In reviewing our innovation capabilities and preparedness, therefore, we need to be forward-looking. It is not enough simply to ask how well things may be working now. Rather the question is whether we, as a country, are well-equipped to ensure we have a vibrant and successful community in ten-years time, and beyond. How can we best work to ensure a sustainable community and sustainable industries into the future? What can we learn from our own experience, and that of comparable nations, in framing and supporting innovation?

***The framework for the Review: scoping the key questions we need to ask.***

I believe that innovation, and the subject matter of this review, can be summed up in seven deceptively simple questions.

***“Can we imagine a better world? What don't we know or fully understand yet?”***

*This question focuses our attention on knowledge production and the origination of novel and fresh ideas.*

**“How do we solve the big challenges we face as a country, an industry or a community?”**

*This question reminds us that mission oriented research and inquiry is the only response to the big challenges confronting us as Australians and global citizens. How can we do this better?*

**“Could we do everyday things better? Is there a better way to meet this need or to address that challenge?”**

*This question focuses our attention on creative problem solving; everywhere, by anyone.*

**“How do we get more people to use the best available tools and techniques, from anywhere around the world, in what they do?”**

*This is about putting innovation to work. It addresses the diffusion of knowledge and techniques across whole industries and communities.*

**“How do we make it easy for people to use tools or apply ideas in ways no one has yet envisaged?”**

*This question invites us to build on our national ‘can do’ culture. This involves expanding on the work of others, so people need the freedoms to use and adapt other people’s tools or ideas.*

**“How do we educate and equip our people to be creative and innovative, life-long?”**

*This is about how we, as a country, build and nurture human and social capital.*

**“As a relative small country, how do we Australians prioritise our innovation efforts to make the most of what we have or can do?”**

*None of us can do everything; so how do we decide on what we should concentrate?*

Considering these questions, have we got the best possible action framework in Australia to address them – now, and into the future? This is what shaping a national innovation system is all about. This is why we need to keep improving, systematically.

Your contribution is invited.

What do these questions mean for you or your organisation? We are interested in receiving submissions containing your insights, providing concrete examples of issues and data drawn from experiences of what does or does not work within the various facets of a national innovation system. We would like you to highlight, from actual experience, where there may be weaknesses in the system, or inhibiting factors. We would value your insights into how things might be done better.

As I have explained, the Review includes two specific programme reviews – of the R&D Tax Concession and the Cooperative Research Centres Programme. We welcome comments on how these programmes could be adjusted, within the context of the overall innovation system and having regard to other programme options, to help create **a more effective portfolio** of innovation support mechanisms. We need to look at the R&D Tax Concession within the broader context of the impact of the overall tax system, and look at the CRCs within the

overall spectrum of collaboration vehicles. The Tax Working Group will also look into the operation of venture capital markets, and whether more can be done in this area.

In pursuing our inquiries we will need to ask what new initiatives might really make a difference. How do we rethink current schemes to make them more effective? Where can government intervene to change market behaviour and to produce sustainable competitiveness in global markets?

For those of you here today working in industrial research I suspect we will be specifically interested in comments on such issues as:

- How do we increase the levels of industrial research in Australia? What would encourage companies to increase investment in R&D and innovation?
- How do we improve the flows between industry and publicly funded research?
- What are the impacts of the tax system on innovation related investment?
- Are there issues around the ability of entrepreneurs to write off previous capital losses from failed ventures, and does Australia need Chapter 11 like provisions?
- What is the role and impact of grant schemes?
- Are there alternative ways to foster and fund early stage innovation and exploratory development? Is there a role for a US-style Small Business Innovation Research (SBIR) Program? Can governments use procurement to secure an innovation dividend from expenditure?
- Do we need to scrutinise the current approaches to the commercialisation of public sector research?
- How do we go about promoting more intelligent thinking around risk – and the encouragement of *calculated risk taking*?

In thinking about industry programmes and their design as investments in the future, I think we can learn a lot from venture capital models – and applying them to government. In particular, I think government programme design can learn from venture capital thinking around:

- portfolio models for programme design and delivery;
- mutuality, and the importance of ‘skin in the game’; and
- tranching and milestone based funding.

Finally, however, how do we tackle the things that industry alone can’t do – including the task of mobilising new capabilities and teams around emerging national challenges? This calls for a collective effort.