

Innovation in times of recession¹

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The title for my talk today – innovation in times of recession – immediately made me think of the title of Nancy Mitford's novel, *Love in a cold climate*. To many it seems a very cold climate in which to be talking about bold new steps towards being more innovative – as individuals, firms, industries and as a country.

My overall message is very simple: innovation is both the cause and the solution for the messes we find ourselves in today, in 2009.

Last year the Panel reviewing Australia's National Innovation System, which I chaired, submitted its report to Government at the end of August 2008. It could not have been more unfortunate timing as the *Venturous Australia* report was launched amidst the cross-winds and gathering eddies of the global financial crisis which has mesmerised everybody and brought with it the danger of focussing everyone's attention on simply the short term. As a result, the Government's policy response to our recommendations and its strategic statement on innovation has been delayed and is likely to be overshadowed by the annual Federal Budget in May 2009. The danger, as always, is that the urgent displaces the important. Innovating is the continual renewal and improvement of the capabilities and competitiveness of a nation's firms and industries. It is about short and long run survival, a topic very pertinent in times of economic crisis.

In very rough figures, *Venturous Australia* implied that Australia needed to increase its direct support for innovation – both research funding and industry support – from the current levels of about \$6 billion pa to about \$10 billion pa, *over a period of time*. To put this into perspective this is still slightly less than 1% of GDP, and is dwarfed by the magnitude of recent one-off stimulus packages. If Australia were a company this level of reinvestment in R&D and innovation to support productivity and competitiveness would be regarded as modest. It is important also to recognise that there is much that government can do to support innovation through policy settings with little budgetary impact or – as in the case of innovation in the delivery of public services – significant potential forward efficiency gains and improved outcomes.

There are few solid grounds, therefore, to leave innovation out in the cold in times of recession. If anything the current situation reinforces the call for action underpinning the 2008 *Venturous Australia* report. Taking stock of Australia's performance over the past decade or more we see that on most measures Australia has stalled or has been going backwards. Since 2004 productivity growth – fuelled in the prior decade by investment in information and communications technologies – has tapered off. For too long we have failed to address the underlying volatility of terms of trade exposed to cyclical fluctuations in the demand for natural resources. Other resource-based economies like Norway or Chile have reinvested resource windfalls into sovereign funds to diversify and buffer their economies. Chile, with which I have had the closer involvement, has diverted copper royalties into a National Innovation Fund, amongst other things.

Now what sort of crisis are we really in? Big. Late last year the talk was all about recovery – implying the challenge was getting back to where we were. The direct mechanism was the stimulation of consumption. Resonances of this rhetoric still linger. Generally, however, the more sombre talk now is how we fix and reinvent the system itself. The challenge has shifted from recovery to reinvention. At the G20 Summit in London Gordon Brown the UK Prime

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Minister has declared the Washington Consensus dead. What other bodies do we need to bury?

The grand irony is that, for the financial system, innovation is the source of our problem. Novel financial instruments and their rapid uptake within financial systems brought us unstuck. On the other side of the ledger there has been another financial innovation which is less remarked, and that is the astonishing growth and strength of an alternative Islamic banking system. The strength of Islamic banking is the underlying prudential principle coupling transactions to the underlying asset. Western innovation brought trouble by uncoupling financial settlements from the underlying assets. This was compounded by both the governments and households of advanced nations funding consumption through debt raised off overvalued assets. We must also recognise that there is the related and larger unresolved issue here about how we value and trade in the intangible assets of a knowledge economy. The current financial crisis is a wake up call in this area.

The current crisis is bigger, however, than finances and how we fix the International Monetary Fund or establish a role for a G20 group of nations. It is a pervasive crisis of governance and trust, of institutional failure and of impoverished thinking about the role of the State. As recession leaves its footprint across the whole economy and community we start to see real points of failure in our innovation systems. The most glaring example is the crisis of the auto industry in the US – and Australia – which had allowed itself to become locked in to unsustainable production strategies. Another looming example will be our failure to understand the role of technology start-ups, and the importance of their nurture, within industry development and renewal. Then there is the matter of the planning, management and funding of crucial infrastructure as another emerging point of failure. The list could go on. My point today is simply that the spotlight of recession is highlighting systemic points of weakness and failure.

A bigger problem and challenge remains: the catalyst is global warming and its attendant challenges of climate change, energy depletion and water scarcity. Global warming is itself a symptom of the underlying crisis in global sustainability where its effects are compounded by ageing and growing populations, concerns about food security, renewable energy, the availability of water, and how we can keep our cities workable. Many of these global challenges are the cumulative result of centuries of technological innovation. Now we need innovation to reverse the unintended consequences.

We live in an age of complexity so we need to learn how to deal better with complex systems. Innovation is an ecology where everything interacts within an ecosystem

As a (relatively) callow youth I remember excitedly reading the Club Of Rome's 1972 publication, *The Limits to Growth*. Those with long memories will recall three things. First, this work, based on complex data modelling undertaken at MIT, developed three different scenarios for century-out indicative projections representing 'business as usual', the aggressive deployment of new technologies to counter negative trends, and a third scenario where technology solutions are augmented by active social policy interventions around population and consumption patterns, for example. Second, the approach recognised that the "state of the world" is a terribly wicked problem, where you cannot look at just one aspect in isolation. You need to consider the interactions and interdependencies systemically. (As an aside, it is interesting to recall that attention to systems theory was very strong in the 1970s, then seemed to go into partial hibernation until we recently rediscovered the trickiness of complexity with things like global warming). Third, the Club of Rome's report immediately produced an angry backlash of naysayers, reminiscent of today's deniers of climate change. Misrepresentations proliferated.

I was reminded of all of this recently by reading a challenging and disturbing paper by Graham Turner, a CSIRO scientist, in a scholarly journal² which probably has not hit very many people's desks, unfortunately. Fortunately, however, it is also online³, and is worth the effort even though it is couched in sober scholarly terms. Graham Turner first chronicles the misrepresentations of the original report. Lessons here for Stern, Garnaut *et al*?

Then, after reminding us of the core thrusts of *Limits to Growth*, Turner addresses the useful exercise of applying thirty years of actual data, 1970 to 2000, to the scenario trend lines of the original report. These show a pretty uncanny fit with the "business as usual" scenario, which the report suggested would have us all hitting a brick wall about 2050. The fact that we have finally acknowledged that how we live and the technologies we use might be contributing something to global warming, and the recent financial meltdown, should make us pause to think even more broadly.

So perhaps it might be worth rereading *Limits to Growth*. And it is certainly worth reminding ourselves that we cannot sensibly reduce challenges like global warming to cautious proposals for emissions regulation, or to separately consider aspects of food supply and security, energy depletion, or climate change in isolation of each other. The Club of Rome urged us to consider an holistic analysis of the state of our planet and the sustainability of our ways of living. Today, more than ever, we need whole of government and whole of world responses - and innovative responses commensurate with the challenges we face locally and globally.

Turner's analysis suggests that we may have simply wasted the past thirty years. It is a sobering thought. We need, collectively, to innovate our way through this mess. The last thing we need is to "recover" through reinstating a failed regime; we need to re-group and attack the challenges through a new action agenda. This calls for leadership and vision. The closest thing to such an action agenda I can find is provided by the new Obama administration in the US.

Whitehouse.gov, the US Administration's website, sets out the broad policy agenda of the incoming administration. Prior to Obama's inauguration, this action agenda developed by the team in waiting was on the website *change.gov*. This site was very aptly named because the agenda is certainly all about change.

This change agenda merits careful attention by anyone interested in public policy, and it will be interesting to monitor how much of it is translated into action over the coming years. It is a very bold and forward-looking agenda, despite being crafted against the background of the global financial meltdown. In fact it is actively shaping Obama's economic "American Recovery and Reinvestment Plan".

Three features of this agenda are especially noteworthy. First, this is an holistic, coherent whole of government framework where actions in one area reinforce aspirations in another.

Second, this is a forward-looking agenda, where the crisis responses to recession are pitched within a longer term view of the need to "build a 21st century economy" and to invest in jobs, skills and industries which can rebuild America's global leadership. There is a strong "we can walk and chew gum" flavour to the whole package. An example is Obama's already announced move to use the regulatory lever of fleet emission standards as one means to drive change - and competitiveness - in the auto industry as well as promoting cleaner energy. The mission to make the US a leader on climate change is thus linked to plans to create millions of 'new green jobs' and to "jumpstart job creation". In the context of the worldwide concern about rising unemployment, Obama's agenda goes beyond simply preserving jobs to focus on new and sustainable jobs.

² Graham M Turner, "A comparison of *The Limits to Growth* with 30 years of reality", *Global Environmental Change*, Volume 18, Issue 3, August 2008, Pages 397-41

³ <http://dx.doi.org/10.1016/j.gloenvcha.2008.05.001>

Third, the action agenda constitutes a strong national innovation agenda. Having chaired last year's innovation review in Australia I'd homed in on what *whitehouse.gov* says about Obama's innovation agenda. Thankfully there are many parallels between the Obama manifesto and last year's "green paper", *Venturous Australia*.

The section on technology proclaims that "Barack Obama and Joe Biden understand the immense transformative power of technology and innovation" to change the lives of Americans and address "some of the nation's most pressing problems". Innovation is embedded as a central plank of economic policy.

Some of the commitments include:

- Promoting the free exchange of information and ideas, and "update and reform" the copyright and patent regimes "to promote civic discourse, innovation and investment" and to reduce "wasteful litigation"
- Advancing innovation in the business of government and the delivery of public services, particularly healthcare
- Deploying next-generation broadband
- Doubling investment in basic science
- Supporting early career researchers
- Reinforcing R&D tax credits
- Providing tax relief for start up companies
- Making maths and science education a national priority
- Supporting lifelong retraining (with lifelong education accounts)
- Investing \$150 billion over the next ten years in climate friendly energy development and deployment, and supporting clean technologies
- Advancing biomedical and stem cell research
- Creating an advanced manufacturing fund
- Creating a National Infrastructure Reinvestment Fund
- Funding business incubators and supporting regional innovation clusters

Consistent with the thrust of *Venturous Australia* about the desirability of more open access to public sector information and promoting the more open flow of information generally the Whitehouse website reminds everyone that government material, in the US, is not subject to copyright and that third party content is to be provided under an open Creative Commons licence.

Many of these agenda commitments resonate strongly with the arguments advanced in last year's innovation review. But Obama's "white paper" now sets a challenging benchmark for Australia and other countries looking to advance an innovation agenda! It ups the *ante* in the contest to be an "innovation nation". The agenda also replaces the previous administration's reactive economic agenda with a proactive one. **It strikes me as not so much a replay of Roosevelt's New Deal as a domestically oriented version of the post-war Marshall Plan.** That, you will recall, was an holistic strategy for the reconstruction of a wrecked Europe. And perhaps that's not a bad reference point for us all today. As two policy gurus from the UK put it⁴:

"we need a strategy to attack the recession, not just to respond to it. Innovation- in business, communities and public services - needs to be at the heart of that attack. The UK should aim to emerge as a more innovative, greener, more sustainable and diversified economy."

As a country we can no longer pretend to be in a position to lead relaxed lives where success is "the survival of the least uncompetitive", as one respondent to the Innovation Review put

⁴ Charles Leadbeater and James Meadway, *Attacking the Recession: How Innovation Can Fight the Downturn*, NESTA, December 2008

it. In a globalised and networked world our remoteness and smallness no longer provides a *de facto* protectionist shield for uncompetitive firms and industries. A venturesome Australia needs venturesome people, firms and industries – enterprising, bold, and brave enough to mix it with the best. And, from the perspective of global citizens, the whole world needs some bold innovating to get us out of the messes we have created.