Australian Government
Chief Scientist

DR ALAN FINKEL AO

The Business of Innovation 2016: Cooperative Research Centres Association Conference

Powering innovation, driving the country

Monday 7th March 2016

Brisbane Convention and Exhibition Centre
BRISBANE

Celebrating the Great Dame in her 26th year

The Cooperative Research Centre scheme is that rarity in public policy: a program with staying power.

Governments have gone and gone; reports have been read and pulped; while the CRCs just power on.

And we owe it to Chief Scientists – or more accurately, to our first Chief Scientist, Professor Ralph Slatyer, whose legacy we honour today.

He wrote the design specs. *He* made the case to the Prime Minister. And he did all of it in his first few months on the job.

So no pressure on *me* today.

Of course, the CRC program is way beyond the responsibility of one person. All of us share the responsibility to uphold the vision:

> *Science and technology, powering innovation, driving the country*.

It was the rationale for CRCs then, and it's the mission statement of all of government today. And you here today can take a great deal of the credit.

How often do we cite the outcomes of CRCs as proof of what this country can achieve: from the Cochlear implant, to the contact lens, to the flaps, ailerons and spoilers on the Boeing Dreamliner?

How often in my first few weeks on the job have I had reason to share the news that broke about the CRC for Cancer Therapeutics: a $730 million deal from pharmaceutical giant, Merck, to pursue novel treatments?

This CRC brings together some of the most illustrious names in cancer research in this country: Monash University, CSIRO, the Peter MacCullum Cancer Centre, and the Walter and Eliza Hall Institute. It is pursuing the clinical applications of a new drug targeting lymphoma, lung cancer, breast cancer, colon cancer and sickle cell anaemia.

A testament to this country's capability. A feather in the cap for CRCs.

Success has a halo. What better time to be Australia's Chief Scientist?

The grand ambitions of the Class of 1990

It's interesting to look back to 1990, and the policy hurdles that Ralph Slatyer and his colleagues confronted.

If we think *our* times are exciting – so were theirs. This was the year that:

- Nelson Mandela was released from prison.
- Margaret Thatcher resigned.
- Australia slid officially into recession.
- And Iraq invaded Kuwait.

So – all up, quite busy.

And then there were the developments whose significance you would have missed, if not for people like Ralph Slatyer to point them out to you.

- The launch of the Hubble Space Telescope.
- The beginning of the Human Genome Project.
- The creation of the very first web server by Tim Berners Lee, at CERN.

This was the year that the inventor and futurist Ray Kurzweil made his famous prediction: that computers would beat the chess Grand Masters before the century was out. Which they did, in 1997.

People said Ray Kurzweil was mad - but that was the least of it.

- He said the internet, barely known at the time outside the world of research, would grow to topple governments and remake economies.
- He said that every school student would have a laptop, with an internet connection.
- He said that health records would be collected on vast government data banks.
- He said we'd all be wearing fitness-monitoring devices on our wrists.
- He said we'd all be wise to plan ahead.

Maybe the average politician didn't read Kurzweil's book or see the FitBit coming.

But they listened to Ralph Slatyer and saw the case for CRCs.

Shifting expectations

An obvious case today – but it was a bold leap into the unknown at the time. And so, of course, the politicians struggled for the right words to describe it.

Here is one senator, late on a Wednesday afternoon, in the dog days of the Parliamentary year, trying to explain this new thing: collaboration.

"This is an optimal wedding of the groves of academe and the halls of industry."

Weddings: stressful and expensive undertakings with arcane rules and complicated seating arrangements. No comparison at all to the set-up and operation of a CRC.

But maybe there's something in the metaphor of a relationship.

In most relationships the expectations of the parties involved shift with time. So too, the parties to this relationship have changed.

Needless to say, academics don't wander in groves with togas and lyres. Unless it's Orientation Week, which doesn't count.

And business isn't roaming the halls. These days, some businesses do not exist in hallways or in any physical sense at all.

And business behaves in ways that would surprise us, if we were locked into the old patterns of thought.

Consider our growing FinTech sector, often powered by a couple of PhDs with a laptop with the hubris to take on the major banks. Who would have thought they could *win*?

But these days, they can, and they do; and they do so from Australia.

They fail fast, fail small and fail smart. They are not happy to fail, but they rise from the ashes in new and successful forms.

Of the Global 100 FinTech firms ranked by KPMG, 9 are Australian. Much less than 1 per cent of the world's population – close to 10 per cent of its top financial disrupters.

These firms succeed by capitalising on the things they haven't got. Like customers. Shopfronts. Staff. Structures. Equipment. Expectations.

They received no investment to pursue the way things were done before.

But they *did* benefit from the massive intellectual capital created by R&D investment from the big players in Australia over the years. No sector invests more in information technology R&D in this country than finance and insurance.

In IT, a smart person can grab a good idea and run – with a business model custom-built for a single goal.

The same logic is built into the new CRC Projects (CRC-P) program. Find the opportunities in the national knowledge bank today. Identify a target – but don't dictate a form.

The CRC-P program is an interesting model that I would not be surprised to see scaled up over time. It's flexible, and designed to bring about the right conditions for

intelligent people to work out how best to work together, to achieve a clearly articulated target.

Optimising the conditions as Chief Scientist

The Government has to make decisions – and we should never underestimate how significant the impact of public policy can be.

My role is to offer encouragement and advice. As well as being opportunistic as matters arise, I already have some specific tasks related to planning and refinement.

First, I am working with Bill Ferris, Chair of Innovation and Science Australia, to draft a 15 year strategic plan for whole-of-government investment in science, research and innovation.

Bill describes it as 'a telescope in one eye and a microscope in the other'. That adds up to great vision, or a blinding headache. I hope he means the former.

Second, I am leading the development of the National Research Infrastructure Roadmap. It will plot the big ticket items to fuel fantastic science in the next decade or two. That science is the driver for innovation.

In this task I will pick up on the excellent work led by Phil Clarke in a review that reported last year.

And third, I am working with Bill Ferris and John Fraser to review the R&D Tax Incentive: the so-called 3Fs review.

I made my first appearance as Chief Scientist at the National Press Club last week and the speech included a few lines about that review.

The next day's headline in the *Financial Review* was "R&D tax incentive not massively rorted" referring to my response to a reporter's question.

Which was a slight improvement on the headline in *The Australian*: "Finkel backs waste repositories." Not really the key message I had in mind, or even actually said.

But it seems there's extensive interest in the R&D tax review. So let me put it in context again today.

The R&D Tax Incentive is the biggest single line item in the science and innovation budget, hovering at about $3 billion dollars.

As a nation, our reliance on indirect tax-based support for business R&D is exceptional.

In the OECD only France and Canada show anything close to the same weighting away from grants and other forms of direct assistance. Most countries skew the other way, or balance the two.

The CRC program is our most important example of direct support by government for industry-focussed research.

Australia's cutlery drawer has one very large fork, being the R&D Tax Incentive, and a couple of fish-knives on the side, acknowledging the CRC program as a particularly bright one.

There are arguments to be made for and against this approach – but it is not the focus of the R&D Tax Incentive inquiry.

Our job is to make the use of the fork as good as it can be.

That means:

- Efficiency: it picks up as much as possible from the plate with the least possible trouble.
- Integrity: it only picks up things the taxpayer wants to eat.
- Additionality: It doesn't pick up things which would lift themselves without government help.

If we meet these goals then the R&D tax incentive should support collaboration in many forms.

It will certainly indirectly support the next generation of CRCs and CRC-Ps by helping the industry participants in the programs.

Other than the CRC programs, direct government support for business innovation is slim.

A new program named Business Research and Innovation Initiative (BRII) was announced last December. It has many of the elements of the successful Small Business Innovation Research (SBIR) program in the US that Tony Peacock, myself and others have been publicising for some time.

The SBIR program has been shown in a major review led by Charles Wessner, one of our upcoming keynote speakers, to have made substantial contributions to the US economy, to knowledge generation, collaboration with universities and commercial success.

The somewhat similar BRII program in Australia has not yet started, with elements of it still being planned. The total funding is small, because it is a pilot program. But of

course, if it is at too small a scale the pilot program will fail for the wrong reasons, so scale is something that needs to be watched.

Challenge

My challenge is to use my access to all of these projects to help them work together. And to explain to journalists that there is more to innovation than tax rorts and nuclear waste. I remain optimistic, as always.

My challenge to you is to join me in working out what comes next.

- Can the CRC-P program be the start of something bigger? I hope so, in my opinion it fills a gap in our support for innovation.

- Can we build on the CRC program's multi-national links to do even more?

- And how do you plan to be relevant in twenty years' time?

You can be – and I think you will be.

I look forward to raising the toast at the next anniversary.

Thank you