"CRC Program: A National Collaboration Exemplar?"

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Opening Remarks

Great to hear Minister Sinodinos announce the opening of CRC Selection Round 19.

It's also good to hear the Minister discussing the importance of a coordinated approach to developing internationally competitive industries through collaborative research and development work.

Thank you to Tony Peacock for inviting me to participate in this important conference.

The fact that I, representing ISA, John Grill, Chair of the Growth Centres Advisory Committee, and Phil Clark, Chair of the Cooperative Research Centres Advisory Committee, are speaking to you from this stage this morning is an illustration of an expanding consensus about the need to boost collaboration among our publically funded research organisations and innovative businesses.

My speech today is titled: 'CRC Programme: A National Collaboration Exemplar?'

Before answering that question let me first say a bit about ISA and the work ahead of us.

Background to ISA

Innovation and Science Australia, ISA, is an independent statutory board tasked by the Federal Government to provide advice as to how Australia can improve its innovation performance. In late 2015 I was invited to chair this board, now comprised of leading innovators, researchers, and private sector practitioners in innovation, including Chief Scientist Alan Finkel as Deputy Chair, and one of our experienced Directors being Michele Allan, Chancellor of Charles Sturt University, CSIRO Board member and importantly a member of the CRC Advisory Committee. Also on the Board is Prof Bronwyn Harch from Queensland University of Technology, who is here with us today.

ISA has a broad remit of providing whole-of-government policy advice on all aspects of Australia's Innovation, Science and Research system (or 'ISR system'). In January 2016 we had two immediate priorities; firstly to conduct a performance review of the ISR system and measure our performance against competitor nations. Secondly, develop a Strategic Plan for the ISR system out to 2030. These priorities are additional to our on-going responsibility for oversight and evaluation of performance of the Government's policy interventions and legislated programmes, including the CRC Programme.

The Performance Review

Our Performance Review of the Innovation, Science and Research System was released in February this year.

The Review developed a novel performance framework for assessing the innovation system and generates a unique scorecard by which we will be able to assess Australia's performance against

our peer competitor nations into the future – these being the OECD, Taiwan, China, Singapore and Israel.

The scorecard tracks our performance in 20 key metrics relating to the three key activities of knowledge creation, transfer and application.

Our strength is clearly in knowledge creation; in both our number of researchers per capita and the proportion of highly-cited publications produced, we sit in the top ten internationally. We are an inventive bunch.

When it comes to our knowledge transfer and commercialisation however, our performance is less impressive.

We know that collaboration is essential for transferring knowledge; for the exchange of ideas, sparking creative insight and driving innovation activity. While we have good levels of research-to-research collaboration, we have relatively low rates of collaboration and mobility among research institutions and businesses. For example, in the proportion of researchers employed by businesses we come in at 28th out of 36 comparable countries.

And we also found that the vast majority of Australian business innovation is achieving incremental improvements rather than new-to-world breakthroughs.

2030 Strategic Plan

So the Performance Review is the starting point for the development by ISA of a 2030 Strategic Plan for the Australian innovation, science and research system. We will deliver this to government this year.

Our vision we've set for Australia in 2030 is as follows:

We want an Australia counted within the top tier of innovation nations, known and respected for its excellence in science, research and commercialisation.

Innovation, underpinning a diversity of internationally competitive industries, will enable todays and future generations to have meaningful work, and a great quality of life, in a fair and inclusive society.

Driving improvements in our rates of collaboration among researchers and business, domestically and internationally will form a key plank of the 2030 Strategic Plan.

And I believe that we have in the CRC Programme, and the CRC-Ps in particular, an exemplar of the kinds of collaborative, solution-focused activities that will prove to be essential in meeting the challenges of technological disruption of traditional industries, of environmental and resource strain caused by growing global populations and increasing urbanisation, and an aging population with growing expectations of continued health and wellbeing later in life.

Collaborative engagement between Australian businesses and our world-class knowledge-producing research organisations can and must turbo-charge our development of new-to-world products and services. This promises to provide both economic benefits to the country and significant improvements to the daily lives of all Australians. These twin goals are evident in many of the established CRCs and the exciting group of CRC Project initiatives currently underway.

Cell Therapy Manufacturing CRC

One of the CRC's I'm watching keenly is the Cell Therapy Manufacturing CRC, which interestingly aligns with the advanced manufacturing growth centre rather than MTP Connect.

Established in 2013-14 with CRC Programme funding of $20m the CTM CRC involves the collaborative efforts of 9 essential participants including universities, businesses and PFROs as well as international collaboration touchpoints with Canada, the UK and the USA.

The challenge here is to position Australia at the global forefront of cell therapy manufacturing – an incredibly exciting field that promises to revolutionise patient care over the near to medium term.

The CTM CRC isn't just seeking breakthrough treatments but also has its sight set on the equally important goal of developing the capability to deliver platforms and delivery systems at a scale to enable advanced cell therapies to be accessible at a population level.

In a sense the CTM CRC is performing the infrastructural grunt work necessary to turn radical possibilities into deliverable products.

This is an integrated and holistic effort to establish the advanced cell manufacturing sector by building key capabilities; including regulatory compliance navigation, demonstration of manufacturability and scale-up of manufacturing capability. This requires collaboration to build the cutting-edge Australian advanced manufacturing capacity and capability.

There is much to admire about the CTM CRC's work.

CRC-Ps

I'm also a big fan of the CRC-Ps – my background in venture capital predisposes me to admire the industry-led, problem-focused, demand-driven nature of the initiatives themselves; they engage cross section of collaborative expertise at their disposal; they relatively short timelines toward the commercialisation of outcomes.

I'd like to touch on two particular projects which I think represent the types of endeavours that can drive our economy over the next few decades.

Future Oysters

The Future Oysters CRC-P received $3m programme funding and involves $8.3 participant contributions to pioneer the application of a technological solution to disease and contamination issues facing the oyster industry.

The project has 15 participants including seven universities, three government agencies and business partners including Australian Seafoods Limited, Select Oyster Company, Oysters Australia, The Yield Technology Solutions.

Australian oyster yields have been in decline, particularly due to disease, prominently the Pacific Oyster Mortality Syndrome virus (POMS).

Major Tasmanian oyster farms have seen 70% of their harvests wiped out by the POMS virus.

Enter the innovators. Ag-Tech firm 'The Yield' have been working with the Tasmanian Government and oyster farmers to trial the use of in-estuary sensors, cloud computing and, machine learning to minimise unnecessary shut-downs while providing greater assurances of food safety for consumers.

The Yield has produced an oyster farming application developed with Bosch, in which data from in-estuary sensors is relayed and integrated into a cloud-based Internet of Things hub that provides weather and environmental data and analysis based on The Yield's patented predictive algorithm. This information is presented to oyster farmers in a dashboard format.

This project promises significant improvements to the productivity of Australian Oyster farms via:

Innovative solutions to the particular challenges of disease management,

- enhanced decision making tools for producers,
- bigger harvests and greater profits,
- growth for the sector and the regional economies it supports through job provision and tourism.

Another CRC is the CRC-P for Innovative Prefabricated Building Systems

The CRC-P for Innovative Prefabricated Building Systems involves Speedpanel Australia, Speedpanel international and the University of Melbourne who have received $3m in programme funding alongside $9m in participant contributions for R&D of innovative prefabricated building systems using advanced manufacturing techniques.

The project aims to help unlock the huge potential growth in Australia's pre-fabricated building industry through cooperative knowledge exchange and refinement of best practice operations.

Advanced manufacturing of prefabricated systems promises to allow the development of faster construction at lower costs and is ideal for our cities.

The solutions being developed promise a number of significant benefits on current available construction materials and techniques:

- Lighter weight
- Easier to construct
- Easily customisable with multi-functionality
- Reusable
- Recyclable
- Increased load resistances
- Increased fire protection qualities
- Significantly reduced carbon footprint

Production of the prefabricated system itself will be automated and the use of advanced modelling and on-site installation will reduce overall project timelines and costs.

This is an area in which Australia has the opportunity to become a world leader and one potentially offering both huge export opportunities and an important competitive advantage for the construction industry.

Each of these projects exemplify the aim of the CRC programme in striving to offer improvements to the competitiveness of key Australian industries – Agriculture, construction and advanced manufacturing, biotech and health – by taking demand-driven approaches to solving problems identified and led by business. And each offers the prospect of first-to-world products and services.

It's fantastic – and yes I believe the best of the CRC Programme is indeed a national exemplar of how things can, should and must be done.

Looking ahead

Achieving our ambitions out to 2030 requires a focus beyond any three year election cycle. Accordingly, our Strategic Plan will make recommendations across three time horizons:

- improving the current system in the short term; (3 to 5 years);
- adding new capability in the medium term; (5 to 8 years); and

- realising transformative options in the longer term out to 2030.

So in addition to supporting the CRC and CRC-P Programmes how can ISA drive collaboration at a strategic level to 2030?

Let me put one rather busy slide up to illustrate the opportunities yet to be meaningfully tapped among CRCs and the Industry Growth Centres. Lots of linkages but not yet enough collaboration underway. I will save this up for the Panel session which follows. And of course, the addition of two significant Growth Centres (not on the slide) the Cyber-Security CRC and the Defence CRC will bring significant horsepower to our opportunities for innovation via collaboration.

One of the recommendations in the Review of the R&D Tax Incentive that the Chief Scientist Dr Finkel, Secretary to the Treasury John Fraser and I authored was for a collaboration premium to be introduced to encourage businesses to engage more with PFROs in conducting R&D, and includes specific incentives for employing more PhDs. In other countries, particularly leading innovation nations, PhD exchange between industry and research organisations occurs at much greater levels.

CRC – what's in a name?

Quite a lot in my view. During the course of our ISR Performance Review it was interesting how well regarded the CRC Programme is among medium and large enterprises and among the PFROs.

Not sure about among the start-up and venture community however. Without changing from the brand of CRC, I think a pivot from "Co-operative" to "Collaborative" Research Centres would be worth thinking about. It better plays to a contemporary imperative in my view.

We certainly need your help in enabling a national narrative about the benefits of innovation, why we need more of it, with a clear and continuing stream of actual CRC success stories. Of new and better products and services, of exports, of new jobs.

ISA's consultation process on our 2030 Strategic Plan issues paper is due to close at the end of this month. However, we know that there are important voices within the system that we have not yet heard from and great ideas we haven't uncovered.

Thank you.