



CRC for Mental Health

CRC for Mental Health Submission to 'Boosting the commercial returns from research'

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Introduction

The CRC for Mental Health welcomes the opportunity to provide comment on the discussion paper, 'Boosting the commercial returns from research'.

The CRC for Mental Health was established and is supported under the Federal Government's Cooperative Research Centres programme for seven years, commencing in July 2011. We seek to discover and commercialise biomarkers which can assist in diagnosing mental illnesses before the onset of mental decline. We focus on diseases which impose significant social and economic burdens on individuals, the health system and Australia in general – namely Alzheimer's disease, Parkinson's disease, schizophrenia and mood disorders.

Each of the 19 participating organisations in the CRC for Mental Health provides financial and/or in-kind support for the pursuit of our research aims. Through this structure, the Australian Government investment of \$23 million is amplified by cash and in-kind investment by the CRC's Participant organisations to a total of some \$70 million.

The Participants in the CRC for Mental Health include:

Universities

Edith Cowan University, the University of Melbourne, University of Western Australia

Research organisations

CSIRO, Florey Institute of Neuroscience and Mental Health, National Ageing Research Institute

Industry

Alzhyme Pty Ltd, Cogstate, Lawley Pharmaceuticals, Nucleus Network, Oceanic Medical Imaging Pty Ltd, Pfizer Inc

Health care providers

Austin Health, Barwon Health, Hall & Prior Aged Care, Mercy Health

Philanthropic organisations

Alzheimer's Association (USA), McCusker Alzheimer's Research Foundation, Parsemus Foundation

We thank you for the opportunity to provide a submission.



Our understanding of what would increase commercial returns from research

This submission was prepared with the experience and insights gained from being part of the CRC for Mental Health. As an organization which seeks to create commercial returns from research, the guiding values of our organization have been well tested and it is our view that these could be applied to the wider Australian research community:

Industry is not just an customer of research, it is a vital and integral part of the research process;

- Innovation is a social process and connecting diverse groups of people often has enormous and unexpected benefits; and
- Innovation has the possibility to be transformative for whole industries and the Australian economy.

The translation of (academic) research outputs into new, commercially successful products or services is rarely a simple, linear transactional process. Commercialisation commonly involves long term cooperative and collaborative relationships between many parties, including the researchers who conduct the early stage research work upon which an innovation may be based.

There is no single “best” way to achieve an innovation system which encompasses this complexity. Instead, as for any evolutionary process, the optimal strategy depends on the specifics and dynamics of opportunity, environment, resources and constraints. Of critical importance are resilience and flexibility – the ability for research projects and collaborations to recover from setbacks and to re-position themselves to take advantage of alternative routes to success. Also essential are areas of richness and diversity in the commercialisation environment – the accessibility of a multiplicity of resources and opportunities.

The fundamental objective of commercialising research is the delivery of an enhanced value proposition to customers through a business model that generates acceptable returns on investment by the key-taking participants.

Too often, commercialisation ventures in Australia have struggled for lack of focus on a compelling value proposition and the fact that the venture has been inadequately equipped to deal with the harsh, competitive environment in which the commercialisation of technology must be conducted.

Development, refinement and readjustment of a value proposition requires knowledge and understanding of markets and a preparedness to be proactive and flexible in anticipation of changes in these markets. The commercialisation of technological innovation requires capability, connectivity and money.

Government interventions that systematically and sustainably enhance the ability of established companies or entrepreneurial organisations to access and utilise these essential resources should, over the longer term, promote the nation’s ability to generate commercial outcomes of significance from the nation’s investment.

Creating stronger incentives for research-industry collaboration

- *Modify rules for competitive research grants to appropriately recognize industry-relevant experience;*



- *Develop research block grant arrangements that retain a focus on quality and excellence while supporting greater industry and end-user engagement;*
- *Consolidate existing programmes that focus on collaboration with industry to increase their scale and effectiveness; and*
- *Consider whether the R&D Tax Incentive sufficiently encourages collaboration between industry and researchers*

Modifying rules for competitive research grants to recognize industry-relevant experience

Develop research block grant arrangements supporting greater industry and end-user engagement

Opening up current competitive research grants schemes to promote greater participation in early stage research by industry-based researchers or industry-experienced researchers within academic institutions should, in theory, serve to enhance the nation's success in commercialising research in the longer term.

This approach ought to promote an earlier focus on value propositions than is currently the case, and would also address capability and connectivity issues. It should be noted that the proposed modification to recognize industry-relevant experience would reward past industry involvement, but would not allow for the time and capacity within institutes or universities to encourage researchers to make the step into industry projects.

Similarly, while developing research block grant arrangements in theory is useful, in that it could enable universities to become active managers of a strategically-structured innovation portfolio, rather acting as passive custodians of collections of investigator-initiated research projects, this change would require a concurrent revision of the metrics used to assess university research performance to reflect a much greater focus on the translation of research to achieve socio-economic impacts including commercial success. Such a change would also necessitate a strategic review of the capacity of universities to deliver on these metrics and how to attract the resources to enable this to occur.

Consolidation of existing programmes that focus on collaboration with industry to increase their scale and effectiveness

The current programmes which focus on collaboration between researchers and industry largely offer very different approaches. For example, the scale and ability to focus on transformational innovation offered by the CRC programme is very different to the smaller scale and focused precision of research undertaken within Australian Research Council Linkage Grants scheme and the NHMRC Development Grants scheme. Each is valuable and offers different benefits to the Australian economy. However, each acts as a stand-alone initiative, without effective articulation to other important activities and resources within the commercialisation environment. Consolidation *per se* would not overcome this problem – a broader, comprehensive and more strategic approach is required.

R&D tax incentive

The current R&D tax incentive is useful tool for encouraging collaboration between industry and researchers. It puts useful money into the innovation system in a systematic manner without imposing



significant acquisition or transaction costs on innovator companies. Innovation is a process which requires connecting people throughout the various stages (e.g. development, testing, implementing and adjusting). The provision of the R&D tax incentive encourages industry, particularly small-to-medium enterprises, to consider where they can best derive value from research collaboration. This fosters an understanding of the potential value to the business of being innovative and is driving a long-term culture change towards research collaboration within the ~2 million small businesses across Australia.

We believe the R&D tax incentive encourages SMEs to consider innovation on a broader scale than is possible “in-house”. As an example, the CRC programme offers potential large-scale research involvement for Australian SMEs. The time-frames associated with CRCs are typically long (5-7 years) and the research aims are ambitious. The access to the R&D tax incentive has encouraged several Australian SMEs to invest in the CRC for Mental Health. We would expect this to also be the case for the ~800 SMEs who are directly involved in other CRCs¹.

While the typical level of financial investment by individual SMEs in a CRC may be relatively small, the involvement and relationships that build between university researchers and SME staff over the 5-7 year funding period has the potential to increase interactions between these groups far beyond the life of the CRC.

Supporting research infrastructure

- *Strengthen the existing focus of the NCRIS on outreach to researchers and industry;*
- *Undertake a reassessment of existing research infrastructure provision and requirements, in line with the recommendations of the National Commission of Audit; and*
- *Develop a roadmap for long-term research infrastructure investment, in consultation with the research sector and industry*

The NCRIS vision of investing in research infrastructure which “*underpins Australia’s capacity to innovate and secure our long-term prosperity*” is crucial to Australian research and industry. We consider that the definition of infrastructure should be expanded to include “living infrastructure” such as long-term cohort studies and their associated biobanks that are proving to be of immense value for biomedical research directed at important health issues.

An example of how critical these resources can be is provided by the Australian Imaging, Biomarker and Lifestyle Study of Ageing (AIBL). The AIBL study is one of the most rigorous studies of ageing and dementia in the world, studying the natural history of Alzheimer’s disease. Through the investigation of this highly-characterised cohort, Australian researchers were the first in the world to show that Alzheimer’s disease is a process that begins up to 17 years before clinical symptoms occur. This is an extremely important finding which provides the knowledge base for industry to investigate early interventions, encouraging further investment in Australia. To date, AIBL has attracted over \$7.5 million in foreign investment.

This expanded definition is not limited to life sciences. As an example, new pasture varieties typically begin with characterising thousands of plants to identify the best approaches to breeding. The Dairy Futures CRC are aiming to improve commercial ryegrass varieties through the use of a data set of genotype information. It is estimated sub-selected cultivars could potentially deliver farm benefits of up to \$62 per hectare a year, and could be available by 2016–17.²

Providing better access to research

- *Strengthen IP guidelines for researchers;*
- *Examine the potential to link research funding to the dissemination of IP;*
- *Establish an online point of access to commercially-relevant research for business; and*
- *Develop a whole-of-government policy to open up access for business and the community to publicly funded research*

Our experience as a cooperative research centre which links industry and researchers is that relationships are the single most important factor to increasing collaboration. Innovation is a social activity which requires time, complementary capabilities, a diversity of views and a leadership and management structure that drives to organisation to create and develop innovation.

The CRC program is a good example of a funding mechanism which gives industry participants, universities and research institutes sufficient time to learn to work together effectively on big projects. It provides the scope to vary the direction of those projects and collaborations to optimise the output of the overall research portfolio.

As expressed by Mr Andrew Thirlwell, Manager Government and External Relations for Pfizer Australia, *“Being part of the CRC has enabled us to get to know some of the academics and researchers better, particularly the young researchers who may not have had that international exposure yet.”*³

The specific points raised in discussion paper regarding the provision of better access to research reflect a “supply side” view of the relationship between early stage research and commercialisation, in which (academic) research is protected and packaged for subsequent consumption (uptake) by industry by means of technology transfer transactions. While this may, in fact, reflect the predominant situation in the Australian university sector, it is not necessarily the optimal situation. As a general rule, in the absence of early engagement with industry, most IP that is developed and protected by universities and research institutes simply languishes. Opening up access to publicly funded research must involve opening the gates, doors and mindsets of universities and research institutes to welcome and work with industry, rather than just setting up a better collection box into which researchers deposit the outputs of their research.

Increasing industry relevant research training

The CRC for Mental Health’s industry participants in general seek to employ graduates who are highly trained adaptive problem solvers. The provision of industry relevant research training is a useful initiative in shifting the culture towards collaboration between industry and university. Our experience at the CRC for Mental Health is that an expansive definition of what constitutes “industry training” in this regard will be of most use to the Australian economy going forward.

As an example, the CRC runs an education initiative where our PhD students studying mental illnesses take part in a knowledge exchange project with Mercy Health’s aged care staff. This small initiative assists in ensuring a culture within Mercy Health which values innovation and research, while it provides our PhD students with a broader understanding of the context in which their research is undertaken. This program would not traditionally be considered industry-relevant training, however it encourages PhD students to think beyond the scope of their project and/or university.



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The funding to universities and metrics by which they are assessed, currently do not encompass the provision of industry relevant training. While some universities undertake these activities as means of increasing the employment prospects of their graduates, to create a lasting culture shift it is recommended that universities who do increase the levels of industry relevant research training be recognised through changed metrics. In particular, incentivising universities to trial innovative and broadly defined “industry relevant” training would encourage the sector to pilot new ways of engaging with industry.

¹ Cooperative Research Centres Association (2007) Small and medium size enterprise engagement with CRCs, <http://crca.asn.au/wp-content/uploads/2012/05/CRCGuideD-SME-Engagement-with-CRCs.pdf> [Accessed 27 November 2014]

²Dairy Futures Cooperative Research Centre (2014) Dairy Futures CRC [ONLINE] Available at: <http://dairyfuturescrc.com.au/designer-forages/pasture-breeding-tools/> [Accessed 27 November 2014]

³ A Thirlwell (2014) Verbal comments to CRC for Mental Health Parliamentary Breakfast, Canberra, September 3 2014