

# INDUSTRY ASSISTANCE IN QUEENSLAND

Response to the Draft Report of the Queensland  
Competition Authority

July 2015

**RESEARCH  
AUSTRALIA**

AN ALLIANCE FOR DISCOVERIES IN HEALTH



## ABOUT RESEARCH AUSTRALIA

Research Australia is an alliance of 160 members and supporters advocating for health and medical research in Australia. Research Australia's activities are funded by its members, donors and supporters from leading research organisations, academic institutions, philanthropy, community special interest groups, peak industry bodies, biotechnology and pharmaceutical companies, small businesses and corporate Australia. It reflects the views of its diverse membership and represents the interests of the broader community.

Research Australia's mission is to make health and medical research a higher priority for the nation. We have four goals that support this mission:

- A society that is well informed and values the benefits of health and medical research.
- Greater investment in health and medical research from all sources.
- Ensure Australia captures the benefits of health and medical research.
- Promote Australia's global position in health and medical research.

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# INDUSTRY ASSISTANCE IN QUEENSLAND

## RESPONSE TO THE DRAFT REPORT

### INTRODUCTION

Research Australia has a particular interest in the interaction between publicly funded research and the processes by which this research is translated into products, therapies and other interventions that improve health and wellbeing. This translation can occur through both commercial and non-commercial channels, although it is commercial channels that are the primary focus of this submission.

Research Australia's submission addresses two critical areas of market failure and provides an argument for why government assistance is warranted in this area. It also addresses the broad approach the Authority has taken to identifying Industry Assistance programs and whether this broad characterisation is appropriate given the narrow grounds the Authority recommends for assessing the value and validity of Industry Assistance programs. Finally, the submission makes some recommendations in relation to Industry Assistance Programs identified by the Authority in the category of Research and Development.

## MARKET FAILURE AS BASIS FOR INTERVENTION

Recommendation Six of the Authority's draft report recognises that market failure provides a sound rationale for government intervention:

*The Queensland Government should consider the following principles for the design and provision of industry assistance.*

*(a) The Government should provide industry assistance only where there is a sound rationale for government intervention (for example, where there is a genuine market failure of sufficient size and scope that could best be addressed by the Queensland Government). ... (page ix)*

Research Australia agrees with this view, and contends that there are market failures in Australia's (and Queensland's) innovation system which warrant Government intervention.

The interaction (or more accurately the lack of interaction) between universities and industry is an instance of market failure at an early stage in the innovation system. By world standards, Australia has relatively low numbers of researchers employed by industry (30<sup>th</sup> out of 34 OECD countries) and a relatively higher proportion employed in higher education (6<sup>th</sup> out of 34 OECD countries.)<sup>1</sup> As a consequence, Australia is particularly reliant on our higher education institutions to create new knowledge, and we are relatively good at doing so. In this context, it would be reasonable to expect that Australia would have higher than average levels of engagement between industry and universities, and yet exactly the opposite is true. Australia ranks 29th and 30th out of 30 OECD countries on the proportion of large businesses and small to medium enterprises (SMEs) collaborating with higher education and public research institutions on innovation.<sup>2</sup>

**Research Australia submits that this lack of engagement is a market failure and that there is justification for government intervention to improve the interactions between universities and business. This includes measures to encourage universities to seek to develop relationships with business as well as providing assistance to businesses, particularly small businesses, to enable them to identify and engage with researchers within universities.**

At a later stage in the innovation system there is market failure evident in the shortage of suitable capital to support early stage start-up companies seeking to commercialise new research discoveries. While debt financing might be a suitable option for SMEs which have a ready income from inception, for many start-ups seeking to commercialise a new product this is not the case. Faced with years of research and development before they are able to generate income, debt financing is not a viable option. This issue was recognised in the Interim report of the Financial System Inquiry:

*'Access to external debt funding is not a major issue for most SMEs. In general, the majority is successful in getting a loan application approved. Since 2006–07, approval rates have been well above 80 per cent. Approval rates are much lower for new ventures, which reflect the relative riskiness of lending to such enterprises. New ventures usually lack collateral and sufficient proven*

<sup>1</sup> OECD, *Science, Technology and Innovation Scoreboard 2013*, page 99, <http://dx.doi.org/10.1787/888932890922>

<sup>2</sup> OECD, *Science, Technology and Innovation Scoreboard 2013*, page 127, <http://dx.doi.org/10.1787/888932891378>

*credit history to qualify for a loan. Such firms can also lack sufficient cash flow until their product can be commercialised.'*<sup>3</sup>

If debt financing is difficult or impossible to obtain, then the alternative is equity financing. But here there are also difficulties:

*'Venture capital and private equity funds tend to finance more innovative and high-growth firms. These firms are drivers of long-term productivity growth. Australia's venture capital and private equity markets are small, and there are barriers to generating significant investor interest.*

*New ventures can typically take several years of development before any cash flows are generated from their activities, and failure rates are high. As a result, new ventures have limited access to credit, and market-based financing can be inaccessible or too costly to acquire.'*<sup>4</sup>

The Final Report of the Financial System Inquiry confirmed this finding, but apart from supporting crowd-sourced equity funding it provided no recommendations to improve the access of start-up companies to capital.<sup>5</sup> Crowd-sourced equity funding could prove useful over time but is likely to continue to be a 'niche' funding source suitable only to some start-up companies.

This is a market failure that has been targeted by the Queensland Government's participation in the Medical Research Commercialisation Fund (MRCF). Initial participation in the MRCF by the Queensland and other governments in partnership with some industry superannuation funds have demonstrated that the model is commercially viable. A subsequent larger investment has been made in 2015 by the superannuation funds without a corresponding investment from the government partners.<sup>6</sup>

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<sup>3</sup> Australian Government, *Financial System Inquiry Interim Report July 2014*, p. 2-60

<sup>4</sup> Australian Government, *Financial System Inquiry Interim Report July 2014*, p. 2-65

<sup>5</sup> Australian Government, *Financial System Inquiry Final Report November 2014*, p. 177-180

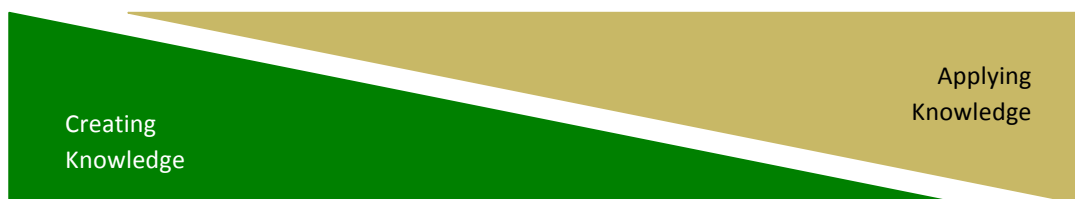
<sup>6</sup> [www.mrcf.com.au](http://www.mrcf.com.au)

## THE NATURE OF RESEARCH AND DEVELOPMENT

The nature of research and development has its own particular impact on companies seeking to commercialise the findings of research. Research is primarily concerned with the creation of new knowledge whereas innovation is concerned with the application of that knowledge. While research underpins innovation, the relationship between the creation of knowledge and new innovation is not always linear, immediate or foreseeable. The Authority's own report makes the following observation about the nature of R&D which is relevant here, as it helps explain why private investment is more likely at the later stages where the economic benefits are better able to be captured and appropriated by the investor.

*'Pure basic and strategic basic research (defined in Box 13.2) are characterised to a greater extent by the property of non-excludability than is applied research or experimental development. In general, businesses are likely to be able to appropriate a larger proportion of the benefits of investments in the latter types of R&D.'* (page 220)

While Box 13.2 on page 221 of the Draft Report identifies four distinct stages, in reality there is a continuum from basic research (which is typically publicly funded) to experimental development and innovation. In practice, there is no clear delineation between when the creation of knowledge ends and the application of knowledge begins; it is more a sliding scale with the creation of knowledge predominating initially and activities related to the application of the knowledge becoming more prominent in the later stages.



**The process of R&D- from the creation of knowledge to its application**

This characteristic of the R&D process makes it difficult to identify the point at which public funding for research should be replaced by private investment, creating a risk that public support will be removed before research has progressed sufficiently to make it viable for private investment to step in and take it to the next stage.

Industry assistance has a particular role at this elusive boundary between purely publicly funded research and the more specific, incremental private sector product development and innovation. There are some good examples in Queensland of successful public and private sector co-investment in this intermediate stage.

The purchase of pain drug company Spinifex Pty Ltd by Novartis for \$200 million plus milestone payments, announced on 29 June 2015, provides a case study of the interaction of public and private support for commercialisation of publicly funded research. Spinifex Pty Ltd originated in research undertaken at the University of Queensland. Early investors included Uni Quest and Uni Seed (university based commercialisation and venture capital) followed by some private sector venture capital, and the company has also publicly acknowledged the support of Australian Government programs including Pre-seed Funds,

Innovation Investment Funds, IIFF, Commercial Ready and the R&D tax rebate program.<sup>7</sup> A mix of public and private investment has enabled the research encapsulated in Spinifex to progress to the point where a larger private sector investment by a global pharmaceutical company is viable.

The recent establishment of the University of Queensland Emory Drug Discovery Initiative (QEDDI) demonstrates how this public investment in early stage commercialisation can create a self sustaining model for further research and development. A collaboration with the Emory University in Georgia, USA, the QEDDI seeks to promote the development of a pipeline of potential new drugs. *‘Through a reinvestment of returns from its already-successful commercialisation activities, UQ will inject \$30 million over the next 10 years into QEDDI. The State Government has begun discussions with UQ about the structure of its support.’*<sup>8</sup> The investment returns from earlier innovation and commercialisation activities such as Spinifex have enabled the publicly funded University of Queensland to reinvest in further research and innovation so that basic research discoveries reach the patients who need them.

It is in this space between scientific proof of concept and commercial proof of concept that industry programs can be critical, and they can provide real benefits to the researchers and the broader community. The Draft Report reveals that 37% of the Queensland Government’s R&D spend in 2012-13 was in universities, 39% in the Government sector and 3% in private non-profit spending (page 232). Using the Report’s own definition of Industry Assistance, which excludes spending in the not for profit and community sectors, the amount expended on private sector industry assistance for R&D as a proportion of the Queensland Government’s total R&D spend is relatively small.

**Research Australia submits that given the scale of the market failure identified above and the potential economic and health benefits from improving the relationship between universities and industry, the Queensland Government should be doing more to support the commercial exploitation of publicly funded health and medical research.**

## The benefits of health and medical research

Health and medical research is rarely undertaken purely for the advancement of knowledge; it attracts significant Government funding because of its potential to provide new discoveries that lead to improved health and wellbeing. This outcome can only be achieved if the research discoveries are translated into practice, either through non-commercial application in new therapies and practices or the commercial development of new products.

Research Australia submits that it is in the interests of governments to ensure that the investments they make in publicly funded basic research are realised. In the case of commercial translation this means continuing to provide publicly funded research organisations with the resources and incentives to advance their research beyond publication towards commercial proof of concept; and/or supporting private sector involvement at an earlier stage of the innovation process –e.g. through co-investment or other support.

The benefits of doing so flow to the community through improved health and wellbeing. Commercialisation of research also provides publicly funded research organisations with additional revenue streams through

<sup>7</sup> <http://www.mrcf.com.au/blog/2015/06/australian-pain-drug-innovation-company-spinifex-pharmaceuticals-sold-to-novartis-for-us200>

<sup>8</sup> <https://www.uq.edu.au/news/article/2015/06/premier-announces-queensland-drug-development-centre>



licensing, royalties, equity stakes in commercial enterprises etc (as illustrated by the QEDDI example above). The domestic economy benefits from the export revenues that these products are able to generate, either through local manufacture or a royalty etc. on overseas sales.

As the main provider of health funding, there is a further benefit for the Queensland government in providing funding for research and innovation in health; it has the capacity to improve the effectiveness and efficiency of the Queensland health system. Much of this innovation is specific to the Queensland health system or needs to be adapted to, and applied in, the Queensland health system- it cannot just be purchased 'off the shelf'. The Queensland Government's e-health initiatives are an example.<sup>9</sup>

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<sup>9</sup> <https://www.health.qld.gov.au/clinical-practice/innovation/ehealth/default.asp>

## THE CHARACTERISATION OF INDUSTRY ASSISTANCE PROGRAMS

*'This inquiry's terms of reference define industry assistance as:*

*any measures implemented and/or funded by the Queensland Government, directly or indirectly, that are intended to assist any industry in the State of Queensland as determined by the Authority as part of its investigation.'* (Page v)

Clearly the definition of 'Industry Assistance Program' is important, particularly when it will determine whether a particular Government program is to be judged against the Authority's criteria for determining if the Industry Assistance Program is warranted (e.g. to address market failure).

The meaning of 'industry' is also important. The report does not clearly define 'industry' although it has excluded community and not-for-profit businesses.

*'Assistance provided to community and not-for-profit businesses are considered beyond the scope of this inquiry, with the exception of any circumstances where assistance is provided to for-profit businesses via community or not-for-profit businesses.'* (Page 3)

On this basis, Research Australia assumes that universities, other publicly funded not for profit research organisations and public sector healthcare providers are not considered to be 'industry' for the purposes of the Draft Report, Volume 2 of which provides an extensive list of Queensland Government programs which the Authority has identified as Industry Assistance Programs. While some of these are clearly identifiable as such, the rationale for including others is less apparent.

One example is the Taxi Subsidy Scheme which subsidises half the taxi fare, up to \$25, for people with severe disabilities. People with severe disabilities are more dependent on taxis for transport than the general population and that they are frequently people with low incomes. In many cases these taxi trips are for essential purposes, like attending medical appointments. If the Scheme did not exist, in some cases people would forego the appointment; in other cases they would still use the taxi, pay the full price and forego other expenditure.

Research Australia submits that the Taxi Subsidy Scheme does not meet the Authority's own definition of industry assistance, as the intention of the program is not to support the taxi industry but to support individuals with severe disabilities that prevent them from using other forms of public transport. While the Scheme may indirectly benefit the taxi industry to some extent, the intention of the program is to assist people with severe disabilities. The Taxi Subsidy Scheme may support the Taxi Industry but such support is incidental. This Program's future continuation should not be dependent on its assessment against the Authority's criteria for Industry Assistance Programs.

There are several other Queensland Government schemes and programs which are similarly misidentified in the report as Industry Assistance Schemes. The Health and Medical Research Fellowship Program (page 20, Volume 2) is an example which is relevant to health and medical research. The recipients of the program are the Not- for- Profit employers of the clinicians who are awarded the Fellowship to cover salary costs for backfilling behind the recipient, and there is no clear link between the research to be undertaken and commercialisation activity. Instead the aim of the Program is to develop clinical and health research capacity within the public health system.

The Medical Research Grants Program is another identified by the Authority as an Industry Assistance Program (page 24, Volume 2). The description of the Program is ‘*Medical Research Grants are provided to deliver research papers and measurable outcomes*’, and all the listed recipients are Not-for-Profit organisations. It is not apparent that the aim of the program is to fund commercialisation activities or to provide assistance to industry.

These two programs account for \$168 million of the \$285.8 million identified by the Draft report as R&D assistance provided to industry by the Queensland Government between 2013-14 and 2017-18.

The Accelerate Programs ‘*...support collaborative research projects... Programs are largely targeted to the research community, in particular Queensland based universities*’ (page 17, Volume 2). The Accelerate Program is estimated to provide approximately \$7 million in funding over the period from 2013-14 to 2017-18.

Again, the classification of the Accelerate Program as an Industry Assistance Program seems to be incorrect. The eligibility criteria for the 2014 Accelerate Partnership Program is provided below:

*To be considered eligible for this program your project must:*

- *be led by a Queensland-based research organisation*
- *involve collaboration between the Queensland-based lead applicant and one or more of the following:*
  - *Queensland research organisation*
  - *interstate research organisation*
  - *international research organisation*
- *involve one, or more, of the private, public or community sector end-users of the research.*<sup>10</sup>

The Accelerate Program does not require an industry collaborator, and while it has a focus on the translation of research outcomes, this can be by commercial or non-commercial means. The aim is to enable publicly funded research organisations to apply their research for the benefit of the Queensland community, and any industry assistance the Program may provide is incidental.

**Research Australia submits that the Authority’s identification of Industry Assistance Programs is flawed, and that as a consequence many programs have been included as Industry Assistance Programs when they are not.**

Within the category of Research and Development, Research Australia submits that the value of Industry Assistance Programs is significantly overestimated (probably by at least 60%).

<sup>10</sup> DSITIA, *Accelerate Partnerships, Guidelines for Applicants* <https://publications.qld.gov.au/storage/f/2014-03-03T02%3A41%3A30.125Z/accel-partnerships-guidelines.pdf>

## CONCLUSION

Research Australia recognises that the community quite reasonably expects better health outcomes from its investment in health and medical research. Achieving these outcomes requires continued innovation in the delivery of healthcare services, utilising the outputs of Australia's and the world's research effort. This innovation may involve the commercialisation of research discoveries as new products, or the (non-commercial) introduction of changes to healthcare practice.

Research is a necessary input but is of itself insufficient to ensure innovation. As a nation Australia needs to better exploit our public investment in research, and this requires a strategic public investment in supporting innovation to apply that research, using commercial and non-commercial means. In areas where governments are responsible for the delivery of services such as healthcare, there is greater scope for government intervention in innovation. The economic benefits of innovation in these spheres are not only greater productivity and increased GDP but the more efficient use of public resources.

Providing assistance to industry to support the commercialisation of research is a legitimate activity for Government, particularly where the funding supports the commercialisation of publicly funded research. This can help to address the clear market failure evident in Australia in the lack of interaction between industry, universities and medical research institutes. In many cases, the commercialisation of the research is an important means by which the public can receive a financial return on its investment, and in the case of health and medical research, there are additional health benefits. The potential economic and health returns on industry assistance programs in the research and development category are a further justification for intervention, in addition to addressing market failure.

The Authority's definition of 'Industry Assistance Program' is reasonable but it has not been applied appropriately to the cataloguing of the Queensland Government's Industry Assistance. Too little attention has been paid to the intention to assist industry, and too much attention has been given to the incidental assistance that is provided to industry by some programs. In the case of the Research and Development category, this has led to the incorrect categorisation of approximately \$170 million of Government expenditure over the period from 2013-14 to 2017-18 as industry assistance. Examples are also evident in other categories.

In conclusion, Research Australia supports the need for a clear rationale and strict criteria for Industry Assistance Programs but suggests that the criteria need to be applied more appropriately. In the case of health and medical research, the opportunity to improve the effectiveness and efficiency of the health care sector (with a saving to the Queensland Government) and to improve health and wellbeing also need to be recognised as legitimate objectives of Government assistance.

Research Australia would be pleased to provide any further information or elaboration the Authority may require.

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