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The Australian Institute for Commercialisation (AIC) is a national, not-for-profit company that delivers programs to improve the commercialisation of Australia's research investment.

The AIC welcomes the opportunity to make this brief submission as a part of the inquiry process into the effectiveness of health and medical research. The following submission is of necessity brief, since our attention was only drawn to the review in the past week. Our submission highlights some key factors inhibiting better commercialisation of public sector research, particularly health and medical research.

The AIC is appreciative of the opportunity to raise the issues discussed in this submission, and would be happy to discuss these further with you.

Yours sincerely,

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Australian Institute for Commercialisation



**SUBMISSION – INVESTMENT REVIEW OF HEALTH AND MEDICAL RESEARCH**



Australian Institute  
for Commercialisation

## **I. Background**

Recognition of the contribution of science and technology and its commercialisation to the Australian economy has been slow, but is now gaining momentum. The research community and policy makers have been vocal about the importance of excellence in research for some time, but it has been only recently that *excellence in commercialisation* has come to the fore.

Interestingly, there are still many segments of the research community that are indifferent to commercialisation, suggesting that their research is for 'public good', as if this were mutually exclusive with being commercialised.

In fact, the impact of 'public good' research can frequently be deeper and broader when good commercialisation principles are followed. For example, product management – marketing, bundling, distribution, and so on, can be used to great effect.

A good case study is the work of Prof. M. Sanders and his team in the School of Psychology at the University of Queensland. By branding and packaging their 'Triple P - Positive Parenting Program' with marketing and training collateral, they have unarguably extended the reach of their social research to a global audience, and far more effectively distributed the impact of 'public good' than had the research remained confined to its local suburban Brisbane roots. Furthermore, the ability to perform further research based on global data has subsequently brought to the School a level of prestige and funding that would never have been possible without applying good commercial practice to their research. Another example is the distribution capability of pharmaceutical companies, necessary to reach the intended mass-markets. However, an essential prerequisite for these companies is that the intellectual property of any product has a clear owner and is well protected. The AIC maintains that too frequently commercialisation is viewed as a side-effect of research, rather than intrinsic to it, and these problems are exposed too late.

Overseas studies and experience suggest that annual expenditure of between 1.5% and 5.0% of annual R&D expenditure is required on commercialisation for effective social and economic returns. Industry sources estimate that Australia's total spend on commercialisation of the outcomes of publicly-funded research is significantly less than 1% of annual research expenditures -- a minuscule and inadequate amount. This level falls far short of the investment required to ensure we achieve excellence in commercialisation across the nation. Yet the first example above illustrates the benefits of the 'virtuous circle' to an institution, where the propagation of research can lead to public good, economic gain, and further research funding for the institution itself.

Australia's performance in commercialising publicly funded research and development has however improved significantly over the past five years, with both the pipeline of new companies and the success rate of those companies reaching "maturity" increasing. However, performance is heavily dependent on the benchmark used. For example, data for the Year 2000 shows that Australian public research institutions generated 34 US patents per \$US 1 Billion of research expenditure (compared with 128 in the US and 86 in Canada); and \$31 Million in revenue from licenced intellectual property (\$45M in the US and \$17M in Canada); and 16 start up companies formed (14 in the US and 37 in Canada). While these benchmarks are encouraging, the ultimate metric should be broader social and economic benefits to the community. Thus while the revenue from the Technology Licence Office of MIT in Boston is just over \$US 80 Million – a figure perhaps just double that of the University of Queensland – the MIT benchmark is that MIT graduates have founded 4000 companies employing over one million people, and that taken together, these companies would rank as the 24<sup>th</sup> largest economy among nations! In the case of health and medical research, the metric might be patients touched by the research, or the social impacts of policies implemented, as well as the economic benefits.

Australia's improvement in commercialisation has come from a low base of past performance, and there is still considerable scope for further improvements to be made. Although we see ourselves as good technology adopters, Australia in fact ranks only as a "second-tier" innovator nation in a recent international benchmarking study.

Dr Peter Jonson, the Chairman of the AIC, was appointed by the Premier of Queensland as the Chair of an Advisory Panel to work with the Queensland Government Department of State Development and with the Panel to develop the AIC from concept to operational phase. The Advisory Panel was selected from a range of senior representatives from the commercialisation sector. This panel identified a number of barriers to commercialisation and provided advice on a proposed corporate structure for the AIC. The major barriers to commercialisation identified by the Advisory Panel related to :

- People and Culture
- Taxation Issues
- Education and Training
- Funds availability
- Intellectual Property
- Company - Research Links
- Obtaining best unbiased advice
- Appropriate and meaningful benchmarking
- Co-ordinated exposure to markets (overseas links)

## **II. Recommendation**

Although the scope of the current investment review is far broader than commercialisation, the AIC suggests:

- Research can have multiple outcomes, many of which should be more effectively measured and benchmarked (and in the case of public research, audited as the basis for continuation of future research)
- In the case of medical research, the extension of knowledge and discovery for public good are primary outcomes. Economic outcomes are generally secondary.
- However, public good outcomes can often be enhanced by following commercial principles, including the protection of intellectual property and utilising well-developed distribution channels.
- Research funding can often be enhanced from the commercial returns developed from previous research, and the higher profile achieved through successful outcomes, such as block-buster drugs.
- Australia's premier home-grown companies, Cochlear and Resmed, were both founded on publicly-funded research.

Therefore, it is entirely appropriate to consider commercialisation performance as one component of medical research investment.

To ensure that the relevant outcomes are achieved, the AIC recommends that more effective procedures are necessary in:

- Measurement of commercialisation outcomes
- Management of intellectual property

### **Measurement of commercialisation outcomes**

Current measures of innovation and commercialisation are based around indicators of input such as expenditure, rather than outcomes of investment, such as social benefits, jobs, and wealth creation. The fact that many of these measures are collected on an ad-hoc basis makes it more difficult to allocate research funding in the 'correct' areas, let alone formulate a coherent national approach to innovation policy. The AIC is currently collecting, analysing, and providing information on outcomes in the innovation system, to improve resource allocation and to encourage a longer term strategic approach to innovation. The AIC suggests that:

- Commercialisation processes need to be assessed objectively against international "best practice". Any blocking issues identified throughout the commercialisation processes need to be removed.
- There needs to be recognition that there is not a "one size fits all" solution to the commercialisation process – processes that are successful overseas need to be adapted for Australia, there will be

differences in different industries. This is particularly the case in the biomedical field, where Australia lacks a multinational pharmaceutical.

- There is a lack of good news stories – the same stories are being retold repeatedly. There is a very real need to identify ways to promote a broader range and larger number of these stories through the media, especially television.

Current measures suffer from a tendency to be *input* based and lack the ability to account for time lapse between investment and outcome. In fact the necessary *outcome* measures resulting from collaboration with industry are generally not reported at all. In those instances where they are, they have generally not been broken down into those indicators (eg increased highly skilled jobs, export earnings, growth in global market share) which do have a causal relationship to innovation based inputs, and those which are secondary influences.

This must be presented in a coherent framework which allows informed decisions about the allocation of resources in terms of both 'triple bottom line' and conventional accounting of value for money or cost effectiveness. The development of such a framework should be drawn from the several analyses that are currently being conducted to determine value from innovation.

The AIC is presently measuring the commercialisation performance of Australian Universities and CRC's for DEST, and would be happy to work with NHMRC to derive an appropriate framework for NHMRC as well.

We also have a joint program with Melbourne University Business Unit to write 12 case studies on star performing companies borne from public research. Again, the AIC would be prepared to leverage this effort to help the NHMRC highlight the success stories – and difficulties – of commercialisation of some of the ground-breaking research it has funded.

### **Management of Intellectual Property**

As indicated above, without effective management of intellectual property (IP), even breath-taking discoveries can wither in institutions because no commercial enterprise will invest the necessary funds to develop them, run clinical and field trials, and distribute them to market. Institutions need to track the IP they have developed, manage it, and ensure it is well protected. The AIC's 'Commercialisation Bootcamps', delivered so far to researchers at the Universities of Queensland and NSW, have indicated massive acceptance of these principles, and poor previous knowledge of them.

The AIC suggests that:

- Through policy, the rights to ownership of patents need to be coupled with the assumption of responsibility for the effective identification, protection, management and commercialisation of the invention.
- At present, too much IP is lost through delay, through dilution, through ignorance of its potential, or through lack of knowledge of the IP that exists within an organisation.

A major impediment to technology-based innovation is proper management of IP. Clear ownership and exploitation rights are needed if IP is to be successfully commercialised. As the first stage in its policy campaign, the AIC is championing the need for public sector boards to be accountable for IP held by their institutions. This encouragement to identify IP makes it more likely that IP portfolios can be exploited.

### **Conclusion**

In conclusion, we have enumerated several principles that the AIC believes need to be effectively implemented within all of Australia's research institutions. Such principles could be encouraged by ensuring funding is allocated to institutions that implement as well as audit them. The AIC supports the work of the NHMRC and would welcome the opportunity to work with it to achieve this for the national interest.