

**SUBMISSION TO THE SENATE INQUIRY INTO THE
CAPACITY OF PUBLIC UNIVERSITIES TO MEET
AUSTRALIA'S HIGHER EDUCATION NEEDS**

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EXECUTIVE SUMMARY

(b) The effect of increasing reliance on private funding and market behaviour on the sector's ability to meet Australia's education, training and research needs.

- Within the educational sector is critical that teaching and research staff are empowered if the Government is encouraging them to increasingly rely on private funding alternatives to Government grants.
- The current system does not empower teaching and research staff because NHMRC and ARC grants are used by the Government to acquire and transfer the researcher's intellectual property rights to the administering institution (University).
- Government subsidies to the technology transfer arms of the Universities in the form of NHMRC and ARC derived intellectual property rights, and thereby actively discourages entrepreneurial activity by educational sector researchers and their attempts to create alternative private funding options. As a result Australia has a weak and fragmented knowledge based industry sector and poor industry demand for University graduates for employment.

(c) Public liability consequences of private, commercial activities of universities.

- The Government is directly exposed to substantial liability risk by virtue of the Terms and Conditions of its NHMRC and ARC Grant Awards - they involve the Government in directly acquiring and transferring intellectual property rights from the legal owners (the researchers) to the grant administrator (the University or Research Institution).
- The Government can not manage this risk well because it is the responsibility of the University or Research Institution to ensure that the researcher has assigned to the administrator his/her legal rights to any intellectual property.
- The Government's liability risk can be predicted to grow as researchers are educated as to their legal rights. Indeed, the Government is already sponsoring such an education program.

(f) The capacity of public universities to contribute to economic growth

- The current weak and fragmented knowledge based industry sector surrounding Universities is a direct outcome of Universities having a monopoly on Australia's intellectual capital and the intellectual property they generate.
- Through transfer to Universities of intellectual property rights associated NHMRC and ARC grants, the Government subsidises the technology transfer/commercialisation arms of Universities and provides them with an unfair competitive advantage over entrepreneurial start-up knowledge based companies.
- Overall, the technology transfer/commercialisation arms of Universities can not even exploit their monopoly position efficiently and are widely regarded as poor managers of the intellectual property commercialisation process.

Summary/Recommendation

To empower teaching/research staff, reduce Government liability, and stimulate economic growth, it is recommended that:

- The Government should change the Terms and Conditions of Award for its NHMRC and ARC grants to state that the Government refuses to exercise its rights to acquire intellectual property from the grant awardee. This would leave the entrepreneurial grant awardee with these intellectual property rights to use in negotiations with the administering institution, investors or other third parties aimed at creating start-up and spin-off knowledge based companies.

*The format of this submission takes the form of: **Specific Terms of Reference** (highlighted in bold) followed by an overview comment and then information that expands on and supports the overview comment together with reference to one or more of the three attachments.*

(b) The effect of increasing reliance on private funding and market behaviour on the sector's ability to meet Australia's education, training and research needs.

Overview Comment:

If the trend of decreasing reliance on government derived funding can not be reversed, it is critical that teaching and research staff are more fully empowered to locate alternative sources of funds to finance their teaching and research activities. In other words, any reduction in Government derived funding should be offset by an increase in the range of alternative funding options available to teaching and research staff.

For the reasons described below, the current system actively discourages researchers from becoming entrepreneurial by depriving them of ownership of the outcomes of their intellectual effort. This, in turn, reduces the incentive to stimulate growth in knowledge based industries and results in weak industry demand for University graduates.

The comments below relate particularly to **(b) v. the operations and effect of universities' commercialised research and development structures**

Government imposed impediment to entrepreneurs - current situation

NHMRC and ARC grant Terms and Conditions of Award currently require the staff member to assign any resulting intellectual property rights to the administering institution (University or Research Institution). This effectively removes incentives for teaching and research staff to leverage off Government grant funded projects to create alternative funding options.

This impediment is imposed by the Government and is not required by law (see Attachment 1). Under intellectual property law, the researcher owns the intellectual property s/he creates unless s/he voluntarily assigns these rights to a third party (frequently an employer under the terms of an employment contract). The legally aware teaching/research staff member can reserve these rights and can enter into a grant award contract with the NHMRC or ARC.

Under contract law, the Government can become (temporarily) the legal owner of the intellectual property that may be generated by the researcher financing a research project using a NHMRC or ARC grant. The Government currently uses the Terms and Conditions of Award for NHMRC and ARC grants to effectively acquire these intellectual property rights from a researcher (grant awardee) and to transfer them to the administering institution along with responsibility for commercialisation. Thus deprived of ownership of the intellectual property outcomes of his/her research, the incentive for the knowledge worker to be entrepreneurial is removed.

Origins of the current system

To date, the Government has encouraged Universities to own and commercialise intellectual property derived from NHMRC and ARC grants. In turn, Universities have constructed intellectual property policies that are based on the assumption that they are employers in regard to NHMRC and ARC grants. By assuming the role of employer, the administering institution can then justify, under common law, its claim to ownership of the researchers intellectual property rights.

It should be noted that the assumption that the University is legally entitled to be regarded as the employer in a contract between the researchers and the Government is open to serious legal challenge (see Attachment 1). The alternative view is that the true position of the Universities in regard to NHMRC and ARC grants, is that Universities administer the grant on behalf of the grant awardees. According to this legal perspective, the Universities have no rights to the resulting intellectual property unless the Government (contractor) and researcher (contracted party) voluntarily agree to assign the intellectual property rights to the University.

Obligation assumed by the administering institution

Under the Terms and Conditions of the Award of the Government has transferred the NHMRC intellectual property rights to the administering institution together with the obligation that the administering institution would use them to “the benefit of Australia”. In practise, many (most) administering institutions appear to have used them to gain commercial benefits.

At least some NHMRC and ARC grant awardees (including the author of this submission) have been profoundly disappointed by some of University commercialisation arms and their apparent inability to use NHMRC and ARC derived intellectual property rights to create start-up and spin-off companies. The resistance to using the intellectual property rights to stimulate growth of knowledge based industry with links to the University has forced continued reliance on Government derived grants and prevented the creation of employment opportunities for research students.

Contention that this Obligation has not being discharged

It is the contention of the author of this submission that many Universities have not discharged their obligation to use the intellectual property rights to benefit Australia. Ownership of the researcher’s intellectual property by the administering institution would not be bad for Australia if the University or Research Institution used it to create start-up and spin-off companies. Unfortunately, as reported in the BRW article (Attachment 2), their overall track-record as commercialisation managers of intellectual property is poor. The author of this submission contends that this constitutes evidence that administering institutions have a track-record of over a decade of not adequately discharging their obligations to the taxpayer. In response, the bulk of this submission presents compelling arguments for why this situation should not be allowed to continue together with a simple remedy.

Removal of Government imposed impediments to entrepreneurs - Case Study

Deliberate action to encourage researchers to own their intellectual property has positive economic benefits. At Cambridge University, UK, research staff members retain ownership of intellectual property rights and a dynamic plethora of innovation based start-up and spin-off companies now cluster around Cambridge University.

Melbourne University has now adopted the Cambridge model and encourages researchers to own and manage the intellectual property outcomes of their intellectual efforts. This begs the question: If it is good enough for Australia’s top tier educational institution, why is not good enough for the Nation?

Recommendation

To empower teaching/research staff to response to the long-term trend to reduce support by the Government for the educational sector, it is recommended that:

- (i) The Government should change the Terms and Conditions of Award for its NHMRC and ARC grants to state that the Government refuses to exercise its rights to acquire intellectual property from the grant awardee (see also response to terms of reference point (c) - below). This would leave the grant awardee with these intellectual property rights to use in negotiations with the

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administering institution, investors or other third parties aimed at creating start-up and spin-off knowledge based companies.

- (ii) An educational program should be initiated informing knowledge workers in the educational sector (teaching/research staff) as to their rights to intellectual property they create unless they voluntarily assign them to a third party.

Expected outcomes

- Empowerment of teaching/research staff to enable them to respond to increased reliance on private funding and market behaviour
- Profound and transformational economic and intellectual stimulation of the educational sector

(c) Public liability consequences of private, commercial activities of universities.

Comment

The Government is already exposed to substantial risk

The liability consequences relating to intellectual property rights can be substantial. For example, it is not unreasonable to envisage a damages claim by a major pharmaceutical company due to loss of earnings in the order of billions of dollars if it related to intellectual property rights over an enabling pharmaceutical technology or even a treatment for Alzheimer's disease. Legal action involving the Government is possible where the Government has directly involved itself in acquiring and transferring intellectual property rights from the legal owners (the scientists) to the grant administrator (University or Research Institution).

The Government's liability risk derives from the Terms and Conditions of Grant Award

The Government is exposed to such legal damages claims by virtue of its Terms and Conditions of Award for NHMRC and ARC grants and intellectual property policies of the administering body (eg, NHMRC). The Terms and Conditions of the Award of the grant directly involve the Government in the process of acquiring intellectual property rights from researchers for transfer to Universities. This exposes the Government to the risk, for example, that researchers with major investor backing will take legal action against the Government and a University or Research Institute.

To illustrate with just one example, this risk can be created where a University or Research Institute has been less than diligent in ensuring that it has acquired ownership rights over intellectual property generated by the researcher and then has mismanaged the commercialisation process for example, by allowing destruction of patents by permitting prior public disclosure.

Diverse University/Research Institution policies/practices affect the Government's liability

Even where the Terms and Conditions of Award for NHRMC and ARC grant requires that the administering institution is to have intellectual property policies in place, the risk can not be eliminate: The administering institutions frequently place most NHMRC and ARC funded researchers on short term (1 year), employment contracts that require signing each year. Any administrative oversight that results in the researcher not voluntarily assigning his/her intellectual property right to the University/Research Institution exposes the Government to becoming involved in a future expensive legal action.

The Government's liability risk is expected to grow

This risk to the Government can be expected to increase as researchers become frustrated by poor commercial management of intellectual property by the technology transfer arm and seek to become educated as to their rights. The astute researcher who is aware of their legal rights as creator and owner of intellectual property is in a position to either reserve all or certain rights by appropriately altering a standard employment contract at signing, or other methods, for example, claiming ownership of parent intellectual property generated prior to coming to that research institution, etc. This risk is increasing because the Government is currently sponsoring series of seminars aimed at educating researchers as to the legal aspects of intellectual property generation and protection.

The Government is now aware of this liability risk

A letter outlining this legal argument (Attachment 1) has been received by the Hon Minister for Health and Aged Services, Dr Wooldridge. In his reply (Attachment 1B), he acknowledges that the legal argument may have substance by referring it to appropriate persons.

The Government's START grant and intellectual property rights

The Terms and Conditions of Award for commercial R&D grants (such as START) provides the Government with a simple alternative to becoming involved in acquisition and transfer of intellectual property rights. Under such industry support schemes, the Government effectively refuses to exercise its right to any intellectual property that may be generated. Application of this policy to the NHMRC and ARC grant schemes will create the option of the legally aware researcher retaining ownership rights over his/her intellectual property for use in negotiating with the administering institution. In this way, the entrepreneurial researcher is then put in a position to introduce third party investors into negotiations with the University or Research Institute with the aim of ensuring establishment of start-up or spin-off knowledge based companies.

It is acknowledged that many researchers may not (currently) be interested in exercising such an option if provided to them because a sustained publication track record is critical in the competitive NHMRC and ARC grant selection process. That is, the current culture of academic research reinforces an academic rather than a commercialisation focus. That is, it is expected that most NHMRC and ARC grant awardees will be content not to exercise the newly created option and so continue to assign their intellectual property rights to the administering institution and charge them with responsibility for commercialisation.

Recommendation

To reduce the liability risk born by the Government as a result of it acting to acquire and transfer intellectual property rights from its legal owners to the grant administering institution, it is recommended that:

- (i) The Government should change the Terms and Conditions of Award for its NHMRC and ARC grants to state that the Government refuses to exercise its rights to acquire intellectual property from the grant awardee. This would leave the grant awardee with these intellectual property rights to use in negotiations with the administering institution, investors or other third parties aimed at creating start-up and spin-off knowledge based companies.
- (ii) An educational program should be initiated informing knowledge workers in the educational sector (teaching/research staff) as to their rights to intellectual property they create unless they voluntarily assign them to a third party.

Expected outcomes

- The liability risk to the Government deriving from acquisition and transfer of intellectual property rights will be eliminated.
- The Government's obligations in regard to intellectual property rights under NHMRC or ARC grant funding will be brought into harmony with that relating to Government grants for commercial R&D (eg START).

(f) The capacity of public Universities to contribute to economic growth

Comment

Australia's economic growth in the information age will depend increasingly on growth in the knowledge based industry sector, which in turn, is dependent on ownership of intellectual property rights. Given that Australia's knowledge based industry sector is weak and fragmented, it is currently dependent on transfer of ownership of intellectual property rights from the educational sector (who are the primary source of Australia's intellectual capital and generator of intellectual property rights). More succinctly, Australia's economic performance is reduced by barriers to the transfer of intellectual property rights from the educational sector into the industry sector.

Strategic Analysis of Impediments to Industry Growth

A strategic analysis of the current system (Attachment 3) can be used to identify some of the primary impediments to growth of Australia's knowledge based industry sector. The key findings of that analysis are:

- Convergence is leading Universities/Research Institutes in the educational sector into competition with knowledge based companies in the industry sector. This competitive playing field is not level because:
 - o Government subsidies in the form of grants are used to subsidise all of the high risk R&D in Universities/Research Institutes but Government grants are only available to subsidise half of the risky R&D in the industry sector.
 - o The educational sector has a monopoly on Australia's intellectual capital needed to generate intellectual property and industry is charged monopoly rents for access.
- Within the educational sector, the current system rewards the administrators within the educational sector rather than the knowledge workers themselves for creating commercially valuable intellectual property.
- The doubling of Government grant funding to the educational sector will exacerbate rather than reduce the competitive disadvantage suffered by the knowledge based industry sector.

At the core of these problems with the current system are high barriers to transfer of ownership of intellectual property rights out of the educational sector and into the industry sector.

Comparison with USA

It could be argued that transfer of intellectual property rights can not be the root cause of Australia's weak and fragmented knowledge based industry sector because the USA has a robust knowledge based industry sector together with Universities monopoly control over the intellectual property rights of their staff members. Such an argument would be flawed because ignores that fact that there has never been a persistent competitive imbalance between the educational and industry sectors in the USA - both sectors of the economy have grown in size in parallel with industry always being independent in terms of capacity to generate its own intellectual property (strong R&D base). Accordingly, the USA knowledge based industry sector has never been in the position of Australia's knowledge based industry sector - that of being dependent on the education sector and hence in a position to be exploited.

Viewed strategically, Australia's current intellectual resource imbalance between its educational sector and knowledge based industry sector can be predicated to persist unless the barriers to migration of industry critical intellectual resource are not removed.

Alternative Strategies for Stimulating Knowledge Based Industry Growth

If the barriers to low cost transfer of the critical intellectual resources from the educational sector into the industry sector are not removed (thereby leveling the playing

field), the cost to the Australian taxpayer of stimulating growth of knowledge based industries may be prohibitively high.

To achieve the USA situation of parity between the educational and knowledge based industrial sectors, Australia's knowledge based industry sector will need to be capable of creating its own intellectual property and breaking its dependence on the educational sector. This is likely that this will require considerable Government subsidies to the knowledge based industry sector.

While the Government subsidies can be in the form of taxpayer dollars, a much more cost effective solution is to provide these subsidies in the form of intellectual property rights associated with NHMRC and ARC grants. Indeed, if researchers are allowed to retain ownership even greater economic efficiencies are achieved: The commercialisation arms of Universities and potential commercialisation partners in the industry sector can compete on a level playing field for the rights to commercial Australia's NHMRC and ARC derived intellectual property.

Recommendation

To contribute to economic growth, remove inefficiencies in the current system and reduce the need for expensive Government support of Australia's knowledge based industry sector, it is recommended that:

- (i) The Government should change the Terms and Conditions of Award for its NHMRC and ARC grants to state that the Government refuses to exercise its rights to acquire intellectual property from the grant awardee. This would leave the grant awardee with these intellectual property rights to use in negotiations with the administering institution, investors or other third parties aimed at creating start-up and spin-off knowledge based companies.
- (ii) An educational program should be initiated informing knowledge workers in the educational sector (teaching/research staff) as to their rights to intellectual property they create unless they voluntarily assign them to a third party.

Expected outcomes

- The liability risk to the Government deriving from acquisition and transfer of intellectual property rights will be eliminated.
- The Government's obligations in regard to intellectual property rights under NHMRC or ARC grant funding will be brought into harmony with that relating to Government grants for commercial R&D (eg START).

ATTACHMENTS

- 1. Copy of letter to Hon Dr Michael Wooldridge in response to release of NHMRC draft Guidelines for Intellectual Property and Commercialisation.** Reply appended.
- 2. Copy of report on commercialisation performance by Australia's Universities.** Article by Beth Quinlivan: "Big Science, little money" Business Review Weekly February 23, 2001 pp 68-74.
- 3. Strategic analysis of barriers to growth of Australia's knowledge based industries.** Copy of Submission to Consultants contracted by DETYA and DIST. Study was originally sent to the NHMRC Executive Council.