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Sam Ricketson
Monash University

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Universities and Their Exploitation of Intellectual Property

Abstract
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Keywords
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UNIVERSITIES AND THEIR EXPLOITATION OF INTELLECTUAL PROPERTY*

By
Sam Ricketson
Professor of Law
Faculty of Law
Monash University

Introduction - what should be the objectives of universities in exploiting intellectual property?

This paper is concerned with the exploitation of intellectual property by universities. This topic has come very much to the fore in recent years, and it raises a myriad of difficult questions, both of a policy and legal character. In this paper, I propose to do no more than to outline the most important of these issues, and to suggest useful lines of inquiry for future investigation. Let me begin by describing how the issue of exploitation of intellectual property by universities arises. If this seems simplistic or stating the obvious, let me justify this by saying that discussion in this area can rapidly become both complicated and diffuse, and it helps to have a simple starting point to which to refer.

The issue arises thus. Universities in Australia, and in most other countries, are significant repositories of knowledge and information. These repositories include information and knowledge which have been generated in the university itself through the carrying on of basic and theoretical research, but they also include large bodies of information which have been packaged and processed in particular ways, ranging from the results of applied research, the publication of scholarly papers, journals, books, and the like, and the preparation of teaching and instructional materials. The scope and variety of the intellectual productions of a university are enormous, and may also vary significantly from institution to institution. However, the result is that much of what universities generate, beyond their immediate teaching and instructional purposes, can be highly marketable, and, indeed, would be marketed if it were produced by ordinary commercial undertakings.

What are universities to do in this situation? Do they enter the marketplace, like any other business, or are there factors which inhibit or

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* This article is based on a paper presented at a conference, 'Exploiting Intellectual Property Rights', held at Bond University on 28 August 1993.

prevent them acting in this way? These questions are far from easy to answer, but a starting point is to try and identify the role and objectives of universities in Australia in the late twentieth century. If these matters can be clarified, then it becomes easier to determine whether, how, and to what extent, universities should commercialise their intellectual property.

Several alternative models of a university can be readily identified.

- *The university as a teaching institution:* In the nineteenth century, this conception of the university was well expressed by Cardinal Newman in his work *The Idea of a University*. Newman saw the university primarily as a teaching institution that was concerned with the ordering and imparting of 'liberal knowledge' to students. This conception excluded the university from a research role, but two contemporary writers, Tony Coady and Seumas Miller, have suggested that research is not inconsistent with this conception in that Newman was far from regarding academics as merely '*handing on* lumps of established fact'.[1] In his view, 'liberal knowledge' was knowledge that had been structured, ordered and connected. Hence, Coady and Miller argue that a research function is complementary with this aim of the university, in that academics should be participants in processes of intellectual debate and exploration.

- *Universities as both teaching and research institutions:* This is the model to which the majority of Australian academics of my generation most readily relate, and is really a development of the Coady/Miller reinterpretation of Newmanís *Idea of the University*. It sees teaching and research as inseparably linked, and emphasises the notion of the university as a centre of free inquiry and learning, committed to the pursuit of knowledge untinctured by commercial considerations. In this context, academic independence and freedom to publish are fundamental values that prevail over all other considerations.

- *The entrepreneurial or partnership model of the university:* This is a more current conception which sees universities as forming partnerships with the outside world, particularly with commerce and industry. Pressure from government in recent years has clearly been important here, with emphasis being placed on such matters as 'accountability', 'relevance', 'interaction' and 'benchmarking'. This applies to all aspects of university activities, and has imposed pressures on staff and students that were not there in more halcyon times. Under this view, universities can no longer exist in isolation from the communities in which they are located but should be fully engaged with all sectors of those communities.

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1 Coady T and Miller S, 'Australian higher education and the relevance of Newman' (1993) 36 *The Australian Universitiesí Review* 40, 42.

These are very crudely drawn models or paradigms of the modern university, and the reality is that most, if not all, Australian universities will fall somewhere along a spectrum where elements of each model are mixed together in differing degrees. Indeed, it is interesting to note that Sir Robert Menzies, who must be regarded as the first national politician to apply large amounts of Commonwealth funding to the development of our universities, in a speech delivered as far back as 1939 identified seven main responsibilities of the 'true university' which intermingle aspects of the above models. In abbreviated form, these were:

> *First*, the University must be a home of pure culture and learning...
> *Second*, the University must serve as a training school for the professions...
> *Third*, the University must serve as the liaison between the academician and the ëgood practical maní...There must be mutuality between the theory and the practice...
> *Fourth*, the University must be the home of research. This is an impatient age. We want results... The work of research requires infinite patience, precise observation, an objective mind and unclouded honesty...
> *Fifth*, the University must be a trainer of character...
> *Sixth*, the University must be a training ground for leaders...
> *Seventh*, the University must be a custodian of mental liberty and the unfettered search for truth... Liberty and discipline, so far from being opposed, are complementary; each is essential to the other.[2]

Even if there is uncertainty (and disagreement) as to what should be the role of a university in contemporary Australia, it will be apparent that this is a matter that is critical to the topic of this paper, namely the way in which universities should deal with and manage the intellectual capital with which they are so richly endowed. A number of questions present themselves here for consideration, if the discussion is not to become too diffused:

- What are the particular intellectual property regimes that are relevant to the activities of universities?

- Under current law, who owns what? Are universities like any other employers, and are academic and non-academic staff like any other class of employees? And, what about students?

- If intellectual property created in universities is to be commercialised, how is this to occur and how is equity to be achieved between the parties concerned?

- In the course of any commercialisation, how are the 'traditional' goals of the university to be safeguarded, that is, items one, four and seven of the Menzies propositions?

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2 Menzies R, *The Place of a University in the Modern Community*, Melbourne University Press, (1939), 11-31, quoted by Pennington D, 'Australiaís Universities - through the Looking Glass', The Sir Robert Menzies Oration on Higher Education, The University of Melbourne, 30 October 1991, 7-8.

The relevant regimes

At the risk of being simplistic, it is useful to list the different intellectual property regimes that are relevant to universities. While this list will contain no surprises to intellectual property lawyers, it is interesting how much ignorance there is at all levels within universities of the range of intellectual property laws that may be potentially applicable to their activities.

- *Patents and allied rights:* Most universities are already very 'patent-conscious' and have internal procedures for dealing with patentable inventions made within departments and research centres. Presumably, there will be awareness of the relevance of plant breedersí rights in those parts of the university which are concerned with agriculture, horticulture and biological sciences.

- *Registered designs:* Whilst the utility of registered designs protection is questionable in the light of recent court decisions,[3] this form of protection can still be relevant to developments in areas such as engineering and industrial design. My own experience is that there is usually little awareness of the registered design system within universities.

- *Circuit layouts:* This form of protection, albeit limited in scope, is clearly relevant to computer science faculties and departments. It is unlikely that there is great awareness of its potential application.

- *Copyright:* This is clearly the most protean and far-reaching form of protection. In recent years, university administrators have been very much aware of copyright in their capacity as users of copyright materials. However, the potential of copyright as a source of protection for what is created within universities is not always appreciated. The following categories of material will clearly be susceptible to copyright protection:

    - books, articles, papers, anthologies, reading guides, teaching materials
    - data bases
    - computer software
    - films
    - sound recordings

3 For a review of this matter, see Ricketson S, 'Towards a Rational Basis for the Protection of Industrial Designs', paper delivered at the 28th Australian Legal Convention, 29 September 1993, later published in (1994) 5 Australian *Intellectual Property Journal* 193.

- broadcasts and supporting materials, eg those generated in open learning activities.

- *Confidential information:* This may be of enormous significance in relation to inventions and other developments that may be protected by patents and other statutory rights. In some instances, information that is not patented (or not patentable) may still be capable of very successful commercial application (an instance is the marketing of consultancy services relating to IVF technologies by my own university, Monash).

- *Trade marks and trade names:* These will probably be of peripheral concern to universities, except in so far as they will be concerned to protect the integrity of their names and insignia against misuse or misappropriations by third parties.

Who owns what?

It is obviously critical for each university to be clear about what it is that it owns or controls before commencing any kind of commercialisation activity. This, in turn, involves a consideration of the classes of persons who may generate intellectual property within the university context.

University employees

It will be chiefly academic employees who will be important in this regard, but it is the general rules with respect to intellectual property created by employees that, *prima facie*, are applicable here. Thus, where intellectual property is created in the course of employment pursuant to a contract of service, it will belong to the employer. This is expressly provided for in the copyright,[4] designs,[5] plant breeders rights[6] and circuit layouts Acts,[7] but in other areas, such as patents, it arises from the application of similar rules at common law.[8] No special treatment, such as that provided for journalist employees in s 35(4) of the *Copyright Act* 1968, is given to academic employees under any of these laws. Leaving aside, for the moment, the question of whether there is anything different about the position of academic employees that should entitle them to special treatment, there are particular features of academic employment that sometimes make the general rules with respect to the question of ownership difficult to apply. Thus, consider the following issues:

1. *Terms of employment:* What are the terms of employment of academic employees? Determining these will be critical to ascertaining whether

4 *Copyright Act* 1968, s 35(6).
5 *Designs Act* 1906, s 19(3).
6 *Plant Breedersí Right Act* 1994, s 3(1) (definition of 'breeder').
7 *Circuit Layouts Act* 1989, s 16(2).
8 See further *Sterling Engineering Co Ltd v Patchett* [1955] AC 534.

a particular work, invention, etc, has been made in the course of employment. Terms of employment may vary somewhat from institution to institution, but generally academics are employed to carry out three distinct functions: teaching, research and administration. It is possible that, in some instances, academics may not be required to carry out research, as was the case with some of the old colleges of advanced education which have been amalgamated with existing universities or which have been transformed into new universities. It may also be the case that some academics are relieved of teaching and/or research obligations when they take on more extensive administrative duties, such as those of a departmental head, associate dean or dean. In each case, it will therefore be necessary to ascertain exactly what these terms of employment are. Generally, these will be made plain in an initial or varied letter of appointment; it is also possible that changes may come about as a result of informal agreement between individual and university.

2. *Scope of the terms of employment:* The terms 'teaching' and 'research' are quite general in their application, and will clearly need some qualification. Thus, it will be necessary to determine the areas in which an academic is employed to teach or research. In the case of teaching, this may be straightforward, and will principally involve issues of copyright, namely the ownership of copyright in materials, guides and other aids produced for the purposes of courses which the academic is specifically employed to teach. *Prima facie*, the copyright in such materials will belong to the employing university. Research activities, however, may be more difficult to resolve, so far as the allocation of ownerhsip rights are concerned. Initial issues that arise here are:

- *What is the area of research of the particular academic*? If this falls outside her normal area of research activity, can the employing university claim the ownership of any intellectual property rights arising?

- *When and where was the work done?* Given the way in which, and the times at which, academics perform their work, difficulties may arise here, with the academic being able to claim that the protectable subject-matter has been invented in her own time or in the privacy of her own home.

- *Use of university resources, equipment, libraries, etc*: even if the work is done in the employeeís own time or away from the university and in an area in which the academic does not normally work, is there the basis for a claim by the university because its facilities or equipment have been used?

- *The impact of the employing universityís rules on outside work*: most universities have express rules allowing, even encouraging, employees to undertake a certain amount of outside work, whether on their own behalf or for a third party. The rationales for such rules are various: allowing academics to supplement university incomes that are often lower than those available in the private sector, giving academics the possibility of some practical experience, enhancing the reputation of the university in the outside world, and so on. In principle, if the university makes provision for outside work, this should mean that, if an academic creates protectable subject-matter in the course of these activities, the intellectual property rights should belong to her or the third party, even if this relates to work which is directly within the academicís area of research within the university. Such an outcome can clearly give rise to tension between university and academic, and some further consideration may therefore be required.

Visitors, retired members of staff, adjunct staff members

Each of these groups may be of critical importance to universities in particular circumstances. For example, a difficult situation may arise where a significant retired researcher keeps working at her old university without pay but using university facilities. If the academic in question has been responsible for patents of considerable commercial significance that belong to the university, does her position and potential entitlements change once she has retired? Problems will obviously arise if she continues to do work that results in further patentable inventions.

Visitors can also pose difficult problems. They may bring important information or expertise with them that is subject to intellectual property rights held by someone else, perhaps their home university or some other third party. This can also be a problem where the universityís own employees visit other institutions. Furthermore, difficulties will obviously arise when academics change employment from one university to another, or move into the private sector. In all these cases, university and academic alike will need to be clear as to who owns or claims what.

Students

This is another crucial group which may be the source of potentially significant intellectual property. Students are not employees, and there is no obvious other basis on which universities can claim automatic ownership of any intellectual property rights arising from their work. Accordingly, it will be necessary to have some contractual arrangement that deals with the allocation of these rights in particular circumstances. While there will be little practical reason for a university to claim copyright ownership in the case of such productions as examination papers, assignments, theses and the like, greater difficulties may arise in scientific or laboratory based disciplines where students, particularly at the postgraduate level, work in

research teams and there is a considerable investment of resources by the university or a third party. It will therefore be necessary for the university in question to sort out these problems beforehand in a contractual document, and to have developed clear principles to underpin its approach to such agreements.

Equity and balance between the parties in university exploitation of intellectual property rights

How, then, is equity and balance to be achieved between the various parties involved when a University moves towards commercialisation? From the Universityís perspective, there are obligations which are owed in two directions: internally, towards its employee and student creators, and, externally, towards its potential commercial partners, whether these are business organisations, government departments, statutory corporations, or other universities. Fairness and equity, as between these different groups, therefore assume different characters, depending upon which perspective one adopts. On the one hand, the University is an employer, and bound, like any other employer, to be fair and reasonable in its dealings with employees. It is also a guardian of its studentsí welfare and stands in a kind of *loco parentis* role. On the other hand, when dealing with outsiders, it must be accountable and prudent (particularly with respect to its government sponsors), and commercially astute and realistic (particularly when dealing with profit-making organisations). Striking a balance between these competing considerations may therefore be far from easy, but it is a useful exercise to attempt to enumerate here some questions that require attention.

Before doing this, however, an important preliminary issue arises.

How important is commercialisation of university intellectual property in any event?

This is far from fanciful, because if the volume of potentially exploitable material is small, it may simply not be worth taking the time and trouble required to develop appropriate policies: the easiest solutionmight be just to ignore the possible commercial applications and to leave it to employees, students and outside partners to exploit as they see fit.

Most discussion of university intellectual property rights has, to date, been focussed on patents, which are the most expensive of all rights to obtain and maintain - it is not unreasonable to estimate that upwards of $100,000 will be required to secure worldwide patent protection for a specific invention. At these prices, the average Australian university will only be able to contemplate one or two international patent applications per year. The evidence gathered by the Prime Ministerís Science and Engineering

Council in 1993 showed that only a small number of researchers in universities contributed to patents, and even in CSIRO only 20 had contributed to 5 or more patents.[9] Furthermore, it needs to be borne in mind that only a small proportion of all patents that are obtained will return a profit. Accordingly, there is only a small amount of patenting within universities, although intuitively one is led to envisage that far greater amounts of potentially commercially exploitable activities must be occurring, particularly when regard is had to the high level of public research funds made available to universities through the Australian Research Council, the National Health and Medical Research Council, the various research and development grant programmes (eg the Generic Technology Grant Scheme, Cooperative Research Centres, etc), rural research and development corporations and councils, Australian Postgraduate Research Awards (Industry), and so on.

Patents, of course, are only one form of intellectual property protection, and the attention that is given to them may obscure the other kinds of rights that may be far more relevant and more readily and cheaply utilised. Copyright is the outstanding regime here, and potentially gives protection to a large range of creative activities within universities. It is also very cheap, has few transaction costs, and confers automatic international protection. It is more than likely that this is a form of intellectual property protection which universities have long disregarded, but which may prove to be far more important than patents. The equitable action of breach of confidence may also fall into this category, particularly where the protection of unpatented (or unpatentable) technical or scientific information is concerned.

In the event that a university determines, in a level-headed and realistic way, the kinds of intellectual property that are potentially of most value to it and therefore worthy of commercial exploitation, it has then to establish how it will reconcile this objective with its other responsibilities and goals.

University responsibilities towards employee creators:

A number of matters fall to be considered here:

1. *The actual entitlements of the employer to any intellectual property that is created:* While general employment law principles may reserve these rights to the employing university, there are a number of important matters requiring determination:

    - The temporal and spatial limits within which the claims of the university can legitimately operate.

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9 Prime Ministerís Science and Engineering Council, *The Role of Intellectual property in Innovation, Perspectives* Vol 2, Office of the Chief Scientist, Department of the Prime Minister and Cabinet, June 1993 (in particular, the paper prepared by the Higher Education/Research Group).

- The impact of any outside work regulations adopted by the university.

- Issues of practicability, ie however justifiable, in principle such claims may be, in some instances the rights in issue will be too small or inconsequential for the university to become involved - this is certainly the case with the bulk of copyright material where commonsense alone indicates that universities should abandon any claim to ownership.

- A fundamental matter of principle, namely is there anything so distinctive or special about university employees that entitles them to different treatment than other categories of employee creators (in the event that this is thought to be some form of special pleading, bear in mind that the *Copyright Act* 1968 already provides special treatment for employee journalists - are they any better, or different, than academics?). What factors might be relevant to the case of creators employed by universities? At the very least, the following fall to be considered:

    - Considerations of equity, namely some form of reward for the fruits of their creative activities (this obviously applies to all categories of employee creators).

    - Considerations of common sense, namely the need to provide some incentive and compensation to a category of employed creators who are generally remunerated at lower levels to those which they would command for similar activities within the private sector.

2. *Entitlement to share in the fruits of any commercial exploitation and the level of such share:* In the event that the university retains its entitlement, does it still make sound sense for the employee creator to be given a share in the profits derived from any commercial exploitation? Unlike many private employers, Australian universities have usually acknowledged the claims of academic creators to some share of profits, at least in the case of patents. Arguments of fairness and the need for incentive have generally been accepted here without too much fuss, although entitlements with respect to other categories of intellectual property rights may still need to be worked out. However, the level at which entitlements are to be fixed can present difficulties. It seems accepted, in the case of patents, that such shares should come out of net profits, after the costs of patenting, licensing, etc, are deducted, and it is therefore only in the exceptional case that any significant income will flow to the academic inventor. There are also justifiable claims that can be made by the inventorís department or faculty and the general university administration.

Methods of payment will vary from institution to institution, but the fairest approach is to have some kind of sliding scale which allows the academic inventor a higher share up to a certain level, then somewhat less, and then less again, for example:

50% for the first $10,000
40% for the next $40,000
25% or less after $100,000

3. *Recognition of moral rights of employee creators:* While Australian law does not presently provide explicit protection for the moral rights of creators, as good employers universities should acknowledge such rights in the case of their own employees. Rights of attribution and integrity can be seen as part of the usual standards of academic courtesy, and it would be anomalous if universities were to fail to observe such matters. These standards are applicable to all species of creations, not just those which fall notionally within the scope of copyright.

4. *Retention of individual rights to publish and disseminate knowledge:* It would run counter to the traditional aims of a university if academics were restrained, because of intellectual property rights owned by the institution, from publishing or disseminating information about their advances in knowledge. Obviously, some balancing of interests may be required in particular cases, and this can only be properly done if there is close cooperation and trust between the university and the academic. For example, if a potentially patentable invention is to be commercially exploited, it may be necessary for the academic inventor to defer publication of her discovery until a clear priority date for a patent has been obtained. It may be far more difficult when the academic has no interest in pursuing a commercial path for her development (even if this would mean a share in net profits for herself) and wishes to publish immediately in order to advance scientific knowledge and to enhance academic interchange, to obtain academic esteem, or for some other reason. In such a circumstance, the university may have little practical means of preventing publication, at least without assuming the role of a censor, and there may be no choice but to accept the academicís prerogative to publish. And that is hardly a bad thing, in light of the universityís overall goals.

5. *Mobility of academic staff:* A further issue concerns staff who move from one institution to another, or into another sector of employment. How much intellectual property (or potential intellectual property) may they take with them? This is hardly a problem that is special to universities, but it can nonetheless assume particular significance in the case of academic employees. The latter are employed to teach and research in particular areas. If an academic becomes prominent in a particular area, and is then attracted to a higher or better resourced position in another institution, what rights does the former employing

institution retain? There is, of course, a predominant theme in employment law that emphasises the need to ensure the mobility of labour, and the corresponding need to protect the legitimate (intellectual) property of the employer. However, the case of the academic may be more problematic, as the 'property' involved will usually be different from the customer or price list or trade secret that features in many of the employment cases. A productive academic may be involved in a large project of basic research that has little immediate prospect or likelihood of leading to protectable inventions or developments. On the other hand, if this does occur when the academic has moved to another institution, the real basis for the invention may have been laid during the long years which the academic spent at her earlier institution. The same may be true in the case of material protected by copyright, for example, books, databases, computer programs, and the like. How are the rights of the academic and the two (or more) employers to be balanced? There are no obviously clear solutions, although if parties are aware of the potential problems in advance it may be possible to deal with them in some form of contractual arrangement.

University responsibilities towards students:

As noted above, there is no automatic legal basis on which universities can claim ownership of intellectual property created by students. The latter are not employees, and there is no ground on which a university can assert rights under its internal statutes or regulations. The obvious way, therefore, to settle such matters is by some kind of contractual agreement between university and student which provides for the future assignment or licensing of rights by the student in appropriate cases. Some of the matters to be taken into account in designing these agreements include the following:

- *The universityís guardianship role:* Quite apart from any general principles of law relating to unconscionability and undue influence, the university stands in a kind of fiduciary or guardianship role towards its students, and must therefore ensure that any contractual arrangements that it makes with students are fair, transparent and go no further than is necessary to protect the universityís interests. This means that there should be no blanket claim to rights, but that these should only arise in specific categories of cases, for example, with respect to work done in teams and work supported by outside financial sources.

- *No obstacles arising from intellectual property considerations should be placed in the way of students presenting work for examination or publication:* To do so would obviously be to deny one of the basic objectives of a university. On the other hand, it may be necessary to devise procedures whereby the studentís and universityís interests may be accommodated, at least in the short

term. An example might be the examination in confidence of a thesis in the period preceding the filing of a patent application. In no circumstances, however, should the situation ever arise where a student cannot receive examination or other advancement simply because of intellectual property rights that are owned by the university.

- *Academic staff and others need to be reminded to respect the rights of students:* Just as universities, as employers, need to respect the rights of their employees, in particular their moral rights, so too must academics be trained to respect the same rights in the case of students. There are many instances where abuse arises, for example, the unauthorised copying of student essays or examination answers for the purpose of class instruction, the unjustified claiming of co-authorship on papers written by research students, and even the partial or complete appropriation of student work. Theses are all matters on which universities need to instruct their staff.

Responsibilities of universities towards outside partners in commercialisation:

This is an area where universities, so far, have been slow to develop a systematic approach. It is difficult to have regard to traditional academic objectives when negotiating with partners who have purely commercial objectives. The latter will have aims that are often inconsistent with those of the university such as confidentiality. Universities therefore need to have a very clear understanding of what they are doing when they enter such partnerships. They also have very clear responsibilities towards the outsider, including the need to provide certainty in the grant or licensing of any intellectual property rights, and the ability to ensure that the university can fulfil properly any contractual obligations which have been entered into. Above all, universities need to ensure that they have a proper commercial understanding of the relationship into which they are entering, and that they are not subordinated to the outside partner in ways which diminish financial returns to the university or undermine its autonomy.

How to commercialise university intellectual property?

If universities decide to commercialise the intellectual property to which they are entitled, how should this be done? This is an issue of process, and is an area where universities have generally been very unsuccessful. There are various models available, and many variations on these, but two principal methods of exploitation appear to predominate at present in Australian universities:

- The university to do the commercialisation itself through some central licensing or contracting officer, branch or committee. Such arrangements can be very inefficient and have an amateur character about them, unless the university takes great care to employ

appropriately qualified (and paid) persons. Inevitably, important decisions will be made by persons who have overwhelming obligations in other directions and who have little time to devote to the difficult practical issues arising in any commercial negotiation. Accordingly, this method of proceeding seems largely outmoded and superseded by the second model described below.

- The establishment of a specialist corporate intermediary to manage and negotiate rights on the universityís behalf. There are a number of these associated with different Australian universities, such as Montech (Monash), Unisearch (UNSW), Uniquest (University of Queensland), Austech (ANU), Bondsearch (Bond), etc. The autonomy of these entities differs significantly, as does the precise role which each adopts, eg as an agent for the university, a principal in its own right, or as a broker bringing parties together. Their success rates are also hard to measure, and lessons might be learned from the operations of similar bodies in North America. Nonetheless, in principle, it seems more effective for universities to have a commercial arm or intermediary that is more versed in the ways of commercialisation than it is possible for universities themselves to be. The role of such intermediaries will clearly be enhanced if they are required to be self-funding and to support themselves by the offering of other services in the field of commercialisation.

Consequences of commercialisation - some concluding comments

This has been a very preliminary overview of some of the issues involved in the commercialisation of university intellectual property rights. However, some broad conclusions may be given, if Australian universities are to pursue this path:

1. Universities need to have a very clear idea of their objectives, and the way in which these are to be ordered. For example, one American university (Cornell) makes it clear that its primary obligation in conducting research is 'the pursuit of knowledge for the benefit and use of society'. Its commercialisation objectives are then subordinated to this overriding goal. Australian universities therefore should determine their institutional objectives in clear and unambiguous language, and decide where commercialisation activities are to be ranked. In this regard, it may be useful to make systematic comparisons with the ways in which these issues are dealt with in universities in other countries which are similar to Australia.

2. At a practical level, universities need to discriminate between different kinds of intellectual property rights, and to ensure that they do not become bogged down in seeking to regulate and exploits rights of a *de minimis* character. This is particularly so in the case of

copyright, where universities may find it far more effective simply to abandon any claims they might otherwise have (this certainly has been the traditional approach of British and Australian universities).

Finally, there is the need for universities to retain ownership or control of their intellectual property rights when they do engage in outside commercialisation, and to ensure that they approach these matters with an appropriate commercial perspective. Outside partners are not usually altruistic institutions, and universities need to be properly street-wise when they enter the commercial world. However, universities can only begin to do this when they have sorted out their institutional objectives and have had regard to the various obligations which they owe to their staff and students. Accordingly, there needs to be internal consensus on these matters before any attempt at external exploitation can occur.