

MANAGING INTELLECTUAL PROPERTY

ARISING FROM RESEARCH

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Public universities must make their knowledge and expertise available to the publics that they serve. When university researchers develop new knowledge through research, they make it available to the public in a variety of ways, the most common of which is publication in scholarly journals. Additionally they may use other means to call public attention to new information, such as by publishing in trade journals and, through press releases, by providing that information to newspapers, radio, and television. When there is the opportunity for the new knowledge to lead to a potentially useful product or a better manufacturing process, it is developed and protected as intellectual property so that it can be commercialized and the public can benefit. As a result, research universities establish special policies and programs for managing the intellectual property that arises from their research.

Active development and management of intellectual property by universities began in the first decades of this century, but it was not until 1980 that universities received a mandate from the federal government, through the Bayh-Dole Act, to develop and manage intellectual property that results from federally supported research. Recently this legislation, along with current interest in intellectual property related to biotechnology and the information sciences, has caused universities to pay special attention to their intellectual property responsibilities (Table 1). Moreover, increasing collaborations with industry and other universities have put special emphasis on thoughtful and appropriate intellectual property arrangements.

Current interests in the use of the Internet for publishing and in web-based instruction have carried the university's intellectual property concerns into the areas of information resources and instruction. Developments in these areas are causing universities to face many new and perplexing intellectual property questions. This paper, however, focuses on the intellectual property that arises from research and is not intended to address issues of internet- or web-based activities. Instead it considers some fundamental questions that university administrators might ask about managing intellectual property matters related to research grants (such as federal grants) and contracts, such as those for doing research sponsored by

a company. It does not, however, provide a guide to implementing a program for management of intellectual property.

Why Manage Intellectual Property Arising from Research?

The most direct answer to this question is that federal agencies require that intellectual property arising from federally funded research be managed. The university can carry out all of the process, or it can do only the initial stages of disclosure and then notify the federal agency personnel of the existence of intellectual property and give them an opportunity to manage it. Other compelling reasons to manage intellectual property include the need to protect the public investment in an invention and to protect the interests of the inventor(s) (Tables 2 & 3). Moreover, collaborations with other institutions and with industry require thoughtful intellectual property considerations beginning at the outset of the collaboration.

The most uninformed answer to this question is that it will provide a large revenue source for the university. With only a handful of exceptions¹ universities do not realize great revenue streams from intellectual property. Its development and management are expensive processes, and most universities hope only to get enough income from the process to pay for expenses and return modest incentives to the inventors and their departments for their efforts (Table 4).

At What Point in the Process should this Management Begin?

When research is being carried out under contract, the best time to agree on the basis for management is when the contract is being written. Most private entities require this, and federal contracts often have special intellectual property clauses. Sometimes both parties to a contract assume that no intellectual property will arise, due to the nature of the research, but this assumption may be erroneous and can lead to disagreements and hard feelings if unexpected intellectual property results. Usually it is better to agree in principle on the basis of intellectual property management even if none is expected.

When a federal grant for research is involved, general federal policy applies and usually there is no need for special intellectual property consideration at the outset. (A small number of federal programs are an exception to this rule and may appear to be going counter to the spirit of the

¹ In fiscal year 1997 the AUTM survey indicated licensing income of \$52 million for Stanford, \$50 million for Columbia, \$30 million for Florida State, \$21 million for MIT, \$18 million for Michigan State, \$18 million for University of Florida, and \$17 million for W.A.R.F.

Bayh-Dole legislation. Those grants and contracts will require special consideration on the part of the university before acceptance.) Most often the first need to manage intellectual property arising from federal grants comes with the disclosure of such from the inventor(s).

The need for early involvement of intellectual property issues in contracting for research suggests that the university should connect its contracting operation with its intellectual property management. The need to receive, as a minimum, disclosures of intellectual property arising from federally supported grants suggests that the intellectual property programs should have good relationships with the principal investigators on those grants.²

Who Should Manage the Intellectual Property Arising from Research?

Public research universities operate under both federal and state laws. State laws differ with regard to intellectual property ownership and with regard to the legal affairs of a university. For this reason, the best way for the university to organize management of its intellectual property will vary from state to state. Factors that must be considered include how the inventor(s) rights are assigned to the university and the flexibility that the university has for managing the legal matters related to intellectual property.

Where the university's ability to manage its own legal affairs is limited, it may choose to establish an independent organization that has more freedom to engage directly in legal affairs and to which the university will assign its intellectual property. Such an organization may specialize in intellectual property management only, or it may include additional management of research programs.

In all cases, the university should consider how its intellectual property operation relates to its inventors and should assure a close relationship with them. Moreover, the university should assure that those who manage its intellectual property have the expertise required to manage it efficiently and effectively.

What are the Risks and Benefits Associated with such Management?

A university that has a well-managed intellectual property program is a better research partner for business and industry. Often opportunity for

² For one effort to communicate with university inventors see *Intellectual Property Handbook: Benefiting Society with Iowa State Innovations*, Iowa State University Research Foundation, Inc. and Office of Intellectual Property and Technology Transfer, Iowa State University, 1999.

commercialization is required to realize the value of an invention and intelligent protection is a great asset to this process. Appropriate protection of intellectual property can greatly increase its value in the marketplace. Poorly managed programs will produce more disagreements. Moreover, they will result in lost value from the research program and, perhaps, in the loss of the rights of the inventor(s) and public investors in the university.

Other risks and benefits are associated with defending the intellectual property against infringement. If intellectual property is not defended, it is of no value. Its owner and those who have licensed rights to it must defend the property against infringement. This will usually involve legal action, often in the form of limited warnings, but may involve actual lawsuits. The university, or its specialized intellectual property organization, must be willing to take the risks associated with litigation if it is to recognize the benefits.

The university incurs some risks, but also benefits, in the decisions it makes about the license fees and royalties that it will charge or the equity that it will take in the licensee. Charges that are excessive may cripple a new company and can even result in its failure. Charges that insufficiently recognize the value of what is being licensed may lead to the appearance that the public non-profit entity is giving away value to a for-profit entity. This could have implications relating to tax law. These aspects of intellectual property management require wise judgments on the part of expert personnel.

Conclusion

In the next decade well-administered public research universities will have well-managed intellectual property programs. Such programs will facilitate collaborative agreements. Currently, many have established strong programs, but others have not. Most would benefit by thoughtful review and assessment. The questions considered in this paper are among those that must be addressed when thinking about what is involved in establishing such a program. They indirectly suggest some of the criteria that might be used in assessing program effectiveness.

Table 1. Licensing and Other FTEs in Tech Transfer³
(AUTM survey for FY97)

University	Yr. Start	Licensing FTEs	Others
Iowa State	1935	5.5	4.5
Kansas State	1942	1.0	1.5
Purdue	1988	3.0	6.0
U. Kansas	1994	5.0	2.0
U. Missouri System	1987	0.5	4.0
U. Nebraska	1996	2.25	0.5

Table 2. Sponsored Research Expenditures (\$ in millions)
(AUTM survey for FY97)

University	Total	Federal	Industry
Iowa State	185.5	83.0	8.5
Kansas State	33.6	18.6	5.0
Purdue	206.6	92.0	26.1
U. Kansas	102.9	65.5	20.0
U. Missouri System	140.0	45.6	9.6
U. Nebraska	102.5	32.4	3.5

Table 3. Licenses and Options Executed
(AUTM survey for FY97)

University	97 Total (Cum.)	Exclusive	Non-exclusive
Iowa State	133 (418)	28	105
Kansas State	5 (46)	4	1
Purdue	52 (202)	28	24
U. Kansas	7 (38)	5	2
U. Missouri System	20 (60)	14	6
U. Nebraska	4 (N/A)	4	0

³ AUTM Licensing Survey: fiscal year 1997, Ed. D.E. Massing, Association of University Technology Managers, Inc., 1998.

Table 4. Income from Licensing
(AUTM survey for FY97)

University	# Licenses Yielding Income	\$Millions
Iowa State	186	7.0
Kansas State	31	0.27
Purdue	182	1.8
U. Kansas	30	0.72
U. Missouri System	14	1.4
U. Nebraska	15	0.64