

# Establishing a University Program

*Effective patent program can provide university with good source of unrestricted income*

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## 1. INTRODUCTION

In fiscal year 1972, the government spent approximately \$3.1 billion of the total \$12 billion expended on research and development outside of its own laboratories on grants and contracts to universities.<sup>1</sup> Unfortunately, there are no available statistics as to how much of the \$3.1 billion is translated to the marketplace in the form of new products and processes.



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In recent years many universities, in the face of severe operating deficits, have looked to the patent resource as an additional means of raising unrestricted income. Such income in the form of royalties has been treated by the IRS as exempt from income tax, IRS 501(c) and 512(b), provided the income is used for educational and research purposes. Further, such income will not become available, if at all, for at least five years, and more likely eight years, from the inception of any serious effort to establish and implement a program. Thus, a university must make a long-term commitment to ensure a reasonable chance for success.

The rewards, however, are worth the risk when one considers that a minimum six-figure royalty income is the equivalent of \$1.5 to \$2 million in unrestricted endowment funds. The generation of such royalty income by universities for educational and research pursuits is clearly in the public interest.

This paper represents an overview of the objectives, goals, and tasks that a university must consider to create a viable patent program. What follows applies equally to implementing a copyright program.

## 2. PATENT POLICY

As a first consideration, the university should establish a patent policy that sets forth the relationships between the university, its faculty, students, and researchers, and its sponsors of research with respect to patent rights. A useful guide<sup>2</sup> for implementing such a policy has recently been published, a limited number of which are available upon request.

The basic aim of a university patent policy should be to

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promote the progress of science and the useful arts by utilizing the benefits of the patent system. Patents provide a means toward the development and utilization of discoveries and inventions. A patent policy should be established to ensure that those inventions in which the university has an equity will be utilized in a manner consistent with the public interest. Inventions resulting from university research should be made available to industry and the public in return for a reasonable royalty for use in education and research. The university, in turn, must provide adequate recognition and reward to its inventors to stimulate disclosures.

## 3. IMPLEMENTATION OF THE POLICY

The implementation of a patent policy will require at a minimum of a half-time person to act as the focal point (hereafter called the patent administrator) at the university to receive invention disclosures, to report such disclosures and any filing of patent applications based on such disclosures to its sponsors of research, and to serve as the liaison between the university, faculty, research sponsors, and industry.

The patent administrator must establish procedures for surfacing invention disclosures, develop forms to ensure that the vesting of patent rights complies with university policy, and set up a delivery system designed to bring inventions to the marketplace in a manner most likely to benefit the public.

Demonstration to government agencies that the aforesaid has been complied with entitles the university to acquire so-called institutional patent agreements (IPA) from certain government agencies such as DHEW and NSF. The advantages of an IPA are several:

1. Title in the university is at the time of contracting.
2. Administrative burden is substantially lessened.
3. Invention disclosures can be filed on immediately.
4. Foreign rights may be preserved.
5. Prospective licensees can be contacted forthwith.

There are public citizen groups and others that believe title to government-sponsored research should remain in the government. Their rationale is simple. What the public pays for the public ought to get — free. Unfortunately, the rationale, while laudatory, does not work in practice. This subject has been treated exhaustively by others.<sup>3</sup> Nonetheless a few cogent reasons as to why title should vest in the university are worth noting.

1. The university invention typically is embryonic requiring extensive development prior to its marketing. Industry would be reluctant to take the high risk with-

out some patent exclusivity.

2. Even were the government to grant exclusives, its huge patent portfolio makes it unable to match a university handling a small portfolio that lends itself to seeking out prospective licensees.

3. Physical proximity of the inventor to the university is a significant factor in the successful licensing of an invention by the university.

#### 4. PATENT ADMINISTRATION

How can the patent administrator effectively surface inventions, establish a compliance program, and successfully bring inventions to the marketplace?

##### *Patent Awareness*

Perhaps the most difficult task facing the patent administrator is developing a positive relationship with the faculty. Make no mistake that this task is crucial to effectively generate invention disclosures for "evaluation". Techniques for improving internal communication with the faculty were explored recently at a conference<sup>4</sup> held at Case Western Reserve University. In my opinion, the most effective tool that can be employed to develop a positive relationship is the seminar approach on a departmental level designed to create a patent awareness among the faculty. At a minimum, such a seminar should describe:

1. The rights to inventions arising out of sponsored research at the university.
2. The patent services available.
3. Useful background material that describes the patent system.
4. Definition of invention.
5. The invention disclosure and forms therefor.
6. Publication and its legal ramifications.
7. Benefits of the patent system.

The seminar approach is very useful in establishing face-to-face relationships and in developing rapport with what I shall refer to as "key inventors". At every university, the patent administrator will find a small scattered group of individuals who have an entrepreneurial bent. They tend to be prolific inventors of very practical inventions, inventions that solve current (industrial) problems. Key inventors can be very helpful to the patent administrator in evaluating invention disclosures and in creating a patent awareness among the faculty. Most important, inventions of the key inventors will probably become the basis of any successful licensing program.

##### **Other Techniques**

Other techniques for creating a patent awareness include:

1. A returnable card addressed to each principal investigator. The investigator is asked to check whether or not he would like to discuss any aspect of his research with the patent administrator.
2. A letter over the signature of the dean or vice-president for research addressed to all deans, chairman of departments and other key personnel which describes the function of the patent administrator and gives his address and telephone number.
3. Patent policy and procedure and related pamphlets on patent matters.

It often happens or more likely it is heard among the faculty that one of their number took an invention to his good friends at the One-New-Drug-A-Year Pharmaceutical Company which showed its gratitude by giving him a consulting fee and a piece of the action. How should the patent administrator respond to such a tale? The professor unwittingly has accomplished only one positive result (assuming the public interest is not seriously impaired) — a potential new product to be delivered at the marketplace. Every other aspect of this scenario is detrimental to all parties concerned, to wit:

1. The government, which in all probability sponsored the work or paid for the facilities used, is denied a royalty-free license to use.

2. Neither the university nor the department benefits from the introduction of the new product.

3. The inventor typically assigns his rights to the company. Consequently, no control is exercised by the licensor to ensure that the invention will be utilized in a manner consistent with the public interest.

4. The inventor invariably is a poor negotiator on his own behalf and would fare better by receiving an equity share from the university.

5. Grant support can be obtained for the inventor as part of the licensing arrangement.

Over a period of time the patent administrator must convey to the faculty and university researchers that he can provide a beneficial service, be responsive to questions on patent matters, and assist in bringing the invention to the marketplace in a manner most likely to benefit the university, the public, and the inventor(s).

The importance of obtaining invention disclosures from the faculty can be appreciated by considering the following.

##### **Yardsticks**

An active in-house patent administration program should, on an annual basis, receive one disclosure per million dollars of technical research. Hence, a typical university with 24 million dollars of such research should submit to the patent administrator about 24 disclosures per year. Of that number about eight will qualify for patent filing, two of which should result in a license agreement. Finally, about one of every two licensed will probably be introduced to the marketplace but only one in five of those introduced will probably be successful in terms of financial return to the university. It quite clearly becomes a numbers game. The more disclosures the greater chance of developing a viable program that will produce significant unrestricted income to the university. Stated another way, if the patent administrator can license 10 inventions based on 24 disclosures received annually over a five-year period, the chances for producing significant royalty income are good. Can it be done? Yes, but serendipity will be a necessary ingredient.

A word about evaluating disclosures. It is properly the responsibility of the patent administrator, not a committee. Patent committees should concern themselves only with policy. No one knows which invention may be a "winner" and supersophisticated committees will not tell us. The judgment of a patent administrator will be as effective (or ineffective) as a committee. Hence, in my opinion, the patent administrator must use a shotgun approach and

hope that some of the spray hits the mark. If there is a large potential market for the invention — or several applications of commercial interest, or if there are economic advantages over the prior art, or if it does what hasn't been done before, or does it significantly better — file.

The cost of filing U.S. and foreign patent applications on those inventions that are positively evaluated can be quite expensive if the services of a patent-management firm, such as Research Corporation, are not utilized. Utilization of third-party finders can, in some instances, defer some of this cost. Also, U.S. filings, in appropriate circumstances, can be decreased by as much as 50% by utilizing the United States Patent Office Defensive Publication Program.<sup>5</sup> The patent administrator might consider using all avenues available to minimize costs, at least until such time as royalty income reaches five figures.

### Compliance

As a condition of a grant or contract awarded by the government, the principal investigator is required, at a minimum, to indicate whether or not the results of his research may be patentable. The purpose of the reporting requirements, which may vary from the principal investigator making a statement regarding patentability at the end of his final report to formal annual reporting requirements between the patent administrator and corresponding government patent counsel, is to ensure that the government will have a right to use inventions that arise out of research paid for by the government. Hence, if the government takes title to inventions, it will file defensively; if the university seeks a waiver of title from the government, it wants assurance that it will obtain a royalty-free license to use. In those circumstances in which the university can assure the government that it has the means to bring to the marketplace the subject of the waiver request coupled with a royalty-free license to the government, waiver of title will probably be granted.

Alternatively, if the university has elected to establish an in-house capability or utilize the services of an outside patent management firm to establish a delivery system for university inventions, institutional patent agreements as previously described may be obtained.

### Licensing

#### A. Licensing Strategy

Prior to selecting a licensee, the inventor is consulted as to:

1. State of development of the invention.
2. Advantages and applications of the invention.
3. Availability of show-how.
4. Prospective licensees.
5. State of the art.
6. Foreign protection.
7. Suitability of the invention as the basis of a new start-up company.
8. Willingness to supervise a development program, if warranted, to determine commercial feasibility, to identify commercially interesting compounds, or to build a prototype.

Depending on the information gleaned from the inventor, a particular strategy is formulated for each invention. For example, if a joint development program is desirable, the university can assure a prospective licensee of limited-term exclusive rights to inventions developed under the

program and an option to the patent rights presently covering the invention. At such time as commercial feasibility is demonstrated or within the option period, the prospective licensee can enter into a licensing arrangement. The benefits from this approach, if successful, are:

- Industrial support
- University-industry interchange of ideas
- Royalties to the university and inventor
- Retention of control by university can prevent abuses
- Stimulation of further research by others
- New product or process given to the public otherwise not available.

#### B. Finding the Licensee

Once the strategy for a given invention has been formulated, a variety of techniques may be employed to bring the invention to the attention of industry. They include transfer technology agents and forums, publications in scientific journals, computerized listings, and direct solicitation.

Services, such as Dr. Dvorkovitz, GE Selected Ventures, Control Data's Technotec and NTIS should be utilized, at a minimum, for defensive measures.

Universities are especially prone to the hindsight syndrome carried out by alumni, trustees, grantors, etc. who ask, why wasn't the Do-It-Right Corporation given the opportunity to get a license on an invention licensed exclusively, albeit for a limited time, to the Get-Rich-Quick Corporation.

Hence, the university prior to seeking out its favorite licensee, should take minimum steps to make inventions available as widely as possible before entering into negotiations that may be exclusive. Utilization of the aforementioned services are a good first step in that direction.

Direct solicitation can be enhanced by preparing abstracts of each invention which succinctly point out what the invention is and does, its advantages and applications, and its state of development. The aim is to enable the busy company executive to quickly determine interest in the invention. If there is interest, the company will conduct a technical, patent, and marketing evaluation. If these are all positive, the company will seek to initiate licensing negotiations.

A word on marketing analyses. Although it may be useful for the patent administrator to conduct a market evaluation for the invention, it is time-consuming and expensive. Furthermore, any market evaluation by the university will be discounted by the company which will conduct its own in any event.

Professional organizations such as the Licensing Executives Society, COGR, and SUPA<sup>6</sup> can be helpful in keeping abreast of governmental regulations and licensing practices, and in contacting prospective licensees.

Clearly, the most difficult part of approaching a prospective licensee is to ascertain who to contact in the company. If you have no leads, look to your professional organizations for help. If the company is small, always contact the president.

Bear in mind that company policy and priorities change as well as key personnel. Accordingly, it may be appropriate to offer the same invention for license to a company contacted some 6 to 9 months previously.

#### C. Selecting the Licensee

If one or more companies express interest in a university invention, how is a licensee selected?

Generally, a licensee is selected on the basis of its ability to bring the invention to the marketplace.

In the case where the inventor has indicated that the invention is suitable for becoming the basis of a start-up company, the inventor may be given a first right of refusal because of his special expertise or his ability to identify products or markets not obvious to industry. The inventor, of course, can utilize traditional sources of venture capital and management assistance to form his company or he may utilize the services of the University Foundation, where that structure exists.

In all other cases, when a prospective licensee has been identified, the inventor may be called upon to:

-Visit the plant site to ascertain the technical and management capability of the company.

-Meet with representatives of the company to provide background information, show-how, and possible support by way of consulting, and/or further in-house development.

Also, if the company is not well known a financial statement should be obtained from a financial service.

Each prospective licensee should be considered on a first-come, first-considered basis. The intent is to enable each and every company to have an equal opportunity to demonstrate that it is qualified to develop the invention.

If two or more companies express interest at approximately the same time, then each company should be provided with an identical proposal for commercial development of the invention. Any attempt to conduct an auction to the highest bidder should be avoided. Rather, a joint development or other suitable arrangement is preferably discussed with each company in turn so as to select the most qualified licensee that is willing to take the necessary steps to bring the invention to the marketplace. There may be many qualified prospective licensees, but only a few that are both qualified and willing to take the risks. To induce such a licensee to take those risks, the license agreement must grant to the licensee rights that will provide the licensee with the necessary incentives.

Of course, if one or more of the prospective licensees express a willingness to take a nonexclusive license, such a license should be granted in preference to an exclusive, in keeping with both university and government policy.

**D. Negotiating the License**

If a prospective licensee has made a positive evaluation of the technical, patent and market aspects of the invention, preliminary negotiations will begin, generally evidenced by a representative of management, usually the director of research or the vice-president for corporate development or the like, making a visit to the university to ascertain what the company can expect by way of rights from the university.

It is fundamental that both parties must be completely satisfied with all the terms of any agreement. Accordingly, flexibility, especially on the part of the university, is a prerequisite to any patent license negotiation.

The following points may serve as useful guidelines for the patent administrator. Although basic, they are extremely important.

1. The Agreement must be a good deal for both parties; hence, don't attempt to drive a one-sided bargain.
2. The patent administrator, during face-to-face meetings, must evoke credibility and integrity.
3. The party negotiating for the company and the

university patent administrator must be in a position to speak for their respective corporations.

4. Listen, don't think about what you are going to say while the other party is speaking.

5. Be able to justify down payments, advances, minimums, royalty rate, royalty base and the like.

6. Have some familiarity with patent anti-trust law and patent law.

7. Be responsive to all points raised by the other party.

8. Put everything on the table early, an essential to establishing integrity and credibility.

**E. Basic Terms of a Patent License**

A primer<sup>7</sup> on factors to consider in contemplating the granting of a license by the university may serve as a useful starting point for the patent administrator. The basic terms of importance to the company executive are:

-Royalty rate and base

-Minimums

-Exclusivity

-Improvements

-Right to sue

-Advance royalties and the like

The royalty rate, which must be reasonable, is preferably a percentage of net sales which may vary from 1% to 10%, depending on the nature of the invention, volume of sales, strength of patent, the rights granted, etc. A reasonable royalty is typically 15% to 25% of the net profit derived from sales of the invention.

The base is normally within the scope of the claims. Special circumstances may dictate other arrangements such as when the licensed invention is the key component of a larger machine or system.

Minimums, if applicable, may range between \$250 and 10K. Cost of filing, foreign filing, exclusivity, incentive to get to the marketplace are but some of the factors to consider. Don't confuse minimums with front money.

Limited-term exclusivity for a period designed to allow the company to recover development costs and establish a lead position is common. Certain governmental agencies, as a condition of granting title to the university, impose specific time period (with respect to U.S. rights) which industry in general has found to be reasonable.

In most cases, improvements should neither be granted to nor sought from the company. However, in the case where the university grants a pioneer patent that gives to the company a basic position in the art, a different approach is warranted. In this situation, it is clear that many improvement patents may be generated by both parties, but especially by the company. Such an improvement package may well give the company control of the technology for years to come — a fact that may not be in the public interest. Accordingly, the university in this situation should require that the company grant improvements back to the university with the right to sublicense others upon expiration of the exclusivity, or provide for mandatory sublicensing by the company either *ab initio* or upon expiration of the exclusivity. Many variations can be utilized; the point is to maintain a free flow of all the technology to the entire industry. Obviously, pioneer patents are few and far between but should be handled with care.

If the company is negotiating an exclusive position, it is going to want to know what protection is available from the university with respect to third-party infringers. The university must have a flexible approach that allows the company to sue if the university elects not to.

Many universities seek advances against future royalties or down payments (up front money that is not an advance against future royalties) as a means of showing present income for the patent operation. It becomes evidence of viability, and hopefully will draw support for continued operation of the patent department. It is basically a bootstrap mechanism to get industry to support the day-to-day operation of a university patent management effort. Unless there is basis for the advance, there are several problems with this approach. In particular the patent administrator should not say to industry, "For the privilege of attempting to develop for the marketplace a particular embryonic technology, it will cost you X amount of dollars." There must be basis for the advance or down payment. Let's look at an example.

Industrial chemical company seeks to obtain a license in the field of polymer chemistry but has no expertise in the particular area of interest. They could hire from the outside a polymer chemist that has the requisite background with the expectation that the necessary lab set-up and test results would take nine to 12 months. Alternatively, the company could acquire the technology (show-how) in three to six months by using the university faculty researcher and his lab set-up. Moreover, under the guidance of the faculty researcher there is far less likelihood of the company pursuing avenues that would yield negative results. In such circumstances, the basis for an advance might be 50% of the anticipated savings to acquire the technology by other means than from the university; in this case, 50% of an engineering man-year defined as one Ph.D. chemist plus support personnel. Instead of looking at cost savings, another approach might be to calculate the cost incurred by the university in acquiring the technology. Other variations to suit the circumstances become readily apparent.

Where there is no basis, the concept of an advance may well be shortsighted and detrimental to the university program, as well as to the public. Said another way, advances that have no basis are counter to the policies under which the university is granted rights under government-sponsored research. The following are arguments which in my judgment are persuasive against the advance royalty-without-basis concept.

Any Director of Research is quite cognizant of the fact that the university development, if he elects to undertake it, will be but one of several promising concurrent efforts his company can afford to pursue. Due to time and money constraints only some of these projects will be carried from the development stage to a marketable product. Obviously, the risks are high and he must put his research budget to its most effective use. It is, therefore, a real possibility that any royalties advanced to the university by the company, will never be credited against any future sales. Typically, it is the first year of the development that is critical since in the beginning problems arise that result in far less progress than was anticipated for the year's effort. The Director of Research in view of such difficulties might easily terminate the license where his costs look high and success looks low. The requirement of an advance for the mere privilege of pursuing the development may spell the difference between a licensee and no licensee. It is important to remove as many obstacles as possible from the path of product introduction. Conversely, an advance with basis should produce the opposite

effect since the advance represents a savings in development cost.

In a typical clause requiring an advance there is language that makes the advance nonreturnable. This makes it quite clear to the company that the university has a take-the-money-and-run approach. It is something less than a partnership. Moreover, university inventions so licensed usually are based on patent applications which possibly may not mature into patents. Query: Where there is a total failure of consideration as evidenced by no proprietary position, does the company have recourse to recoup its advance, nonreturnable clause notwithstanding?

Taking an advance where there is no basis, however, may be a more serious mistake should product introduction be successful. The company providing an advance has leverage in negotiating the royalty rate or other terms. If new product sales are substantial, the advance might well be a handsome investment on the part of the licensee. One percentage point could make a difference of as much as 100K/year in future royalties based on sales.

One final point. Advances against future royalties should not be credited against the inventor's share in these cases where the credit exceeds 100% of the advance.

## 5. THE LICENSED INVENTION

The job is not finished once an invention has been licensed. The patent administrator must account for royalties received from the licensee and thenceforth paid to the inventor. Agreements may have to be prepared to handle the situation where inventors agree to a split other than 50-50. The schedule for royalty payment by the licensee must be reviewed regularly for compliance. A quarterly and annual financial statement should be prepared for university top management. The statements should represent a summary of all royalty income and expenses.

The license agreement may also be reviewed by the university and its licensee to provide for revisions or termination.

In many cases, where a significant development effort is required by the licensee, a continuing relationship between the university and the licensee is necessary to provide additional technical information, to provide the status of the patent application (if not already issued), and to serve as liaison between the two organizations.

### NOTES

1. National Science Foundation Report — 1972 NSF 71 - 35, Table C-9.
2. Patents at Colleges and Universities, Guidelines for the Development of Policies and Programs, Committee on Governmental Regulations, 1974.
3. Report of the University Patent Policy Ad Hoc Subcommittee of the Executive Subcommittee of the Committee on Government Patent Policy; Federal Council, for Science and Technology, July 1975.
4. Technology Transfer, University Opportunities and Responsibilities, Case Western Reserve University, 1974.
5. Lawrence Gilbert, USPO Defensive Publication Program, Chemtech, November 1975.
6. COGR stands for the Committee on Governmental Regulations, the National Association of College and University Business Officers; SUPA stands for the Society of University Patent Administrators.
7. Lawrence Gilbert, Licensing Patents from the University, Chemtech, May 1975.