Practical Considerations for the Establishment of a Technology Transfer Office

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ABSTRACT

The establishment of a technology transfer office (TTO) is a complex undertaking, so it is important to decide—before the office is established—about its operational scope, how the office will be funded, how it will be managed, and for what kind of issues the office should develop a policy. This chapter provides basic information that is indispensable for running effective TTOs. The chapter explains what physical and human infrastructures are needed, outlines the responsibilities and powers of TTOs, emphasizes the importance of technology evaluation, and stresses the centrality of good communication and negotiation skills.

1. INTRODUCTION

The last decade has seen tremendous growth in the use of IP (intellectual property) protection in business ventures, particularly those concerning biotechnology. As a result, more and more institutions are establishing technology transfer offices (TTOs) to assist in the legal transfer of technology. These offices serve a variety of functions, such as evaluating research results in regard to potential commercialization, advising on IP protection, filing and prosecuting patent applications, assisting in funding issues, conducting feasibility studies, and so on.

Starting a TTO is a complex and costly endeavor. The project must receive the support of administrators and scientists, and it must get off to a dynamic, effective start and focus on those who will use it. First impressions count.

It is important to define the TTO's scope of operations—as well as how it will be funded and managed—from the outset. Because several years can pass before any revenues or royalties would be collected from IP transfers, the office has to operate with the highest possible efficiency. Success or failure will depend mostly on the human resources and physical infrastructure available to the office.

2. PHYSICAL INFRASTRUCTURE

The location of the TTO is critical. An office that is located close to the scientists' workplace is most efficient and the proximity will help to establish cooperation and trust between the scientist/researchers and the TTO staff. Most TTOs start in either a research office or an administration building.

Elements of physical infrastructure that might be required include but are not limited to:

- **office space** (presumably either leased or rented). In cases of universities, locating the office on campus may make it easier for scientists to contact the TTO; on the other hand, an off-campus location might better serve potential licensees. Such factors as the need for confidentiality, meeting rooms, and so on, should be take into consideration.

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- **office furniture**, including desks, chairs, filing cabinets, conference tables, decoration, carpets, and so on. If budgets are very tight, acquiring salvaged or second-hand furniture can save money.
- **computer systems**, including PCs, printers, cameras, speakers, and so on. A high-speed modem or DSL line is critical.
- **phone equipment** able to handle conference calls, call transfers, and voice mail.
- **a photocopier**. If budgets are tight, selecting a small copier or a second-hand machine can save money. Remember that photocopiers are notorious for frequent and inconvenient breakdowns.
- **general office supplies**, including pencils, pens, paper and staples. Keep a good office-supplies catalog handy. Every office needs a good coffee and tea service; guests appreciate this simple, yet thoughtful, form of hospitality.
- **a library** of limited scope. It is useful to have a few key handbooks, such as *Black's Law Dictionary*[1] and *McCarthy's Desk Encyclopedia of IP*.[2] CD-based IP manuals can be handy references as well as being easy to use and to store; a computer could be dedicated for utilizing this resource.
- **online legal databases**, both paid-service (such as LexisNexis®[3] and WestLaw®[4]) and others that are free of charge.[5]
- **various software packages**. A standard office package should be adequate, at least at first. It must contain anti-virus, firewall protection, and disk-maintenance software.

3. HUMAN INFRASTRUCTURE AND TALENTS

Human infrastructure is even more important than physical infrastructure. A TTO needs to have employees with expertise in intellectual property, business, law, contracting, and negotiation. People will be needed to fill the following positions to operate a typical TTO:

- office director (usually a scientist with extensive business experience rather than a lawyer)
- administrative assistant
- licensing specialist
- attorney (either in-house or contracted from outside)
- students (often local law students)

A TTO's daily operations touch on a number of different fields. An office should therefore have access to external specialists for advice: an advisory panel, hired consultants, or colleagues. The types of specialists that are needed usually include, but are not limited to:

- patent attorneys or patent agents (depending on the field of invention)
- general legal counsel
- licensing specialists
- marketing specialists
- database specialists
- drawing and design specialists

One of the most important skills relates to communication and negotiation. An office director should possess these communication and negotiation skills:

- good interpersonal skills (especially important when interacting with inventors)
- good interaction skills for dealing with entrepreneurs in the private sector, the public sector, and small and large businesses
- good spoken and written language skills
- formal experience in negotiation

4. THE SCOPE OF THE OFFICE

With the goal of providing comprehensive IP services as effectively as possible, the responsibilities and powers of the TTO should be established at the outset.

4.1 *Patenting and other protections*

Patenting work may involve searching, freedom to operate, filing, maintenance, and so on. If patenting is a key duty of your office, it may be worthwhile to consider hiring a patent agent. Either way, it is essential to have a clear understanding of the various protection options including:

- utility or design patents
- filing a national patent application

- filing in foreign countries
- filing provisional patent applications to get initial protection and later filing non-provisional, national or even international applications under the Patent Cooperation Treaty (PCT).

Offices may need to consider the options case by case with each invention or the office may have a default process for most invention disclosures. Some offices, for example, file a relatively cheap provisional patent application in the United States, in each case, and then market the technology for the year that the provisional patent is valid, before spending more money on patent prosecution. If it seems that there are interested licensees, you may then file national or international applications. This is, of course, only one strategy among many.

The TTO should also consider the role of *trademarks* and *service marks* in its operation. Product branding is a very important element of global marketing, but trademark protection is often underused. It may be wise even to protect the mark of the TTO itself. Copyrights are a very simple and cheap form of protection for books, papers, and databases; the latter is becoming common in genomics as a cost-effective form of IP coverage. Trade secrets are the cheapest form of coverage: they are free! Of course, relying on only trade secret protections, a TTO runs the risk that someone will reverse-engineer and IP-protect the invention so the TTO cannot use it!

4.2 *Policy development*

It is important to have an internal office policy that addresses the following questions:

- How will licensing revenues be shared?
- Can the office accept equity in a company as part of licensing-related transactions?
- Should the office represent competing technologies?

A TTO must develop a system for identifying and dealing with possible conflicts of interest and questions of ethics. For example, it will need to anticipate such questions as should a staff member be allowed to license an invention to a company for whom he or she works as a consultant? TTOs should consider assembling an ethics and conflicts panel to regularly review office actions.

A policy development document should guide the institution in developing its own IP policies.

4.3 *Licensing*

Licensing is the heart, the essence, indeed the very bread and butter of a TTO. Remember that the flow of information and materials is two-way: some staff will access the IP of others through license agreements, and the TTO will be licensing its technologies through license agreements.

4.4 *Invention marketing*

Great technologies do not sell themselves. TTOs need good marketers and should pay them on a contingency basis. Do not underestimate the role of the inventors in identifying potential licensees.

4.5 *Negotiations support*

Negotiation is an art form that takes skill, practice, patience, and sharp wits. TTO personnel should consider taking courses to improve their negotiating skills. Alternatively, the TTO can hire negotiating experts. Whatever is done, TTOs should watch out for legal loopholes.

4.6 *Technology evaluation and assessment*

One of the challenges facing any TTO, especially at the beginning, is deciding which inventions to protect, and to what extent. No office has the resources to patent all inventions, especially if they are not likely to generate revenue for some time. As a rule of thumb, ten invention disclosures may lead to one patent, and one license might come from ten patents. In other words, only 10% of patents provide royalties. It is critical, therefore, that the TTO invest in only those inventions that are both truly innovative and appear to have commercial value. Remember that some great scientific advances cannot be marketed. At the same time, some simple inventions have huge commercial value.

TTOs usually have an internal committee that reviews invention disclosures for commercial viability and gives feedback to inventors. If the TTO manager needs to tell a scientist that

his or her invention will not be patented, good communication skills are critical. Obviously, the manager does not want to discourage an inventor from coming forward again in the future with another idea that may be commercially viable.

As a result, TTO staff should be prepared to spend time, effort, and money when deciding what to protect. The decisions should be influenced by a product's market potential—not by the excellence of the science behind it nor the desires of the inventor. Remember, the goal is not simply to patent inventions but to strategically patent inventions with commercial potential.

The TTO director must make sure he or she is fully aware of the TTOs legal rights before starting the negotiating process. It would be unfortunate to invest in a technology and later find out it cannot be licensed.

4.7 *Monitoring royalty incomes and potential licensing infringements*

Once a technology has been licensed, the TTO has to make sure that the licensee pays the royalties it has agreed to. The licensing agreement should give the licensor (the TTO) the right to audit the licensee, and this right should be exercised.[6]

The office must also monitor potential licensing infringements. This is not an easy task: the office may have to monitor companies that are using competing technologies, as well as minor distributors who might sell patented products out of ignorance.

4.8 *A note on confidentiality*

The nature of the IP business means that all employees of a TTO must observe strict confidentiality and always adhere to office policy on such matters as conflict of interest. These considerations should be taken into account during the hiring process, and the office's operations should always be fully documented.

5. EXPENSES

The costs of evaluating, protecting, and maintaining IP coverage are substantial and might include the following:

- patent and trademark search fees
- patent and trademark filing fees
- PVP fees
- maintenance fees
- copyright filing fees
- issue fees
- attorneys' fees
- drafting fees

In the United States, the cost of a trademark (including attorneys' fees) is approximately US$1,200–2,000. A provisional patent application costs US$2,500–8,000, and a nonprovisional application costs US$6,000–30,000. The cost of filing and maintaining a patent globally is approximately US$500,000. The TTO director must keep in mind that the filing of an international patent will make it necessary to use the services of a translator and that translation fees add up fast.

6. KEEPING UP TO DATE

It is important for the TTO to keep a close eye on developments in technology and markets. In order to stay informed, TTO employees should be active members of professional associations, such as the Association of University Technology Managers (AUTM) and the Biotechnology Industry Organization (BIO).

Another aspect of keeping up to date relates to obligations with contracts and agreements. Producing and reviewing contracts and agreements is a large part of the work of the TTO manager. Therefore, it is important to establish a portfolio of standard contract and agreement templates that can be customized as needed.

It is often tempting to cut costs by using standardized forms and agreements. However, it is important to note that such standardized documents are rarely drafted in favor of the person initiating the deal. If standard forms and agreements are used, a lawyer should review the final versions and point out any specific clauses that need to be further negotiated.

7. OFFICE ORGANIZATION

A number of organizational matters need to be addressed in the early stages of the establishment

of the TTO. These include creating a staffing plan and an employment handbook, incorporating (if necessary), and establishing procedures for handling federal and state filing requirements, taxes, and payroll.

- **staffing plan**. A coordinated and coherent staffing plan should provide details of lines of authority, job descriptions, and work plans for each day. Early planning will prevent future headaches.
- **employment handbook**. The staff employment handbook must state the company's policies regarding confidentiality, ethics, and conflicts of interest, among other topics.
- **procedures for federal and state filing requirements**. The local representative of the Secretary of State may be able to provide assistance with filing such documents as work permits, pension plans, occupancy permits, fire inspection permits, and so on.
- **plan for incorporation**. The office may wish to (or need to) become an independent legal entity. In the United States, such independent offices (often called research corporations) have charitable, or "501(c)(3)," tax status.
- **tax strategy**. It is money well spent for a TTO to hire a good accountant and a good audit firm.
- **payroll plan**. The TTO director must remain aware of federal and state tax policies. It is wise to hire a good accountant and a good audit firm to oversee such matters.

12. CONCLUSIONS

A TTO serves many masters and has a range of different functions. An effective and efficient office needs employees with good business, legal, technical, and contracting skills. And it is important to establish the office's scope and to develop a comprehensive office policy as soon as possible.

This chapter provides only a basic template for a TTO. Naturally, each office will have unique needs that will need to be addressed—creativity and a good team spirit will make it much easier to do so. ■

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1 Gardner BA, ed. 1999. *Black's Law Dictionary*. West Group, St. Paul, MN.

2 McCarthy JT, RE Schechter and DJ Franklyn. 2004. *McCarthy's Desk Encyclopedia of Intellectual Property*, 3rd edition. The Bureau of National Affairs: Washington, DC.

3 www.lexis.com.

4 www.westlaw.com.

5 See also, in this *Handbook*, chapter 14.3 by H Thangaraj, RH Potter and A Krattiger.

6 See also in this *Handbook*, chapter 15.1 by HH Feindt.