

## IP/Technology Transfer

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### ▼ Building relationships with technology transfer officers

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**Good relationships between inventors and technology transfer officers can reap dividends at every stage in the marketing of an invention or in forming a company. Conversely, a lack of communication can play into the hands of investors.**

Technology transfer is now routine in all US academic institutions, and increasingly so in research universities elsewhere. Laws similar to the 1980 US Bayh-Dole Act have been or are being passed in many countries, allowing academic institutions to own and commercialize patents resulting from the work of their researchers. In the US, technology transfer in the health sciences has been responsible for many new drugs and devices, not to mention the economic development of the vibrant US biotechnology industry, which relies on academia for technology as well as for people. Further, technology transfer from academia arguably has been a major factor in the development of bioclusters; the formation, growth and maturation of startup companies is what keeps such bioclusters going.

The main argument made here is that the formation of startup companies, and effective technology transfer in general, is greatly enhanced by a strong relationship between the scientist entrepreneur and his or her technology transfer professional (TTP). This article looks at various factors that can affect this relationship and the consequences for the researcher and the startup of maintaining a healthy relationship throughout the process.

#### Step by step

There are several reasons why a good relationship is important, applicable to specific stages in the company's gestation and growth. In the early stages, the scientist and the TTP each bring complementary skill sets to the table, which is always a good thing. Ideally, the scientist can inform the TTP of the applications of the work, and the TTP can help the scientist envision the product that needs to result from the technology in order to have a successful startup. Together they can put together the best possible protection for the intellectual property, a product-focused plan for the company's business and a coordinated marketing strategy. In short, they can put together a persuasive story to bring in quality investors.

At the negotiation phase with the startup company, it is important to recognize that the economic interests of the inventor and the TTP are fully aligned. They have much to gain by working as a team, and much to lose if they don't—a poor relationship plays into the hands of the investors, who are then well positioned to play one off against the other. Usually this results in a better deal for the investors and a poorer deal for the academics ([Box 1](#)).

Further, the scientist's expectations of noneconomic benefits from the startup (research funding, future collaborations, reagent exchanges, technology availability) can be managed well only if the TTP can explain early on which of these benefits, if any, are permitted under institutional conflict-of-interest and other policies. These policies vary among universities and even among schools in the same university. When these issues are clear to everyone from the start, expectations are reasonable, and the TTP can include specific nonfinancial terms into the license agreement so that the inventor's expectations are indeed met over time.

Finally, once the company is set up and growing, it will need productive interactions between the founding inventor, company management and the technology transfer office for its continued success. There will be unforeseen technology needs, new discoveries from the inventor's laboratory, renegotiations necessitated by the need for subsequent financing and other factors, material transfer agreements (MTAs) for reagents and other alliance management issues. Since most technology transfer offices do not have committed personnel for alliance management

—an important issue in its own right that is outside the scope of this article  
—the *ad hoc* team of scientist plus TTP must handle all these matters in a way that benefits the academic side without giving things away.

### Building mutual trust

Clearly then, teamwork between inventor and TTP has many advantages. However, very often, relations between academic scientists and their TTPs are less than optimal. Although one can argue about why this is so, it may be more productive to focus on how to build a good relationship. Mutual trust is the key ingredient.

Trust is developed by working as a team from the beginning. Let us examine the steps in commercialization of a discovery and see where the inventing scientist and the TTP can work as a team (or wind up working at cross purposes).

The first step is the disclosure of an invention to the licensing office. At this stage, the researcher is often unsure of commercial potential—even a knowledgeable scientist has not always fully thought through how the work can lead to a product. Often, the researcher is seeking the TTP's help to evaluate commercial potential and to identify companies that work in the area as potential scientific collaborators. In this situation, a technology transfer office's insistence on filling out forms before any discussion can take place is not conducive to building a good relationship, and a quick and tactless rejection can be particularly damaging.

Instead, consider the benefits of a thorough discussion of the invention between the relevant case manager (see [Box 2](#)) and the inventor as a first step. A good understanding of the invention is gained by the TTP, which helps the technology transfer office's evaluation of the commercial potential of the invention in question. This is also appreciated by the inventor as a quick response and an indication of interest on the part of the office, especially if the TTP arrives scientifically well prepared for the discussion. Now an informed discussion can take place between the TTP and the scientist on the issues that really matter, such as the economic prospects of the work, prior art, patentability analysis and company activities in the area. The case manager has built credibility with the inventor and even a decision not to patent the work can be communicated effectively. And if the work is patented, the foundations for effective commercialization have been laid.

The ensuing steps of patenting the technology and marketing it also benefit from a good relationship. The former requires the case manager to work closely with inventors and their coworkers to extract all the relevant data and use the information to guide the patent attorneys in drafting good claims and writing clear specifications. Opinions vary on what constitutes effective marketing of academic biotech inventions but few will disagree that a motivated inventor is helpful to the process. Often the inventor's publications and presentations at conferences are the key to landing a licensee. If the technology is appropriate for a startup, the value of working as a team has been emphasized earlier.

On the other hand, the relationship of trust can go awry at any stage for any number of reasons (see [Box 3](#)). License negotiation is one such area where things can go either very well (when inventor expectations are managed) or very badly (when they are not). Some offices have a prejudice when it comes to involving the inventor in the negotiations—the prevailing dogma appears to be that this does more harm than good. In my experience, this is not at all the case. An informed inventor usually has manageable expectations, and can be a great partner as described above. Most scientists who trust their TTPs are quite happy to stay out of the business aspect of the negotiation, which is the most frequently cited reason to keep inventors out of license negotiations.

“An informed inventor usually has manageable expectations, and can be a great partner.”

### Establishing lines of communication

As in any relationship, effective communication is the most important factor. This is one area where investigators often frustrate the efforts of a well-meaning TTP by not responding to requests for data and not answering questions that are vital to effective patent prosecution. Case managers with good knowledge of the underlying science (e.g., those with a PhD and post-doctoral training) are often better able to frame these questions clearly. Scientifically trained case managers who can "speak the same language" as the inventor can help build a good relationship, especially when they take an active interest in the investigator's research program. It also helps for case managers to simplify and clarify what is needed, since often a simple yes or no is all that is required rather than a lengthy explanation. And things go a lot better when each person understands that the other is juggling many things at the same time and respects the fact that the other person has limited time to deal with the particular matter.

On the investigator's part, several things can be done to improve the relationship.

- Communicate with your TTP early and often—a lot can be accomplished by a quick e-mail or phone call—and early discussion of an invention facilitates decision making by both sides and saves time and aggravation in the long run.
- Ask questions when things are not clear instead of wasting time and effort trying to interpret requests. Often these requests arise from arcane patent law issues that are hard to understand or from some

- specific prior art issue raised by an attorney, and require specific types of data. Guessing at what is needed does not help.
- Think of the TTP as an external scientific collaborator, albeit one with specialized skills and capable of performing specialized duties. Such a mind-set not only opens up communications between the laboratory head and the TTP but also brings other lab members into the discussion. When the relationship between scientist and TTP operates at this level, the process of writing a patent application becomes similar to writing a specialized article together, finding a licensee for one's invention with a licensee becomes analogous to finding industry funding for the collaboration and starting up a company can be viewed like beginning a research collaboration with a third scientific collaborator or a company.

Although the above analogies may be stretching things, the central idea is that teamwork pays dividends.

In such an atmosphere of mutual trust and effective communication, many good things can happen. Chance meetings in the corridor or cafeteria become a time for valuable updates and data exchanges. Investigators have a confidante with whom they can discuss matters that they cannot (or don't want to) discuss with other colleagues or within their labs. For the TTP, marketing efforts become more effective, case managers learn of new inventions as they develop, patenting decisions are made optimally, and so on. The investigator obtains collateral benefits as well, like quick processing of MTAs, landing industry-sponsored research funding, getting useful reagents from industry, and sometimes even placing post-docs and students in industry positions. And when it comes to starting a company, the team is already in place.

The views expressed here are the author's own and should not be taken to reflect Harvard's policies or practices.

#### **Box 1: Pitting the inventor against the technology transfer office**

This is a time-honored stratagem that is widely employed by companies in dealing with academia. It happens not only in the startup context where investors try to drive a wedge as illustrated in the text, but also in regular licensing negotiations with companies large and small. The key tactic is holding out promises of future rewards to the inventor such as sponsored research or consulting on the one hand while threatening to break off negotiations because of purported intransigence and delays from the technology transfer office. Many offices play right into industry's hands by delaying matters and unnecessarily hardening their negotiating positions. Then they make matters worse by not informing the inventor of the reasons for the delays and not explaining why they are asking for specific terms. Scientists are then easy prey. They then turn on the TTP and put pressure on the office to complete a deal.

The resulting deals are often unfavorable, which is what the company wants, and not what either the TTP or the inventor wants. The bad side effect is that it hurts both the relationship between the TTP and scientist as well as the internal reputation and credibility of the technology transfer office. In my experience, the best antidote is a good relationship with the inventor, through which the inventor is kept well informed about the progress of the negotiations by the TTP.

#### **Box 2: The case manager approach**

Many technology transfer offices rely on the case manager approach where one TTP manages all aspects of technology transfer from a particular investigator's laboratory. Others use an approach where office personnel are specialized by function, such that one person handles patent management, another does marketing, a third negotiates financial terms and a fourth may draft and negotiate the relevant agreements. Some opt for a hybrid model with both case managers and some specialized personnel.

Whereas each approach has its advantages and proponents, I believe for the reasons discussed in the text that significant hidden value resides in an effective relationship between the investigators and their technology transfer officer, and conversely, lack of a good relationship has great potential for creating problems. The case manager approach is best suited to developing a good relationship. Even when the relationship develops problems, switching case managers provides a quick fix that is often surprisingly effective and helpful. With specialized functions, especially in a large technology transfer office, investigators can be lost as the case moves from person to person, accountability can be diffused, and mutual trust and communication between the investigator and the technology transfer office can suffer consequently. And this is hard to fix.

**Box 3: How things go wrong.**

One frequent way things start off on the wrong foot is when an inventor walks in the door at the eleventh hour asking to file a patent on something that is due to be published imminently. Often, this happens because the scientist has been oblivious to the commercial importance of the work until a colleague who learned of the work shortly before publication says, "Hey, you've got to patent this!" and the scientist then rushes off to the TTP. The usual result is a poorly drafted provisional patent application, which hurts the prospects of a good license. Everyone's interests are then poorly served. Avoiding such an occurrence in the first place through good communication is the best solution. But when such a thing happens, as it is bound to at some point, the TTP should look at this as an opportunity to build the relationship rather than as a chance to punish a bad inventor.

Another example is valuation. When the relationship is poor, the inventor thinks the TTP undervalues the invention, and the TTP thinks the inventor overvalues the invention. Neither point of view is relevant regardless of whether these opinions are based on precedent, quantitative estimates, market analysis, replacement costs or any other method. Valuation is determined by market forces, that is, what the company is willing to pay. I know of cases in which prospective licensees were turned away because of the high asking price for technology based on the inventor's estimate of replacement cost. It is important for inventors to be realistic about what the market will pay.

A frequent complaint by scientists is that their technology transfer office is poor at marketing. This is often true—marketing is indeed the Achilles' heel of most offices. A recent study of marketing by the US National Institutes of Health Office of Technology Transfer concludes that inventor contact is the most effective factor in generating marketing leads, and that coordinated action by the inventor and the TTP may be the best way to market technology (Ramakrishnan, Chen and Balakrishnan, personal communication). Again, this points to the value of a good relationship.

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