

IV. SELECT PATENT MARKETING APPROACHES AND MODELS

The role and importance of patenting has been known for some time. The disclosure of patents allows inventors to build on and ultimately leapfrog the discoveries of previous patent holders with new and advanced inventions of their own.³⁴ The marketing of patents is becoming increasingly important. Excerpts supporting the importance of patenting and patent marketing are presented below. In addition, established patent marketing practices being used in some DoD laboratories are described. Select non-DoD and academic patent marketing practices were reviewed to gain insight into established practices at non-DoD research institutions from which DoD can learn and adopt where appropriate.

Importance of Patent Marketing

A new knowledge based economy has emerged in which ideas and innovation rather than land or natural resources have become the basis of economic growth and competitive business advantage.³⁵ Firms now regard their patent strategy as a new core competency of the modern enterprise and an important factor in their success.³⁶ Effective patent portfolio management and aggressive patent marketing strategies in some instances have saved some companies from eventual failure.

Professors Naomi Lamoraux and Kenneth Sokoloff of the University of California at Los Angeles proposed the following thought in their study of late 19th and early 20th century inventors:

"Imagine a world in which there was no patent system to guarantee inventor's property right to their discoveries. In such a world, inventors would have every incentive to be secretive and to guard jealously their discoveries from competitors (because those discoveries) could, of course, be copied with impunity. By contrast, in a world where property rights in invention were protected, the situation would be very different. Inventors would feel free to promote their discoveries as widely as possible so as to maximize returns either from commercializing their ideas themselves or from assigning rights to the idea to others. Competitors would have an incentive to keep tabs on what their rivals were doing (because) they could not risk investing in an invention without finding out how their discovery related to (and whether it replicated) technological developments in other sectors of the economy. The protections offered by the patent system would thus be an important stimulus to the exchange of technological information in and of themselves. Moreover, it is likely that the cross-fertilization that resulted from these information flows would itself be a patent stimulus to technological change."³⁷

Patent portfolio management is becoming instrumental in research intensive industries. In the early 1990s, a year-long audit of intellectual property (IP) at Dow Chemical was undertaken. Each of the company's 29,000 patents was identified, valued, and assigned to one of 15 major business units. Dow Chemical's intellectual asset management team identified licensing, commercialization, and joint venture opportunities for individual patents or groups of patents, as well as targeted competitive gaps in the portfolio as a whole that needed attention. As a result of

this audit, Dow Chemical achieved a savings of \$50 million in taxes and maintenance fees on unneeded patents that were pruned from the portfolio and either abandoned or donated to universities and nonprofit groups. Since this audit was completed in 1994, patent licensing revenues have skyrocketed from \$25 million to more than \$125 million today.³⁸

For some companies, getting revenues from patents can sometimes be the key to corporate survival. Texas Instruments (TI) was reportedly saved from bankruptcy in the mid-80s by an all-out patent licensing and litigation effort. In 1992 alone TI earned \$391 million from patent licenses, which was 43 percent more than its \$274 million in operating income for that year. Its current licensing revenues are thought to be about \$800 million per year. All told, analysts estimate that TI has earned more than \$4 billion in royalties since it began enforcing its patents in the mid-1980s. In May 1999, TI signed a licensing pact with Hyundai that is expected to net an additional \$1 billion in royalties over the next ten years.³⁹

With the formation of Xerox Intellectual Property Operations (XIPO), Xerox reportedly intends to grow its license revenues from the \$85 million earned in 1997 to \$180 million by the year 2000. XIPO's role is to look at the total portfolio of patents and technology and determine how best to package, market and sell them as they would any other product. Instead of just protecting IP, patent lawyers now look at IP offensively and treat it as a moneymaker. One technique that Xerox is considering in its licensing effort is to identify groups of patents within its portfolio that could be licensed together as a package. By analyzing co-citation clustering patterns, one can identify firms that consistently cite a cluster of Xerox patents in their own patents, making it advantageous for XIPO to package those patents and market them as a group.⁴⁰

DoD Patent Marketing Models

Technology transfer activities in the DoD laboratories are decentralized and, for the most part, funded out of laboratory overhead funds. Given restricted budgets, ORTAs need to be most creative in choosing patent marketing approaches that best fit their respective laboratory needs and resources. Aside from advertising in trade journals, attending trade shows, and posting technologies available for licensing on individual laboratory web sites, there are a few established approaches currently being used. Technology exchanges, the U.S. Naval Research Laboratory (NRL) target mailing method, and the use of DoD partnership intermediaries are discussed below as established vehicles for the marketing of DoD patents.

Technology Exchanges

The internet has created new and innovative ways to license technologies. One medium that has enabled technologies to reach desired audiences are technology exchange internet sites.

Technology exchanges are online marketplaces where businesses, universities, Federal laboratories, and individuals can buy, sell, or auction off technologies. These technology exchanges provide buyers and sellers of technologies a one-stop-shop for their particular needs.

Exchanges vary in their functionality and business models. Some exchanges are open to the general public for posting of technologies that are available for licensing, while others charge a fee. Some exchanges allow the general public to view posted technologies free of charge, while others require a fee or type of subscription for the privilege. There are even some exchanges that allow bidding for posted technologies, with the license going to the highest bidder.

Once a buyer locates a seller, a licensing deal is then pursued. Exchanges often charge a fee once a match is achieved via their exchange. The fee is typically based on a percentage of the overall value of the licensing deal. However, there are exchanges that do not charge fees when a technology is licensed. Fee structures vary based upon the individual exchange's business model.

Each technology exchange provides a functionality depending on the type of business they want to attract. Some exchanges provide a basic posting of available technologies and search capabilities for prospective buyers. Other exchanges provide services such as consulting or brokering for a fee. These fees are charged for assistance in licensing a technology or in finding a particular technology. Some exchanges specialize in particular fields/technologies, e.g., chemical, biotechnology, and pharmaceuticals to target a specific audience.

Example Technology Exchanges

(Source: ScienceWise)

http://www.patentcafe.com	http://www.patex.com
http://www.brainsupply.com	http://www.patentpost.com
http://www.chemicalpartners.com	http://www.anidea.com
http://www.pax.co.uk	http://www.pharmalicensing.com
http://www.gti2k.com	http://www.pl-x.com
http://www.hellobrain.com	http://www.qxhealth.com
http://www.inventnet.com	http://www.inventnet.com
http://www.techex.com	http://www.ipmarketplace.com
http://www.technologyconnect.com	http://www.technologyxchange.com
http://www.knexa.com	http://www.teonline.com
http://www.knowledgeexpress.com	http://www.marketlaunchers.com
http://www.uktech.net	http://www.uventures.com
http://www.nttc.edu	http://www.yet2.com
http://www.patentauction.com	

NRL Target Mailing Method for Patent Marketing

NRL patents new technologies at the rate of over 100 per year. Marketing begins before the patent is even filed. NRL's primary method of marketing patents is through an established target mailing approach. NRL interviews the inventor to determine what kinds of applications the technology might have and whether or not interest has already been expressed by any companies. NRL then identifies the Standard Industrial Classification (SIC) codes for industries that are in the business of manufacturing items related to those applications and then uses the SIC codes to identify companies that name those SIC codes as their primary or secondary businesses in the Dun & Bradstreet database. NRL contacts manufacturers, rather than wholesale or retail suppliers. Companies with annual sales of \$10-\$20 million are usually sought, for companies of this size typically have sufficient resources to mature the patented technology to a point where it can then be commercialized. With larger companies it is sometimes difficult to identify the right person to receive a direct mail letter, for they tend to have more levels of management.

With NRL's target mailing approach, a marketing letter is written to prospective companies that contains a "non-enabling" description of the technology available for licensing. The letter does not reveal how the patent works, only what it can do. The letters are directly addressed to vice presidents of new business development, technology acquisition, and technology development. Letters are generally not sent to Chief Executive Officers (CEOs) unless there is a specific reason for selecting the CEO. Usually 20 to 30 companies are targeted for a particular mailing.

The response rate is difficult to determine, for sometimes NRL does not receive a response at all which usually indicates that the wrong point-of-contact or the wrong industry has been targeted. However, in some instances, NRL has received nearly a 100 percent response.

Montana State University TechLink, a DoD Partnership Intermediary

A partnership intermediary (PI) "means an agency of the State or local government, or a nonprofit entity owned in whole or in part by, chartered by, funded in whole or in part by, or operated in whole or in part by, or on behalf of a State or local government, that assists, counsels, advises, evaluates, or otherwise cooperates with small business firms and institutions of higher education that need or can make demonstrably productive use of technology-related assistance from a Federal laboratory, including State programs receiving funds under cooperative agreements entered into under section 5121 (b) of the Omnibus Trade and Competitiveness Act of 1988."^{41, 42} PIs can be established through a contract or a Memorandum of Understanding between DoD and agencies of state or local governments or other entities chartered and/or funded by state or local governments. These entities serve as intermediaries in performing services for the DoD laboratory that increase the likelihood of success in conduct of cooperative or joint activities for the laboratory with small business firms, thus enhancing the small business ability to participate in government projects with technology transfer. PIs provide the ability to leverage local educational resources, as well as state and local governments which appropriate more money than the Federal Government in terms of technology based economic development. The Air Force works through four PIs and there is one PI, the Montana State University (MSU) TechLink (Bozeman, Montana), that supports all of DoD.

The MSU TechLink Center was originally established in 1996 to support NASA. Since then, they have signed a Memorandum of Agreement with Edwards Air Force Base thereby creating a DoD partnership intermediary to implement a new technology transfer and commercialization program. TechLink's focus is to assist companies in the Northwest region of the United States with accessing, developing, and commercializing technology in partnership with Federal research laboratories. TechLink offers a range of services that include technology assessments, technology scouting, partnering and licensing assistance, and commercialization support.

The TechLink staff consists of a Technology Marketing Manager, seven Industry Focus Managers, and support staff. The Industry Focus Managers actively cultivate clients in their industry focus area by making visits to existing and potential clients. Site visits to commercial clients account for 25 percent of their time. There are nine Industry Focus Areas that were determined based on industries in TechLink's geographic area that include advanced materials, aerospace, agriculture, biotech/biomed, environmental, electronics/telecommunications, forest and wood products, photonics/sensors, and software and information technology.

TechLink's patent licensing activities are focused on NASA and DoD since they are the key funding agencies for the program. TechLink began a patent mining effort about one year ago. They started by assessing DoD patents with the goal to identify ten technologies with a high probability of licensing by year's end. To date, TechLink has assisted in licensing two technologies, developing CRADAs for six technologies with option to license, and is currently working on 19 others.

TechLink's patent mining process identifies patents with commercialization potential and matches them with interested parties. TechLink has created a database of DoD patents dating from January 1998 through October 2000. This database contains entries consisting of patent

number, title, and abstract which are coded by Industry Focus Area. This database is updated every 6 months. After searching this database for technologies that may fit well within the industries that TechLink works, a sub-set of the full database is generated. The Technology Marketing Manager, in conjunction with the Industry Focus Managers, then reduces this list to a manageable amount, pulls the patents, and reviews them. About 40 percent of the reviewed technologies are dropped from the list primarily due to lack of market fit or narrow claims. If the technologies are still of interest, the ORTA at the respective DoD laboratory is contacted. The attrition rate following this step is approximately ten percent, primarily due to unavailability of inventors. With the remaining technologies on the list, the lead inventors are interviewed to gain a better understanding of the technology, its benefits, and shortcomings. After the interviews are conducted, the list is typically reduced by another 25 percent due to technical issues discovered during reduction to practice or lack of reduction to practice. With the remaining technologies, Industry Focus Managers make contact and actively follow-up with potential parties. When interest is expressed by a potential licensee, the respective ORTA is contacted who then takes the responsibility for developing a license agreement or a CRADA with the option for a license.

TechLink does not receive funding from MSU. The majority of TechLink's funding is provided through grants from NASA and DoD. Other funding is supplied by grants from other Federal and State agencies. Annual expenditures total approximately \$2 million. TechLink does not collect any percentage of royalties. Since the licensing is performed by the DoD laboratories, all royalty income goes to the respective DoD laboratories.

Non-DoD Patent Marketing Models

Although university technology transfer programs operate in a somewhat different environment, they nonetheless provide an interesting comparison to the Federal labs. Both entities focus on basic research which is a long way from commercialization. There appear to be two schools of thought regarding university models for technology transfer offices. University technology transfer offices typically fall within either the legal model or the marketing model. The legal model technology transfer programs are generally run by the organization's legal staff and are focused exclusively on patenting inventions.

Under the marketing model, the technology transfer office must accumulate and have on hand a large inventory of technologies to market to industry. Scientists are motivated to increase disclosures of their inventions through a simplification of the patent process and by rewards in the form of royalty income and other incentives.⁴³ These technology transfer offices actively market technologies available for licensing, with the objective of finding an appropriate licensee and concluding with a license agreement. Offices that use the marketing model (i.e. NIH, MIT, Stanford) have entrepreneurial, rather than legal or administrative, staffs with experience in marketing as well as in specific technology areas. If potential licensees have not been identified by the inventor, the staff use their knowledge of specific industry segments to locate candidate firms.⁴⁴ This model can be expensive, for a large number of patents may be filed based on a presumption of success in the marketplace. Therefore, many universities are moving toward patenting technology after a licensee has been found.

Marketing model technology transfer offices often fund part of their activities by taking a portion of the institution's royalty income to cover operating costs. In contrast, under the legal model, technology transfer offices are usually funded exclusively from the institution's budget.⁴⁵

National Institutes of Health

The National Institutes of Health (NIH) is one of eight health agencies of the U.S. Public Health Service (PHS) which, in turn, is part of the U.S. Department of Health and Human Services and is comprised of 25 separate Institutes and Centers. In FY99, NIH was awarded 163 patents, negotiated 204 licenses, and generated \$44,590,000 in royalties.

The NIH Office of Technology Transfer (OTT) evaluates, protects, monitors, and manages the NIH invention portfolio to carry out the mandates of the Federal Technology Transfer Act. The functions of the Office include overseeing patent prosecution, negotiating and monitoring license agreements, and providing oversight and central policy review of CRADAs. OTT also manages the patent and licensing activities for the Food and Drug Administration (FDA). OTT is responsible for the central development and implementation of technology transfer policies for four research components of the PHS -- the NIH, the FDA, the Centers for Disease Control and Prevention, and the Agency for Health Care Policy and Research.

The OTT has a staff of approximately 62. Two-thirds of the staff support the Division of Technology Development and Transfer and one-third of the staff supports policy and administration. The staff supporting the Division of Technology Development have backgrounds in science, law, and business. A mix of internal and outsourced legal staff is used.

Upon the report of an invention, a team of OTT Patent Advisors and Licensing Specialists internally evaluate the invention to assess patentability and probability of commercial success. This determines the need for patent protection, and is followed by filing a patent application if appropriate. The patent marketing process consists of first preparing a non-codified abstract that is cleared through the respective laboratory and published in the Federal Register. The OTT has an extensive mailing list and e-mail service as well as knowledge of players in the biomedical market. The e-mail service consists of a database where interested parties have expressed interest in certain key areas. Abstracts are e-mailed to respective parties based on their area of interest. Technology exchanges are used only if the OTT can list their inventions free of charge. If a licensee uses an exchange then the licensee pays any associated fees. The NIH OTT web site has an abstract database, searchable by keyword, that is a useful tool for potential licensees. Trade shows and trade publications are also used as additional marketing vehicles.

The OTT works with the Institutes and Centers in reviewing their patent portfolios for patentability and marketability. The patent filing costs are paid by the respective Institutes and Centers. There are three maintenance fees associated with a U.S. patent during its lifetime. The payment of these fees is the responsibility of the respective Institute or Center. In working with the Institutes and Centers in reviewing their patent portfolios, the OTT sometimes makes recommendations not to continue to maintain the patent. Some Institutes and Centers can carry patent cases longer than others, depending on resources available.

All royalties resulting from licenses go to the inventor and the inventor's respective laboratory. All laboratories contribute a specific amount annually to support the costs associated with the services provided by the OTT, even though all may not reap equal financial benefits resulting from income generated by royalties and fees.

Massachusetts Institute of Technology

The Technology Licensing Office (TLO) at the Massachusetts Institute of Technology (MIT), established in 1980, is one of the most active university patent and licensing offices in the U.S. In 1999, the TLO was awarded 143 patents, negotiated 68 licenses, and generated gross revenues (royalties, patent reimbursements, and equity cash-in) in the amount of \$19.9 million.

The TLO staff consists of approximately 20 people. There are eight licensing officials who have technical degrees and 12 support staff. Although they have one in-house counsel, they outsource most of the intellectual property work.

The MIT TLO patenting process starts with the inventor filing an invention disclosure after which a decision is made by the licensing professional as to whether or not the invention should be patented. There is no "check list" per se. Although the licensing professionals do not have dedicated areas of technical expertise, inventions are characterized in general areas such as chemicals, semiconductors, and software to name a few. Approximately half the invention disclosures are patented and about 70 percent of the inventions have an interested party before the invention is patented.

In most cases, the potential licensee first makes contact with the inventor. The inventor typically has had a long standing personal relationship with the interested party. In these cases, the inventor provides the TLO with information on the interested party and the TLO follows up with a telephone call and then by mail. The second most common means of matching a potential licensee with a technology is by leveraging the contacts the TLO has with industry. In about ten percent of the cases, potential licensees come to the TLO seeking technology.

MIT is one of the only universities that does not use its web site to advertise inventions available for licensing (except for a chosen few). It is the TLO's belief that a potential licensee needs to have a dialogue with the TLO, for oftentimes what an interested party thinks they need and what they really need differ. It is not unusual for the TLO to match the interested party with a technology different from that which they were originally seeking. The TLO does advertise their inventions in trade journals. However, the TLO has had limited success with intellectual property web sites such as technology exchanges.

The royalties and licensing fees collected by the TLO cover the costs associated with operating the TLO. In fact, the office generates a profit between one and four percent. Sometimes the TLO takes an equity stake in a start-up instead of royalties or in addition to royalties. This type of arrangement is a small but increasing percentage of the total number of licensing agreements.

The royalties and licensing fees generated by the TLO go toward covering the legal fees associated with the patenting and licensing of technologies. After these costs are covered, the remainder of the funds is disbursed as follows: one-third to the TLO, one-third to the inventor, and one-third to the inventor's department.

Stanford University

The Stanford University Office of Technology Licensing (OTL) has been in existence for 25 years. In a given year, the office typically has 250 inventions disclosures. The OTL licenses between 15 and 25 percent of these 250 inventions. In 1999, the OTL negotiated 160 patent licenses of which some were from prior year disclosures.

The OTL has a staff of approximately 25 consisting of three industrial contracts personnel and eight Licensing Associates, with the balance being licensing staff. The licensing staff have technical backgrounds with some business experience. The internal staff is trained to handle almost all the elements of licensing. Legal expertise is outsourced and used sparingly to handle high-level questions.

OTL's patenting process starts with the inventor disclosing the invention. The Licensing Associate then examines the commercial viability of the invention. The Licensing Associate holds an evaluation meeting with the inventor where contact information on interested parties is exchanged. These contacts, typically the most important, are usually supplemented by the licensing team's own contacts. Sometimes a disclosure is made based on having an interested party lined up beforehand. In these cases the interested party covers the patenting costs.

The OTL sometimes markets a patent before the decision to patent the invention is made. A non-confidential abstract is written. Interested parties are sought by using professional contacts in industry, internal databases, external databases (i.e. Corptech), and publications in technical areas. A letter and abstract are then sent to selected parties via e-mail and fax, with a form enclosed for easy response.

In selecting which inventions to patent, a checklist is used when reviewing the disclosure. All invention disclosures are marketed. In the past some market assessments were outsourced, but now all market data gathering is done internally and formal market assessments are no longer performed. Each docket is then prioritized by how well it is perceived to be successful using an internal "A, B, C" system.

The OTL has a web site with a search capability that is used as a marketing vehicle. Although tracking the hits to the site indicate that it is being used, no specific licenses have resulted from it. The OTL has used a technology exchange, TechEx, to list 90 biotech related technologies. Although no licenses have resulted from this service, the OTL believes that if listing technologies on a technology exchange is free, there is no reason why it should not take advantage of the service to disseminate information about their technologies. The OTL has also participated with some brokerage services; however, some charge undesirably high percentages for their service.

The OTL generates revenue back to the university; they are considered to be self-supporting with a surplus. Fifteen percent of the royalty and licensing fees goes to support the OTL. With the remaining 85 percent, direct expenses to the particular docket are paid. With the remaining funds, one-third goes to the inventor's school, one-third goes to the inventor's department, and one-third goes to the inventor.

University of Virginia Patent Foundation

The University of Virginia Patent Foundation is a private not-for-profit corporation that evaluates each of the inventions generated by the University of Virginia faculty and employees, protects those inventions which appear to have commercial potential, and then markets and licenses those rights to industry. Intellectual property generated by faculty at University of Virginia was originally controlled by the Director of the University Patent Program in the Office of the Assistant Vice Provost for Research. In the mid 1970s, the Vice Provost had an idea that a separate foundation could more effectively handle negotiations, licensing, and intellectual property protection. The Patent Foundation sprang from this idea and was established in 1977 as

a non-stock, 501(c) (3) corporation. In 1999, the Foundation processed 154 invention disclosures, 114 provisional applications, 32 applications, 23 patents, 20 license agreements, and five option agreements.

The University of Virginia Patent Foundation has its own internal Patenting Department. It consists of two attorneys, a paralegal, and a legal secretary. The attorneys write the patent applications. The Patent Foundation has the philosophy that it is less expensive to have internal attorneys than to have an external contracted legal staff. The accessibility and proximity of attorneys to the inventors is an important feature of having an internal legal capability. The Licensing Department consists of an Executive Director, three associates, a manager, a paralegal and a secretary. The Business Department has a manager, a financial accountant, and one other staff member.

The internal attorneys prepare approximately 100 provisional patent applications per year. The time spent on individual cases is tracked similarly to that of a law firm and is charged to individual licensees.

The patent and licensing process at the Foundation is considered to be "cradle to grave." It starts with the invention disclosure leading to a provisional application, followed by an assessment and then marketing of the invention. Marketing is pursued during the one year time period covered under the provisional application. Since potential rights to the patent are associated with the provisional application, marketing and licensing occurs before the technology is patented to prevent a marketing opportunity from passing by. In most instances when a licensee cannot be found, the invention is not patented and the rights are returned to the inventor. The inventor can take the rights and roll over the patent application process to a personal attorney. Otherwise the technology resides in a file at the Foundation where it can be viewed by potential interested parties that sometime come to the Foundation in search of interesting technologies for licensing. Once a licensee is found, the license is drafted and an agreement is negotiated, after which it is forwarded to the Business Department for monitoring and compliance.

The Foundation performs "target marketing," which involves searching the internet for companies in relevant areas and looking for product lines that could accommodate or complement the new technology. The Foundation prefers mid-size companies for they tend to have money to invest in maturing the technology. Once five to ten companies have been identified, the companies' licensing departments are contacted. The Association of University Technology Managers (AUTM) has a directory of pertinent individuals at various companies which the Foundation uses extensively. These individuals are contacted by phone and the benefits of the technology are discussed without explaining how the invention works. The Foundation does not believe that direct mailing is an effective method for marketing the university's inventions.

The Foundation does take advantage of free postings of university inventions on technology exchange web sites as long as it is not necessary to reformat information. The Foundations has received a few leads resulting from these free postings, but no licenses to date. Although the Foundation has worked with a local broker, there have been no license successes.

The Foundation typically likes to have a licensee before moving forward with the patenting process. However, the Foundation does have a budget for patenting a few inventions that do not

have a licensee beforehand. The inventions in this category amount to about one in 30 which they believe is risk enough to take.

Once a licensee is found, efforts proceed to complete the license agreement. The licensee pays for the patenting costs as well as the patent maintenance fees associated with the invention. The Foundation sometimes uses an option agreement which enables a company to evaluate a technology and conduct some experiments before committing to the license. These option agreements involve a two to three page letter agreement and is relatively inexpensive and quick to prepare. An option agreement can be for \$20,000 for six months plus the patenting costs.

The Foundation was initially funded by the University of Virginia, but now it is fully self supporting. Of the income generated from royalties and licensing fees the Foundation receives approximately 40 percent, with the remainder distributed to the inventor, the inventor's research, and the inventor's school.