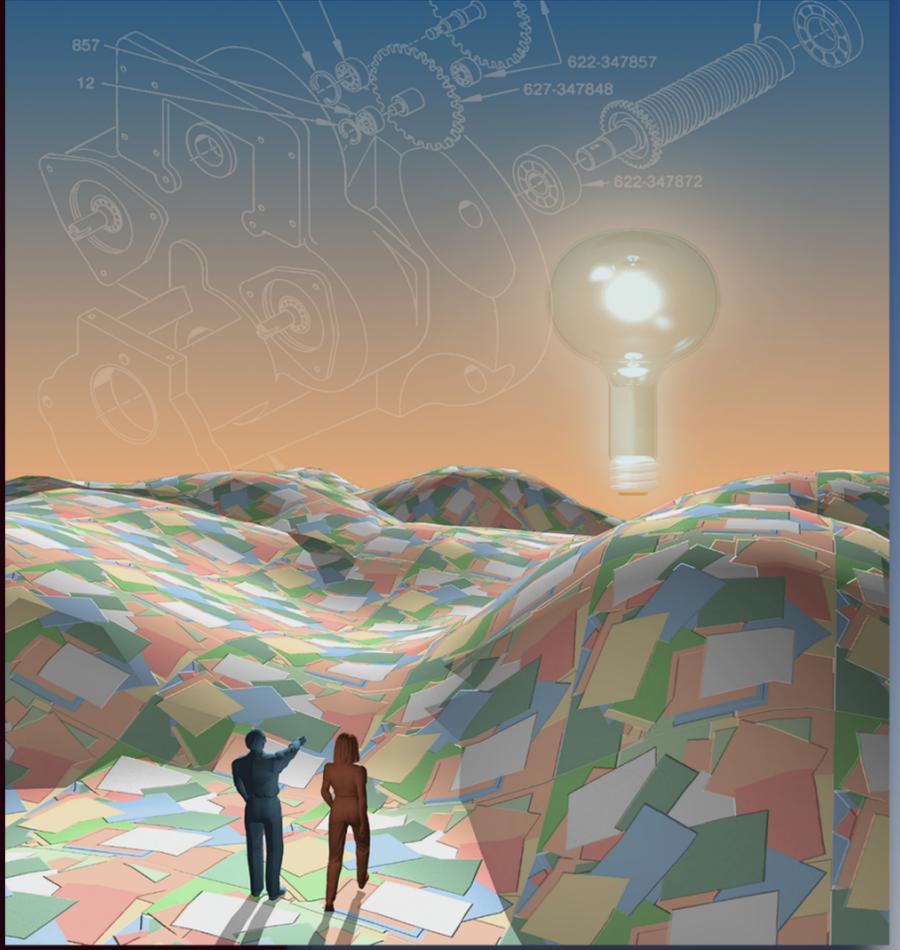


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Helping you find your way through the licensing process



The Licensing Decision

Prepared for:
 U.S. Department of Energy
 Energy Efficiency and Renewable Energy



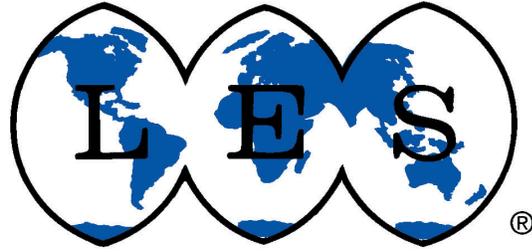
U.S. Department of Energy
**Energy Efficiency
 and Renewable Energy**

In partnership with:
 The Licensing Executives Society



Licensing Executives Society
 (U.S.A. & Canada)

03/11/13



THE LICENSING DECISION

Licensing Executives Society (USA & Canada)

**U. S. Department of Energy
Inventions and Innovations Program**

Prepared for:

Office of Energy Efficiency and Renewable Energy

**In Partnership with
The Licensing Executives Society**

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The Licensing Decision

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under the auspices of the
Licensing Executives Society
(U.S.A. and Canada), Inc.**

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FOREWARD FROM THE DOE

Inventions & Innovation

For individuals or small businesses, developing an energy-saving invention can be difficult. The U. S. Department of Energy's (DOE's) Office of Energy Efficiency and Renewable Energy (EERE) offers financial and technical support to inventors and businesses for energy-saving concepts and technologies through Inventions & Innovation (I&I).

I&I provides financial assistance for research and development of innovative, energy-saving ideas and inventions. This assistance is provided at two levels: technologies in early-stage development and those approaching the point of prototype. To view I&I's current level of funding, visit the I&I Web site at www.eere.energy.gov/ and search for "Inventions & Innovation." For those interested in grant information, go to the direct web site at www.oit.doe.gov/inventions.

I&I supports energy efficiency and renewable energy technology development in many areas, including Biomass Technologies; Building Technologies; Distributed Energy & Electricity Reliability Technologies; Federal Energy Management Technologies; FreedomCAR & Vehicle Technologies; Geothermal Technologies; Hydrogen, Fuel Cells & Infrastructure Technologies; Industrial Technologies; Solar Energy Technologies; Weatherization & Intergovernmental; and Wind & Hydropower Technologies. Eligible technologies offer significant energy savings and future commercial market potential. These technologies are selected for an I&I grant through a competitive solicitation process.

Beyond Financial Support

In addition to monetary awards, I&I provide non-financial support by offering technical guidance, access to resources and market studies. Examples of potential program support and resources include:

- Web-based resources for information specific to grant process and technology commercialization
- Evaluation of technology market penetration
- Project development, planning and management
- Access to technology conferences, trade shows and forums

Introduction

This monograph is directed towards the independent inventor and the small businesses that have made discoveries...

Eureka! You've discovered something that you believe is valuable. It could be a new idea, a gadget, device, process, design or a composition. Whatever it is, you are about to embark on a process to bring the concept to fruition if you want to realize its value. The process is called "innovation." Simply stated, innovation is the process of taking a new idea to commercialization. Invention is the first step along the innovation path.

Patents provide protection for novel, non-obvious creations of individuals. But, patents do not necessarily translate to commercial success and they do not give an inventor the freedom to practice an invention. In fact, it has been estimated that only 5% of the issued patents are in commercial use. This clearly indicates that the road from invention to commercial product is a difficult one.

Who are the inventors of today? Just look at the issued patents and you will only find individuals as the inventors. Companies or organizations do not invent. These creative individuals are often working for companies, both large and small or are working independently. Organizations may become owners or assignees of the patent rights but, it is the individual that makes the discovery.

Larger companies, with substantial resources, will usually pursue commercialization of their inventions internally. The independent and small business organizations, generally, with more limited resources, have some choices to make to realize the commercialization of their inventions. Licensing an invention is one of several possible approaches. Often, it is the only way for the independent inventor to realize their goals.

This monograph is directed towards the independent inventor and the small businesses that have made discoveries through DOE grants or any other means. It will try to help them in their efforts to exploit their inventions. We will try to provide the options available at the critical points in the innovation process. The main thrust will be to explain the licensing process and how to determine the value of their inventions.

Licensing is a complex process. The information that will be provided in this monograph is meant as a guide and not a how-to lesson. We urge those readers who are seriously considering licensing their technology to get help from legal and licensing professionals who are involved in this activity on a regular basis. We will provide links that will help you through the process.

Innovation and Invention

What it is

The words innovation and invention are sometimes used interchangeably. If you look up the words in a dictionary, invention is defined as “a device, contrivance or process originated after study and experiment.” Innovation is defined as “the introduction of something new.” It is easy to see that the two terms can overlap in meaning. However, the key words are “originated” for invention and “introduction” for innovation. From your perspective as the inventor, we define the terms as follows:

Invention is the solution to a problem.¹

Innovation is the commercially successful use of an invention.

Innovation is, therefore, a process which can be described in simple terms as:

Idea/Invention ⇔ Development ⇔ Commercialization

Technology Push vs Market Pull

Clearly, market pull is the easiest path to follow...

The commercial sector today is always on the lookout for new opportunities from inventions, either made internally or from outside the company. An important aspect of an invention is whether there is an immediate opportunity in the market place (market pull) or whether a market needs to develop to utilize the invention (technology push). Clearly, market pull is the easiest path to follow since all aspects of the potential opportunity can be evaluated and commercialization decisions can be confidently implemented.

The technology push approach is somewhat more difficult, but still a viable approach. Without an apparent marketplace, the inventor may need to do a great deal more of the development in order to show where and how the new technology can be used before any commercialization opportunities can be realized. However, technology push can lead to commercial success. Some of these “before their time” inventions just need time to be digested. Consider the Post-it note discovery. There was no market for these items with poor adhesion until 3M and others found out how useful they could be. Other successful innovations from a technology push perspective are the internet as a commercial tool, hand held computing devices and LCDs replacing CRT monitors.

The important point to be made is that if your idea or invention is a technical solution to a problem and does not first address a present need in the marketplace, you have to be willing to champion its development until a real market opportunity is identified.

¹ This definition of “invention” is used for the purposes of this paper only and is different from the legal definition of “invention”.

Stages of Development

...the major cause of failure relates to market analysis.

The truth about innovation is that most ideas or inventions never get commercialized. It has been estimated that only about 5% of the active patents are being commercially utilized. Some studies have also shown that only one idea is commercialized out of the 1000 new product ideas generated and that only 1 in 4 products in development get commercialized.

Why are there so many failures? Robert Cooper, a pioneer in new product development processes, investigated the cause of failure of new ideas at many companies. He concluded that the major cause of failure relates to market analysis. That is, the companies did not understand their target markets well enough to know how to market properly or whether they should even have been committed to the commercialization at all.

Successful innovation requires not only strong technology capabilities but a sound background in the commercial and financial realities of today's marketplace. How do you handle such a daunting task? One way, used by many of the largest and most successful companies, is to divide the innovation process into key steps or stages. This systematic approach, called the Stage/Gate Process, was developed by Robert Cooper (Winning at New Products, 2nd Edition, Addison-Wesley Publishing Company, 1993). He divided the innovation process into stages, ultimately leading to commercialization. Certain preset requirements had to be met to go on to the next stage. In this way, the key elements in the process were considered all along the path to commercialization.

The key steps in a generic innovation process are:

Ideas (Stage I) ⇒ Preliminary Market & Technology Assessment (Stage II) ⇒ Detailed Study (Stage III)
⇒ Development (Stage IV) ⇒ Prototype/Trials (Stage V) ⇒ Final Business Analysis (Stage VI)
⇒ Commercialization (Stage VII)

At each stage, if enough positive information from the markets, technology and business information, the process can proceed down the path to success. The key point here is that doing your homework is the most critical factor in the success of new products.

Doing Your Homework

How to find Information

Doing your homework means understanding the literature and market in the area of your idea or invention.

The innovation process is applicable no matter where you are in the process. You could be in the early or late stages with development of a totally new concept, an improved product concept, an enhanced process for lowering cost or improving the environment. The basic concept of doing your homework applies, no matter where you are in the innovation process.

Doing your homework means understanding the literature and market in the area of your idea or invention. Even before filing for protection, if you have made an invention, a comprehensive literature search needs to be carried out on a global basis, to identify any other prior art, or published information, related to your area of interest. This search will help you out when you begin the patent application process. All relevant prior art must be submitted to the patent office when you apply for patent protection.

Where do you find this information? The internet is a tremendous resource for your search, particularly in the early stages. The table below lists some of the web sources that could be used in your prior art search.

Web Sources of Prior Art Information	
US Patent and Trade Mark Office	www.USPTO.gov
Google search engine	www.google.com
Chemical Abstracts	www.ACS.org
Science search engine	www.scirus.com
Traditional Ecological Knowledge	ip.com/priorartdatabase.jsp
European Patent Office	www.epo.co.at/index.htm
Meta search engine	www.dogpile.com
World patent search	//ipdl.wipo.int/
Fee-based search firm	www.globalpriorart.com
Fee-based search firm	www.patentsearchexpress.com
Fee-based search firm	//evaluation.patentcafe.com
Fee-based search firm	www.cmsinfo.com
Fee-based search firm	www.virtualpet.com
How-to Information	www2.ari.net/foley/search-b.html

The sources listed in the table are just some examples of the sites you can use to get homework information. Many of these sites will provide patent searches, but the question of market information may not be as easily found. Market information sources depend on the area in which you are interested. Once that is identified, you can search the internet for trade associations in that area and they can lead you to sources of data that you need. You will also uncover studies by market research companies. These studies will have a wide range of costs, depending on the depth of information presented. It can be cost efficient to buy a limited study, particularly at the early stages of your effort, to give you an overview of the opportunity.

The key components of market information include:

- size of the total market and the part into which your invention will fit into
- pricing of goods at all levels
- growth rates of the markets of interest, historically and projected
- participants, major and minor companies involved in the business
- supply chain, from raw materials to the customer
- specifications the products must meet
- regulatory requirements

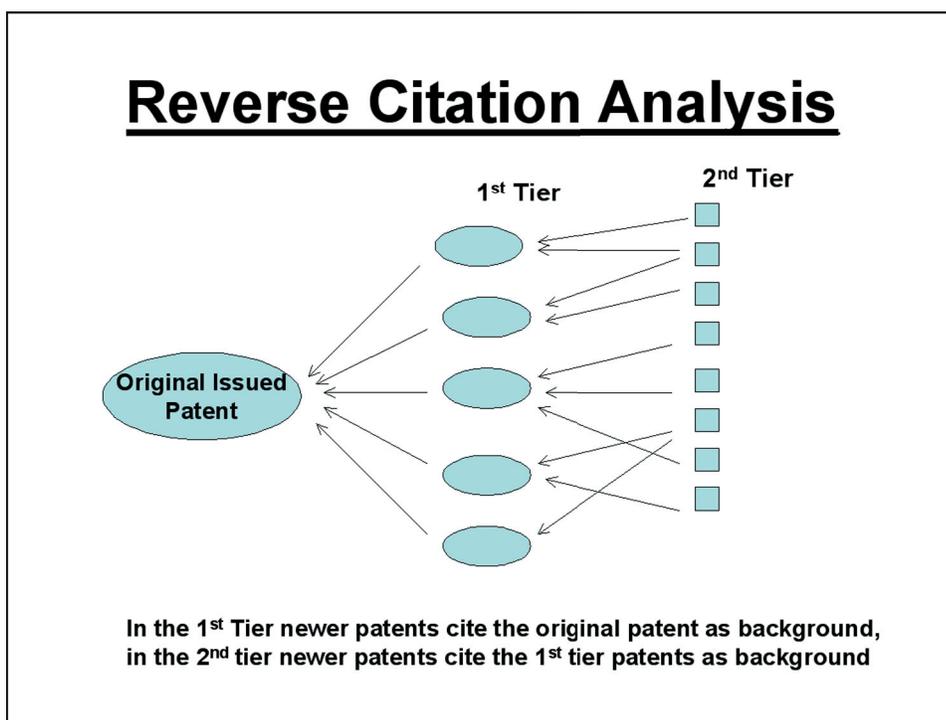
Your search for both the market information and related patents will reveal which companies are active in the area of your invention. This is particularly important since this identifies potential licensees. It also represents companies or individuals to contact to get information about the markets of interest.

A final point on doing your homework is that the telephone is still a useful and efficient way to get information. Good market information can be obtained by simply asking the right questions.

Reverse Citation Analysis

This approach will provide names of other companies that could be potential licensees.

The prior art patent search provides not only the technical and company information in areas related to your invention, it also can lead you to a list of the companies or individuals who have cited these patents in their prior art list. It is a relatively easy task to do a simple citation analysis on the patents that you have retrieved in your search. The USPTO (The United States Patent and Trademark Office) site allows you to search for all patents that have cited the patent or patents that you have found to be relevant. This approach will provide names of other companies that could be potential licensees. This approach can be taken a step further by doing a second tier analysis. This determines who has cited the patents that have cited the original patent. This will reveal the names of others who have interest in your technology area. A pictorial representation of a reverse citation analysis is shown below.



There are more sophisticated approaches to citation that can reveal interesting information. There are fee-based companies with large patent data bases that can provide more information than we described above. However, for the potential licensor, a list of companies who are potential licensees is probably all that is needed.

Protection

Without protection, you cannot prevent others from utilizing your invention.

How do you protect your invention? Typically when you believe that you have made an invention, you can consider filing for a patent or you can use the invention as a "trade secret". Without protection, you cannot prevent others from utilizing your invention. Obtaining proper protection is critical if you want to exploit your discovery.

Patents

A patent is a grant from the government to an inventor, giving an exclusive right to make, use, sell, offer for sale and import a patented invention. This right is derived from the US Constitution and is aimed at promoting the progress of science and useful arts. There are three types of patents recognized by the latest Patent Act. These are the utility, plant and design patents.

Utility Patents

A utility patent may be granted for any new and useful process, machine, manufacture or composition of matter or any new and useful improvement thereof. A composition of matter includes inventions such as a new chemical, drug, life form or similar product.

To be granted a utility patent, the invention must be new or novel, useful and non-obvious. The patent application must also adequately teach those of ordinary skill in the relevant field how to make and use the invention. Most of the inventions that we will be considering will fit into this category.

Design Patents

A design patent is issued for inventions of new, original and ornamental designs for an article of manufacture. The key words are new and original, meaning that the design has never appeared in public and was made independently of any existing design.

Plant Patents

A plant patent involves the discovery of any new and distinct asexually reproduced plant. Asexually reproduced plants are those that are propagated by means other than seeds, such as grafting and the rooting of cuttings.

An issued patent, by the USPTO or any other national patent office, protects the invention, which is described by the “claims” section. The claims are listed at the end of the patent. In a utility patent, **the owner is granted the right to exclude others from making, using or selling or importing the invention in the country of issue.** This does not necessarily give you the right to practice the invention. A complete due diligence of current in-force patents is always necessary to insure that an inventor will not infringe patents owned by others.

A patent is granted for a fixed period of time. **Utility and plant patents grant the owner the right to exclude others for a period of twenty years from the original date of filing the application.** Design patents protect the owner for fourteen years from the date of issuance.

Patent Applications

Almost any commercial sales activity, no matter how small, is enough to stop patentability.

The first step in obtaining a patent is preparing and filing the application. The application describes the invention with sufficient detail to teach those of ordinary skill in the technology field of interest how to make and use the invention. Inventors typically work with a registered patent agent or attorney in submitting an appropriate application to the patent office. The patent application is examined by the patent office to determine if it meets statutory requirements. The first examination by the patent office will typically not occur until at least about 18 months after the initial application is filed. The examination process may continue for one or more years after the first examination.

A key parameter for the patent filing process is that premature disclosure should be carefully guarded against until the patent application is filed, and more so, if one is considering foreign filing as well. In the United States, a patent will not be granted **if more than 1 year before the application:**

- the invention was previously patented
- the invention was described in a printed publication
- the invention was in public use
- the invention was on sale

The last point, known as the “on-sale bar”, is very important. Almost any commercial sales activity, no matter how small, is enough to stop patentability. Distribution of a prototype, even at no charge, could negate the patent, if it was done to solicit future sales. The message is, to be acutely aware of the patent application timing and your efforts to develop your invention.

Another important consideration for the inventor concerns the date the invention was made. If two unrelated inventors come up with the same invention at about the same time, the owner of the patent will be determined in the rest of the world by which inventor is the first to file its patent application. However, in the United States, at least for the time being, the general rule is the ‘first to invent’ wins. An act of invention occurs when the inventor(s) first conceive of the invention. The conception of the invention must be corroborated. Therefore, it is critical that the inventor establishes the earliest possible date of discovery.

Corroboration requires that someone other than the inventor witness conception of the invention. This requirement may be satisfied by documentation of the invention through laboratory notebook record keeping or an invention disclosure form. Both documents should be signed and dated by the inventor as well as the witness. The witness testimonial should indicate that he or she has read and understood the description.

Applications made to the USPTO are typically accompanied by a disclosure of all material prior art known to the inventor and may contain the results of a prior art search. There is a requirement owed by the inventor and all of those involved in the prosecution of the application to disclose all known prior art that could or would be considered relevant by an Examiner in determining whether to allow or deny any claim in the application. Although a prior art search is not required by the USPTO, if one was completed early in the “homework” part of the innovation process, the results should be considered for submission to the USPTO as it can certainly assist in the patent prosecution.

We have emphasized the internet as the approach to prior art searching. However, this may not uncover all the information in the public domain. Hand searching within patent libraries or the USPTO is also recommended. One of the most difficult areas to search are public presentations, typically by academics or other research oriented individuals. You should review the meeting agendas of conferences in relevant areas to determine if any could be considered prior art. Follow up with those that seem to be important.

A patent attorney or agent will prepare the patent application for filing with the USPTO with your assistance. This may take anywhere from 1-6 months depending on the complexity and newness of the invention. **Applications for foreign filings have to be done within a year from the U.S. filing date to get the benefit of the U.S. filing date.**

Until November 29, 2000, all utility patent applications were confidential until the patent was issued. A revision of our patent laws now requires that all patent applications must be published 18 months after the earliest filing date. The inventor can request that the application be published earlier. This may be beneficial if the invention has been licensed since royalties can start at the application publication date if certain other conditions are met. Publication will not be required if the inventor does not intend to apply for a patent in a foreign country.

Typical patenting fees range widely depending on the invention and the amount of ‘due diligence’ required for the set of application documents. Examples of fees are:

- Legal fees in the range of \$5000 to \$15000 for the preparation and filing and patent application documents
- Other fees for ”Office Actions” or further prosecution of the application could be additional
- Document drawings to show the critical aspects of the invention, especially product oriented devices, could run around \$100 per sheet of drawings [these must conform to specific requirements of the USPTO]
- Filing fees range from \$750 to around \$1500 with a 50% discount for small entities. A specific listing of fees can be obtained at the USPTO’s internet site [www.uspto.gov].
- Issue fees and post issuance maintenance fees are due at issuance, as well as 3.5 years, 7 years, and 11.5 years after issuance to keep the resultant patent rights in force. The fees are currently, \$1330, \$910, \$2090 and \$3220 respectively with 50% discounts available to small entities.

Foreign Filings

In almost all countries other than the United States, the first disclosure of an invention outside an agreement of confidentiality will preclude patentability of the invention. For example, an inventor that publishes a journal article anywhere in the world that describes his invention and then later files a patent application within one year of publication, may be entitled to a patent in the United States. However, the inventor has lost an opportunity to obtain a valid patent in all European countries. Accordingly, it is highly advisable to file a patent application before any disclosure of an invention including presentations at technical society meetings or other forums.

...the decision to file in foreign countries will depend on the scope of the invention, the potential use of the invention within the global community, and specific country opportunities....

Almost all countries have some form of patent protection. However, there is no “world patent”. An inventor must apply for a patent in each individual country if protection in that country is desired. Most individuals, seeking foreign patent protection, file their applications under the Patent Cooperation Treaty (PCT) which provides certain benefits. A PCT application preserves the right to eventually file nationally in over 150 PCT member countries. At the latest, the national phase applications can be

delayed for up to 30 months from the first filing of the application through the PCT system. This is often desirable because of the tremendous expense associated with filing and prosecuting applications in numerous Countries. PCT applications typically are published within 18 months.

Foreign patent application costs can vary in size but typically are more expensive than U.S. filings and a PCT filing can cost approximately \$7,000. For individual countries, costs run similar to that of the U.S. but translation costs can add substantially to the charges incurred.

Clearly, the decision to file in foreign countries will depend on the scope of the invention, the potential use of the invention within the global community, and specific country opportunities, e.g. manufacturing operations, identifiable regional markets, etc. If you are a small business or independent inventor, you should only seek patent coverage in a foreign country if you believe you will sell the product in that country. Of course, if you plan to license the technology, the licensee may have broader plans than you have. In this case, it would be wise to begin discussions with potential licensees before critical dates for foreign filings have been reached.

The issuances of foreign patents also will have the attendant maintenance fee costs. Many entities attempt to defray the costs of the maintenance fees by having licensees in these countries or regions, pick up that as part of any license agreement.

Provisional Application for a Patent

Inventors may begin the application process with a “provisional patent application”. Provisional applications are not examined, do not publish, automatically become abandoned after one year, and do not count against the 20 year from filing patent term. They are often used to establish a last minute priority date before publication, or provide priority filings in a rapidly developing field that are later relied upon in a regular non-provisional filing. Should this occur one should consult with their patent attorney or agent in deciding whether or not the filing of a provisional patent application is appropriate.

Trade Secrets

They must be kept secret and reasonable efforts must be made to maintain the secrecy.

A Trade Secret is defined as:

“any formulation, pattern, device or compilation of information which is used in a business and gives the owner an opportunity to obtain an advantage over competition who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device or simply a list of customers.”

Trade secrets are novel since they are not known by the general public at large and are not readily known to be practiced. They are generally kept as trade secrets since an issued patent might provide information that this invention is being used commercially. If it is not readily obtainable by your competition, it is a trade secret.

Also unlike patents, trade secrets last as long as the holder is able to maintain their secrecy. There are also no restrictions on others developing and using the information independently.

Trade secrets are subject to certain standards in order to keep that classification. They must be kept secret and reasonable efforts must be made to maintain the secrecy. Procedures must be in place to insure that the information is kept confidential.

Trademarks and Copyrights

A trademark is any word, name, symbol or device used to identify the source of goods or services and to distinguish the goods and services from others. Trademarks may be registered with the federal government, all state governments and most foreign countries.

In the United States, a trade mark is protected for ten years if it was registered after November 16, 1989. The mark can be renewed indefinitely for ten year periods provided that the mark continues to be used in commerce. If registered before the 1989 date, the term was twenty years, renewable.

Copyright is a form of protection provided for authors of original works of authorship that are fixed in tangible form. Copyrightable works include literature, computer programs, architectural works, pictorial and sculptural works, musical works, etc.

Copyrights protection begins as soon as the work is fixed in a tangible medium. The US Copyright Act also provides for registration of these rights. Once filed, it becomes a public record and can be used as evidence in infringement suits.

The Library of Congress registers copyrights in the United States. Requirements are a fee of \$30 accompanied with the appropriate filled out form and a non-returnable copy of the work being registered.

If the work was created on or after January 1, 1978, copyright protection extends for the life of the last of the authors, if multiple creators, plus seventy years. There are some complicated rules for works created before the 1978 date.

How to Exploit Your Invention

Now that you have made a valuable discovery and are in the process of, or have already obtained protection of it, a decision must be made on how to exploit the invention. There are several choices available to you, including:

- starting a new company or expanding the current one,
- finding a joint development partner
- licensing or selling the invention

Starting a New Company

The plan should be thorough and realistic since the lenders will undertake a thorough due diligence process to determine if they want to risk their money.

If you are an independent inventor and decide to exploit your technology by setting up a new company, there are many things to consider. Probably the major one is the financing of the venture.

If you are independently wealthy, you're in a great position to begin the startup. Lacking that, financial support can come from professional financiers, like venture capitalists or banks or from private sources, such as family and friends.

What is required to interest a lender in backing your startup? The simple answer is a strategic business plan that shows the potential for your discovery. This is a critical item for financing and, perhaps more importantly, improves the odds that you will be successful. As we pointed out in the discussion on innovation, without a plan, it is difficult, if not impossible, to successfully find your way from development of the product through making and selling it profitably.

The business plan should cover the:

- technology
- markets
- intellectual capital (knowledge and skills)
- personnel
- costs, pricing and profitability
- sales projections

The plan should be thorough and realistic since the lenders will undertake a thorough due diligence process to determine if they want to risk their money. The value of the intellectual assets (patents, trade secrets and intellectual capital) should not be underestimated in this process.

Help in putting together a business plan is broadly available from the internet. Some of the help requires that you purchase software while others are free. The following free sites provide an explanation and approach to building the business plan. The Wall Street Journal (wsj) web site provides sample plans from different business areas.

www.sba.gov/starting_business/planning/basic.html

www.cbasc.org/ibp

www.bplans.com/samples/wsj.cfm

http://home3.americanexpress.com/smallbusiness/tool/biz_plan/index.asp

Starting and running a new company is a major undertaking requiring knowledgeable people with proven experience. The pressures to produce are high and only those with the strongest commitment should undertake this approach.

If you are associated with a small business already and want to exploit a new invention, the approach is similar to that described above. The business plan outlines the incentive to invest in the new venture. The discovery can be an extension of the business that you are in or it can be a step-out where all new resources are required to get it going. In both cases, there has to be justification, which can only be obtained by doing your homework.

Manufacturing Overseas

If you decide to start your own business or take on a new product line based on your invention, production can be a very expensive undertaking. Many companies look to foreign manufacturing as a way to reduce costs. Countries and regions that have been active in this type of outsourcing include China, India, Pakistan, Mexico, Latin American, Asia and Eastern Europe. Finding a reliable, quality producer can be a time consuming and difficult undertaking. Below are several approaches to getting information and finding potential suppliers.

- Contact the Embassy or consulate of the country of interest.
- Contact societies and trade groups that are involved in your technology area and determine if there are chapters in the countries of interest.
- Search the internet for outsourcing, by country. Examples of sites that can be useful are:

www.groupchina.com

www.outsourcingnetwork.net

www.unido.org/doc/4576

www.wwtsasia.com

www.asialinks.com

Finding a Joint Development Partner

An approach to sharing in the burden of developing your invention is to find an interested partner. Finding a partner that can complement the skills you have will take a determined effort. As an independent inventor or small business, you will likely look for a larger entity with adequate resources to fully participate in the development and commercialization of the invention.

The disparity between the cultures of a large organization and a small or independent one can be large. This can be a major obstacle in the success of the joint venture. To avoid this problem, there has to be an understanding how the process will operate and that the partners respect each other's capability. Ultimately, success depends on teamwork between the parties. Successful teamwork depends on mutual respect and the ability to build a positive relationship with the other partner.

Determining that there is a fit between you, the inventor and a potential partner is not always easy. Important questions for you to consider are indicated below.

- Is the partner strongly involved in the technology area of your invention?
- Does the partner have the resources to carry the project to completion?
- Does the partner have a strong interest in the opportunity, i.e., will a high level of management be involved?
- Do you respect the people that you will be working with?
- Does the company have some successful experiences with partnering?
- Will there be some flexibility in the relationship?

Finding a joint venture partner does not mean that you can forget the “homework” part of the innovation process. It is just as important in partnering as any other exploitation approach. Doing your homework will help you find the best partner and will allow you to make a positive contribution to the partnership. The more knowledge you have about the area and the potential benefit of the invention, the more respect and interest the potential partner will have in working with you.

The last remaining hurdle will be to determine the percent ownership of each partner. This is always daunting since both parties would like to have at least 51%.

License or Sell

The last approach to exploiting your invention that we will consider is licensing, i.e., the granting to another party the right to practice your protected invention or, perhaps, outright selling of the invention and associated patents. At first glance it seems like the simplest of the approaches we have described. The burden of commercialization is shifted to the shoulders of another entity, hopefully one that has more resources and experience in the area than you. Licensing can be more complex than any of the other approaches we have discussed. It is a favorite approach of many small businesses and independent inventors for various reasons. This subject is the heart of this monograph and we shall discuss this alternative in more detail in the pages that follows. There are similarities between selling and licensing your invention and we shall point them out where appropriate.

Licensing

Definition

The license agreement is the legal contract that clearly spells out the terms, restrictions and payment schedule.

Licensing is the granting of the right to make, use or sell a proprietary product, process or service, in return for payment. The granting of the license is done by the party that has the legal right to do so and is known as the **licensor**. The receiving party is known as the **licensee**. To grant a license presumes ownership of some form of intellectual property protection that describes the property. The protection can

take the form of a patent, trade secret, trademark or copyright. Without a clear indication of ownership it will be impossible to enter into a license agreement.

The license agreement is the legal contract that clearly spells out the terms, restrictions and payment schedule. There are many parameters to consider in the agreement, such as exclusivity, geographic restrictions, time, royalty and many others. Most license agreements are unique in that they are the result of a negotiation between the licensor and the licensee and it is difficult to find exactly comparable situations. There are generic license agreement forms that can be used to help in these discussions. We will discuss most of the important terms and clauses in the later section on the License Agreement.

Since the license agreement is legally binding, experienced counsel should be part of the team used to draw up the final terms and conditions. In addition to the legal aspects of the agreement, it is recommended that you use the services of a licensing professional to help frame the agreement. The licensing professional will help determine the appropriate parameters that will affect the marketing and business future for the licensee and the licensor.

Who Licenses and How Much

In the past 25 years retail product royalties from licensing has grown from a few billion dollars at the global retail level to about \$120 billion in 2000, according to the publication, *Business and Legal Aspects of Licensing*, (CONSOR, La Jolla, CA). This includes all trademark and copyright licensing as well as patents and trade secrets.

In patent licensing, major groups involved in this activity in the U.S. are the universities and the federal labs. Data from the Association of University Technology Managers indicate that the U.S. royalty income from university licenses was a little over \$1 billion in 2002. The royalty income to universities has grown at nearly 17%/yr since 1992.

According to the GAO report to Congressional Committees of October, 2002, the Federal Laboratories received about \$70 million in royalty income in 2001 from invention licenses. The growth rate since 1997 was about 9%/yr.

Licensing, and the income derived from it, is a very big business. Royalty income is earned by independent inventors, small, medium and large businesses, universities, government laboratories and other non-profits. Every inventor has the opportunity to profit from his or her discovery. Successful licensing depends on many factors, not the least of which is an invention that meets a market place need. We will point out the important factors in the licensing process.

Benefits and Drawbacks of Licensing

....the reduction of risk by licensing to a more capable entity is compensated for by a lower reward.

Licensing for the individual or small business inventor is attractive because it largely avoids the risks, time and the need for special talents needed in manufacturing, sales and distribution of the product or service. The ultimate benefit is that the time to commercialization and the start of your income stream is shortened, if you have chosen the licensee wisely.

The drawbacks are that you lose control of the commercialization process, although, within the scope of the license agreement you can control some aspects, such as appropriate milestone payments. Unless otherwise spelled out in the license agreement, the licensee controls the approach to the technology and market development of your invention.

There is also the risk that the licensee you chose does not perform as expected. This could be because you didn't investigate the licensee well enough, the market changed or the strategic approach or objectives of the licensee changed.

Perhaps, more importantly, the major drawback is that the licensor gives up the largest portion of the potential profit from the invention. In most cases the licensee can expect about 25% of the operating profit of the business. We will discuss this rule of thumb in more detail when we discuss valuing your invention.

The choice to license as opposed to self-development is a classical example of the tradeoff between risk and reward. That is, the greater the risk, the greater the reward. In the case of a license, the reduction of risk by licensing to a more capable entity is compensated for by a lower reward.

Types of Licenses

Although you can choose to license any type of intellectual asset, our discussion centers mainly on patents and trade secrets. License agreements in these areas can be classified by the restrictions they place on the licensee. For example, a license may be exclusive or non-exclusive. In an exclusive license, the licensee will be the only one to have the rights to the property, subject to the other terms of the agreement. The licensee may only have rights within a certain market. These field-of-use rights may be exclusive in these markets or not. Similarly, the licensee may be limited to certain geographic areas where the markets and exclusivity can be limited. However, the geographic regions of the license can only apply within those areas that have patents in-force, unless it deals with trade secrets.

Trade secret licenses involve the same type of agreement variables as patent licenses. One major difference is that a patent license terminates when the last patent expires. The trade secret agreement can go on as long as the trade secret remains a secret. Thus, there is no termination period. However, if someone independently discovers or uses a trade secret, the exclusivity of the intellectual asset is gone.

License agreements can also involve combinations of trade secret and patent licenses. These are referred to as hybrid licenses and are quite common when the two are needed for successful commercial implementation.

Options

Although not an actual license, an inventor can grant an option on the technology to a potential licensee. This option typically will allow the potential licensee to determine the potential value of the intellectual property under consideration. In some cases the option will be exclusive, i.e., not given to others during the option period. The option agreement will usually contain clauses describing the intent to agree on a mutually acceptable license, should the evaluation be positive. In return for the option agreement, the licensor will receive compensation.

A variation of the above would be an actual license with an option for a limited period of evaluation time. The terms of the license are spelled out and are applicable should the option period prove positive.

There are many parameters to consider in drafting a license agreement. The limitations presented above are just some of the possible restrictions that can be placed on the licensee. We will discuss them in more detail when we review the license agreement. Suffice it to say that the final agreement can be very complex and lengthy. Skilled professionals should be involved in the licensing process to avoid any future problems.

Compensation

Compensation to the licensor is usually in the form of a royalty payment. A royalty is the agreed upon rate of compensation paid to the licensor based on a measure of revenue generated by the invention. The usual approach is to define a percentage of sales generated by the technology, although any measurable unit can be used. The percentage royalty is usually in the range of a few tenths of a percent to 10% or more, depending on the technology.

Additional compensation can be in the form of up-front payments and milestone payments. Milestone payments are made by the licensee to the licensor when agreed upon goals or milestones are achieved in the commercialization pathway.

There are many factors that need to be considered in establishing the compensation paid to the licensor and we shall discuss them further in The License Agreement section.

How to Proceed

Protecting Your Invention Before the Patent Application

...also important to prevent premature disclosure should foreign filings be desired...

Why and How

As mentioned earlier in the discussions, confidentiality or non-disclosure to the general public is critically important for the protection of foreign and U.S. patent rights while proceeding with the filing for a U.S. patent. This is important, also, for a variety of commercial reasons as well. There are clear ways in which to provide protection for these disclosures even while you are proceeding with the appropriate patent application and prosecution processes.

The most likely process that one should follow is the preparation of what is known as Non-disclosure Agreements (NDA) [sometimes also called Confidential Disclosure Agreements (CDA)]. These are agreements between you and the party to whom you wish to have in depth discussions, regarding either a license or other possible commercial venture opportunities. These are critical prior to the filing of a patent application and also important to prevent premature disclosure should foreign filings be desired as an extension from the original U.S. patent filing. An example of a complete NDA is shown in Appendix A.

Preliminary discussions can be held without a NDA but no information should be transmitted that is part of the patent application document or in any other aspect is deemed to be confidential. Once an interest by both parties is established, the appropriate legal documents need to be drafted. It can be either a one-way (information flows one way) or two-way agreement, but if one-way, it should be from the patentee to the potential licensee or business partner. A clear definition of the field of discussion as well as disclaimers regarding general public information that is known, needs to be well represented in the document. Legal counsel should be consulted to draft this agreement. It is worth mentioning further, that all discussions under an in-place NDA should be documented after the meetings, in writing, to protect the information that was transmitted (common practice). A two-way agreement allows for information to flow both ways, but one needs to be cautious should new information be developed as part of those discussions, since the right of ownership may later come into question. This is generally covered within such an agreement and the subject of ownership and also potential dissolution of the discussions needs to be carefully considered, documented and agreed to, by both parties.

Getting Background Information

We described the sources of market, technology and patent information when we emphasized the importance of doing your homework and doing a thorough job in searching for prior art. In the next section we will discuss valuing your invention. It is important that you have good information about the markets for your technology, their forecasts and growth rates, pricing, who is in the business and where your invention fits in, as these will be important in the valuation. The sources of information include many of the ones previously mentioned. In addition, a great deal of market and technology information on public companies is available from securities firms and from the web sites of the key companies in the markets of interest.

Valuing Your Technology

The Income Method is the method of choice in valuing or appraising an intellectual property.

You made a discovery, applied for the appropriate protection and decided to try to license the invention. Among the critical questions is, how much is it worth? The inventor will almost always think it's worth far more than does the potential licensee. How do you establish a value that will strengthen your position in a negotiation session? There are acceptable methodologies for doing this and we will outline them in following paragraphs. The approaches can get complex and require market and revenue forecasting for businesses

that will utilize the product of your invention. Professional assistance can be invaluable and we will list some sources for this assistance.

There are three basic methods and a hybrid method used in valuing intellectual assets, that is, the patents or trade secrets that resulted from your invention. These approaches are:

- Cost
- Market
- Income
- Relief from Royalty

Cost Method

In the Cost method, the assumption is that the value of the property is related to the cost of producing it. It is a simple method that adds together the costs of R&D, promotion, depreciation and other expenses that went into establishing the technology. However, value and cost are usually very different. For example, a novel fuel additive that has gone through many phases of evaluation in the lab and in vehicles was later found to have some unforeseen environmental problems. Obviously, this product has low value but the cost of developing it was very high.

However, there are some situations where the cost method is valuable. For example, knowing the cost of development of a patented product can provide important information for the company that is considering licensing that patent versus inventing around it. The resultant calculation could help the company make the appropriate decision.

Market Method

The Market approach, determines the value of the patent or technology by comparing it to the prices paid for comparable properties. In valuing patents, this usually involves the comparison of existing, comparable license agreements. This would appear to be an attractive method as the data represents real transactions between presumable willing and knowledgeable buyers and sellers. The problem is that there are few cases where you can get directly comparable examples. Clearly, patents and other intellectual property are the result of unique, non-obvious discoveries, so direct comparisons should not be available. Also, finding any comparisons is difficult, as license details are not usually published unless they are of significant size where a public company must include them in certain SEC filings.

Income Method

The Income Method is the method of choice in valuing or appraising an intellectual property. It represents the future profits that the property is expected to generate. The property can be viewed as an investment or a savings account which will generate income. The net present value of the property, or the NPV, is determined by estimating the profit expected each year for the remaining life of the last limiting patent. These income streams are discounted to account for the time value of money and the risk involved in the business. The resulting NPV is considered to be the value of the intellectual property derived from the invention.

Relief from Royalty Method

There is another approach to valuing your intellectual property involving a combination of the Market and Income methods. This hybrid is referred to as the Relief from Royalty method. The method involves calculating the NPV based on the royalty savings from future income that would have been charged by an outside licensor (income approach). The key here is to determine a reasonable royalty rate for the business area you are considering based on comparable licenses (market approach). Since the royalties are usually based on some percentage of the sales, the profitability determination is not required. The key requirements for the Relief from Royalty calculation are:

- Revenue at start, \$
- Revenue growth rate, %
- Patent life remaining
- Royalty Rate, %
- Discount Factor
- Technology Factor

Technology Factor

One additional factor is required in the calculation of the value of an intellectual property. It is the technology factor, which takes into account, the relative contribution the invention will make to the total business. Determining an accurate value for the technology factor will usually involve the input of various parts of a company. However, in general terms, the technology factor ranges are as follows:

Low-	0 – 30%
Medium-	30 – 50%
High-	50 – 75%

The final NPV is the product of the technology factor and the sum of the calculated discounted cash flows. For more details on the Technology Factor, see the Inavisis web site, www.inavisis.com.

Discount Factors

The difficulty in determining the value for an untested application resulting from a new invention lies partly in the revenue and profit estimates and partly in the assumptions on the commercializability of the discovery. How can one predict the future with any accuracy? This is difficult and requires a good understanding of the technology application and the business where your invention will be utilized. This is another instance where the help of an experienced IP professional will be invaluable.

To offset the uncertainties of the market estimates and the commercial success of the technology, a discount factor is used in the calculation of the NPV. The profit in any year is discounted by a risk factor representing the commercial and market uncertainties. For an early stage invention, the discount factor will be much greater than that of a proven technology. For reference, the following discount factor guidelines were presented at a recent New Jersey Small Business Development Center conference by Russell Parr and David Weiler (June 5, 2003).

Relative Risk and Return

• Risk-Free Rate	3%
• Mature Product	10%
• Pre-National Launch	15%
• Technology Only is Sure	25%
• Embryonic R&D	50%

The value determination can be complex and difficult, depending on the nature of the invention and the business it will generate. There are companies that specialize in this type of determination and a few names are listed below for reference. In addition, contacting the Licensing Executives Society will provide you with additional references. However, a first pass estimate can be done by most inventors who have done their homework.

- Inavisis, St. Thomas, VI (www.inavisis.com)
- InteCap, Chicago, IL (www.intecap.com)
- Deloitte & Touche, San Francisco, CA (www.deloitte.com)
- The International Licensing Network, New York, NY (info@techappraisals.com)
- Kroll Valuation Services, New York, NY (www.krollworldwide.com)

Setting Your Strategy

Strategy setting, relative to the licensing/commercialization decision, is extremely important. Since there are many options that you can consider and that each one can be task and time consuming, one needs to think carefully about the priority route to consider. In addition, incremental costs for negotiation, document preparation, etc. will all have to be taken into consideration given your specific circumstances.

For example, let us assume that you are a small business research company seeking to examine potential license opportunities. Should you consider just the financial return from a successful license or are you also interested in having joint sponsorship for continuing research support in the technology field of the license or some form of on-going consulting relationship as part of the deal? Similarly, say you are a single inventor, seeking to capture revenue for the current invention, but recognizing that the potential licensee might be a large company. Some people say that is like “a mouse dancing with an elephant”. You might consider looking at other potential licensees. If you are looking for foreign licensees, remember that meetings can be costly, but the burden can be eased by having them in the U.S.

Also, keep in mind, that in addition to direct patent licensing, there is always the opportunity for joint development or strategic alliances using your patents as part of the “deal” or putting your patents into a larger opportunity, e.g. with a venture capital firm. Also consideration must be given if issued patents may be perceived to be potentially infringeable by others.

The options are many and the strategy developed will aim to provide the most expedient path to a satisfactory result. Let's consider some questions to ask.

- 1. What is the nature of the technology on which you have patents or applications on?**
 - a. Embryonic
 - b. Developmental
 - c. Commercial
 - d. National or Global filing (either patents issued or filed for)

- 2. What is the current state of your financial position, i.e. financial support sourcing?**
 - a. Company (small, medium, large)
 - b. Governmental Laboratory
 - c. Single Inventor

- 3. What is the high level view, as to the outcome, for a potential license or patent sharing?**
 - a. Income
 - i- short term, paid-up royalties, or direct sale of patents
 - ii- long term royalty income,
 - iii- combination of both

 - b. Income/Equity
 - i. Developmental project to enhance the technology already developed and prepare for commercial implementation
 - ii. Equity Position (cash or stock or both)
 - iii. Joint Development project – Build and commercialize (joint ownership and splitting of profits)

 - c. Tax Savings for Mature or Non-strategic Technology
 - i. Drop patents to save maintenance fees-cost savings
 - ii. Donate to non-profit institution (U.S. only and subject to current IRS rules)

- 4. What is your current financial position vs. this technology and its patent position?**
 - a. On-going project (assumes continued financial support)

 - b. Change of direction for technology
 - i. Project terminated
 - ii. Project sold as part of a business divestiture

 - c. Limited or depleting financial resources
 - i. For project
 - ii. For patent prosecution

Develop Further or License?

...the closer your invention is to an accepted commercial product the lower the risk and the greater the royalty...

Another strategy consideration is whether to continue development or license as an embryonic or limited development technology. It will cost you to continue but your license will be more valuable. Figure 1 illustrates the tradeoff. The curve representing the % of the cost of each stage of new product development to commercialization is based on data obtained from Robert Cooper's book, *Winning at New Products*. The royalty line is the % loss in royalty rates by stage. That is, 100% minus the value shown at any stage. It is an estimate based on the assumption that there is a linear relationship between the stage of development and the potential royalty rate for a license.

Royalty Potential vs Cost to Develop

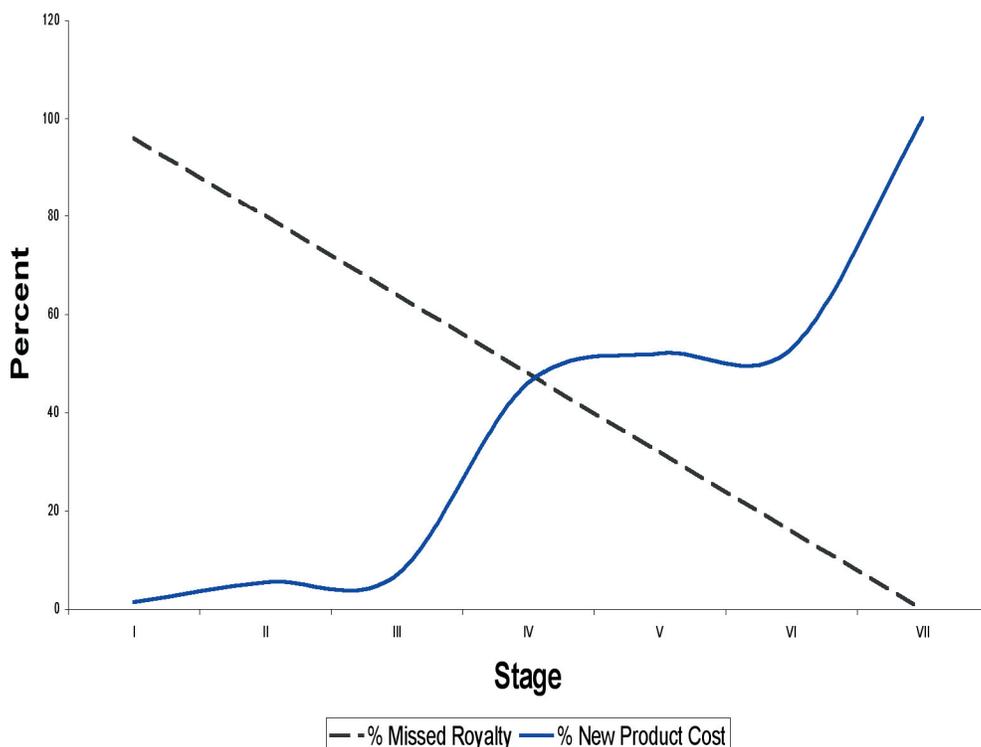


Figure 1

In other words, the closer your invention is to an accepted commercial product the lower the risk and the greater the royalty, i.e., the % loss is least. There is data to verify this conclusion, but the linearity of the relationship has not been shown. The royalty curve in Figure 1 is hypothetical. The stages are the same as those discussed earlier (page 2), as the key steps in the innovation process. Stage IV is the development stage and represents one of the major costs in the commercialization process. For example, the royalty in stage VII might be 10%, but only 5% if it were in stage IV and perhaps 1% in stage I.

There is a point where there is a tradeoff between further development and the value of a license. In the example shown, the major costs are in the development and the commercialization stages. Depending on the actual values and the linearity assumption, the best place to offer to license may well be at the end of stage III, where the idea or invention has passed the market, technical and financial assessments. Of course, every situation will be different and you have to determine at what stage of your development is best to attempt to license. It should be noted that the royalty aspect of a license is not the only factor that determines value. We shall discuss other factors that effect the license agreement in The License Agreement section.

Given the answers to these questions and considerations, certain options will emerge that will take you to the next stage. This is to define how to get to the goal you have set regarding the intellectual property and possible financial outcomes.

Getting Help

Where do you go for assistance with any licensing questions that you may have? We have provided various contacts for additional information on the topics covered above. In most cases, when you approach a company, who is in business to supply help, they will expect to be reimbursed for their services. If you are in a position to pay for services, you will be well advised to interview several companies or consultants. Just as we covered in the innovation section and elsewhere, doing your homework here will also prove to be valuable. Make sure the people you work with have some knowledge and experience with the needs you have, in the area you are developing. If you are seeking support in identifying and consummating a license deal, some of these firms will take on the task on a 'contingency' basis charging anywhere from 15-50% of any revenue from the completed transaction. This is sometimes useful, especially if one is seeking foreign licensees.

In general, the search for help can also be done using the internet. A diligent effort will uncover many possible sources and it will be up to you to pick the ones that best match your needs.

Lastly, the Licensing Executives Society can be useful by providing names and references that can be of help to you.

Finding a Licensee

Once you have made the decision to license your invention, the next step is to draw up a list of potential licensees. The list should be derived from the knowledge you have gained in understanding the market that can utilize your invention. Potential licensees include those companies that are involved in business. Identify those that are likely users of your technology.

Additional potential licensees can be derived from a citation analysis that you can do. If your patent or patents have been published for two or more years, it is useful to do a citation analysis on them. If your patent has not issued or has only recently issued, you can do a citation analysis on important patents that you have cited in your prior art search. The companies that have cited these patents can be added to your list of potential licensees.

Before approaching anyone with your technology, you need to prepare a non-confidential disclosure that describes, in general terms, what you have invented. This should be written after you have submitted your patent application. The disclosure should be the first document presented to your potential licensees. If there is interest in the technology, the company will likely want more information. This can be provided after an appropriate NDA (Non-disclosure Agreement) is signed by both parties.

Once you have the NDA and a list of potential candidates, you need to identify the right person or group within the company to contact about your technology. This can be difficult to do at some large companies. Any help you can get in this effort from contacts you already have would be useful. If you are a member of a society, such as LES, the membership lists can be useful in identifying a contact within the company of interest.

Another approach to finding a licensee may be to list your invention on web sites that are involved in marketing technology. Depending on the site, there could be some cost to do this and an additional cost if a licensee is obtained through that site. This approach could be used if you have not been successful in finding licensees through direct contacts. Some companies that can be contacted for listing are:

Delphion Intellectual Prop. Network, www.delphion.com
Global Technoscan, www.globaltechnoscan.com
Knowledge Express, www.knowledgeexpress.com
Yet2.Com, www.yet2.com

Alternatively, you can contract with a consultant who is knowledgeable in the area of your invention. Some consultants will work on consignment, where they will get paid only if successful in licensing the technology. The fee is usually some percentage of the upfront payment and royalties. Others will only work for a base fee plus a smaller percentage of the income. There will also be a question of exclusivity for the consultant. Do you want to allow one approach to licensing or is it better to have multiple approaches? The answer will be dictated by the nature of the invention and your ability to market the technology.

The consultant and web listing approaches can be used successfully but the inventor gives up a significant part of the potential income.

The License Agreement

Negotiation

...it is difficult, if not impossible, to go back to the negotiating table after the agreement is signed.

You have made an invention, done your homework, applied for patents, decided to license it, found a good licensee candidate and now we have to come to terms. This step is referred to as the negotiation phase, prior to drawing up the License Agreement.

Negotiating a License Agreement is usually a difficult and complex process because there are many factors that need to be considered. The process involves a series of give-and-takes. A successful negotiation involves an agreement where both parties can proceed in the business in an acceptable manner. If you do not have any or have limited experience in negotiating license agreements, professional help should be used in this activity. Certainly, an attorney should draw up the license agreement.

Before negotiation begins, you should draw up a list of requirements, commonly called a “term sheet”, that is, what you would like to have in the final agreement. There should also be a separate list of issues that could make or break the deal. That is, positions you believe that you cannot move from, should the other side insist on taking them. At the start of the negotiation, it would be useful to have a draft of an agreement that makes your position clear to the potential licensee.

It is important in negotiating to understand the other parties’ interests. In this way, you can shape your positions to respond to theirs. With an understanding of the interests of the parties, the issues become less of a problem to overcome.

When you have to make some difficult decisions in a license negotiation you should ask yourself, what are the **best alternatives to a negotiated agreement**, or BATNA? For example, if you have other anxious candidates for the license, you may take a position that you wouldn’t if the BATNA for you is to go into business yourself.

It has often been said that the final License Agreement needs to be mutually beneficial to both parties and a win-win deal. If the relationship is going to last, both parties need to have their interests realized, i.e., adequate compensation for the licensor and a profitable business for the licensee.

A point to remember is that it is difficult, if not impossible, to go back to the negotiating table after the agreement is signed. There are exceptions, for example, if a clause is so onerous that there is little incentive to practice the license. Before and during the negotiation, try to visualize the all the possibilities for your invention. Where else can it be used? How is the licensee using the invention? What products are they making? Are there valuable by-products being made? Does your agreement cover these potential value added products? If not, try to include as many eventualities as possible.

Key Licensing Clauses

The royalty rate is often used to gauge the value of the license. However, there are other terms and restrictions that can strongly affect the value.

There are no standard license agreements or terms because of the breadth and variety of terms that can enter the agreement. These terms also depend upon the type and stage of intellectual property under discussion, which adds to the complexity. It also depends on the prevailing terminology used in agreements by larger entities and

government labs. However, there are many clauses that will be present in most, if not all, final agreements. The following is a summary of the general form of most agreements with the key clauses explained in each part.

A. Identification of the Parties

This clause provides the names, addresses and incorporation details of the parties and the date of the agreement.

B. Whereas Clauses

Outlines the purpose of the agreement, the key terms and what each party brings to it.

C. Definitions

Provides the field of the agreement, what is being licensed, definition of terms and proprietary information.

D. Grants of Rights

1. Exclusivity

An exclusive license grants the licensee exclusive rights to the intellectual property. This can be limited by the field of use or geographical area. For example, the licensee can have exclusive rights in the U.S., whereas others might have the same exclusive rights in other countries.

Nonexclusive rights grants to you and others, the right to practice the technology. The same limitations to territory and field of use, as in exclusive rights, applies here.

Hybrid rights, between exclusive and nonexclusive, are also sometimes provided. An example would be an exclusive license, except for one other party with the same rights.

As the licensor, what is the preferred route? If the invention needs a lot of development, it may be better to grant exclusive rights to avoid conflicting efforts. It also depends on the nature of the invention. If it is a breakthrough or a platform technology, nonexclusive rights are probably best.

2. Geographic Limitations

As explained above, a licensor can restrict the geographic area where the rights can be practiced.

3. Field of Use Limitations

The grantor can also restrict the field or area of use of the rights. For example, a lubricant can be licensed for use in marine engines only.

4. Grantbacks

This clause involves the granting back of improvements made by the licensor to the licensee. The reverse of this, grant forward, can also be included.

5. Sublicenses

Answers the question of whether, or to whom the licensee can sublicense.

E. Compensation

1. Up-front payments

Payments made to the licensor at the start of the agreement.

2. Lump Sum or Paid Up Licenses

These are terms used when the technology is licensed without a running royalty. The agreed payment is made at the start of the agreement.

3. Milestone Payments

These are objectives that, when met by the licensee, trigger a predetermined amount of compensation.

4. Royalties

This part of the agreement gets the most publicity. The royalty rate is often used to gauge the value of the license. However, there are other terms and restrictions that can strongly affect the value. The net value to the licensor should take into account all the factors in the agreement, which is the product of the negotiation process.

The royalty rate is an important consideration in the agreement and is generally a percentage of an easily determined unit of sale or a fixed amount per unit of production. Small differences can result in large amounts of money, so the exact number is important.

How do you determine what is an acceptable royalty? There are several ways to approach it as we have described earlier in valuing intellectual property. In the market approach, we try to find royalties from comparable license agreements. This is a good method but remember, that you may not be able to determine the rest of the details in the agreement, so the royalty number may not tell the whole story.

Another method is to use the “25% rule of thumb”, an income approach. The premise for this rule of thumb is that the licensor is entitled to 25% of the expected operating profits from the product that uses the licensed intellectual property. For example, if the operating profit return on sales is estimated to be 12%, the royalty should be 3%, i.e., 25% of 12%.

The final royalty rate depends on other factors besides the 25% rule. For example, an exclusive license can command a higher royalty than a non-exclusive one. Territorial restrictions would tend to lower rates compared to a world-wide license. An early stage technology should have a lower royalty than a fully developed product.

In negotiating the royalty, the licensor should understand and be able to defend the royalty rates offered.

5. Minimum Royalties

This is an approach to assure that the licensee makes a diligent effort developing and commercializing the licensed product or process.

6. Auditing

This sets out the method to determine whether the licensee is paying the right amount.

F. Infringement

This clause determines who will go after infringers, who will defend the licensed intellectual property against infringement suits and who will pay for the effort.

G. Term Termination

Termination clauses define the conditions under which the license becomes null and void. The term is usually defined as when the last patent expires.

H. Dispute Resolution

This clause provides the means to resolve disputes. The usual approach is to require arbitration. An alternate approach is to require mediation, where a compromise settlement is possible, before binding arbitration is attempted.

I. Indemnity

Defines who is responsible for any problems, claims, law suits or other damages resulting from the use of the licensed property. Whose insurance will cover any unforeseen problems?

J. Assignment

Defines the conditions, if any, under which the license can be assigned or transferred.

K. Applicable Law

This article states the governing law that will be used in resolving differences.

L. Other

There can be other clauses depending on the complexity of the business area, the technology and the needs of the parties.

M. Signatures

The agreement will be officially executed when it is signed by the responsible parties from both sides.

Maintaining the License

Successful proactive monitoring of agreements will result in a consistent cash flow to the bottom line.

The signing of the license agreement requires that a new set of “due diligence” processes must be developed to verify full compliance of the licensee with the components of the license. Of foremost importance is the meeting of milestones incorporated into the agreement along with the attendant financial considerations for the license itself. It is quite common for licensors to set up standard

time line diagrams to alert themselves regarding specific items that are triggered by dates within the agreement. Items that may be included in such a time line are:

- Payment dates for royalties, annual minimums, options, etc.
- Milestone dates for commercial or technical implementation requiring reporting of status, back to licensor
- Technology or business updates by both licensor and licensee for maintenance of any ‘Grant Back’ or ‘Grant Forward’ provisions relative to new technologies as extensions from the original date of the agreement.

Clearly the focus of traditional monitoring has been towards financial payments with the agreed upon dates. Clearly defined within the agreement will be the dates when payments are to be made and for a royalty, clearly how they are to be calculated. The attendant record keeping requirements will also be present. Lastly the need to have within the agreement “late fee payment penalties” is always good practice.

Included within the license agreement should be a section on “Audit Rights”, which gives the licensor provisions to conduct annual audits on the licensee (including foreign subsidiaries). It is important to do this once the royalty provisions are triggered within the agreement and generally at the end of the first year of the license. Basically this will prevent any communication breakdown and will insure that the licensee is living up to their part of the agreement. Practical experience in the licensing arena suggests that it’s far easier to correct issues after the first year than after the fifth year of any agreement.

Successful proactive monitoring of agreements will result in a consistent cash flow to the bottom line. The use of standardized internal procedures also allows the handling of multiple license agreements routinely, and also provides an important tie in with other important dates, e.g. continuing prosecution of new patents in the field as well as monitoring the maintenance fees due for all patents that have subsequently been issued.

The inclusion of “Grant Back” or “Grant Forward” provisions will require that meetings be set up at some frequency, for the exchange of appropriate information. It is important that all information transmitted and the discussions taking place during these meetings be properly documented in writing and substance, agreed to by all parties. This insures that even innovations conceived during the meetings will be documented and accrue to the appropriate parties designated by the licensee.

Should issues arise which cannot be amicably settled between the parties then the provisions dealing with arbitration, mediation or separation will need to be invoked.

Disclaimer

This information was prepared as an account of work sponsored by an agency of the U. S. Government. Neither the U. S. Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U. S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U. S. Government or any agency thereof.

Appendix A

SAMPLE NON-DISCLOSURE AGREEMENT (Bilateral)

This non-disclosure agreement (“Agreement”) is between PATENTEE, having its principal place of business at: [Insert address] and [insert company name] (“Company”), a corporation having its principal place of business at: [Insert address] .

PATENTEE and Company mutually desire to engage in discussions concerning a possible business relationship where either party (the “Disclosing Party”) may elect to disclose to the other party (the “Recipient”) in the course of such discussions certain confidential and proprietary Information (hereinafter collectively, “Information”) which both parties wish to protect from further disclosure. This exchange includes information pertaining to this Agreement provided in written form (including graphic material), machine readable form, orally by Disclosing Party and/or observed by Recipient.

CONFIDENTIAL INFORMATION

For purposes of this Agreement, confidential Information shall mean all strategic and development plans, know-how, data, technical and non-technical materials, designs, concepts, processes, product samples and specifications, and other expertise, whether or not patentable, financial condition, business plans, co-developer identities, data, business records, customer lists, project records, market reports, employee lists and business manuals, policies and procedures, information relating to processes, technologies or theory and all other information which may be disclosed by Disclosing Party or others, or to which Recipient may be provided access by Disclosing Party or others, in accordance with this Agreement, or which is generated as a result of or in connection with the discussions mentioned above, and which is not generally available to the public.

OBLIGATIONS

PATENTEE and Company agree, as follows:

1. That the disclosure of Information by Disclosing Party is in confidence and thus Recipient agrees to:
 - a. (1) not disclose the Information to any other person except as specifically authorized by Disclosing Party in accordance with this Non-Disclosure Agreement, and
(2) maintain the confidential nature of the Information with the same degree of care that Recipient would use in maintaining its own confidential information, but in no event less than reasonable care;
 - b. restrict disclosure of the Information to Recipient’s employees having a need to know such Information in order to accomplish the purpose stated above;
 - c. require Recipient’s employees or subcontractors who will have access to the confidential Information to have signed a confidentiality statement that is consistent with Recipient’s obligations under this Agreement, before he or she receives access to the Information;

- d. return to Disclosing Party all documentation, copies, notes, diagrams, computer memory media and other materials containing any portion of the Information, or confirm to Disclosing Party, in writing, the destruction of such materials within fifteen (15) days following request of Disclosing Party.

LIMITATION OF OBLIGATIONS

2. This Agreement does not impose any obligation on Recipient with respect to any portion of the Information received from Disclosing Party which:
 - a. was known to Recipient prior to disclosure by Disclosing Party;
 - b. is lawfully obtained by Recipient from a third party who does not have an obligation of confidentiality;
 - c. is or becomes generally known or publicly available other than by unauthorized disclosure;
 - d. is independently developed by Recipient;
 - e. is disclosed by Recipient to a third party without a duty of confidentiality; or
 - f. is required to a valid order of a court or other governmental body of the United States of America, or of any state, city, town, municipality, county or any political subdivision thereof; provided, however, that the disclosing party shall first have given notice to the other party and made reasonable effort to obtain a protective order requiring that the Information and/or documents so disclosed be used only for the purposes for which the order was issued;
 - g. is otherwise required by law or regulation to be disclosed; or
 - h. necessary to establish rights under this agreement.
3. This Agreement does not impose any obligation on Recipient with respect to any portion of the Information unless such portion is (a) disclosed in a written document or machine readable media marked "CONFIDENTIAL" at the time of disclosure or (b) disclosed in any other manner and summarized in a memorandum mailed to PATENTEE within thirty (30) days of the disclosure. Information disclosed by Disclosing Party in a written document or machine readable media and marked "CONFIDENTIAL" includes, but is not limited to, the items, if any, set forth in Schedule A attached hereto. Schedule A is incorporated herein by reference. Recipient hereby acknowledges receipt of the items listed in Schedule A, if any.

MISCELLANEOUS

4. The Information shall remain the sole property of Disclosing Party.
5. The Information being disclosed to the Recipient pursuant to this Agreement is with the express understanding that each party recognizes that this Agreement does not constitute a contract of engagement and that neither Party will be obligated to enter into any further agreement relating to the Information, and nothing in this Agreement shall be construed as granting any right, title, grant, option, ownership, interest in or license from one Party to the other relating thereto.

6. The obligations of confidentiality shall terminate three years after date of execution hereof, unless the parties enter into a definitive contract modifying or superseding this Agreement as to the subject matter hereof, in which case the rights and obligations of the parties shall be governed by that contract.
7. In the event of a breach or threatened breach or intended breach of this Agreement by either party, the other party, in addition to any other rights and remedies available to it at law or in equity, shall be entitled to preliminary and final injunctions, enjoining and restraining such breach or threatened breach or intended breach.
8. The validity, construction, and performance of this Agreement are governed by the laws of the [Insert State], and any proceeding to enforce or resolve disputes arising under or relating to, this agreement shall be brought in a court of competent jurisdiction in the [Insert State] including a Federal District Court sitting within such state. The parties expressly waive any right to a jury trial and agree that any proceeding shall be tried by a judge without a jury.
9. Any attempt to sell, assign or otherwise transfer the rights and obligations of the parties under this Agreement will be void.
10. If any arbitration, litigation or other legal proceeding relating to this Agreement occurs, the prevailing party shall be entitled to recover from the other party (in addition to any other relief awarded or granted) its reasonable costs and expenses, including attorney's fees, incurred in the proceeding.
11. This Agreement constitutes the sole understanding of the parties about the subject matter hereof and may not be amended or modified except in writing signed by each of the parties to the Agreement.

This Agreement is effective as of the date of execution and is binding upon Recipient, Disclosing Party and upon the directors, officers, employees, agents and subsidiaries of either. Recipient's right to use the confidential Information in connection with the purpose stated above shall continue in effect until _____, 20___, or until Disclosing Party provides Recipient with written notice of termination of such right, whichever is earlier. Notwithstanding the foregoing, Recipient's obligations with respect to the confidential Information shall continue in full force and effect until further notice from Disclosing Party. For purposes of this paragraph, "subsidiaries" shall mean any corporation, company or other entity controlled by or under common control with Recipient. For the purposes of this paragraph, "control" means ownership or control, direct or indirect, now or during the Agreement, of more than (50%) of the outstanding shares or interest entitled to vote for the election of directors.

This Agreement constitutes the sole understanding of the parties about this subject matter and may not be amended or modified except in writing signed by each of the parties to the Agreement.

Appendix B

Case Histories

Lesson: Demonstrating acceptance in the market goes a long way towards finding a willing licensee.

While at the University of Arizona, Gary Thacker had an idea on how to save money in a cotton tillage research project. It involved a method of embedding the stalks and roots of the cotton crop, using a uniquely modified plow with a single pass tillage. Gary built a proof-of-concept prototype and demonstrated the process. After filing an invention disclosure, the university did not want to pursue this area and gave Gary the rights to the invention. He patented the plow and formed the Pegasus Machinery Company in his garage, to pursue the development and commercialization of the plow.

He was successful in selling some units but was not making much money. Gary took out an ad in the Farm Equipment Manufacturers Association newsletter indicating that this technology was available for license. The Rome Plow Company wanted this new product for their line of plows. They bought all the assets of Pegasus and acquired an exclusive license from Gary on the new plow technology. As part of the deal, Gary stayed on as a product rep for three years. The plow is now known as the Rome-Pegasus plow. It is also marketed by John Deere as the Frontier cotton plow.

This was an example of a successful licensing deal from both sides. Rome Plow was in the business of selling plows and recognized the potential of the plow because it was already validated in the market place. The license provides income and Gary was also able to participate in the market development for Rome Plow under the 3-year contract and will likely have additional opportunities.

Lesson: A successful deal from the licensee prospective. What about the licensor?

In 1978, Harry E. Wood had a patent on a direct contact water heater. He had received support from the predecessor of the Inventions and Innovations Program for this invention. Harry Wood sold the patent rights to Kemco Systems, Inc. in 1978. Kemco, who was in the water recycle business for commercial laundries, continued the development of the equipment and commercialized the energy saving water heater. They also received a patent on the improvements they made on the equipment. Kemco has built a nice business from the Wood patent and now offers a range of water heating capacities for commercial use in a wide variety of industries and has over 3000 installations under their belt.

Kemco has done well, deservedly, with their purchased patent, which has already expired. Would Harry Wood have been better off with a royalty license rather than an outright sale? It is difficult to know since we don't have the details of the purchase nor do we know Harry Wood's circumstances at the time. The lesson is that you should carefully consider the future prospects for your invention.

Lesson: Keep your options open.

Geo-Microbial Technologies, Inc. (GMT), a small research, development, and business organization, has patented, with the aid of I&I funding, a new biotechnology named Bio-Competitive Exclusion (BCX), along with product formulae named Max-Well 2000, for use in tertiary oil and gas recovery. The process concurrently attacks existing poisonous and corrosive hydrogen sulfide in the reservoir and surface production systems, and prevents the formation of more hydrogen sulfide.

Max-Well products are soluble, inorganic nutrients that target and control beneficial in-situ microorganisms that compete with and inhibit sulfate reducing bacteria (SRB), the source of biologically produced hydrogen sulfide. The beneficial microbes also produce large amounts of bio surfactants, solvents, and gases that release and mobilize residual oil trapped within the reservoir. These treatments result in increased oil production, sweetened water, reduced corrosion costs, safer working conditions and improved revenue.

GMT has commercialized the BCX/Max-Well 2000 development and markets through its subsidiary, The LATA Group, Inc. Similar biotechnical approaches are being introduced into the global tertiary oil recovery marketplaces that serve to further validate the BCX technology.

The LATA Group is taking a dual approach to profit from this invention. While pursuing commercial sales in the global marketplace, they retain the option of a licensed or joint venture technology transfer to larger international product and service providers that are well known and established in the petroleum industry.

Licensing is only one approach, and it may not happen as quickly as you would like. The lesson in this case history is that inventors should keep their options open to multiple ways of profiting from their development. First building a commercial business is an approach that makes good sense, and improves the likelihood of an attractive and profitable disposition of the technology.

Lesson: Prototype or pilot demonstration is important in getting continued funding.

George Dzyacky spent many years in the petroleum refining industry and knew some of their problems. One of them was the flooding of distillation columns. This can result in damage to the column and lost production. The existing controls came into play after the problem appeared. George invented software that can be incorporated into the existing control panel and can predict when flooding will occur. When this happens the program signals the process to briefly lower the temperature until the system is stabilized.

The invention was patented and a company, 2ndPoint, Inc., was formed to exploit the technology. From his experience in the industry, George knows that it would be difficult for a small inventor to convince a large refiner to consider a new, unproven process control technology. It had to be demonstrated, at least on a pilot scale.

Funding came from the I&I program for a pilot demonstration at the University of Texas. The pilot test was successful and the technology drew the attention of the faculty and their industrial sponsors. One of the sponsors was in the business of supplying systems for the petroleum refining industry and has now incorporated the software in one of their commercial distillation units. If the long-term test goes as expected, the likelihood is that the company will license the technology on an exclusive basis and promote it to the whole refining industry.

The lesson of this case history is that George understood the industry and knew that it would be very difficult to promote the software without results from a pilot test. He was fortunate that he chose a place to run the pilot test at a site that had the attention of the companies that could profit from his invention. Then again, maybe it was good planning.

Lesson: Consider your trademark, as well as your patents, as a licensable asset.

Prosoco is in cleaning and protective products for the building, construction and restoration industry. They were approached by ConcreteScience International, who were franchising their vacuum extraction equipment for cleaning concrete. Prosoco liked the trademark and the product enough to form a new company, ConcreteScience Services of Kansas. They licensed the trademark because they felt the cleaning technology had a bright future. The new company took a franchise and built a close relationship with ConcreteScience International.

Prosoco was betting that the cleaning process and the trademark will grow to be a more valuable asset in the future.

Lesson: Choose your licensee carefully.

Eskil Karlson invented and patented an improved ozone generator that makes ozonation a more affordable approach to sterilization. The benefits of ozone as a replacement for standard chlorine treatment are well known, but high cost was always a problem. Dr. Karlson formed Life Support, Inc., to commercialize the technology.

The technology was first licensed about 8 years ago, for the licensee to develop and commercialize the sterilizer market for the FDA approved ozone generator. The results were not good and Life Support had to go to court to get back their licensed patent rights. About 6 years ago, an option for a potential license was concluded with another company, who also failed to perform.

In spite of these bad licensing experiences, the inventor is still promoting his technology and finding new applications for it. He would entertain licensing but is understandably more cautious.

The inventor is a scientist and readily admits that he did not know his licensees very well.

Lesson: Failure to pursue your initial discovery can result in obsolescence of the technology.

A large Asian multinational company with R&D and commercial interests in computers, electronics, power cells and related areas was involved in fundamental carbon nanotechnology R&D in the early 90's, before the explosion of this effort worldwide. They received key patents but they did not recognize the commercial value at the time and did not have a licensing or commercialization strategy in place. The patents lay dormant. In subsequent years, work proceeded in academic, government and corporate research laboratories around the world. There was extensive patent filing of improvements as well as new technology advances aimed at commercial opportunities. The company with the initial development lost out because of their indecisiveness.

The lesson from this case history is that early stage business development and implementation, including IP utilization, especially in emerging technologies, is essential.

Lesson: Understand the big companies.

This was from a discussion with a representative of a large engineering company. They were asked if they ever licensed from a small or independent inventor. The following is a quote.

“We have done only one deal with a small business or independent inventor. We have talked to a number of these people over the years but have found that either their technologies do not fit our needs, have significant problems, are at too early stage of development for us as an engineering company to take on or they have an exaggerated sense of value for their technology by not realizing it is only part of a larger system.”

It turns out that the one deal they referred to above, was a technology that was being offered by another large company but marketed by a small company who had made a technical contribution to it. The above engineering company bought the technology and with the help of the small company, they are licensing to others.

The lesson is to be aware of the problems confronting the small or independent inventor when trying to deal with a large company.