The University of Colorado Technology Transfer Office

INTELLECTUAL PROPERTY GUIDEBOOK

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INTELLECTUAL PROPERTY GUIDEBOOK

OVERVIEW

Basic research drives the growth of scientific knowledge. In instances where basic research progresses toward exploratory development, issues of commercial value become crucial. Commercialization of research is recognized as an engine of economic growth and supports our well-being and standard of living.

Due to a worldwide trend towards increased technological competitiveness, a number of legislative acts have been passed to encourage the process of moving university research to the commercial marketplace. The University of Colorado has devised a supportive infrastructure to promote commercial applications of university research, in accordance with the changing social and legislative environment. At the heart of that infrastructure is the University of Colorado Technology Transfer Office.

Purpose of This Document

This document is organized to provide an introduction to the field of technology licensing and technology business formation for CU faculty, staff and students conducting research with university funds, through a sponsored research effort, or with university-controlled facilities.

Methods, terminology, policies, procedures, and legalities regarding technology licensing and intellectual property are discussed in this document.

Any CU student, faculty or staff member who thinks he or she may have made a novel discovery or invention, and is not sure of his or her rights with regard to intellectual property and patents, is strongly encouraged to read this document AND contact the Technology Transfer Office. The offices can be reached through several mediums.

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TECHNOLOGY LICENSING

Definition of Technology Licensing

The actual process by which technology makes its way from basic research to the commercial marketplace is difficult to define, non-sequential, and often impossible to anticipate.

A transferred technology may be as modest as a chemical additive for a coating process or as notable as a vaccine to eradicate a disease. It can be a new way of producing an old product, or a new product that can revitalize an old company. Transferred technology may be software or hardware related, biological, chemical, or mechanical. It can be a whole system, or a small part to enhance an existing system.

Forms of Technology Licensing

Technology licensing is the movement of technological discoveries from a research laboratory to the commercial marketplace. The ways in which technology is transferred can be as subtle as a phone conversation or as complex as the formation of a new company. Some of the ways in which technology is transferred from a university to the commercial market include:

- The graduation of students - When a student is educated by the university and then enters the workplace, his/her knowledge gained in classrooms and laboratories is transferred to the employer.

- Consulting practices of professors - Professors who use knowledge gained through years of university research are transferring that information to industry through consulting assignments.

- Publication of papers - Some commercial companies follow university publications closely in order to keep abreast of the latest techniques and technologies that may enhance their processes or products. As a result, relationships are often formed between industry and university.

- License of intellectual property - In instances where a novel discovery is made that has identifiable commercial potential, a university may contact companies that might make use of the discovery in the commercial market. If a company cannot be found, or if the discovery is compelling enough, the university may elect to create a commercial entity to nurture the introduction of the discovery into the marketplace. In either case, a license is granted that allows the technology to move from the university laboratory to the commercial partner.

- Conferences - University faculty and staff transfer knowledge gained from university research by attending conferences and presenting lectures and papers

on university research and technology. A transfer of technology is also achieved by networking with commercial professionals and other universities.

- Websites - Commercial companies have access to university technology and information on the World Wide Web. Companies may also stay updated on the latest techniques and technologies through discussion groups on the Internet. A discussion group is a place on the web where ideas and information are exchanged among users.

- Visiting Professionals - Visiting professionals who serve as guest professors transfer the knowledge gained from the university experience and research to the professional marketplace.

The Technology Transfer Office (TTO) helps to introduce university research to commercial entities through the licensing of technology. The TTO works with the researcher throughout the process to determine the best commercial partner. In cases where the best route to introducing new technology is through an existing commercial entity, the TTO takes the leading role throughout the process. In cases where the formation of a commercial business is desired, the TTO also facilitates that process.

The Inception Of An Idea or Discovery

The inception of an idea or the discovery of a novelty is a critical point in the technology licensing process. Many legal issues hinge on actions taken after this point. Timing of publications, ownership of the discovery, and the licensing process are considerations that need to be taken into account during this phase. In the best interest of the researcher, the inventor, and the university, faculty, staff, and students are strongly encouraged to contact the Technology Transfer Office at the point of discovery for assistance in filing an invention disclosure.

Invention disclosures can be technical papers or project reports with brief discussions of the findings of commercial significance. This is an informal disclosure that helps to protect the rights of the researcher in future patent law issues. The Technology Transfer Office also has invention disclosure forms that serve as informal disclosure mechanisms.

Technology Licensing

Licensing is the most formal and legally enforceable form of technology transfer. A license is a written grant of rights from one party to another party for specific purposes. Technology may be licensed to an established company, a new company or a firm that brokers university technology. For the purpose of technology transfer, the university (licensor) owning the intellectual property grants a company (licensee) the right to develop and/or commercialize the intellectual property. In order to commercialize a technology, the licensee will develop, manufacture, and sell the product(s). In effect, the licensor is transferring the technology, or rights to the technology, to the licensee in

return for financial consideration, which is most often a royalty payment based on net sales.

A license can be exclusive, meaning the licensor may not grant to another party the same access to the intellectual property, or non-exclusive, meaning the licensor may grant rights to other licensees. The scope of the license can be broad enough to include all applications and industries, or narrowed to specific applications, markets, and/or geographic regions. License agreements typically include up-front payments or license fees and royalties.

The Technology Licensing Process At the University of Colorado

Researchers at the University of Colorado are encouraged to contact the Technology Transfer Office if they believe their research has produced an invention. The TTO will work with the researcher to determine the appropriate course of action to protect the invention and will assist in the filing of the proper legal forms.

The invention disclosure form is the mechanism used by CU faculty, staff and students to communicate an invention to the Technology Transfer Office and begin the technology transfer process. Upon completion of the invention disclosure, the TTO will conduct a patent assessment, including a literature search and evaluation of other similar existing products and developments (called *prior art*). Assuming there is significant intellectual property that can be protected via patent, the TTO will proceed with a broad-based market assessment. This will result in an estimate of market size, a list of potential licensees and other market and industry data. Occasionally, the inventor suggests a particular company that may be interested and this company is approached under a confidentiality agreement. From various sources of information, TTO staff, in conjunction with the inventor, will make a business judgment as to the desirability of investing in patent protection. If the TTO chooses not to pursue a patent on a particular technology, the inventor is given the option of pursuing patent protection and commercialization independently.

The TTO determines its patent strategy based on the market research. The staff and inventors then work with outside legal counsel in obtaining patent protection on selected technologies, providing copies of the initial invention disclosure and a background assessment to the patent attorney. The TTO ensures effective and timely communication between the inventor and the attorney, completes the necessary forms, and authorizes the filing of applications and related documents. Based upon recent changes in U.S. patent law, provisional patent applications are increasingly being filed. For provisional patent applications to be effective, they must be transferred to formal application status in one year.

The TTO prepares for its marketing campaign by determining a licensing strategy and working with the inventor to produce marketing materials. The licensing strategy addresses such factors as:

- Fields of use
- Exclusivity
- Geographic limitations
- Due diligence requirements

The initial marketing campaign consists of non-confidential listings on technology transfer databases and direct contact with prospective licensees. Those firms that express interest based on their evaluation of non-confidential material are asked to sign confidentiality agreements.

While firms are evaluating the technology, the TTO gathers detailed information on the potential licensees. The TTO assesses the firms' product lines, production and marketing capabilities, and financial status. This process may yield one or two firms that are both interested and qualified as potential licensees. The TTO then seeks to negotiate a license agreement that is beneficial to both parties while seeking to ensure that the technology will reach the marketplace. License agreements typically prescribe up-front fees, patent costs, royalties, license maintenance fees, and commercialization milestones, as well as a definition of the specific intellectual property rights conferred.

If the technology is broad and market potential is compelling, the TTO will work with the inventor, entrepreneurs, and inventors to license the technology to a new firm.

If the technology is found to be unpatentable or unmarketable, the inventor may request that the TTO release the technology to the inventor.

Management of the relationship following execution of the license agreement includes monitoring the licensee to ensure that commercialization milestones are met, and collecting fees, royalties, and reimbursable expenses. The TTO maintains records of patent expenses and licensing revenues for each invention and determines distribution of licensing revenue according to University policy. The TTO is also responsible for monitoring and protecting against unlicensed use, called *infringement*. Maintaining strong relationships with licensees is important, because most licenses are re-negotiated every few years.

The TTO in conjunction with the inventor is responsible for reporting inventions to research sponsors in accordance with sponsorship agreements, and if co-owners for the technology exists, reporting patent expenses and licensing revenues to them.

INTELLECTUAL PROPERTY

Intellectual property can be either an invention or an expressed idea that can be bought, sold, bailed or licensed. This "property" can be protected by patents, copyrights, trade secrets, and trademarks. These protections are used to prevent others from the unauthorized manufacture, copying, use, or sale of the property in tangible form. Inventions are novel and unobvious, and can be protected by patents when practiced. Expressed ideas consist of literature, music, art, software, etc. When these expressions are expressed in a tangible medium, they can be protected by copyright.

Copyrights or ©

A copyright is granted by the United States government to the author or creator of "original works of authorship". A copyright is used largely for the "creative arts," text, and software. Copyrights are granted for the term of the life of the author and an additional 50 years. Once assigned, a copyright enables a work to be the sole property of the author (except for a work created by an employee governed by a work-for-hire arrangement). The copyright allows either the author or persons deriving rights for the author, to rightfully withhold others from copying or otherwise using the work without permission. A copyright is automatically secured when the work is created or "fixed" in a tangible medium. No publication, registration, or other action in the Copyright Office is required to secure copyright registration; however, it is required that a copyright be registered before a lawsuit is brought. The proper copyright notice consists of three things:

1) The letter "c" in a circle (©) called the *copyright symbol*, the word "copyright," or the abbreviation "Copr."
2) The year of the first publication
3) The name of the copyright owner. An example of the proper copyright notice is: © 2002 the University of Colorado, or Copyright 2002 the University of Colorado

Items that may be copyrighted include literary works, computer programs, CD-ROMs, maps, blueprints, textual material, pictures, graphics, sculptures, motion pictures, and videos.

Patents

A patent is essentially a contract between a government and an inventor. The contract gives the inventor exclusive rights to make, sell or use the invention for a definite period of time. During this period of time, the owner of the patent is afforded legal recourse through the court system against anyone found infringing on the owner's monopoly over the invention. A patent grants the owner "exclusionary" rights.

All patents that were in force on or that will issue from an application filed before June 8, 1995 will have a term that is either 20 years from the filing date of the application or 17

years from issuance, whichever is longer. All patents filed after June 8, 1995 have a term of 20 years from the filing date. Under certain conditions, patent terms can be extended. When the term of the patent expires, the invention becomes public property, and is available for manufacture, sale, or use by anyone.

Patents can either be assigned or licensed. In the case of an assignment, the inventor yields all rights provided under the patent to another party. In the case of a license, the patent holder grants the licensee the right to use, manufacture, or sell the invention.

Trademarks or Servicemark

A trademark or servicemark is an identifying symbol that distinguishes one product or service from another. Trademarks and servicemarks protect both the manufacturer, importer, or seller, and the consumer by guaranteeing the authenticity of an item. Trademark and servicemark symbols can be graphic, textual, or both. As with patents, trademarks and servicemarks are protected through the court system. Any party found using a trademark or servicemark to identify a product or service without the expressed permission of the mark's owner is liable for damages sought by the owner.

Trade Secrets

Trade Secrets are formulae, chemical compositions, recipes, devices, or patterns that are not patented and are known only by the owner and key employees. The trade secrets can give a business or organization a competitive advantage. There sometimes exist circumstances in which inventors do not want to disclose information in a patent. There are other cases in which an idea may not be patentable, but is still unique and commercially significant. By maintaining close control over the knowledge of processes, or the compositions that characterize a product, an owner is afforded protection under the law from others using that knowledge when it is gained confidentially.

Trade secrets, like patents, trademarks, and copyrights, can be licensed or sold. In situations where patentability may be in question and where the technology is esoteric enough to preclude duplication by others, the owner of the information can license the trade secret to another party. Because universities are generally open institutions, protection of intellectual property exclusively through a trade secret approach is uncommon.

Biological Materials

Biological materials such as antibodies, hybridomas, cell lines, sera, and supernatants can be either patented or unpatented. Unpatented property is known as Tangible Research Property (TRP). The TTO may forgo patenting biological materials, and license the materials as TRP to: (1) reduce the risk and cost of monitoring many non-exclusive licensees; (2) save money by not filing a patent application; and (3) license the TRP for diverse uses and in a wide geographic area.

Biological materials or TRP are usually distributed by the developing scientist(s). The distribution of TRP can be accomplished by making it available under a Materials Transfer Agreement (MTA). This agreement provides for the understanding that the materials are made available only for scientific research and may not be used for commercial purposes.

Software

Licensing software involves the licensing of a tangible product, as opposed to only intangible ideas and concepts. The licensee is given a copy of the software product and authorized to use it for specified purposes. In order to protect the software through copyright, it has to be fixed in a tangible medium, such as being stored on a hard disk, CD-ROM, or floppy disk. Registration with the U.S. Library of Congress Copyright Office is optional, although it is mandatory before you file an infringement suit. Software usually comes in two forms: *source code* and *binary or object code*.
Source code, the form in which software is usually developed, is human readable and cannot be read directly by a computer. It is usually kept as a trade secret by a developer and used to develop improvements and variations to the program. Source code is translated by a *compiler* into object code, which can be read directly by the computer. Object code is extremely difficult for the human to read. Therefore, source code is required in order to modify a program.

The primary issues of software licensing are liability, access to source code, and licensing rights. Software is a product, and therefore warranty disclaimers and limitations on liability are very important. Liability for product malfunction, as well as infringement of third party intellectual property rights, is disclaimed or limited. Software is primarily protected by copyright protection, so the basic license grant includes the grant of basic copyright rights: reproduction, distribution, modification, public display and performance, and the right to rent or lease copies of the software.

Software license agreements come from the following combination of rights:

Use Rights - the right to use the software in a trade or business for a specific purpose.

Modification Rights - the right to modify the software (usually only granted in connection with a source code license), usually coupled with the right to use the modified software in the licensee's trade or business, or with the right to distribute the modified software.

Reproduction Rights - the right to reproduce copies of the licensed software, for the purpose of internal (within a company, for example) or external (customer) distribution.

Distribution Rights - the right to distribute copies of the software (typically only in object code form) to end-users or customers.

Public Displays or Performance Rights - the right to publicly perform or display the software.

Rental Rights - the right to rent the software. With rental now prohibited without authorization of the copyright holder, this right needs to be expressly granted in a license agreement.

Escrow Rights - not really a copyright right, but a common licensing device wherein the source code is held in escrow for the benefit of the licensee.

PATENTABILTY AND PATENTING

Elements Of Patentability

Under patent law, two major occurrences must transpire before an invention is generated. First, there must be a conception of the invention. Conception is the formulation in the inventor's mind of a definite notion of the complete invention. However, an idea alone is not sufficient for an invention; one must demonstrate that the concept actually works, which can be done through detailed drawings, formulas, etc. Actual implementation of the idea, in one form or another, completes the inventive process.

The purpose of a patent is to convey or "teach" the invention to the public. In exchange for this instruction, the inventor is granted 20 years of exclusive rights beginning from the date of patent application. These rights legally exclude others from making, using, or selling the invention unless the owner of the patent grants authorization.

Not all inventions are patentable. In order to be patentable, an invention must have the following elements:

- It must be new (the novelty requirement)
- It must be useful (the utility requirement)
- It must be non-obvious (the non-obviousness requirement)

Requirements

Novelty Requirement
To receive a patent an invention must be new and cannot have previously been known publicly. The novelty requirement means that the invention:

- cannot have been conveyed publicly through publication, display, Internet, or other media;
- cannot have been sold or offered for sale more than one year prior to the patent application and;
- cannot have been the subject of a patent issued elsewhere more than one year prior to filing a U.S. patent application.

The novelty requirement is tested for each patent application by an Examiner in the United States Patent and Trademark Office (USPTO). The Examiner conducts a patent search to find similar inventive work, which is referred to as "prior art." The submitted invention must be distinguishable from all prior art.

Utility Requirement
An invention must also be useful, and at least one specific use for the invention must be stated in the patent application. Some types of inventions are not patentable because

society does not approve of the manner in which the invention would be used. However, it is relatively easy to claim an appropriate use for most inventions.

Non-Obviousness Requirement
Non-obviousness means that a person with "ordinary skill in the art" and knowing all there was to know about the prior art, would not be likely to develop the same invention. The Patent Office may reject a patent application if it can show that the invention would have been apparent if someone skilled in the art had combined elements of prior art to arrive at the same result the inventor did. Often this is easy for the Patent Office to show, thus making the non-obviousness requirement a tough barrier to patentability. For an examiner to reject a patent application, all that is necessary is to show that someone could have combined various aspects of prior art and arrived at the same invention.

A key concept in the non-obviousness requirement is that of a person with "ordinary skill in the art." This does not mean someone with exceptional skill, nor does it mean someone who is just beginning an understanding of a technical discipline. The standard has been set to mean a "journeyman researcher" – someone with a fair level of experience, but not a leader in the field.

Miscellaneous Requirements
As previously mentioned, the purpose of a patent is to teach the invention to the public. In order to do so, the patent must be explicit and detailed enough to allow someone with ordinary skill in the art to reproduce the invention without undue experimentation.

Patent law also states that a patent may be denied to someone who has abandoned his or her invention for a period of time, if another inventor duplicates the invention during this time period. What constitutes abandonment depends on the facts of the individual situation, but it has generally been held that if a substantially unbroken effort was made to finalize the invention, then there will be no ruling of abandonment.

Some inventions are not patentable even if they are new, useful, and non-obvious. These include printed matter, theories, ideas, plans of action, laws of nature, mental processes, mathematical formulas, methods of doing business, and most naturally occurring substances.

Types of Patents

Design Patents
Design patents are granted to any person who has invented a new, original and ornamental design for an article of manufacture. The appearance of the article is protected. A design patent has a term of 14 years.

Plant Patents
Plant patents are granted to any person who has invented or discovered and asexually reproduced any distinct and new variety of plant, including cultivated sports, mutants,

hybrids, and newly found seedlings, other than a tuber-propagated plant or a plant found in an uncultivated state. A plant patent has a term of 20 years from the application date.

Utility Patents
Utility patents are granted to anyone who invents or discovers new and useful process, machine, manufacture, or compositions of matter, or any new and useful improvement thereof. "Process" means a process or method. "Manufacture" refers to articles that are made. "Composition of matter" relates to chemical compositions and may include mixtures of ingredients as well as new chemical compounds. A Utility patent has a term of 20 years from the application date.

Patent Priority
This refers to the "priority date" of an issued patent or a pending patent application. Pursuant to National patent laws and Treaties among various countries, someone applying for a patent in one country may claim the benefit of an earlier filing date for the same patent application in another country. The earlier date is referred to as the "priority date." Filing dates always try to claim the earliest priority date they can. Also, U.S. patent law permits claiming earlier priority dates when filing continuation applications. Basically, a continuation application is a new patent application that contains, at least in part, subject matter that is the same as an earlier patent application. If the subject matter is sufficiently related, the later filed application may claim the benefit of the priority date of the earlier filed one.

Foreign, non-PCT
PCT stands for the Patent Cooperation Treaty that was signed in the early seventies between most industrialized countries. It was an early attempt to initiate the harmonization of discrete patent laws around the world. A great feature of the PCT is that it permits an applicant to file an *international patent application* (there is no corresponding international patent) that designates the countries (ones that are Contracting States to the PCT) in which the applicant desires to seek patent protection. The PCT establishes rather elaborate procedures by which an applicant may pursue patenting in those countries. The alternative to filing an application under the PCT is to file directly in the country that patent protection is sought. This would be a "foreign, non PCT" application.

PCT
The PCT is a treaty that provides a streamlined procedure for preserving the rights to file patent applications in most industrialized countries. The procedure entails filing a copy of the application (usually the corresponding U.S. application) with the PCT office and paying a PCT filing fee. This preserves the right to later file directly in countries (or regions in the case of Europe) designated in the PCT application form. The principle benefit of using the PCT procedure is to delay the deadline for filing foreign applications, thereby delaying the associated expenses. This allows time to determine the advisability of proceeding with full patent applications in the desired foreign countries. The main reason for a PCT is to preserve future foreign patent rights until the need arises to pursue them.

Divisional
A divisional patent application is an application claiming priority from some previously filed patent application (called a "parent application") in which more than one invention was disclosed. The divisional application has claims directed to a different invention than that claimed in the parent application. The most common way that this happens is that the Patent office rules that your application contains more than one invention, communicating this in what is called a "restriction requirement." The applicant then elects to pursue one of the inventions in that application (the "parent application"), and optionally submits a "divisional application" containing the claims regarding another of the inventions. The divisional application is entitled to the filing date of the parent application as its priority date. It is not uncommon to receive a restriction requirement identifying several inventions, leading to several divisional applications and several issued patents.

Continuation
Under United States patent practice, a continuation patent application is an application that claims priority from a previously filed application. A continuation application is usually filed when the Patent Office has responded to the parent application with a "final" office action (rejecting the claims in the application), but the applicant wishes to revise the claims. A continuation application receives the priority date of its parent application. A continuation application is often filed using the file wrapper continuation (FWC) administrative procedure. A related type of patent application is the continuation-in-part (CIP) application. Under GATT, if the rejected application was filed prior to June 8, 1995, it is disadvantageous to file a continuation application since the result may be a shorter patent term. One option, if the filing date of the rejected application is prior to June 8, 1993, is to use a rule under GATT in which the applicant pays a fee (equal to the cost of a new filing fee) to have the finality of the rejection withdrawn.

Continuation In Part
Under United States patent practice, it is possible for the owner of a pending patent application to file what is called a "continuation-in-part" patent application. A refiled application that contains more or less than the content of the earlier filed application is a continuation-in-part application. A CIP patent application is an application that contains some matter in common with a previous patent application (called the "parent" application), and that also contains new matter, and which was filed at a time when the parent application was pending. If such an application issues as a patent, then the patent has a sort of a blurred priority date. It is possible that some claims of the patent enjoy the priority date of the parent application, while other claims might enjoy only the filing date of the CIP application as their priority date.

Reissuance
U.S. patent law permits the patentee/assignee (owner of the patent) to file for a "reissue" of that patent if certain conditions are met. You may pursue this because you realize that you should have a broader claim (which is rare) or you realize that you need to narrow or

redefine your claims. Either way, a reissuance occurs when the inventor or assignee takes an issued patent back into prosecution before the patent office. (email from TechnoList)

Nationalized PCT
This is an application filed in a country after the PCT application is filed. If, for example, you file an application in the U.S. on January 1, 1996 and you file an international application under the PCT on January 1, 1997, and if you want patent protection in the countries you designated in your PCT application, you must enter prosecution in those designated countries either 20 months or 30 months after your initial filing date of January 1, 1996. The applications filed in the designated countries are referred to as nationalized PCT applications.

Provisional
A provisional application is an affordable way for the small inventor to get started on the road to fully protecting his or her invention. It provides applicants a quick and easy way to establish an early effective filing date in a patent application allowing the term "Patent Pending" to be applied. Very importantly, it provides the inventor 12 months to further develop the invention, determine marketability, acquire funding, seek licensing, or seek manufacturing before having to face the major expense of filing a regular patent application. Some benefits of the provisional application are:

- It is economical, being only a small fraction of the cost of a regular patent application filing.
- It provides you with an officially established U.S. Patent and Trademark Office patent filing date for your invention.
- It gives you one full year's legal authorization to use the "Patent Pending" notice in connection with your invention.
- It allows you to immediately begin commercially promoting your invention while feeling secure that your invention will not be stolen.
- It buys you one full year's time to assess your invention's commercial potential before committing to the much higher cost of obtaining full patent protection.

Trademark application
A trademark application is a way to protect an institution's trademarks. An institution may lose a trademark if it stops using it, if the proper renewal forms are not filed when required, if the trademark name evolves into a generic name for the product type. An institution can also lose a trademark if it participates in "naked licensing." This occurs when the trademark owner does not monitor the quality of licensed products. To prevent this from happening, institutions must have quality review procedures in place.

Copyright
The owner of a registered copyright enjoys the ability to block the unauthorized copying or public performance of a work protected by copyright. Depending on how old a work is, whether or not copyright was renewed, when the work was published (if at all), and whether or not it is a work for hire, the U.S. copyright term for a work may be 28 years,

56 years, the life of the author plus 50 years, 75 years from the publication date, or 100 years from the date of creation.

Foreign Patents

Countries outside the United States can account for about two-thirds of the total world market, especially in high technology products. A company wanting to commercialize university technology will want to sell that technology in as many national markets as it can in order to maximize profit. Even when the only market being considered is the U.S. market, lack of foreign patent protection may invite 'pirates' to set up business in other countries and illegally import these goods into the United States. Most companies prefer that foreign patent rights be as enforceable as United States patent rights. Generally, most foreign countries have the following patent policies, which are different from those in the U.S.:

- Any prior publication nullifies the right to patent.
- The patented article must be manufactured in the country after a certain period.
- Fees are charged annually.

Virtually all foreign governments have patent laws that are different from the United States' in at least one key area. The United States grants a grace period of one year between first public disclosure of an invention and filing of a patent application, whereas almost no other country does. Most countries follow what is called the requirement of Absolute Novelty. This means that if an invention is publicly disclosed without a patent application having already been filed, all foreign patent rights are lost. There is, however, an exception by means of patent treaties with sixty countries. Under these treaties, publication does not cause loss of foreign patent rights if a United States application is filed prior to publication. If a patent application is filed in the United States before publication, and if a patent application is then filed in the foreign country within the following year, then foreign patents may still be granted. ***Because of the differences between U.S. patent law and foreign patent law, it is critical that researchers contact the Technology Transfer Office prior to making a public disclosure of any invention.***

Published Works And Public Disclosure

As mentioned earlier, prior art is a key issue in patent law. It can either show that an invention is not new or render it obvious, and therefore not patentable. Information that enables an individual to replicate what is claimed in a patent and disclosed to the public constitutes prior art. Thus, a critical question concerning patentability is: What is a public disclosure?

Generally, public disclosure is any communication to someone not obligated to keep the communication confidential. Patentability may be denied if such public disclosure contains enough detailed information about the invention to enable a person with ordinary skill in the art to duplicate it. Like many areas of law, there are a number of

details that make the definition of "public" somewhat ambiguous. However, the following guidelines are basic in determining publication:

Written Publications
The publishing of a manuscript, book chapter, journal article, proceeding, thesis, pre-print, abstract, or similar work is each a form of publication. The publication must actually be available to the public. Thus, before a thesis is in a library and indexed, or before a journal article is actually published, they are not considered to be public information.

Oral Presentations
Oral presentations may also form public disclosures, but in the United States are often held not to be public disclosures for two reasons. First, it is harder to communicate the nature of an invention orally. Second, it is difficult to establish exactly what was communicated. While the U.S.'s rules regarding oral disclosure are somewhat ambiguous, the rules in foreign countries are clearer. Therefore, oral presentations should be given with caution.

Prototypes and Samples
Providing prototypes and samples of an invention can constitute a public disclosure depending on the circumstances. If they are supplied for the purpose of being used for their intended function (or if they are used in this way despite intent), then disclosure has occurred. If they are supplied only for testing or evaluation, then disclosure probably has not occurred. Often it depends on whether there are written restrictions concerning the use of the prototype or sample, and whether these restrictions are communicated at the time of delivery. The proper way to handle this issue is through a formal Materials Transfer Agreement.

Sale or Public Use
Any sale or public use of an invention is a disclosure. It has also been held that merely offering a product for sale is a publication (even if no sale occurs). Sales for experimental purposes are an exception as long as strict rules limiting the convergence of the materials are followed.

Meetings
Talking about an invention to an audience as small as one person can be sufficient to comprise disclosure. For example, a meeting with a single employee from a corporate sponsor can be grounds for patent denial. Meetings with employees of the same organization as is the inventor generally are not considered to be disclosures, but meetings with employees from other institutions do constitute disclosures.

Grant Proposal Public Submittals
It is not uncommon for technical details to be included in public proposals to potential research sponsors. To protect patentable details revealed in a grant proposal the first page of the proposal should carry the caption: "CONFIDENTIAL, THIS PROPOSAL CONTAINS POSSIBLY PATENTABLE SUBJECT MATTER ON PAGES XX-XX."

List only those pages containing technical details, and write the word "CONFIDENTIAL" on the top of each such page. "CONFIDENTIAL" stamps are available from the Technology Transfer Office and the Office of Contracts and Grants.

Protecting Patentability While Still Publishing

One easy way of protecting patentability is to have a U.S. patent application on file before the publication, oral presentation, meeting, etc. It is important that researchers think of patentability before they publish. It is suggested that the Technology Transfer Office be notified at least ***two months*** prior to publication to assure that patent rights are protected and that publication can go forward without problem or delay.

Confidentiality

As a general rule, complete technical information should not be volunteered. Abstracts or oral presentations can be given to reveal only the general objectives and results of the work, without revealing significant details that would enable someone to replicate the invention. As noted earlier, when in doubt, potentially patentable material should be marked as "CONFIDENTIAL."

In situations where sensitive information must be discussed with individuals outside the laboratory, be sure to have them sign a Confidential Disclosure Agreement. This will protect one's rights to patentable research discussed in such conversations. Contact the Technology Transfer Office for standard Confidential Disclosure Agreements for researchers' use.

Confidentiality agreements can be either one-way or two-way agreements. A one-way agreement protects a party that is releasing confidential information for review to another party. A two-way agreement protects the exchange of confidential information from each party to the other.

Legal rights to future work can be affected by a confidentiality agreement. Researchers, faculty, and staff are strongly encouraged to consult with the Technology Transfer Office before entering into a confidential arrangement with organizations outside of the University of Colorado.

Importance Of Laboratory Notebooks

Good record keeping is an important practice for any researcher to follow and is essential for effective patenting. Patents are awarded to the person(s) who first invents something (novelty requirement). Thus, the dates on which an invention is conceived and put to practice can be of critical importance in determining who is the first inventor(s). When challenges are made against a patent application, a patent can be lost if good record keeping has not been practiced. Below are a number of established principles to follow when record-keeping:

1.) Maintain an ongoing record of experimental activities and thoughts in a bound notebook, preferably with numbered pages. Separate fields of inquiry require separate notebooks. Use full sentences and complete figures to explain the hypothesis, experiments, procedures, protocols, and results.

2.) Make all entries using ink in colors that reproduce well on photocopy machines. Date and sign all entries.

3.) When ideas are conceived that improve the invention, they should be included along with a discussion of the conceptual basis for the idea and who contributed to the idea.

4.) Firmly glue additional materials relevant to the research (such as photos, graphs, charts, etc.) to pages in the notebook, making reference to the inserted materials in your comments. Sign and date each glued in material.

5.) Have a colleague familiar with the work, but not involved in it, act as a witness to sign and date each page.

6.) NEVER erase any portion of an entry once made. If later information changes a previous entry, draw a single line through the original information (leaving it clearly readable). Then enter and date the new information.

Make sure that all lab employees, including technicians, keep a bound lab book. Loose leaf and computer files are improper methods for recording laboratory inventions (digital date is not accepted by the U.S. Patent and Trademark Office).

PATENTING PROCESS

Determining the Inventor(s)

It often happens that two or more persons make joint contributions to a potentially patentable invention. In such cases the effort put forth by all involved parties may be so interdependent that credit for the invention cannot go to any single person. When this situation occurs, all inventors or technicians must join in the patent disclosure.

In cases where an assistant merely carries out the directions of another, and in so doing constructs a new device or employs a new process, the assistant does not become a joint inventor, since the assistant was merely following the suggestions of the true inventor. Incorrect claims of inventorship can result in the denial of an otherwise good patent.

The determination of the inventor is a legal matter. Throughout the patenting process the patent attorney will work with all interested parties to determine the rightful inventor.

Filing A Patent Application

A U.S. patent application, on average, costs $5,000 to $9,000 and almost that much to obtain an awarded patent. International coverage can amount from five to ten times this amount. In order to justify and minimize these costs, it is important to determine that the invention is actually patentable, technically feasible, and marketable.

A patent application contains the following elements:

Specification
The specification typically describes the background and details of the invention along with a description of its use or uses. It may include examples or experimental results showing application of the technology.

Drawings
When necessary for a complete understanding of an invention, the patent must include drawings and description of how the drawings are to be interpreted.

Claims
A patent application's claims become the heart of the protection offered by a patent. After describing the invention and its background and utility, the inventor claims what is new in the invention. Claims are the enforceable part of a patent; an inventor may exclude others from practicing that which is embodied in the patent's claims.

Oath of Declaration
This is a sworn statement by the inventor that to the best of his or her knowledge, he or she is the first inventor, is not aware of any restrictions to patentability, and is aware of his or her duty to disclose any relevant information to the Patent Office.

After The Application Is Filed

When an application is received by the United States Patent and Trademark Office (USPTO), it is assigned a serial number and the current date. The application is then assigned to a specific Patent Examiner who deals exclusively with the technical area involving the invention. The Examiner reviews the proposed claims and evaluates the invention according to the patent requirements mentioned earlier.

After the Examiner's review, which can take anywhere from six months to two years (depending on backlogs in that technical area), the Patent Office issues its First Office Action. This is the Examiner's conclusion about the patentability of the invention. In rare cases, this First Office Action concludes that the invention is patentable. Far more frequently, however, the First Office Action will be a rejection based on the novelty, utility, or non-obviousness requirements. The applicant has the right to require the Patent Office to reconsider its conclusion by distinguishing the invention from prior art, demonstrating that it was not obvious, or by modifying the application's claims to avoid the objections.

The Patent Examiner then responds to the applicant's arguments (a Second Office Action) either by accepting, rejecting, or responding to the arguments with some mixture of acceptance and rejection. If the decision is a full rejection, the Second Office Action is often a final rejection because the applicant does not get an automatic right to additional reconsideration. However, frequently the door is still open for further argument because other approaches, within the USPTO and the courts, may be used to overcome an Examiner's rejection.

Ultimately, the Examiner either accepts or rejects the arguments of the applicant. If accepted, the Patent Office issues a Notice of Allowance. After payment of the required fees, the patent issues in due time. If rejected, a notice of Final Rejection is issued.

THE UNIVERSITY OF COLORADO POLICY REGARDING INTELLECTUAL PROPERTY

The University of Colorado Intellectual Property Policy defines ownership of intellectual property, inventors' disclosure of inventions, the responsibilities of the Technology Transfer Office, and distribution of royalties, and related policies. The information provided here is an overview only; interested parties are encouraged to refer to the University of Colorado Faculty Handbook for the current complete text.

In accordance with state law, patentable inventions created by CU faculty, staff and students are the property of the University if the work was supported by University funds or performed in University controlled facilities. Computer software and databases are the property of the University if created as part of University-assigned duties. Inventors are strongly encouraged to disclose all potentially patentable intellectual property to the Technology Transfer Office. The TTO will review the intellectual property disclosure for no longer than 90 days, and a decision will be made as to University interest in pursuing commercialization.

University staff and faculty may not become directly involved in negotiating commercial agreements for intellectual property owned or otherwise controlled by the University. This is the responsibility of the Technology Transfer Office.

GLOSSARY

ABANDONMENT
An actual or implied giving up of an application or invention by some positive act or failure to act within a reasonable or statutorily fixed time.

AMENDMENT
An answer to an office action by a United States Patent and Trademark Office Examiner, usually modifying, correcting, striking, or adding claims, or correcting drawings and/or distinguishing prior art in an attempt to overcome objections to allowance of the application.

ANTICIPATION
A term used usually in the consideration of an invention with respect to novelty. This refers to prior knowledge, established as by publication or use of the invention at a date prior to the claimed date of invention and thus indicating that the present invention lacks patentable novelty.

APPLICATION
Complete papers submitted to the U. S. Patent and Trademark Office seeking a patent including oath, specification, claims, and drawings.

ART OR PRIOR ART
A term used in consideration of the problem of patentable novelty encompassing all that is known prior to the filing date of the application in the particular field of the invention, represented by already issued patents and publications.

ASSIGNEE
One who receives rights in a patent from another by an assignment (the signing over of a right).

ASSIGNOR
One who assigns rights to a patent by an assignment.

BAILMENT
An agreement under which the bailee/licensee is permitted to use the tangible property of the bailor/licensor under defined terms and conditions.

BASIC PATENT OR PIONEER PATENT
A broad patent that is the first in a given area.

BROAD CLAIM
A statement of invention in a patent covering extensive variations of the invention. Such a statement usually includes a broad range of alternatives by its implication without using an alternative form of presentation.

BUSINESS INCUBATOR
A program that assists entrepreneurs to develop a business. The primary features are flexible and affordable space, access to shared office services, professional business management assistance, and a supportive entrepreneurial environment.

CIP
Abbreviation for "Continuation-in-Part." When one wishes to add new material to a pending patent application the resulting application is referred to as a CIP.

CLAIM
A numbered paragraph or paragraphs at the close of a patent application specifically stating what the inventor alleges as the invention. The claims define the legal scope of a patent.

CONCEPTION
The initial step in invention. The formulation of the idea which is the basis of the patent application.

CONTINUATION
Unlike a CIP, a continuation application does not add any new material. A continuation application may be filed, for example, after a final rejection by the U.S. Patent and Trademark Office in order to maintain the benefit of the original filing date.

CONTRIBUTORY INFRINGEMENT
Aid to another in infringing a patent (e.g., selling the infringer an essential portion required for the completed infringing device, material, article or process).

COPYRIGHT
The exclusive right to the publication, production or sale of the rights to literary, dramatic, musical, artistic works or software.

DATE OF APPLICATION
The date upon which duly executed application papers are received in the U.S. Patent and Trademark Office.

DATE OF PATENT
The effective date of the patent and the date of printing of notice of the patent grant in the Official Gazette of the U.S. Patent and Trademark Office.

DECLARATION
A statement executed in a patent application stating among other things that the applicant has made the invention described therein.

DISCLOSURE
A statement indicating the character of an invention, its construction, operation, and application. A full disclosure is a statement sufficient to indicate to a person skilled in the art to which it pertains the necessary information to practice an invention.

DIVISIONAL APPLICATION
Only one invention may be claimed in a patent application. If the patent examiner determines that an application contains more than one invention, the applicant will be asked to "elect" which invention will be prosecuted. The remaining invention(s) may then be prosecuted by means of a divisional application.

DUE DILIGENCE TERMS
An investigation undertaken in the course of an intellectual property transaction to verify and determine the ownership and scope of intellectual property legal rights being sold, licensed or used as collateral. The purpose of a due diligence investigation is to provide the data needed to analyze and assess the business and legal risks associated with the intellectual property rights that are the subject of the transaction.

EXAMINATION
The study of a patent application in the U.S. Patent and Trademark Office to determine whether or not it is in proper form and of such a character that the invention described therein can be patented.

EXAMINER
One of a number of officials of the U. S. Patent and Trademark Office whose responsibility is to pass on the patentability of patent applications.

EXCLUSIVE LICENSE
This is an agreement granting to one party exclusive rights under an issued patent, with the licensor giving up by the terms of the license the right to offer and give a license to any other party.

FIELD OF USE LICENSE
A license to rights in intellectual property that is limited to a defined use.

FINAL REJECTION
The Patent Examiner's final rejection of the patentability of an invention.

INFRINGEMENT
Using the invention described in a claim of a valid patent without license or consent of the owner of the patent rights.

INOPERATIVENESS
The failure of the invention to work due to either mechanical or methodical imperfections or due to incomplete or erroneous description of the invention in the disclosure.

INTERFERENCE
A proceeding for the purpose of determining which of two or more applicants for patents on the same invention is the legally recognized inventor. Such an action may take place between two or more applicants, two or more holders of patents, or an applicant and a patentee.

ISSUE DATE
The date on which the patent actually issues. This is not to be confused with the filing date which is the date the patent application was physically received by the U.S. Patent and Trademark Office.

JOINT INVENTOR
One of two or more who make joint inventive contributions to an invention.

LICENSE
A right to use an invention as well as the instrument which grants that right. It allows the licensee to do things without which license would constitute infringement on the part of the licensee.

LICENSEE
The entity which is granted rights to intellectual property by the owner of that property.

LICENSOR
The owner of intellectual property which grants rights to another (the licensee) through a license.

LIFE OF A PATENT
20 years from the date of filing.

MAINTENANCE
The patent fees due at 4, 8 and 12 years needed to keep a U. S. utility or plant patent in force for its full life.

MATERIALS TRANSFER AGREEMENT
An agreement that provides the understanding that the materials are made available only for scientific work.

METES AND BOUNDS
The legal description of the exact property which is covered by a patent (the Claims).

NON EXCLUSIVE LICENSE
A grant under a patent with reservation by the licensor to make a similar grant to others.

NON OBVIOUS
In order for a patent to be granted, the claimed invention must be “non obvious” to one of “ordinary skill in the art.” In other words, if one obtains a new and unexpected result, the invention is said to be non obvious.

NOTICE OF ALLOWANCE
When the Patent Examiner has determined that a patent application has met the statutory requirements for patentability the U.S. Patent and Trademark Office will issue a “Notice of Allowance.” This indicates that the patent will “issue” at some future date.

NOVELTY
A requirement for patentability. If an invention has been used or was known to others it is probably no longer novel and therefore not eligible for patent protection.

OFFICE ACTION
(First) The Patent Examiner's conclusion about the patentability of an invention (Second) The Patent Examiner's second conclusion to an applicant's appeal.

PATENTABILITY
An examination of the publications and patents in the U.S. Patent and Trademark Office to determine the probable patentability of the invention.

PATENTABILITY SEARCH
A search of existing patents and, perhaps, other publications to determine if the invention is novel and non obvious and thus patentable.

PLANT PATENT
A patent granted to creators or discoverers of new and distinct, asexually propagated plants.

PRIOR ART
The total body of knowledge which teaches or otherwise relates directly to an invention.

PRIORITY
A term used to designate, in the United States, the date an invention was first conceived and reduced to practice. Also throughout the world, priority refers to the date a patent application was filed.

PROSECUTION
The overall process engaged in by a patent attorney before the U. S. Patent and Trademark Office. One is said to prosecute an application.

PTO
Abbreviation for United States Patent and Trademark Office. Also in common use is USPTO.

PUBLICATION
Any disclosure in a form which is readily accessible or distributed to the public.

REDUCTION TO PRACTICE
The completion and first practical operation of an invention.

REJECTION
An office action by the Patent Examiner stating to the applicant or his attorney that an application is not allowable for some reason.

ROYALTY
Payment for use of an invention, usually a stated percentage of sales.

SEARCH
A study of available information in the field for the purpose of determining if any prior discovery makes the subject invention incapable of being patented or, if patentable, whether it infringes a prior issued patent.

SPECIFICATION
The written description of an invention describing the invention in sufficient detail that another person could duplicate it.

TECHNOLOGY LICENSING
The process by which patentable intellectual property is made marketable and is licensed or otherwise disposed for use by the pubic.

TRADEMARK
A symbol, design, word, letter or other device protected by law and used to distinguish a product or products from those of competitors.

UNPATENTABLE
Descriptive of an invention not involving sufficient departure from what was known before in the art or that for some other reason is not the proper subject matter of a patent.

UNIVERSITY RESEARCH
All research conducted in the course of an inventor's employment with the University (including, but not limited to, the performance of a grant, contract or award made to the University by an extramural agency) or with the use of University resources (use of office space or library facilities does not constitute a use of University resources).

WORK-FOR-HIRE
When one is specifically hired to complete a task, such as write a discrete computer program, the resulting product is said to be a Work-for-Hire and thus owned by the individual or organization that paid for the work.