

# Definitions of Intellectual Property

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The term *intellectual property* encompasses a variety of different forms of intangible property rights that serve to protect unique, original, and/or valuable creations of the human intellect. Intellectual property can encompass, but is not limited to, ideas; inventions; literary works; chemical, business, or computer processes; company and product names and logos; and other creations.

Regardless of the form of intellectual property right under consideration, intellectual property value is derived from an ability of the owner or licensee to preclude others from practicing or using a given idea, invention, process, name, etc. In other words, the value of intellectual property results from the property holder having the right to prevent others from doing something of a commercially relevant nature. This right can be enforced in appropriate courts or tribunals. As such, intellectual property can generate income for its owner, either via providing an exclusive area in which the intellectual property holder can commercialize products or services, or, as is common in the university technology transfer arena, via licensing. Intellectual property can also be a valuable marketing tool for a company.

There are multiple types of intellectual property, and a technology transfer professional should be aware of the basic aspects of each. The major forms of intellectual property include: patents, which protect inventions; copyrights, which protect literary works, art, music, videos, computer programs, and other works of authorship that are fixed in a tangible medium; trademarks, which can protect university and company product names and logos; trade secrets; and domain names. Of these, patents, trademarks, and copyrights are typically the most important in the university context. Each of these forms of intellectual property is discussed in greater detail below.

## Patents

Patents are legal monopolies granted by a government that provide to the inventor, or the inventor's assignee, the right to stop others from making, using, or selling the patented invention. Machines, chemical molecules, genetically modified organisms, methods of manufacture, methods of testing, methods of treating disease, drugs, chemical processes, computer programs, and, in some jurisdictions, business methods are patentable, with the precise boundaries of what constitutes patentable subject matter varying by jurisdiction.

In the United States, the requirements of patentability are governed by the Patent Statute (35 USC § 1 *et seq.*). Patents are examined and issued by the United States Patent and Trademark Office (USPTO). Other legal provisions and agencies govern patenting in other jurisdictions around the world. However, there are relatively common elements to each of these systems. This section will focus primarily upon U.S. patents.

The monopoly provided by a patent is granted in exchange for full disclosure of the invention to the public. A patent lasts for a term of twenty years from the patent application's filing date. Publication of the patent document places all information concerning an invention at the disposal of anyone who wishes to review the patent. The public can use this information in any manner it wishes, so long as it does not infringe the claims of the patent or some other intellectual property right. There are two major sets of requirements that must be met to obtain a patent.

The first requirement of patentability is that the invention must be novel and nonobvious. Patents are properly granted only for inventions that were previously unknown in the prior art. *Prior art* is the body of publications, patents, Web articles, actions, etc., that can be cited against a patent application or patent to show or suggest that the invention is not patentable. What can and cannot be considered prior art against a given patent or patent application is determined with respect to the *priority date*, which is determined by the filing date of the application or the filing date of a previously filed patent application to which the application is entitled to claim the benefit. In the United States, 35 USC § 102 also defines what constitutes prior art.<sup>1</sup> Note that various other jurisdictions have different precise parameters on what does and does not count as prior art against a given patent application.

For example, U.S. law provides a one-year grace period after the publication of a scientific article. If an application has a priority date during this one-year period, the article is not prior art against the application. However, as discussed below, many foreign jurisdictions do not have such a grace period.

It is not possible to patent an invention that is not new in view of the prior art, even if the invention is believed to be new by the person inventing it. In the U.S., the provisions of 35 USC § 102 require that, to be patentable, the invention must be *novel*, meaning that every claimed detail of an invention cannot have been disclosed or publicly practiced by another prior to the date of the invention or more than one year before the filing of the patent application.

In addition, even if an invention is novel, it cannot be patented if one of ordinary skill in the field of the invention, or a field related to the invention, would have found the invention to be obvious, as set forth in 35 USC § 103.<sup>2</sup> While precise definitions may vary, most jurisdictions have analogs of the U.S. novel and nonobvious requirements for patentability.

The second set of requirements defines the appropriate contents of a patent application. Essentially, the application is supposed to be a written description of the invention that sufficiently describes how to make and use the invention to one having skill in the field with which the invention is concerned. In the U.S., the requirements of an appropriate patent application are set forth in 35 USC §§ 111 and, especially, 112. Each patent application should include a specification and claims. The specification describes the invention in text form and will typically contain a background of the invention; a summary of the invention; a detailed written description of the invention, which includes an enabling disclosure of how to make and use the invention; and, if necessary, drawings. The claims are a series of one-sentence statements that define the property right granted by the issued patent.

After a patent has been prepared and filed, it will eventually enter *prosecution*—the process of arguing back and forth in an attempt to convince the patent office that the invention is new and not obvious and that the patent specification adequately supports a

set of claims. Typically, this examination process is conducted via paper correspondence between the patent attorney (or patent agent) and the relevant patent office. Note that, in some jurisdictions, including the U.S., there is a duty of disclosure wherein patent applicants must disclose to the patent office all material information of which they are aware that might be relevant to the prosecution and allowability of their claims. Typically, during prosecution of a patent application, the specification will remain essentially the same, while the claims may be amended several times.

Patent rights are geographically limited. Therefore, a U.S. patent can only be enforced against a party who is making, using, or selling the patented invention within the territorial limits of the United States. Especially in the increasingly global markets, U.S. patent rights may not be sufficient to protect an invention to its fullest, commercially viable, scope. Therefore, the technology transfer professional should be aware of the possibility for obtaining patents in jurisdictions other than the United States. There are a variety of treaties and conventions that make it easier to pursue patent protection around the world, the most significant being the Paris Convention for claiming priority when filing in other countries and the Patent Cooperation Treaty (PCT) for filing an international patent application. However, each jurisdiction has its own rules, and one should be aware of the need to consult a patent attorney (or patent agent) in sorting out the best manner in which to proceed with international protection for an invention.

Note that, whereas the U.S. has a one-year grace period from date of public disclosure (i.e., publication) to allow one to file a patent application and avoid having the publication be prior art, no such grace period exists in many foreign jurisdictions. Therefore, it is often beneficial to file a U.S. patent application prior to the publication of any information on the invention, because that information could become prior art against the application in foreign jurisdictions. Also note that many foreign jurisdictions are *first-to-file* jurisdictions in which the first person to file a patent application for a given invention is entitled to the patent for that invention. This is in contrast to the *first-to-invent* system, which is currently used in the United States.<sup>3</sup>

## Trade Secrets

Trade secrets consist of information that can be used in a business and that give that business an opportunity to obtain an advantage over competitors who do not know or use the information. Such information can include recipes, drawings, computer software formulas, compound calculations, processes, deduction know-how, quality-control procedures, maintenance know-how, financial information, customer lists, price information, negative know-how, client information, customer preferences, buyer contacts, market strategies, blueprints, etc.

Typically, trade secret protection is not common in the university intellectual property context. The general goal of universities in publishing their technologies makes trade secret protection for a university-generated technology difficult to do.

Intellectual property protection provided by trade secret law derives from the fact that the person inventing or developing the trade secret keeps all information concerning the trade secret from the outside world. In contrast to patents, there is no need to prepare or file any application to protect the trade secret. In fact, publication of such an application would destroy the trade secret.

Likewise, in contrast to patents, trade secrets last indefinitely, not a set term of years. So long as the trade secret is kept secret, it confers intellectual property protection. However, if another party, through legitimate means, for example, independent deduction, or reverse engineering, obtains via publicly available sources the information that was once a trade secret, there is no possibility for preventing that party from using the trade secret information. As such, it is necessary for a party protecting information using trade secret laws to employ rigorous security procedures, including employing independent contractor confidentiality agreements, fiscal and security restrictions on access, the use of confidential ledgers or warnings on documents, password protection of computer files and databases, and/or conducting exit interviews.

The trade secret holder may be able to obtain recourse from misappropriation of his or her trade secret provided that he or she can establish that: a trade secret existed, the

trade secret was either acquired by the party accused of misappropriation through a breach of a confidential relationship or discovered by improper means, and the party accused of misappropriation used or disclosed the trade secret without authorization from the trade secret holder. Typically, trade secret litigation is controlled by state law in the U.S.<sup>4</sup> Although the Economic Espionage Act of 1996 makes the theft or misappropriation of a trade secret a federal crime.

## Trademarks

In the U.S., the requirements for registering and maintaining a federally registered trademark are governed by the Lanham Act (15 USC § 1051 *et seq.*). Trademarks are examined and issued by the USPTO. A trademark is a name, symbol, figure, letter, color, sound, or logo used in trade, legally reserved to the exclusive right of the owner, which identifies the source of the product or service and distinguishes the product or service from other sources. In the university context, trademarks include the university name, logo, mascot, etc. Further, many universities develop trademark protection in their names, the terms they use, or services they provide.

The general term *trademark* generically covers a variety of closely related forms of intellectual property protection including trademarks, service marks, and trade dress. More specifically, *trademark* is defined as being a name, symbol, figure, etc., that identifies the source of goods. By contrast, a *service mark* identifies the source of services, whereas *trade dress* protects the look and feel of a product or packaging, for example, the color arrangement or scheme. A specific source of goods acquires federal trademark rights by usage of the trademark in commerce. There are schemes for obtaining state trademark protection, which are geographically limited to the state in which such protection is obtained. In addition to federal and state trademark registration procedures available in the U.S., most other countries also have trademark protection available.<sup>5</sup>

Trademark protection can extend for an indefinite period of time. However, in the U.S., and most other jurisdictions, there are periodic renewal requirements of such rights.

## Copyrights

A copyright is the exclusive protection granted by U.S. law to an author that prevents unauthorized copying, use, or preparation of a derivative work of the author's original, tangible, published, or unpublished work. In the United States, the requirements for acquiring a copyright are governed by the Copyright Act (17 USC § 101 *et seq.*).

Copyrights are available for original works of authorship that have been fixed in a tangible medium. An original work of authorship must be minimally creative and independently created (*i.e.*, be original). These can include literary works, musical works, dramatic presentations, sculpture, architectural works and designs, choreography, pictures, graphics, movies, videos, sound recordings, music, software, etc.

Copyright law protects against unauthorized copying, reproduction, distribution, public performance, or display of the copyrighted work. The author of a work obtains copyright protection at the time the work is fixed in a tangible medium of expression. In the United States, there is an additional federal registration procedure that allows registration of the copyright with the Library of Congress. Federal registration provides various advantages in the event of copyright infringement. In addition, federal registration is required before filing a copyright infringement lawsuit, as well as obtaining statutory damages and attorney fees if there is infringement.

Copyright infringement occurs when an unauthorized party makes a substantial copy or derivative work of a copyrighted work. Remedies against a copyright infringement may include actual damages, the infringer's profits, injunction and/or seizure, and destruction of the copyrighted work. In the event of a copyright registered before infringement occurs, one can obtain statutory damages and attorney fees.

There are some limited circumstances where the Copyright Act statutorily allows copying to occur, the most well-known of which is called fair use and is governed by 17 USC § 107, which includes four nonexclusive factors for determining whether or not the use is fair.<sup>6</sup> Even though it is not infringement of a copyrighted work to copy it "for purposes such as criticism, comment, news reporting, teaching (including multiple copies for class-

room use), scholarship, or research,” it is important to realize that it can be difficult to determine whether a particular activity qualifies as fair use because the determination is based upon a balancing test. Copyright of the work internationally may also be obtained using the provisions of the Berne Convention for the Protection of Literary and Artistic Works.

## Endnotes

1. 35 USC § 102, conditions for patentability; novelty and loss of right to patent.  
A person shall be entitled to a patent unless:
  - (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
  - (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or
  - (c) he has abandoned the invention, or
  - (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
  - (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language; or
  - (f) he did not himself invent the subject matter sought to be patented, or
  - (g)(1) during the course of an interference conducted under section 135 or section

291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

2. 35 USC § 103, conditions for patentability, non-obvious subject matter.
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
  - (b)
    - (1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if
      - (A) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and
      - (B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.
    - (2) A patent issued on a process under paragraph (1)
      - (A) shall also contain the claims to the composition of matter used in or made by that process, or

- (B) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding section 154.
- (3) For purposes of paragraph (1), the term “biotechnological process” means
- (A) a process of genetically altering or otherwise inducing a single- or multi-celled organism to
    - (i) express an exogenous nucleotide sequence,
    - (ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or
    - (iii) express a specific physiological characteristic not naturally associated with said organism;
  - (B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody; and
  - (C) a method of using a product produced by a process defined by subparagraph (A) or (B), or a combination of subparagraphs (A) and (B).
- (c)
- (1) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.
  - (2) For purposes of this subsection, subject matter developed by another person and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person if
    - (A) the claimed invention was made by or on behalf of parties to a joint research agreement that was in effect on or before the date the claimed invention was made;
    - (B) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and
    - (C) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

- (3) For purposes of paragraph (2), the term “joint research agreement” means a written contract, grant, or cooperative agreement entered into by two or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.
3. Note that the question of whether or not the U.S. should adopt a first-to-file regime has been debated by the U.S. Congress, and the U.S. may well adopt such a system at some point in the future.
  4. 18 USC § 1831-1839.
  5. International trademark protection can be simplified by using the Madrid system for the international registration of marks. The Madrid system was established in 1891 and functions under the Madrid Agreement (1891) and the Madrid Protocol (1989). It is administered by the International Bureau of WIPO located in Geneva, Switzerland, and offers a trademark owner the possibility to have his or her trademark protected in several countries by simply filing one application directly with his or her own national or regional trademark office.
  6. 17 USC § 107, limitations on exclusive rights: fair use Notwithstanding the provisions of sections 106 and 106A [17 USC §§ 106, 106A], the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include
    - (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
    - (2) the nature of the copyrighted work;
    - (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
    - (4) the effect of the use upon the potential market for or value of the copyrighted work.