

*Editor's note: The following is an overview of Intellectual Property and how it can be addressed in the field of engineering. The accompanying checklists—available online at [esd.org/ip](http://esd.org/ip)—serve as guides to using the correct procedures for protecting your work.*

# IF YOU SNOOZE, YOU LOSE: A GUIDE TO PROTECTING YOUR INTELLECTUAL PROPERTY

by Michael B. Stewart, Melissa Atherton and Paul Ratzmann



**I**ntellectual Property (IP), a product of the mind and human intellect, is recognized by our nation's founders as crucial to the ongoing success of the United States. The U.S. Constitution expressly provides for the protection of creativity “to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”<sup>1</sup> According to one study, IP-intensive industries account for about \$5 trillion in value added, or approximately 35 percent of the U.S. gross domestic product.<sup>2</sup>

There are four basic forms of intellectual property. When a new idea is first created, but before it is disclosed to others without a duty to maintain its confidentiality (e.g., lacking a confidentiality or non-disclosure agreement), it is a **trade secret**. When the new idea is fixed in a tangible form (e.g., written down or recorded on a computer medium), it is subject to **copyright**. When the idea is put to a practical use, it can be the subject of a **patent**. Finally, when a service or product is sold, its source identification (e.g., the name under which it is sold) becomes a **trademark**.

Except for trade secrets, the other three forms of intellectual property protection are subject to a

registration process with the U.S. government. In the case of patents, there must be a formal grant to receive any scope of protection. While federal registration provides advantages for copyrights and trademarks, copyrights exist upon creation and trademarks are created through use as discussed in more detail below. Intellectual property protection of creativity is geographic in scope, however, and a similar registration process may be required in foreign jurisdictions. Under some circumstances a brief grace period is provided to file for corresponding protection in other regions of the world while receiving the benefit of your earliest US filing date.

History is full of examples illustrating the failure to fully appreciate the power of the creative process:

- “Heavier than air flying machines are impossible.”  
(Lord Kelvin, Royal Society President, 1895)





- “In the future computers may weigh no more than 1.5 tons.” (Popular Mechanics Magazine, 1949)
- “I think there is a world market for maybe five computers.” (Thomas Watson, IBM Chairman, 1943)
- “This telephone has too many shortcomings to be seriously considered as a means of communications. This device is inherently of no value to us.” (Western Union, Internal Memo, 1876)
- “We don’t like their sound, and guitar music is on the way out.” (Dick Rowe of Decca Records in rejecting “Like Dreamers’ Do” by the Beatles, 1962)

Nevertheless, why is it important to invest intellectual and monetary capital to protect creativity? Most important, it transfers something intangible into a tangible asset that can be treated like any other asset, including its use in bartering, licensing, financing, and even ownership transfers. For most business organizations, properly securing and monetizing intellectual property protection of creativity maximizes enterprise value and has become more valuable in many industries than “hard” assets such as plants and equipment. Moreover, the use of intellectual property protections also provides control to the creator or subsequent owner including the right to stop unwanted third parties from improperly using their creativity even if the asset is neither licensed nor sold. Many song artists, for example, are quick to take legal action against politicians who use their songs without permission. Value may even be increased by identifying your creativity in advertising and marketing (e.g., “Designed by Apple in California”).

## TRADE SECRETS

A trade secret protects any information, data, or know-how that is not publicly available, is maintained as a secret, and has economic value from being a secret. A trade secret can include any formula, pattern, compilation, program, device, method, technique or process. Exemplary trade secrets include:

- Business, customer and vendor data and lists
- Pricing/discount information
- Manufacturing processes, formulas and recipes
- Marketing/business strategies
- Sales projections and target markets
- Software code (unless it is publicly available)
- Mobile health analytics.

For something to be a trade secret it must not be generally known. It only makes sense to keep a creation as a trade secret if it derives independent economic value from not being known and is not readily ascertained. For example, if it can be reverse engineered, it is most likely not worthy of protection.

To maintain a trade secret, reasonable efforts must be shown to prevent its public disclosure. There is no time frame and so long as it stays confidential, a trade secret may be maintained indefinitely. There is no registration requirement. On the other hand, this means that the creator must limit access to only those individuals who have a need to know the trade secret and take steps to maintain secrecy. The trade secret should be locked up and those individuals who have access should sign either a non-disclosure or confidentiality agreement or their obligations should be set out in an employment contract. Finally, mark any written material pertaining to the trade secret as proprietary.

## COPYRIGHTS

Copyrights protect an author’s original expression that is fixed in a tangible medium such as paper or a computer medium. Ideas are not copyrightable. Only the expression (and not limited to a verbal expression) of ideas is protectable under copyright law.

Original works of authorship include literary, dramatic, musical, artistic and certain other intellectual works.

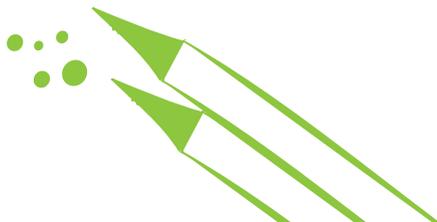
Copyrighted materials include:

- Analytic data and graphs
- Patient instructions
- Policy standards
- Sculptures
- Software code

A copyright is created as soon as creativity is fixed in a tangible medium that is sufficiently stable and permanent to permit the work to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. Copyrights may be enjoyed for many decades, but do eventually expire.

To have a copyright, however, the work of creativity must be original. This means that the work originates from the author and not be copied from another’s work. Even if a work is identical, it is entitled to copyright protection if it was independently created. Moreover, the work need not have literary or artistic value of quality.

A joint work is a work created by two or more persons with the intention that the contributions are merged into a unitary whole (e.g., the director, camera operators and actors associated with a video). Authorship rests with each of the creators unless the joint work is prepared by employees of a company



## NEED HELP?

In an effort to assist ESD members with questions regarding copyright, patents, trademarks and trade secrets, Michael Stewart has prepared helpful checklists to walk members through the process.

## COPYRIGHT

Copyright protects the original expression of an idea that is fixed in a tangible form. For example, an idea for a book is not protectable, but the way the idea is conveyed via written text is protectable. Generally, music, photographs, movies, books, software code and other works of art are protectable. Common expressions, such as basic geometric shapes or slogans, may not be sufficiently original to warrant protection.

For a complete checklist of steps to take to determine if you have a legitimate copyright and to protect your copyright, visit [esd.org/ip](http://esd.org/ip) for a PDF version.

## PATENTS

A patent protects ideas and their practical implementation. It is a government grant conferring a title for a set period, especially the sole right to exclude others from making, using, importing, selling, or offering to sell an invention covered by the patent. Specific statutory criteria must be met as part of the examination process.

For a complete checklist of steps to take to secure a patent, visit [esd.org/ip](http://esd.org/ip) for a PDF version.

## TRADEMARKS

A trademark is a word (COCA-COLA®), a logo or other designation (i.e., the shape of a Coca-Cola bottle) that functions to identify the source of a good or service. A strong trademark is an arbitrary or invented designation that has no connection to the goods/services it is used in connection with (i.e., XEROX® for copy machines, KLEENEX® for tissues, APPLE® for computers). A trademark that describes the goods/services it is used in connection with (i.e., APPLE for fruit) may be difficult or impossible to protect and enforce.

For a complete checklist of steps to take to secure a trademark, visit [esd.org/ip](http://esd.org/ip) for a PDF version.

## TRADE SECRETS

A trade secret protects any information, data, or know-how that is not publicly available, is maintained as a secret, and has economic value from being a secret (e.g., customer/vendor data and lists; pricing/discount information). To maintain a trade secret, reasonable effort must be taken to prevent its public disclosure.

For a complete checklist of steps to take, visit [esd.org/ip](http://esd.org/ip) for a PDF version.

# COPYRI



or is a specialized work falling within an explicit exception provided under law in combination with a corresponding agreement. If a copyrighted work is a “work made for hire” then there is a single author such as the company for whom a work was created. Unless changed by agreement, joint authors each have an equal, undivided interest in a copyrighted work. Each author can exploit the work, subject only to an obligation to account to the other authors for a pro rata share of the income resulting from the work.

To obtain damages for copyright infringement including potentially significant enhanced statutory damages, and attorney fees in the case of willful infringement, it is important to register a copyright with the Copyright Office of the Library of Congress within 90 days of publication. The Office does not conduct a formal examination other than to make sure that the submission meets a low threshold of originality.

It might make sense to register a copyright even before publication and in the case of some types of copyrights (e.g., photographs), individual protection for multiple photographs may be possible using a single registration filing. Moreover, it is desirable to use the copyright symbol “©”, the year of publication, and the name of the copyright owner to avoid certain defenses to infringement such as an innocent infringer.

Finally, it is very important for organizations to beware of the so-called “independent contractor trap.” This trap results when a work is commissioned from a third party that falls within an exception provided under the Copyright Act, but there is no written agreement, or if the work is not made by an employee. If a work is made by an independent contractor, always obtain a written assignment of the copyright and make sure to include language that does not permit the original author to seek reversion of the copyright at some point in the future.



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## PATENTS

Unlike copyrights, patents protect ideas and their practical implementation. Unless you have invented a specialized asexually reproduced plant that is covered by a plant patent, most creators look to utility or design patents to protect their creativity. Applications are prepared and filed with the United States Patent and Trademark Office (USPTO). Utility patents protect new and useful processes, machines, articles of manufacture, or compositions of matter. A utility patent cannot be obtained on any item in its natural state or as it occurs in nature. Design patents protect ornamental features for devices and user interfaces.

Utility patents typically last up to 21 years (and more typically 20 years unless a provisional application is filed first) from the original date of filing while design patents typically last up to 15 years from the date of grant. To obtain any scope of protection, patents must undergo a full registration process including substantive examination. If successful, the registration process averages on the order of three or more years to complete. A patent may only be enforced upon grant.

A patent allows its owner to prevent others from making, using, selling or offering to sell, or importing devices covered by the claims of the patent. A patent does not give its owner the right to make, use or sell their invention since it may be covered by another patent. Nevertheless, patents are considered extremely important capital assets by many organizations. Even if they are not bartered, licensed or the like, patent ownership helps to minimize competition in the subject matter covered by the patent. Thus, a patent portfolio may be compared to a picket fence surrounding significant organization technology, keeping competitors out.

Like copyrights, patents may also be jointly owned. Unlike copyrights, however, there is no duty of accountability to one owner to share revenue on a pro rata

basis with the other owners. Thus, be particularly careful to control ownership of all patent assets. Typically, individual inventors assign their rights to a common organization.

A patent application undergoes a formal examination process at the USPTO when an Examiner specializing in the technology to which the invention pertains compares the claims of an application setting forth the metes and bounds of the invention in the same way that a deed does with a piece of real estate. The applicant may amend the claims (i.e., alter the metes and bounds of the invention) or make arguments explaining why the application is patentable. If the application is successful, a patent is ultimately granted. In the United States, at most approximately 60 percent of all applications filed achieve patent status.

The requirements for patent protection include novelty and non-obviousness. An invention must be new and not previously known by others and not be obvious to others at the time of invention. In the case of utility applications, moreover, the invention must have a practical application. Additionally, a patent application must give a sufficiently clear explanation of the invention to enable a person of ordinary skill in the art to which the invention pertains to make and use the invention without undue experimentation. An inventor must also disclose the best method known of carrying out the claimed invention at the time of filing. Finally, it is essential to disclose the known pertinent prior art (e.g., articles, pictures, gene code sequences, diagrams, and earlier patents).

For patent protection, the United States is now like most of the rest of the world, having changed from a “first to invent” to a “first to file” schema with a limited and restricted grace period. Thus, you should file early.

It is possible to file a specialized patent application called a provisional application before filing a utility application. A provisional application acts as a place holder for a later filed utility application, which must be filed within one-year of the provisional application. Never examined, a provisional application may be informal and in some cases, can be filed based on and shortly before presentations are made to a potential customer who refuses to sign a non-disclosure agreement. There is a danger, however, of losing the filing date if it does not adequately disclose the inventive concept of the later filed utility application. Thus, informal provisional applications should be filed judiciously (e.g., when an immediate public disclosure is necessary).

Finally, once a patent application is filed it is permissible to use the designation “Patent Pending” or the like in relation to a product or process, but prior to a patent being granted or the application abandoned. Once a patent issues, to maximize the possible damages available for infringement it is crucial to mark any product with the issued patent number (e.g., PAT. 7,000,000) or to utilize virtual marking in combination with a web site listing the applicable patents.

## TRADEMARKS

A trademark is any word, name, symbol or device used to identify and distinguish goods and services, and to indicate their source. It helps to guarantee and maintain a demand for the product or service and is often used as a marketing tool to build a brand, differentiating one source from another. Trademarks include:

- Word marks such as CHEVROLET®
- Logos such as the CHEVROLET chevron: 
- Slogans such as “FIND NEW ROADS®” by CHEVROLET®
- Colors such as pink fiberglass insulation
- Sounds such as that made by a HARLEY DAVIDSON® motorcycle
- Smells such as one associated with a specific type of thread
- Trade dress such as distinctive knob or restaurant layout.

Some types of trademarks are much more difficult to register than others, with colors, sounds and smells being among the most challenging.

Trademarks are created through use. A federal registration, however, gives additional rights including constructive notice to the public of the registrant’s claim of ownership of the mark and its exclusive right to use the mark nationwide or in connection with the goods or services listed in the registration as against newcomers in a geographic area. Enhanced damages including attorney fees may be available if there is willful infringement of a federal trademark registration. While federal trademark registrations must be regularly renewed to be maintained, it is possible to maintain trademark protection indefinitely. Federal trademark registrations are granted on a first come basis for specific goods or services so a delay in filing may result in a loss of potential rights.

When a trademark does have a federal registration, it is typically identified with an (R), which puts third parties on notice of the rights provided through registration.

Finally, domain names or social media handles have become an extremely important component to trademark protection and registering them should be done concurrently with seeking trademark protection. It may even be possible to register a domain name as a trademark and the USPTO has specific procedures for how applications to register domain names are to be handled.

## COMPUTER SOFTWARE: AN EXAMPLE OF USING MULTIPLE FORMS OF INTELLECTUAL PROPERTY PROTECTION AT THE SAME TIME

The protection of computer software is an area where intellectual property law continues to evolve. For example, inventions that are software based may be patentable, if they meet the requirements for patentability. The distinction is not a clear one, and the law is currently uncertain. If



the software does something in the real world such as controlling a machine or transforming something from one state to another, or it involves a technological device other than a general-purpose computing device, or it improves the operation of the computing device or some other technology, you may be able to patent how it does what it does.

Whether it is patentable or not, software code may be protected using a copyright registration since it protects against copying without reference to the novelty or non-obvious of the code.

Additionally, key parts of program code should always be maintained as a trade secret. You will want to have confidentiality agreements with anyone who may have access to the code. There are also ways to avoid providing source code for those parts of the code which you consider secret when registering a copyright.

Finally, if you are going to be marketing the software code or its use, source identification through trademark protection is strongly recommended.

## CONCLUSION

It is very important to protect your creativity as soon as practical after the creative process is complete or it may be lost to latecomers. As a variation to an old saying goes, “you don’t want the second mouse to get the cheese.” Instead, you wish to be the one controlling the mouse trap. Trade secret or the registration benefits provided by patents, copyrights and trademarks can provide a significant competitive benefit in the market place as well as the ability to control how your creativity is used and by whom.

## REFERENCES

- 1 U.S. Const., art. 1, § 8, cl. 8
- 2 Intellectual Property and the U.S. Economy: Industries in Focus” Prepared by Economics and Statistics Administration and United States Patent and Trademark Office, March 2012.



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