CHAPTER 6

INTELLECTUAL PROPERTY

QUOTE

Intellectual property has the shelf life of a banana.
—Bill Gates, founder of Microsoft

VIGNETTE

Sinovel Steals Millions in Trade Secrets from American Superconductor

In 2006, the Chinese government passed a clean air energy law that mandated the creation of seven giant wind farms, each of which would, within a decade and a half, produce as much energy as 10 nuclear reactors. Daniel McGahn, vice president in charge of new business for American Superconductor (AMSC), saw a tremendous opportunity for his company in China. Over the course of the next several years, AMSC made deals with several Chinese companies that would manufacture wind turbines for which AMSC would supply the electronic control systems, the software, and the electrical components necessary to transform the wind energy generated into electrical power.[1] And for a while, that strategy paid off.

AMSC produces advanced smart grid technology for power companies and electronic control systems that maximize wind turbine reliability, availability, and energy output. Yet American power companies have been reluctant to update their systems with smart grid technology that could prevent outages simply because of the huge cost involved in such an investment.[2] So, the Chinese

wind legislation was a windfall for AMSC. AMSC stock quadrupled in value between 2006 and 2009.[3]

AMSC's largest customer in China was Sinovel Wind Group, a company that had bid on and won 47 percent of the Chinese government's wind projects. Sinovel captured a leading position in China's wind market. However, as more and more Chinese companies began producing turbines, the price of turbines dropped by 40 percent, and Sinovel's profits also dropped. Still, AMSC had multiyear contracts with Sinovel at set prices, and Sinovel continued to produce large quantities of turbines equipped with AMSC technology.

In March 2011, Sinovel began rejecting AMSC shipments of electronic components—shipments worth more than $70 million—without explanation. In April of that year, AMSC was forced to announce that Sinovel had stopped placing orders, despite the fact that AMSC had contracts committing Sinovel to $700 million in future orders. Daniel McGahn, now CEO of AMSC, tried to uncover the problem and mend relations, but Sinovel declined to resume placing orders. Then, in June 2011, a group of AMSC engineers testing a Sinovel turbine in northern China uncovered electrical components that were running a stolen version of AMSC software. Sinovel had somehow accessed AMSC proprietary source code and was manufacturing its own electrical components, cutting AMSC out of the operation.[4]

In 2010 and 2011, China had experienced major disruptions in its power grids as disturbances, such as trees falling on lines, shut down thousands of turbines. The Chinese government proposed legislation to require energy companies such as Sinovel to upgrade their electrical components with software that would allow wind farms to continue to function despite power grid disturbances. Because AMSC software controlled all of Sinovel's existing turbines, Sinovel would be required to

purchase the software upgrade from AMSC.[5] Instead, Sinovel recruited an Austrian-based AMSC engineer, Dejan Karabasevic, to develop the necessary software. Sinovel signed an employment contract with Karabasevic and flew him to an apartment in Beijing, along with code stolen from AMSC's servers in Austria. He then spent several weeks reverse engineering the software to come up with the source code necessary to install in Sinovel's turbines.

After AMSC discovered the stolen software, the company was able to track it back to Karabasevic. Ultimately, Karabasevic confessed to Austrian police and was sentenced to 12 months in prison for revealing trade secrets.[6] AMSC filed several lawsuits against Sinovel in Chinese courts, seeking $1.2 billion in damages for intellectual property theft and breach of contract, while Sinovel has countersued for $207 million, claiming AMSC provided substandard quality equipment. The court battle, which garnered the attention of top U.S. and Chinese officials, is seen as a test case. Many Western companies (including DuPont, Google, and Lockheed Martin) have claimed that they have been victims of Chinese espionage, and the court's decision will be an indication of whether China is willing to restrict such behavior.[7] China's Supreme Court surprised many when it agreed to review lower court decisions dismissing one of AMSC's claims.[8]

The director of the National Security Agency has called the theft of technological secrets by Chinese companies from U.S. and Western companies "the greatest transfer of wealth in history."[9] American leaders perceive these cases not as isolated incidents, but rather as part of a larger strategy of employing unfair trading practices—similar to China's decision to corner the market on rare earth metals needed to produce high-tech hardware. The U.S. International Trade Commission has estimated that if China instituted intellectual property protection measures similar to those in the United States, the United States would gain between 900,000 and 2.1 million jobs.[10] Yet AMSC and many other Western companies continue to do business in China.

AMSC is still working to recover from its 2011 losses when its stock dropped from almost $30 to $4 per share. The company has signed deals in Korea, India, and Russia for its electrical control systems, and Daniel McGahn recently noted that "silver linings are beginning to appear" as China is forecasting an increase in wind turbine installations now that stricter quality regulations have been implemented.[11]

Questions to Consider

1. What additional evidence would convince you that China's theft of technological secrets represents a national strategy rather than just a series of isolated incidents?
2. What actions might Western countries take to protect the loss of technological secrets and to reduce the risk of continuing to do business in China?

LEARNING OBJECTIVES

As you read this chapter, consider the following questions:

1. What does the term *intellectual property* encompass, and why are organizations so concerned about protecting intellectual property?
2. What are the strengths and limitations of using copyrights, patents, and trade secret laws to protect intellectual property?
3. What is plagiarism, and what can be done to combat it?
4. What is reverse engineering, and what issues are associated with applying it to create a lookalike of a competitor's software program?
5. What is open source code, and what is the fundamental premise behind its use?
6. What is the essential difference between competitive intelligence and industrial espionage, and how is competitive intelligence gathered?
7. What is cybersquatting, and what strategy should be used to protect an organization from it?

WHAT IS INTELLECTUAL PROPERTY?

Intellectual property is a term used to describe works of the mind—such as art, books, films, formulas, inventions, music, and processes—that are distinct and owned or created by a single person or group. Intellectual property is protected through copyright, patent, and trade secret laws.

Copyright law protects authored works, such as art, books, film, and music; patent law protects inventions; and trade secret law helps safeguard information that is critical to an organization's success. Together, copyright, patent, and trade secret legislation form a complex body of law that addresses the ownership of intellectual property. Such laws can also

present potential ethical problems for IT companies and users—for example, some innovators believe that copyrights, patents, and trade secrets stifle creativity by making it harder to build on the ideas of others. Meanwhile, the owners of intellectual property want to control and receive compensation for the use of their intellectual property. Should the need for ongoing innovation or the rights of property owners govern how intellectual property is used?

Defining and controlling the appropriate level of access to intellectual property are complex tasks. For example, protecting computer software has proven to be difficult because it has not been well categorized under the law. Software has sometimes been treated as the expression of an idea, which can be protected under copyright law. In other cases, software has been treated as a process for changing a computer's internal structure, making it eligible for protection under patent law. At one time, software was even judged to be a series of mental steps, making it inappropriate for ownership and ineligible for any form of protection.

COPYRIGHTS

Copyright and patent protection was established through the U.S. Constitution, Article I, section 8, clause 8, which specifies that Congress shall have the power "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Rights to their respective Writings and Discoveries."

A **copyright** is the exclusive right to distribute, display, perform, or reproduce an original work in copies or to prepare derivative works based on the work. Copyright protection is granted to the creators of "original works of authorship in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[12] The author may grant this exclusive right to others. As new forms of expression develop, they can be awarded copyright protection. For example, in the Copyright Act of 1976, audiovisual works were given protection, and computer programs were assigned to the literary works category.

Copyright infringement is a violation of the rights secured by the owner of a copyright. Infringement occurs when someone copies a substantial and material part of another's copyrighted work without permission. The courts have a wide range of discretion in awarding damages—from $200 for innocent infringement to $100,000 for willful infringement.

Copyright Term

Copyright law guarantees developers the rights to their works for a certain amount of time. Since 1960, the term of copyright has been extended 11 times from its original limit of 28 years. The Copyright Term Extension Act, also known as the Sonny Bono Copyright Term Extension Act (after the legislator, and former singer/entertainer, who was one of the cosponsors of the bill in the House of Representatives), signed into law in 1998, established the following time limits:

- For works created after January 1, 1978, copyright protection endures for the life of the author plus 70 years.
- For works created but not published or registered before January 1, 1978, the term endures for the life of the author plus 70 years, but in no case expires earlier than December 31, 2004.

- For works created before 1978 that are still in their original or renewable term of copyright, the total term was extended to 95 years from the date the copyright was originally secured.[13]

These extensions were primarily championed by movie studios concerned about retaining rights to their early films. Opponents argued that lengthening the copyright period made it more difficult for artists to build on the work of others, thus stifling creativity and innovation. The Sonny Bono Copyright Term Extension Act was legally challenged by Eric Eldred, a bibliophile who wanted to put digitized editions of old books online. The *Eldred v. Ashcroft* case went all the way to the Supreme Court, which ruled the act constitutional in 2003.[14]

Eligible Works

The types of work that can be copyrighted include architecture, art, audiovisual works, choreography, drama, graphics, literature, motion pictures, music, pantomimes, pictures, sculptures, sound recordings, and other intellectual works, as described in Title 17 of the U.S. Code. To be eligible for a copyright, a work must fall within one of the preceding categories, and it must be original. Copyright law has proven to be extremely flexible in covering new technologies; thus, software, video games, multimedia works, and Web pages can all be protected. However, evaluating the originality of a work is not always a straightforward process, and disagreements over whether or not a work is original sometimes lead to litigation. For example, former Beatles member George Harrison was entangled for decades in litigation over similarities between his hit "My Sweet Lord," released in 1970, and "He's So Fine," composed by Ronald Mack and recorded by the Chiffons in 1962.[15]

Some works are not eligible for copyright protection, including those that have not been fixed in a tangible form of expression (such as an improvisational speech) and those that consist entirely of common information that contains no original authorship, such as a chart showing conversions between European and American units of measure.

Fair Use Doctrine

Copyright law tries to strike a balance between protecting an author's rights and enabling public access to copyrighted works. The **fair use doctrine** was developed over the years as courts worked to maintain that balance. The fair use doctrine allows portions of copyrighted materials to be used without permission under certain circumstances. Title 17, section 107, of the U.S. Code established that courts should consider the following four factors when deciding whether a particular use of copyrighted property is fair and can be allowed without penalty:

- The purpose and character of the use (such as commercial use or nonprofit, educational purposes)
- The nature of the copyrighted work
- The portion of the copyrighted work used in relation to the work as a whole
- The effect of the use on the value of the copyrighted work[16]

The concept that an idea cannot be copyrighted but the expression of an idea can be is key to understanding copyright protection. For example, an author cannot copy the

exact words that someone else used to describe his feelings during a skirmish with terrorists, but he can convey the sense of horror that the other person expressed. Also, there is no copyright infringement if two parties independently develop a similar or even identical work. For example, if two writers happened to use the same phrase to describe a key historical figure, neither would be guilty of infringement. Of course, independent creation can be extremely difficult to prove or disprove.

The HathiTrust Digital Library is a joint project involving major research institutions, the libraries of several universities, and Google. The intent of the project was for Google to create a searchable database of the holdings of the participants, along with tools to facilitate access and searching of the database.[17] However, in 2011, the Authors Guild, an advocacy group for writers, filed a lawsuit alleging the project violated copyright law because the process of creating and accessing the digital library involved the unauthorized creation of multiple copies of the books. HathiTrust argued that its use of the material was "transformative" and thus permissible under conditions of the fair use doctrine. In this situation, a transformative act is one in which enough new material is added to a work to change the nature of the work or to modify the purpose for which the work is intended. The judge in the case reasoned that scanning and indexing the books for the purpose of allowing readers to search the content was indeed transformative and ruled in favor of HathiTrust.[18,19]

Software Copyright Protection

The use of copyrights to protect computer software raises many complicated issues of interpretation. For example, a software manufacturer can observe the operation of a competitor's copyrighted program and then create a program that accomplishes the same result and performs in the same manner. To prove infringement, the copyright holder must show a striking resemblance between its software and the new software that could be explained only by copying. However, if the new software's manufacturer can establish that it developed the program on its own, without any knowledge of the existing program, there is no infringement. For example, two software manufacturers could conceivably develop separate but nearly identical programs for a simple game such as tic-tac-toe without infringing the other's copyright.

Tetris is a very popular computer game that was created in 1984. Over the years, versions of Tetris have been developed and licensed to run on Nintendo's Game Boy, DS, and Wii; Sony's PlayStation; Apple's iPod, iTouch, and iPhone; and Android phones.[20] Xio Interactive was a small company formed for the purpose of creating an unlicensed iPhone version of Tetris—named Mino.[21] However, shortly after Xio posted its Mino app to the Apple iTunes store, Tetris filed a copyright infringement lawsuit against the company. In its defense, Xio argued that because it only copied the rules and basic functionality of the game, and not its more original components, there was no infringement. While the court agreed that the fundamental rules and basic functionality of the game could not be protected, it pointed out that many other elements of the game had been copied, including the color, shape, and number of game bricks; how the pieces were formed from the game bricks; and the manner in which the pieces moved. In addition, the court noted that screen shots of the games viewed side by side were nearly

identical. The court ruled that Xio was permanently banned from selling, displaying, or promoting the Mino game.[22]

The Prioritizing Resources and Organization for Intellectual Property (PRO-IP) Act of 2008

The **Prioritizing Resources and Organization for Intellectual Property (PRO-IP) Act of 2008** increased trademark and copyright enforcement and substantially increased penalties for infringement. For example, the penalty for infringement of a 10-song album was raised from $7,500 to $1.5 million. The law also created the Office of the United States Intellectual Property Enforcement Representative within the U.S. Department of Justice. One of its programs, called CHIP (Computer Hacking and Intellectual Property), is a network of over 150 experienced and specially trained federal prosecutors who focus on computer and intellectual property crimes.[23]

General Agreement on Tariffs and Trade (GATT)

The General Agreement on Tariffs and Trade (GATT) was a multilateral agreement governing international trade. There were several rounds of negotiations addressing various trade issues. The Uruguay Round, completed in December 1993, resulted in a trade agreement among 117 countries. This agreement also created the World Trade Organization (WTO) in Geneva, Switzerland, to enforce compliance with the agreement. GATT includes a section covering copyrights called the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), discussed in the following section. U.S. intellectual property law was amended to be essentially consistent with GATT through both the Uruguay Round Agreements Act of 1994 and the Sonny Bono Copyright Term Extension Act of 1998. Despite GATT, however, copyright protection varies greatly from country to country, and an expert should be consulted when considering international usage of any intellectual property.

The WTO and the WTO TRIPS Agreement (1994)

The World Trade Organization (WTO) is a global organization that deals with rules of international trade based on WTO agreements that are negotiated and signed by representatives of the world's trading nations. The WTO is headquartered in Geneva, Switzerland, and had 158 member nations as of February 2013. The goal of the WTO is to help producers of goods and services, exporters, and importers conduct their business.[24]

Many nations recognize that intellectual property has become increasingly important in world trade, yet the extent of protection and enforcement of intellectual property rights varies around the world. As a result, the WTO developed the **Agreement on Trade-Related Aspects of Intellectual Property Rights**, also known as the TRIPS Agreement, to establish minimum levels of protection that each government must provide to the intellectual property of all WTO members. This binding agreement requires member governments to ensure that intellectual property rights can be enforced under their laws and that penalties for infringement are tough enough to deter further violations. Table 6-1 provides a brief summary of copyright, patent, and trade secret protection under the TRIPS Agreement.

TABLE 6-1 Summary of the WTO TRIPS Agreement

Form of intellectual property	Key terms of agreement
Copyright	Computer programs are protected as literary works. Authors of computer programs and producers of sound recordings have the right to prohibit the commercial rental of their works to the public.
Patent	Patent protection is available for any invention—whether a product or process—in all fields of technology without discrimination, subject to the normal tests of novelty, inventiveness, and industrial applicability. It is also required that patents be available and patent rights enjoyable without discrimination as to the place of invention and whether products are imported or locally produced.
Trade secret	Trade secrets and other types of undisclosed information that have commercial value must be protected against breach of confidence and other acts that are contrary to honest commercial practices. However, reasonable steps must have been taken to keep the information secret.

Source Line: World Trade Organization, "Overview: The TRIPS Agreement," www.wto.org/english/tratop_e/trips_e/intel2_e.htm.

The World Intellectual Property Organization (WIPO) Copyright Treaty (1996)

The World Intellectual Property Organization (WIPO), headquartered in Geneva, Switzerland, is an agency of the United Nations established in 1967. WIPO is dedicated to "the use of intellectual property as a means to stimulate innovation and creativity." It has 185 member nations and administers 25 international treaties. Since the 1990s, WIPO has strongly advocated for the interests of intellectual property owners. Its goal is to ensure that intellectual property laws are uniformly administered.[25]

The WIPO Copyright Treaty, adopted in 1996, provides additional copyright protections to address electronic media. The treaty ensures that computer programs are protected as literary works and that the arrangement and selection of material in databases is also protected. It provides authors with control over the rental and distribution of their work, and prohibits circumvention of any technical measures put in place to protect the works. The WIPO Copyright Treaty is implemented in U.S. law through the Digital Millennium Copyright Act (DMCA), which is discussed in the next section.

The Digital Millennium Copyright Act (1998)

The **Digital Millennium Copyright Act (DMCA)** was signed into law in 1998 and implements two 1996 WIPO treaties: the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty. The act is divided into the following five sections:

- *Title I (WIPO Copyright and Performances and Phonograms Treaties Implementation Act of 1998)*—This section implements the WIPO treaties by making certain technical amendments to U.S. law in order to provide appropriate references and links to the treaties. It also creates two new prohibitions in the Copyright Act (Title 17 of the U.S. Code)—one on

circumvention of technological measures used by copyright owners to protect their works and one on tampering with copyright management information. Title I also adds civil remedies and criminal penalties for violating the prohibitions.

- *Title II (Online Copyright Infringement Liability Limitation Act)*—This section enables Web site operators that allow users to post content on their Web site (e.g., music, video, and pictures) to avoid copyright infringement liability if certain "safe harbor" provisions are followed.
- *Title III (Computer Maintenance Competition Assurance Act)*—This section permits the owner or lessee of a computer to make or authorize the making of a copy of a computer program in the course of maintaining or repairing that computer. The new copy cannot be used in any other manner and must be destroyed immediately after the maintenance or repair is completed.
- *Title IV (Miscellaneous provisions)*—This section adds language to the Copyright Act confirming the Copyright Office's authority to continue to perform the policy and international functions that it has carried out for decades under its existing general authority.
- *Title V (Vessel Hull Design Protection Act)*—This section creates a new form of protection for the original design of vessel hulls.

The portion of Title I dealing with anticircumvention provisions makes it an offense to do any of the following:

- Circumvent a technical protection.
- Develop and provide tools that allow others to access a technologically protected work.
- Manufacture, import, provide, or traffic in tools that enable others to circumvent protection and copy a protected work.

Violations of these provisions carry both civil and criminal penalties, including up to five years in prison, a fine of up to $500,000 for each offense, or both. Unlike traditional copyright law, the DMCA does not govern copying; instead, it focuses on the distribution of tools and software that can be used for copyright infringement as well as for legitimate noninfringing use. Although the DMCA explicitly outlaws technologies that can defeat copyright protection devices, it does permit reverse engineering for encryption, interoperability, and computer security research.

Several cases brought under the DMCA have dealt with the use of software to enable the copying of DVD movies. For example, motion picture companies supported the development and worldwide licensing of the Content Scramble System (CSS), which enables a DVD player (shown in Figure 6-1) or a computer drive to decrypt, unscramble, and play back motion pictures on DVDs, but not copy them.

However, a software program called DeCSS can break the encryption code and enable users to copy DVDs. The posting of this software on the Web in January 2000 led to a lawsuit by major movie studios against its author. After a series of cases, courts finally ruled that the use of DeCSS violated the DMCA's anticircumvention provisions.

Title II provides "safe harbors" for ISPs whose customers/subscribers might be breaking copyright laws by downloading, posting, storing, or sending copyrighted material via its services. If an ISP has knowledge of infringing material and fails to take action to remove the

FIGURE 6-1 Several cases brought under the DMCA have dealt with the use of software to enable the copying of DVD movies

Credit: © Polat/Shutterstock.com

material, it is not protected by the safe harbor measures. The ISP must also comply with clearly defined "notice and takedown" procedures that grant copyright holders a quick and simple way to halt access to allegedly infringing content. Copyright holders are granted the right to issue subpoenas to alleged copyright infringers identified through their ISP. Title II of the DMCA also provides defined procedures for ISP users to challenge improper takedowns.

The takedown procedure works as follows. The owners of copyrighted material who allege that their material has been infringed send a notice to the ISP hosting the content. The ISP forwards the notice to whoever was responsible for uploading material. That individual is given a chance to respond. If there is no response, the ISP must ensure that the material is no longer accessible. The ISP forfeits its protection under the safe harbor conditions if it fails to remove the material in a prompt manner.

Because many copyright infringers take measures to conceal their true identity, copyright owners must take additional steps if they wish to sue for copyright infringement. Provided a copyright owner has sent a DMCA notice, a John Doe subpoena can be obtained from a court clerk without even commencing a lawsuit. The subpoena compels the ISP to reveal the identity of the anonymous poster. The ISP is unlikely to resist the subpoena due to the associated legal costs.

The typical process for such lawsuits is that the IP addresses are collected for the alleged copyright violators. Attorneys then file a John Doe complaint in federal court and request the court to issue subpoenas to all ISPs used by the defendants. The subpoenas compel the ISPs to provide the defendants' names and other contact information. The attorneys then contact the defendants to offer them the opportunity to settle out of court and thus avoid embarrassment and legal fees.

Viacom International filed a $1 billion copyright infringement lawsuit against YouTube and its parent company Google in March 2007. Viacom alleged that YouTube violated the DMCA by permitting its users to post copyright-protected material from Viacom's various networks and subsidiaries—including Comedy Central, MTV, BET, and Paramount Pictures—without permission. Initially, a district court ruled that YouTube was immune from copyright liability because it was protected by the safe harbor provisions of the DMCA, even though Viacom had argued that YouTube had a "general awareness" of widespread infringement, which should disqualify YouTube from safe harbor protections.[26] Upon

appeal, the Second Circuit Court of Appeals determined that internal email exchanges among YouTube employees suggested that YouTube may have had specific knowledge of some infringing film clips. In April 2012, the Second Circuit Court of Appeals reinstated Viacom's lawsuit, and ordered the district court to reexamine the case to determine if YouTube is entitled to DMCA safe harbor protection.[27]

Some see the DMCA as a boon to the growth of the Internet and its use as a conduit for innovation and freedom of expression. Without the safe harbors that the DMCA provides, the risk of copyright liability would be so great as to seriously discourage ISPs from hosting and transmitting user-generated content. Others see the DMCA as extending too much power to copyright holders. They share the viewpoint of Verizon General Counsel William P. Barr, who stated in testimony before Congress that the "broad and promiscuous subpoena procedure" of the DMCA grants "truly breathtaking powers to anyone who can claim to be or represent a copyright owner; powers that Congress has not even bestowed on law enforcement and national security personnel."[28]

PATENTS

A **patent** is a grant of a property right issued by the United States Patent and Trademark Office (USPTO) to an inventor. A patent permits its owner to exclude the public from making, using, or selling a protected invention, and it allows for legal action against violators. Unlike a copyright, a patent prevents independent creation as well as copying. Even if someone else invents the same item independently and with no prior knowledge of the patent holder's invention, the second inventor is excluded from using the patented device without permission of the original patent holder. The rights of the patent are valid only in the United States and its territories and possessions. Figure 6-2 shows the number of patents applied for and granted in recent years.

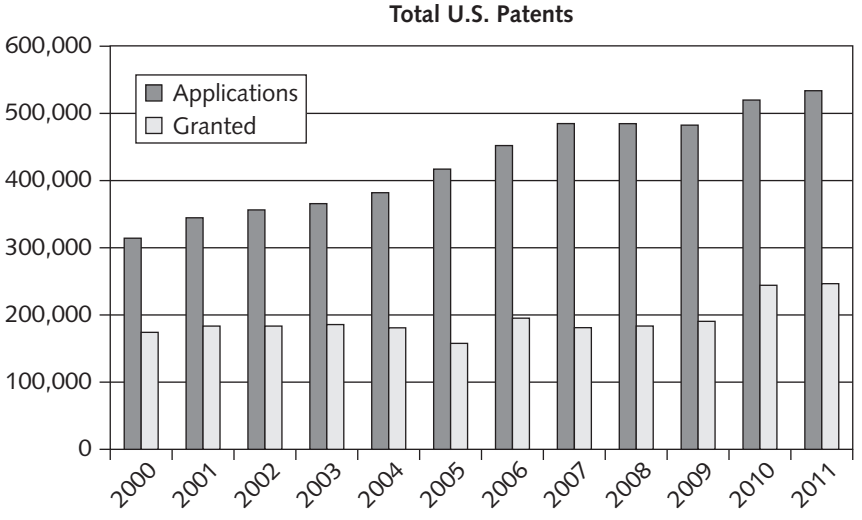

FIGURE 6-2 Patents applied for and granted
Source Line: U.S. Patent Statistics Calendar Years 1963–2011, www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.pdf.

IBM obtained 6,478 patents in 2012, the 20th consecutive year it received more patents than any other company in the United States.[29] By some estimates, IBM's licensing of patents and technologies generates several hundred million dollars in annual revenue for the company.[30] Table 6-2 lists the IT organizations that were granted the most patents in 2012.

TABLE 6-2 IT organizations that received the most patents in 2012

Organization	Number of patents granted	Increase over 2011
IBM	6,478	5%
Samsung	5,081	4%
Canon	3,174	12%
Microsoft	2,613	13%[31]
Google	1,151	170%
Apple	1,136	68%

Source Line: "IBM Top Patent Producer 20 Years Running," *CNM Online*, January 13, 2013, www.cnmeonline.com/news/ibm-top-patent-producer-20-years-running.

To obtain a U.S. patent, an application must be filed with the USPTO according to strict requirements. As part of the application, the USPTO searches the **prior art**—the existing body of knowledge available to a person of ordinary skill in the art—starting with patents and published material that have already been issued in the same area. The USPTO will not issue a patent for an invention whose professed improvements are already present in the prior art. Although the USPTO employs 7,800 patent examiners to research the originality of each patent application, the average time from filing until the application is issued as a patent or abandoned by the applicant is around 31 months as of January 2013. At the end of 2012, there was a backlog of 597,579 unexamined patent applications.[32] Such delays in getting patents approved can be costly for companies that want to bring patented products to market quickly. As a result, in many cases, people trained in the patent process, rather than the inventors themselves, prepare patent applications.

The main body of law that governs patents is contained in Title 35 of the U.S. Code. Section 101 of the code states that "whoever invents or discovers any new or useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor." Section 102 defines novelty as a necessary condition to grant a patent and describes various kinds of prior art which can be used as evidence that the invention is not novel. Section 103 describes "nonobviousness" as another mandatory requirement for a patent. To be patentable, an invention must not be obvious to a person having ordinary skill in the field on which the invention is based.

The U.S. Supreme Court has ruled that three classes of items cannot be patented: abstract ideas, laws of nature, and natural phenomena. Standing on its own, mathematical subject matter is also not entitled to patent protection. Thus, Pythagoras could not have patented his formula for the length of the hypotenuse of a right triangle ($c^2 = a^2 + b^2$). The statute does not identify computer software, gene sequences, or genetically modified bacteria as patentable subject matter. However, these items have subsequently been determined to be patentable.

Patent infringement, or the violation of the rights secured by the owner of a patent, occurs when someone makes unauthorized use of another's patent. Unlike copyright infringement, there is no specified limit to the monetary penalty if patent infringement is found. In fact, if a court determines that the infringement is intentional, it can award up to three times the amount of the damages claimed by the patent holder. The most common defense against patent infringement is a counterattack on the claim of infringement and the validity of the patent itself. Even if the patent is valid, the plaintiff must still prove that every element of a claim was infringed and that the infringement caused some sort of damage.

Leahy-Smith America Invents Act (2011)

The **Leahy-Smith America Invents Act** represents a major change in U.S. patent law. Under this law, which was passed in 2011, the U.S. patent system changed from a "first-to-invent" to a "first-inventor-to-file" system effective March 16, 2013. That means if two people file for a patent application on the same invention at approximately the same time, the first person to file with the USPTO will receive the patent, not necessarily the person who actually invented the item first.[33,34]

The America Invents Act also expanded the definition of prior art used to determine the novelty of an invention and whether it can be patented. For example, if something resembling your invention were on sale anywhere in the world before you filed for a patent, that item is now considered part of the prior art and could prevent you from obtaining a patent. Prior to the passing of this law, only items for sale within the United States were considered prior art. The America Invents Act makes it more difficult to obtain a U.S. patent.[35]

Software Patents

A software patent claims as its invention some feature or process embodied in instructions executed by a computer. The courts and the USPTO have changed their attitudes and opinions on the patenting of software over the years. Prior to 1981, the courts regularly turned down requests for such patents, giving the impression that software could not be patented.[36]

In the 1981 *Diamond v. Diehr* case, the Supreme Court granted a patent to Diehr, who had developed a process control computer and sensors to monitor the temperature inside a rubber mold. The USPTO interpreted the court's reasoning to mean that just because an invention used software did not mean that the invention could not be patented. Based on this ruling, courts have slowly broadened the scope of protection for software-related inventions.[37] As a result, during the 1980s and 1990s, the USPTO granted thousands of software-related patents per year. Application software, business software, expert systems, and system software were patented, along with such software processes as compilation routines, editing and control functions, and operating system techniques. Many patents were granted for business methods implemented in software.

Starting in the latter half of the 2000s, the courts have become more restrictive on the granting of software patents.[38] Some software experts think that too many software patents are being granted, and they believe that this inhibits new software development.[39] Indeed, each new software patent lawsuit adds to the costs and business risks associated with

software development. During 2012, the following software patent battles were raging among some of the biggest names in the software industry:

- Oracle and Google battled over patent infringement claims associated with Oracle's Java programming language—with Oracle seeking $6 billion in damages.[40]
- Apple sued Samsung for patent infringement regarding several patents associated with Apple's smartphone and tablet devices. Apple was ultimately awarded $1.1 billion in damages.[41]
- Mformation, a global provider of mobile device management technology, was awarded $147 million when it sued Research in Motion for patent infringement of Mformation's patented technology, which enables companies to remotely access employee mobile phones to perform software upgrades, change passwords, and erase data.[42]
- Many industry observers believe that Google purchased Motorola Mobility, a smartphone software company, for $12.5 billion so that the firm could sue Apple over alleged infringement of patents associated with location reminders, email notification, and the Siri intelligent assistant.[43]

Cross-Licensing Agreements

Many large software companies have cross-licensing agreements in which each party agrees not to sue the other over patent infringements. For example, Apple and HTC battled for several years over various mobile phone-related patents, which eventually led to the U.S. International Trade Committee banning imports of two models of the HTC mobile phone. The two companies eventually agreed to a 10-year cross-licensing agreement that permits each party to license the other's current and future patents.[44]

Major IT firms usually have little interest in cross-licensing with smaller firms. As a result, small businesses must pay an additional cost from which many larger companies are exempt. Furthermore, small businesses are generally unsuccessful in enforcing their patents against larger companies. Should a small business bring a patent infringement suit against a large firm, the larger firm can overwhelm the small business with multiple patent suits, whether they have merit or not. Considering that the average patent lawsuit costs $3 to $10 million and takes two to three years to litigate, a small firm often simply cannot afford to fight; instead, it usually settles and licenses its patents to the large company.[45]

TRADE SECRETS

In Chapter 2, a trade secret was defined as business information that represents something of economic value, has required effort or cost to develop, has some degree of uniqueness or novelty, is generally unknown to the public, and is kept confidential.

Trade secret protection begins by identifying all the information that must be protected—from undisclosed patent applications to market research and business plans—and developing a comprehensive strategy for keeping the information secure. Trade secret law protects only against the *misappropriation* of trade secrets. If competitors come up with the same idea on their own, it is not misappropriation; in other words, the law doesn't prevent someone from using the same idea if it was developed independently.

Trade secret laws protect more technology worldwide than patent laws do, in large part because of the following key advantages:

- There are no time limitations on the protection of trade secrets, as there are with patents and copyrights.
- There is no need to file an application, make disclosures to any person or agency, or disclose a trade secret to outsiders to gain protection. (After the USPTO issues a patent, competitors can obtain a detailed description of it.) Hence, no filing or application fees are required to protect a trade secret.
- Although patents can be ruled invalid by the courts, meaning that the affected inventions no longer have patent protection, this risk does not exist for trade secrets.

Fuhu is the creator of Nabi, an Android tablet computer for kids, that had been sold exclusively at Toys "R" Us stores. In a lawsuit filed in late 2012, Fuhu alleged that Toys "R" Us stole Nabi trade secrets during the year that the retailer served as the exclusive distributor of the product. As a result, Fuhu alleged, Toys "R" Us was able to bring out its competing tablet months ahead of schedule. Fuhu sued to stop the toy retailer from launching this rival tablet during the lucrative Christmas selling season.[46]

Trade Secret Laws

Trade secret protection laws vary greatly from country to country. For example, the Philippines provides no legal protection for trade secrets. In some European countries, pharmaceuticals, methods of medical diagnosis and treatment, and information technology cannot be patented. Many Asian countries require foreign corporations operating there to transfer rights to their technology to locally controlled enterprises. (Coca-Cola reopened its operations in India in 1993 after halting sales for 16 years to protect the "secret formula" for its soft drink, even though India's vast population represented a huge potential market.) American businesses that seek to operate in foreign jurisdictions or enter international markets must take these differences into account.

Uniform Trade Secrets Act (UTSA)

The Uniform Trade Secrets Act (UTSA) was drafted in the 1970s to bring uniformity to all the United States in the area of trade secret law. The first state to enact the UTSA was Minnesota in 1981, followed by 39 more states and the District of Columbia. The UTSA defines a trade secret as "information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

- Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by, persons who can obtain economic value from its disclosure or use, and
- Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy."

Under these terms, computer hardware and software can qualify for trade secret protection by the UTSA.[47]

The Economic Espionage Act (EEA) (1996)

The **Economic Espionage Act (EEA) of 1996** imposes penalties of up to $10 million and 15 years in prison for the theft of trade secrets. Before the EEA, there was no specific criminal statute to help pursue economic espionage; the FBI was investigating nearly 800 such cases in 23 countries when the EEA was enacted.[48] The Office of the National Counterintelligence Executive has estimated that the "combined costs of foreign and domestic economic espionage, including the theft of intellectual property, [are] as high as $300 billion per year and rising."[49] As with the UTSA, information is considered a trade secret under the EEA only if companies take steps to protect it.

DuPont is a major U.S.-based science and engineering company that has been in business since 1802.[50] The firm was a leader in research on Organic Light Emitting Diodes (OLED) that resulted in the development of a breakthrough and proprietary chemical process for OLED displays. However, a DuPont research chemist involved in the project stole trade secret compounds and passed them to a Chinese university. Ultimately, the chemist was caught by the FBI, prosecuted, and sentenced to 14 months in federal prison. The loss of the trade secrets was valued by DuPont at $400 million.[51]

Employees and Trade Secrets

Employees are the greatest threat to the loss of company trade secrets—they might accidentally disclose trade secrets or steal them for monetary gain. Organizations must educate employees about the importance of maintaining the secrecy of corporate information. Trade secret information should be labeled clearly as confidential and should only be accessible by a limited number of people. Most organizations have strict policies regarding nondisclosure of corporate information.

Because organizations can risk losing trade secrets when key employees leave, they often try to prohibit employees from revealing secrets by adding **nondisclosure clauses** to employment contracts. Thus, departing employees cannot take copies of computer programs or reveal the details of software owned by the firm.

Defining reasonable nondisclosure agreements can be difficult, as seen in the following example involving Apple. In addition to filing hundreds of patents on iPhone technology, the firm put into place a restrictive nondisclosure agreement to provide an extra layer of protection. Many iPhone developers complained bitterly about the tough restrictions, which prohibited them from talking about their coding work with anyone not on the project team and even prohibited them from talking about the restrictions themselves. Eventually, Apple admitted that its nondisclosure terms were overly restrictive and loosened them for iPhone software that was already released.[52]

Another option for preserving trade secrets is to have an experienced member of the Human Resources Department conduct an exit interview with each departing employee. A key step in the interview is to review a checklist that deals with confidentiality issues. At the end of the interview, the departing employee is asked to sign an acknowledgment of responsibility not to divulge any trade secrets.

Employers can also use noncompete agreements to protect intellectual property from being used by competitors when key employees leave. A **noncompete agreement** prohibits an employee from working for any competitors for a period of time, often one to two years.

When courts are asked to settle disputes over noncompete agreements, they must weigh several factors. First, they must consider the reasonableness of the restriction and how it protects confidential and trade secret information of the former employer. Second, they must weigh the employee's right to work and seek employment in the area where the employee has gained skill, experience, and business contacts. The courts also consider geographic area and the length of time of the restriction in relation to the pace of change in the industry.

Most states only enforce such noncompete agreements to the extent required to shelter the employer's legitimate confidential business interests. However, there is a wide range of treatment on noncompete agreements among the various states. For example, Ohio is highly supportive of former employers enforcing noncompete agreements while noncompete agreements are seldom enforced in California.[53]

Electronic payments processing firm Vantiv filed a lawsuit alleging breach of a noncompete contract against its former senior vice president when he accepted a position with competitor iPayments. Vantiv hopes to bar the employee from working for the competitor and to gain return of a year's base salary received as part an employment termination agreement.[54] In another case, five software engineers brought a class action lawsuit against Apple, Google, Intel, Adobe Systems, Intuit, Pixar, and Lucasfilm alleging that the firms colluded to constrain salary and job mobility by maintaining do-not-call lists to avoid recruiting each other's employees. The engineers alleged that these agreements restrained competition and potentially cost the employees of these firms hundreds of millions of dollars.[55]

The following is an example of a typical, although not necessarily legally binding, noncompete agreement:

> The employee agrees as a condition of employment that in the event of termination for any reason, he or she will not engage in a similar or competitive business for a period of two years, nor will he or she contact or solicit any customer with whom Employer conducted business during his or her employment. This restrictive covenant shall be for a term of two years from termination, and shall encompass the geographic area within a 100-mile radius of Employer's place of business.

KEY INTELLECTUAL PROPERTY ISSUES

This section discusses several issues that apply to intellectual property and information technology, including plagiarism, reverse engineering, open source code, competitive intelligence, trademark infringement, and cybersquatting.

Plagiarism

Plagiarism is the act of stealing someone's ideas or words and passing them off as one's own. The explosion of electronic content and the growth of the Web have made it easy to cut and paste paragraphs into term papers and other documents without proper citation or quotation marks. To compound the problem, hundreds of online "paper mills" enable users to download entire term papers. Although some sites post warnings that their services should be used for research purposes only, many users pay scant heed. As a result, plagiarism has become an issue from elementary schools to the highest levels of academia.

Plagiarism also occurs outside academia. Popular literary authors, playwrights, musicians, journalists, and even software developers have been accused of it.

Despite codes of ethics in place that clearly define plagiarism and prescribe penalties ranging from no credit on a paper to expulsion, many students still do not understand what constitutes plagiarism. Some students believe that all electronic content is in the public domain, while other students knowingly commit plagiarism either because they feel pressure to achieve a high GPA or because they are too lazy or pressed for time to do original work.

A recent survey reported that 55 percent of university presidents felt that plagiarism has increased over the past decade in spite of increased efforts to combat the practice.[56] Plagiarism by students taking free online courses from Coursea has become so widespread that one professor felt compelled to post a request for his 39,000 students to stop the practice after many of the students complained about their fellow students.[57]

Some instructors say that being familiar with a student's style of writing, grammar, and vocabulary enables them to determine if the student actually wrote a paper. In addition, plagiarism detection systems (see Table 6-3) allow teachers, corporations, law firms, and publishers to check for matching text in different documents as a means of identifying potential plagiarism.

TABLE 6-3 Partial list of plagiarism detection services and software

Name of service	Web site	Provider
iThenticate	www.ithenticate.com	iParadigms
Turnitin	www.turnitin.com	iParadigms
SafeAssign	www.safeassign.com	Blackboard
Glatt Plagiarism Services	www.plagiarism.com	Glatt Plagiarism Services
EVE Plagiarism Detection	www.canexus.com/eve	CaNexus

Source Line: Course Technology/Cengage Learning.

Turnitin, a software product developed by California-based iParadigms, supports 15 languages and is used by over 10,000 educational institutions around the world. It uses three primary databases for content matching with over 24 billion Web pages, some 300 million archived student papers, and 120 million articles from over 110,000 journals, periodicals, and books.[58] iThenticate is available from the same company that created Turnitin, but it is designed to meet the needs of members of the information industry, such as publishers, research facilities, legal firms, government agencies, and financial institutions.[59]

Interestingly, four high school students brought a lawsuit against iParadigms, accusing the firm of copyright infringement. The basis of their lawsuit was that the firm's primary product, Turnitin, used archived student papers without their permission to assess the originality of newly submitted papers. However, both a district court and a court of appeals ruled that the use of student papers for purposes of plagiarism detection constitutes a fair use and is therefore not a copyright infringement. A U.S. court of appeals ruled that such use of student papers "has a protective effect" on the future marketability of the

students' works and "provides a substantial public benefit through the network of institutions using Turnitin."[60]

The following list shows some of the actions that schools can take to combat student plagiarism:

- Help students understand what constitutes plagiarism and why they need to cite sources properly.
- Show students how to document Web pages and materials from online databases.
- Schedule major writing assignments so that portions are due over the course of the term, thus reducing the likelihood that students will get into a time crunch and be tempted to plagiarize to meet the deadline.
- Make clear to students that instructors are aware of Internet paper mills.
- Ensure that instructors both educate students about plagiarism detection services and make students aware that they know how to use these services.
- Incorporate detection software and services into a comprehensive antiplagiarism program.

Reverse Engineering

Reverse engineering is the process of taking something apart in order to understand it, build a copy of it, or improve it. Reverse engineering was originally applied to computer hardware but is now commonly applied to software as well. Reverse engineering of software involves analyzing it to create a new representation of the system in a different form or at a higher level of abstraction. Often, reverse engineering begins by extracting design-stage details from program code. Design-stage details about an information system are more conceptual and less defined than the program code of the same system. Microsoft has been accused repeatedly of reverse engineering products—ranging from the Apple Macintosh user interface, to many Apple operating system utility features that were incorporated into DOS (and later Windows), to early word-processing and spreadsheet programs that set the design for Word and Excel, to Google's methods for improving search results for its Bing search engine.[61]

One frequent use of reverse engineering for software is to modify an application that ran on one vendor's database so that it can run on another's (for example, from Access to Oracle). Database management systems use their own programming language for application development. As a result, organizations that want to change database vendors are faced with rewriting existing applications using the new vendor's database programming language. The cost and length of time required for this redevelopment can deter an organization from changing vendors and deprive it of the possible benefits of converting to an improved database technology.

Using reverse engineering, a developer can use the code of the current database programming language to recover the design of the information system application. Next, code-generation tools can be used to take the design and produce code (forward engineer) in the new database programming language. This reverse-engineering and code-generating process greatly reduces the time and cost needed to migrate the organization's applications to the new database management system. No one challenges the right to use this process to convert applications developed in-house. After all, those applications were

developed and are owned by the companies using them. It is quite another matter, however, to use this process on a purchased software application developed and licensed by outside parties. Most IT managers would consider this action unethical because the software user does not actually own the right to the software. In addition, a number of intellectual property issues would be raised, depending on whether the software was licensed, copyrighted, or patented.

Other reverse-engineering issues involve tools called compilers and decompilers. A compiler is a language translator that converts computer program statements expressed in a source language (such as Java, C, C++, and COBOL) into machine language (a series of binary codes of 0s and 1s) that the computer can execute. When a software manufacturer provides a customer with its software, it usually provides the software in machine-language form. Tools called reverse-engineering compilers, or decompilers, can read the machine language and produce the source code. For example, REC (Reverse Engineering Compiler) is a decompiler that reads an executable, machine-language file and produces a C-like representation of the code used to build the program.

Decompilers and other reverse-engineering techniques can be used to reveal a competitor's program code, which can then be used to develop a new program that either duplicates the original or interfaces with the program. Thus, reverse engineering provides a way to gain access to information that another organization may have copyrighted or classified as a trade secret.

The courts have ruled in favor of using reverse engineering to enable interoperability. In the early 1990s, video game maker Sega developed a computerized lock so that only Sega video cartridges would work on its entertainment systems. This essentially shut out competitors from making software for the Sega systems. *Sega Enterprises Ltd. v. Accolade, Inc.* dealt with rival game maker Accolade's use of a decompiler to read the Sega software source code. With the code, Accolade could create new software that circumvented the lock and ran on Sega machines. An appeals court ultimately ruled that if someone lacks access to the unprotected elements of an original work and has a "legitimate reason" for gaining access to those elements, disassembly of a copyrighted work is considered to be a fair use under section 107 of the Copyright Act. The unprotected element in this case was the code necessary to enable software to interoperate with the Sega equipment. The court reasoned that to refuse someone the opportunity to create an interoperable product would allow existing manufacturers to monopolize the market, making it impossible for others to compete. This ruling had a major impact on the video game industry, allowing video game makers to create software that would run on multiple machines.

Software license agreements increasingly forbid reverse engineering. As a result of the increased legislation affecting reverse engineering, some software developers are moving their reverse-engineering projects offshore to avoid U.S. rules.

The ethics of using reverse engineering are debated. Some argue that its use is fair if it enables a company to create software that interoperates with another company's software or hardware and provides a useful function. This is especially true if the software's creator refuses to cooperate by providing documentation to help create interoperable software. From the consumer's standpoint, such stifling of competition increases costs and reduces business options. Reverse engineering can also be a useful tool in detecting software bugs and security holes.

Others argue strongly against the use of reverse engineering, saying it can uncover software designs that someone else has developed at great cost and taken care to protect. Opponents of reverse engineering contend it unfairly robs the creator of future earnings and significantly reduces the business incentive for software development.

Open Source Code

Historically, the makers of proprietary software have not made their source code available, but not all developers share that philosophy. **Open source code** is any program whose source code is made available for use or modification, as users or other developers see fit. The basic premise behind open source code is that when many programmers can read, redistribute, and modify a program's code, the software improves. Programs with open source code can be adapted to meet new needs, and bugs can be rapidly identified and fixed. Open source code advocates believe that this process produces better software than the traditional closed model.

A considerable amount of open source code is available, and an increasing number of organizations use open source code. For example, much of the Internet runs on open source code; when you access a Web page, send a text, or post a status update, you are likely using open source code.[62]

A common use of open source software is to move data from one application to another and to extract, transform, and load business data into large databases. Two frequently cited reasons for using open source software are that it provides a better solution to a specific business problem and that it costs less. Open source software is used in applications developed for smartphones and other mobile devices, such as Apple's iPhone, Palm's Treo, and Research In Motion's BlackBerry. See Table 6-4 for a listing of commonly used open source software.

TABLE 6-4 Commonly used open source software

Open source software	Purpose
7-Zip	File compression
Ares Galaxy	Peer-to-peer file sharing
Audacity	Sound editing and special effects
Azureus	Peer-to-peer file sharing
Blender 3D	3D modeling and animation
eMule	Peer-to-peer file sharing
Eraser	Erasing data completely
Firefox	Internet browsing
OpenOffice	Word processing, spreadsheets, presentations, graphics, and databases
Video Dub	Video editing

Source Line: Course Technology/Cengage Learning.

Why would firms or individual developers create open source code if they do not receive money for it? Here are several reasons:

- Some people share code to earn respect for solving a common problem in an elegant way.
- Some people have used open source code that was developed by others and feel the need to pay back by helping other developers.
- A firm may be required to develop software as part of an agreement to address a client's problem. If the firm is paid for the employees' time spent to develop the software rather than for the software itself, it may decide to license the code as open source and use it either to promote the firm's expertise or as an incentive to attract other potential clients with a similar problem.
- A firm may develop open source code in the hope of earning software maintenance fees if the end user's needs change in the future.
- A firm may develop useful code but may be reluctant to license and market it, and so might donate the code to the general public.

There are various definitions of what constitutes open source code, each with its own idiosyncrasies. The GNU General Public License (GPL) was a precursor to the open source code defined by the Open Source Initiative (OSI). GNU is a computer operating system composed entirely of free software; its name is a recursive acronym for GNUs Not Unix. The GPL is intended to protect GNU software from being made proprietary, and it lists terms and conditions for copying, modifying, and distributing free software. The OSI is a nonprofit organization that advocates for open source and certifies open source licenses. Its certification mark, "OSI Certified," may be applied only to software distributed under an open source license that meets OSI criteria, as described at its Web site, *www.opensource.org*.

A software developer could attempt to make a program open source simply by putting it into the public domain with no copyright. This would allow people to share the program and their improvements, but it would also allow others to revise the original code and then distribute the resulting software as their own proprietary product. Users who received the program in the modified form would no longer have the freedoms associated with the original software. Use of an open source license avoids this scenario.

Competitive Intelligence

Competitive intelligence (as defined in Chapter 3) is legally obtained information that is gathered to help a company gain an advantage over its rivals. For example, some companies have employees who monitor the public announcements of property transfers to detect any plant or store expansions of competitors. An effective competitive intelligence program requires the continual gathering, analysis, and evaluation of data with controlled dissemination of useful information to decision makers. Competitive intelligence is often integrated into a company's strategic plan and executive decision making. According to a recent survey of 400 global companies with competitive intelligence programs, the number of companies that spend more than $1 million on this activity increased from 5 percent to 10 percent over the period 2007–2012.

Pharmaceutical companies represent 27 percent of the companies that spend more than $2 million on competitive intelligence.[63]

Competitive intelligence is used to support smart business decisions in many different areas. For example, a European sporting goods manufacturer wanted to enter the U.S. market and was looking for good entry opportunities. Gathering and analyzing data about its competitors, the firm discovered an overlooked and rapidly growing market—wrestling headgear and apparel for girls.[64]

Competitive intelligence is not the same as **industrial espionage**, which is the use of illegal means to obtain business information not available to the general public. In the United States, industrial espionage is a serious crime that carries heavy penalties.

Almost all the data needed for competitive intelligence can be collected from examining published information or interviews, as outlined in the following list:

- 10-K or annual reports
- An SC 13D acquisition—a filing by shareholders who report owning more than 5 percent of common stock in a public company
- 10-Q or quarterly reports
- Press releases
- Promotional materials
- Web sites
- Analyses by the investment community, such as a Standard & Poor's stock report
- Dun & Bradstreet credit reports
- Interviews with suppliers, customers, and former employees
- Calls to competitors' customer service groups
- Articles in the trade press
- Environmental impact statements and other filings associated with a plant expansion or construction
- Patents

By coupling this competitive intelligence data with analytical tools and industry expertise, an experienced analyst can make deductions that lead to significant information. According to Avinash Kaushik, self-described "analytics evangelist" for Google, "The Web is the best competitive intelligence tool in the world." Kaushik likens the failure to use such data to driving a car 90 miles an hour with the windshield painted black, then scraping off the paint and realizing "you're going 90 but everyone else is going 220 and you're going to die."

A wide array of software applications, databases, and social media tools are available for companies—and individuals—looking for competitive intelligence data, including the following:

- Rapportive is software that can be added to your email application or Web browser to provide you with rich contact profiles that show you what people look like, where they are based, and what they do. Such information can help you build rapport quickly by enabling you to mention shared interests.
- Crunchbase is a free database of technology of over 110,000 companies, people, and investors.

- CORI (*http://cori.missouri.edu/pages/ksearch.htm*) is a database of contract documents available online using a full-text search and retrieval system.
- ThomasNet.com is an excellent source for identifying suppliers and sources for products.
- WhoGotFunded.com is a comprehensive Web site of data about what organizations have received funding and for what purposes.

Competitive intelligence gathering has become enough of a science that over two dozen colleges and universities offer courses or even entire programs in this subject. Also, the Strategic and Competitive Intelligence Professionals organization (*www.scip.org*) offers ongoing training programs and conferences.

Without proper management safeguards, the process of gathering competitive intelligence can cross over to industrial espionage and dirty tricks. One frequently used dirty trick is to enter a bar near a competitor's plant or headquarters, strike up a conversation, and ply people for information after their inhibitions have been weakened by alcohol.

Competitive intelligence analysts must avoid unethical or illegal actions, such as lying, misrepresentation, theft, bribery, or eavesdropping with illegal devices. Table 6-5 provides a manager's checklist for running an ethical competitive intelligence operation. The preferred answer to each question in the checklist is *yes*.

TABLE 6-5 A manager's checklist for running an ethical competitive intelligence operation

Question	Yes	No
Has the competitive intelligence organization developed a mission statement, objectives, goals, and a code of ethics?		
Has the company's legal department approved the mission statement, objectives, goals, and code of ethics?		
Do analysts understand the need to abide by their organization's code of ethics and corporate policies?		
Is there a rigorous training and certification process for analysts?		
Do analysts understand all applicable laws—domestic and international—including the Uniform Trade Secrets Act and the Economic Espionage Act, and do they understand the critical importance of abiding by them?		
Do analysts disclose their true identity as well as the name of their organization prior to any interviews?		
Do analysts understand that everything their firm learns about the competition must be obtained legally?		
Do analysts respect all requests for anonymity and confidentiality of information?		
Has the company's legal department approved the processes for gathering data?		
Do analysts provide honest recommendations and conclusions?		
Is the use of third parties to gather competitive intelligence carefully reviewed and managed?		

Source Line: Course Technology/Cengage Learning.

Trademark Infringement

A **trademark** is a logo, package design, phrase, sound, or word that enables a consumer to differentiate one company's products from another's. Consumers often cannot examine goods or services to determine their quality or source, so instead they rely on the labels attached to the products. The Lanham Act of 1946 (also known as the Trademark Act, Title 15, Chapter 22 of the U.S. Code) defines the use of a trademark, the process for obtaining a trademark from the Patent and Trademark Office, and the penalties associated with trademark infringement. The law gives the trademark's owner the right to prevent others from using the same mark or a confusingly similar mark on a product's label.

The United States has a federal system that stores trademark information; merchants can consult this information to avoid adopting marks that have already been taken. Merchants seeking trademark protection apply to the USPTO if they are using the mark in interstate commerce or if they can demonstrate a true intent to do so. Trademarks can be renewed forever—as long as a mark is in use.

It is not uncommon for an organization that owns a trademark to sue another organization over the use of that trademark in a Web site or a domain name. The court rulings in such cases are not always consistent and are quite difficult to judge in advance.

Nominative fair use is a defense often employed by the defendant in trademark infringement cases where a defendant uses a plaintiff's mark to identify the plaintiff's products or services in conjunction with its own product or services. To successfully employ this defense, the defendant must show three things:[65]

- The plaintiff's product or service cannot be readily identifiable without using the plaintiff's mark.
- It uses only as much of the plaintiff's mark as necessary to identify the defendant's product or service.
- The defendant does nothing with the plaintiff's mark that suggests endorsement or sponsorship by the plaintiff.

This defense was first applied to Web sites in *Playboy Enterprises, Inc. v. Terri Welles.* Welles was the Playboy™ Playmate of the Year™ in 1981. In 1997, she created a Web site to offer free photos of herself, advertise the sale of additional photos, solicit memberships in her photo club, and promote her spokeswoman services. Welles used the trademarked terms *Playboy* model and *Playmate of the Year* to describe herself on her Web site. The Ninth Circuit Court of Appeals determined that the former Playboy model's use of trademarked terms was permissible, nominative use. By using the nominative fair use defense, Welles avoided a motion for preliminary injunction, which would have restrained her from continuing to use the trademarked terms on her Web site.[66]

IGB Eletronica is a Brazilian telecommunications firm that designs and markets various consumer electronics products, including smartphones, for the Brazilian market. In 2002, the firm petitioned the Brazilian Industrial Property Institute for the exclusive rights to the product name "iPhone." IGB was finally granted rights to the name in 2007, by coincidence, the same year that Apple's first iPhone was released. That same year, IGB launched the Gradiente iPhone, which runs the Android operating system. Apple initiated a lawsuit over IGB's use of the iPhone, which continued for the next six years.[67]

Cybersquatting

Companies that want to establish an online presence know that the best way to capitalize on the strengths of their brand names and trademarks is to make the names part of the domain names for their Web sites. When Web sites were first established, there was no procedure for validating the legitimacy of requests for Web site names, which were given out on a first-come, first-served basis. And in the early days of the Web, many **cybersquatters** registered domain names for famous trademarks or company names to which they had no connection, with the hope that the trademark's owner would eventually buy the domain name for a large sum of money.

The main tactic organizations use to circumvent cybersquatting is to protect a trademark by registering numerous domain names and variations as soon as the organization knows it wants to develop a Web presence (for example, UVXYZ.com, UVXYZ.org, and UVXYZ.info). In addition, trademark owners who rely on non-English-speaking customers often register their names in multilingual form. Registering additional domain names is far less expensive than attempting to force cybersquatters to change or abandon their domain names.

Other tactics can also help curb cybersquatting. For example, the Internet Corporation for Assigned Names and Numbers (ICANN) is a nonprofit corporation responsible for managing the Internet's domain name system. Prior to 2000, eight generic Top-Level Domain names were in existence: .com, .edu, .gov, .int, .mil, .net, .org, and .arpa. In 2000, ICANN introduced seven more: .aero, .biz, .coop, .info, .museum, .name, and .pro. In 2004, ICANN introduced .asia, .cat, .mobi, .tel, and .travel. The generic Top-Level Domain .xxx was approved in 2011. With each new round of generic Top-Level Domains, current trademark holders are given time to assert rights to their trademarks in the new top-level domains before registrations are opened up to the general public.

ICANN also has a Uniform Domain Name Dispute Resolution Policy, under which most types of trademark-based domain name disputes must be resolved by agreement, court action, or arbitration before a registrar will cancel, suspend, or transfer a domain name. The ICANN policy is designed to provide for the fast, relatively inexpensive arbitration of a trademark owner's complaint that a domain name was registered or used in bad faith.

The Anticybersquatting Consumer Protection Act (ACPA), enacted in 1999, allows trademark owners to challenge foreign cybersquatters who might otherwise be beyond the jurisdiction of U.S. courts. Also under this act, trademark holders can seek civil damages of up to $100,000 from cybersquatters that register their trade names or similar-sounding names as domain names. The act also helps trademark owners challenge the registration of their trademark as a domain name even if the trademark owner has not created an actual Web site.

Ally Financial, a financial services company providing insurance, direct banking, and commercial financing services recently filed a lawsuit under the Anticybersquatting Consumer Protection Act against a man for allegedly registering three domain names that were very similar to domain names used by Ally. Ally customers who mistakenly visited those Web sites were redirected to VeteransNationalBank.us, a site owned by the defendant in the case. When Ally initially contacted the man to inform him of the bank's right to the domain names, he demanded that Ally work with him in some sort of new banking venture. Ally rejected the proposal, and the man modified his Web sites to redirect Web site visitors to an Ally competitor, Chase Bank. Ally is seeking damages of up to $100,000 per domain name.[68,69]

Summary

- *Intellectual property* is a term used to describe works of the mind—such as art, books, films, formulas, inventions, music, and processes—that are distinct and owned or created by a single person or group.
- Copyrights, patents, trademarks, and trade secrets form a complex body of law relating to the ownership of intellectual property, which represents a large and valuable asset to most companies. If these assets are not protected, other companies can copy or steal them, resulting in significant loss of revenue and competitive advantage.
- A copyright is the exclusive right to distribute, display, perform, or reproduce an original work in copies; prepare derivative works based on the work; and grant these exclusive rights to others.
- Copyright law has proven to be extremely flexible in covering new technologies, including software, video games, multimedia works, and Web pages. However, evaluating the originality of a work can be difficult and can lead to litigation.
- Copyrights provide less protection for software than patents; software that produces the same result in a slightly different way may not infringe a copyright if no copying occurred.
- The fair use doctrine establishes four factors for courts to consider when deciding whether a particular use of copyrighted property is fair and can be allowed without penalty: (1) the purpose and character of the use, (2) the nature of the copyrighted work, (3) the portion of the copyrighted work used, and (4) the effect of the use on the value of the copyrighted work.
- The use of copyright to protect computer software raises many complicated issues of interpretation of what constitutes infringement.
- The Prioritizing Resources and Organization for Intellectual Property (PRO-IP) Act of 2008 increased trademark and copyright enforcement; it also substantially increased penalties for infringement.
- The original General Agreement on Tariffs and Trade (GATT) created the World Trade Organization (WTO) in Geneva, Switzerland, to enforce compliance with the agreement. GATT includes a section covering copyrights called the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- The WTO is a global organization that deals with rules of international trade based on WTO agreements that are negotiated and signed by representatives of the world's trading nations. The goal of the WTO is to help producers of goods and services, exporters, and importers conduct their business.
- The World Intellectual Property Organization (WIPO) is an agency of the United Nations dedicated to "the use of intellectual property as a means to stimulate innovation and creativity."
- The Digital Millennium Copyright Act (DMCA), which was signed into law in 1998, implements two WIPO treaties in the United States. It also makes it illegal to circumvent a technical protection or develop and provide tools that allow others to access a technologically protected work. In addition, the DMCA limits the liability of Internet service providers for copyright infringement by their subscribers or customers.

- Some view the DMCA as a boon to the growth of the Internet and its use as a conduit for innovation and freedom of expression. Others believe that the DMCA has given excessive powers to copyright holders.
- A patent is a grant of property right issued by the United States Patent and Trademark Office to an inventor that permits its owner to exclude the public from making, using, or selling a protected invention, and it allows for legal action against violators. A patent prevents copying as well as independent creation (which is allowable under copyright law).
- For an invention to be eligible for a patent, it must fall into one of three statutory classes of items that can be patented: It must be useful; it must be novel; and it must not be obvious to a person having ordinary skill in the same field.
- The Leahy-Smith America Invents Act changed the U.S. patent system from a "first-to-invent" to a "first-inventor-to-file" system and expanded the definition of prior art used to determine the novelty of an invention and whether it can be patented. The act made it more difficult to obtain a patent in the United States.
- Unlike copyright infringement, for which monetary penalties are limited, if the court determines that a patent has been intentionally infringed, it can award up to triple the amount of the damages claimed by the patent holder.
- The courts and the U.S. Patent and Trademark Office have changed their attitudes and opinions of the patenting of software over the years.
- To qualify as a trade secret, information must have economic value and must not be readily ascertainable. In addition, the trade secret's owner must have taken steps to maintain its secrecy. Trade secret laws do not prevent someone from using the same idea if it was developed independently or from analyzing an end product to figure out the trade secret behind it.
- Trade secrets are protected by the Uniform Trade Secrets Act and the Economic Espionage Act.
- Trade secret law has three key advantages over the use of patents and copyrights in protecting companies from losing control of their intellectual property: (1) There are no time limitations on the protection of trade secrets, unlike patents and copyrights; (2) there is no need to file any application or otherwise disclose a trade secret to outsiders to gain protection; and (3) there is no risk that a trade secret might be found invalid in court.
- Plagiarism is the act of stealing someone's ideas or words and passing them off as one's own. Plagiarism detection systems enable people to check the originality of documents and manuscripts.
- Reverse engineering is the process of breaking something down in order to understand it, build a copy of it, or improve it. Reverse engineering was originally applied to computer hardware but is now commonly applied to software.
- In some situations, reverse engineering might be considered unethical because it enables access to information that another organization may have copyrighted or classified as a trade secret.

- Recent court rulings and software license agreements that forbid reverse engineering, as well as restrictions in the DMCA, have made reverse engineering a riskier proposition in the United States.
- Open source code refers to any program whose source code is made available for use or modification, as users or other developers see fit. The basic premise behind open source code is that when many programmers can read, redistribute, and modify it, the software improves. Open source code can be adapted to meet new needs, and bugs can be rapidly identified and fixed.

- Competitive intelligence is legally obtained information that is gathered to help a company gain an advantage over its rivals. Competitive intelligence is not the same as industrial espionage, which is the use of illegal means to obtain business information that is not readily available to the general public. In the United States, industrial espionage is a serious crime that carries heavy penalties.
- Competitive intelligence analysts must take care to avoid unethical or illegal behavior, including lying, misrepresentation, theft, bribery, or eavesdropping with illegal devices.
- A trademark is a logo, package design, phrase, sound, or word that enables a consumer to differentiate one company's products from another's. Web site owners who sell trademarked goods or services must take care to ensure they are not sued for trademark infringement.
- Cybersquatters register domain names for famous trademarks or company names to which they have no connection, with the hope that the trademark's owner will eventually buy the domain name for a large sum of money.
- The main tactic organizations use to circumvent cybersquatting is to protect a trademark by registering numerous domain names and variations as soon as they know they want to develop a Web presence.

Key Terms

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)
copyright
copyright infringement
cybersquatter
Digital Millennium Copyright Act (DMCA)
Economic Espionage Act (EEA) of 1996
fair use doctrine
industrial espionage
intellectual property
Leahy-Smith America Invents Act
noncompete agreement
nondisclosure clause
open source code
patent
patent infringement
plagiarism
prior art
Prioritizing Resources and Organization for Intellectual Property (PRO-IP) Act of 2008
reverse engineering
trademark

Self-Assessment Questions

The answers to the Self-Assessment Questions can be found in Appendix B.

1. Which of the following is an example of intellectual property?
   a. a work of art
   b. a computer program
   c. a trade secret of an organization
   d. all of the above

2. Copyright law protects authored works; _____ law protects inventions.
3. Software can be protected under copyright law, but it can also be patented. True or False?
4. The courts may award up to triple damages for which of the following?
   a. patent infringement
   b. copyright infringement
   c. trademark infringement
   d. theft of trade secrets
5. Two software manufacturers develop separate but nearly identical programs for playing an online game. Even though the second manufacturer can establish that it developed the program on its own, without knowledge of the existing program, that manufacturer could be found guilty of copyright infringement. True or False?
6. Title II of the _____ amends the Copyright Act by adding a new section that enables a Web site operator that allows users to post content on its Web site to avoid copyright infringement if certain "safe harbor" provisions are followed.
7. A(n) _____ is a logo, package design, phrase, sound, or word that enables a consumer to differentiate one company's products from another's.
8. Many large software companies have _____ agreements with each other in which each agrees not to sue the other over patent infringement.
9. The _____ doctrine established four factors for courts to consider when deciding whether a particular use of copyrighted property is fair and can be allowed without penalty.
10. A _____ is a form of protection for intellectual property that does not require any disclosures or the filing of an application.
    a. copyright
    b. patent
    c. trade secret
    d. trademark
11. The WTO developed the _____, which established minimum levels of protection that each government must provide to the intellectual property of all WTO members.
12. Plagiarism is an issue only in academia. True or False?

13. The process of taking something apart in order to understand it, build a copy of it, or improve it is called _____.
14. As part of the patent application, the USPTO searches the existing body of knowledge that is available to a person of ordinary skill in the art. This existing body of knowledge is also called _____.
15. Almost all the data needed for competitive intelligence can be collected either through carefully examining published information or through interviews. True or False?

16. The main tactic used to circumvent _____ is to register numerous domain name variations as soon as an organization thinks it might want to develop a Web presence.

Discussion Questions

1. Explain the concept that an idea cannot be copyrighted, but the expression of an idea can be, and why this distinction is a key to understanding copyright protection.
2. Briefly discuss Title I and II of the DMCA, including the primary protections it provides for copyright material as well as the associated penalties. Do you believe that the DMCA has given excessive powers to copyright holders? Why or why not?
3. Identify the necessary conditions to grant a patent according to Title 35 of the U.S. Code.
4. How did the America Invents Act modify U.S. patent law? Do you think this act was an improvement over the preexisting way of patenting? Why or why not?
5. What is a cross-licensing agreement? How do large software companies use such agreements? Do you think their use is fair to small software development firms? Why or why not?
6. What is the role of the WTO, and what is the scope and intent of its TRIPS agreement?
7. Briefly discuss how the courts and USPTO have changed their opinions and attitudes toward the patenting of software over the years. Do you believe that software patents inhibit new software development? Why or why not?
8. Identify and briefly discuss three key advantages that trade secret law has over the use of patents and copyrights in protecting intellectual property. Are there any drawbacks with the use of trade secrets to protect intellectual property?
9. What problems can arise in using nondisclosure and noncompete agreements to protect intellectual property?
10. Outline a multistep approach that a university might take to successfully combat plagiarism among its students.
11. Under what conditions do you think the use of reverse engineering is an acceptable business practice?
12. How might a corporation use reverse engineering to convert to a new database management system? How might it use reverse engineering to uncover the trade secrets behind a competitor's software?
13. Why might an organization elect to use open source code instead of proprietary software?
14. What is the nominative use defense? What are the three key elements of this defense?
15. What measures can companies take to combat cybersquatting?

What Would You Do?

Use the five-step decision-making process discussed in Chapter 1 to analyze the following situations and recommend a course of action.

1. You have been asked to lead your company's new competitive intelligence organization. What would you do to ensure that members of the new organization obey applicable laws and the company's own ethical policies?
2. You are interviewing for the role of human resources manager for a large software developer. Over the last year, the firm has lost a number of high-level executives who left the firm to go to work for competitors. During the course of your interview, you are asked what measures you would put in place to reduce the potential loss of trade secrets from executives leaving the firm. How would you respond?
3. You have been asked by the manager of software development to lead a small group of software developers in an attempt to reengineer the latest release of the software by your leading competitor. The goal of the group is to identify features that could be implemented into the next few releases of your firm's software. You are told that the group would relocate from the United States to the island of Antigua, in the Caribbean Sea, to "reduce the risk of the group being distracted by the daily pressures associated with developing fixes and enhancements with the current software release." What sort of legal and/or ethical questions might be raised by this reengineering effort? Would you consider taking this position?
4. You have procrastinated too long and now your final paper for your junior English course is due in just five days—right in the middle of final exam week. The paper counts for half your grade for the term and would probably take you at least 20 hours to research and write. Your roommate, an English major with a 3.8 GPA, has suggested two options: He will write an original paper for you for $100, or he will show you two or three "paper mill" Web sites, from which you can download a paper for less than $35. You want to do the right thing, but writing the paper will take away from the time you have available to study for your final exam in three other courses. What would you do?
5. Your friend is a two-time winner of the Ironman™ Arizona Triathlon (2.4-mile swim, 112-mile bike, and 26.2-mile run). He is also a popular and well-known marathon runner throughout the Southwest. He has asked you to design a Web page to promote the sale of a wide variety of health products, vitamins, food supplements, and clothing targeted at the athletes training to participate in the triathlon. The products will carry his personal trademark. However, much of the information on the Web page will include discussion of his personal success in various triathlons and marathons in which he has competed. Many of these events have corporate sponsors and carry their own trademark. He has asked you if there are any potential trademark issues with his marketing plans. What would you do?
6. You are beginning to feel very uncomfortable in your new position as a computer hardware salesperson for a firm that is the major competitor of your previous employer. Today, for the second time, someone has mentioned to you how valuable it would be to know what the marketing and new product development plans were of your exemployer.

You stated that you are unable to discuss such information under the nondisclosure contract signed with your former employer, but you know your response did not satisfy your new coworkers. You fear that the pressure to reveal information about the plans of your former company is only going to increase over the next few weeks. What do you do?

7. Because of the amount of the expense, your company's CFO had to approve a $500,000 purchase order for hardware and software needed to upgrade the servers used to store data for the Product Development Department. Everyone in the department had expected an automatic approval, and they were disappointed when the purchase order request was turned down. Management said that the business benefits of the expenditure were not clear. Realizing that she needs to develop a more solid business case for the order, the vice president of product development has come to you for help. Can you help her identify arguments related to protecting intellectual property that might strengthen the business case for this expenditure?
8. You are the vice president for software development at a small, private firm. Sales of your firm's products have been strong, but you recently detected a patent infringement by one of your larger competitors. Your in-house legal staff has identified three options: (1) Ignore the infringement out of fear that your larger competitor will file numerous countersuits; (2) threaten to file suit, but try to negotiate an out-of-court settlement for an amount of money that you feel your larger competitor would readily pay; or (3) point out the infringement and negotiate aggressively for a cross-licensing agreement with the competitor, which has numerous patents you had considered licensing. Which option would you pursue and why?

Cases

1. Alice Case Raises Concerns for the Future of IT Software Patents

On February 8, 2013, the Federal Circuit Court of Appeals met to consider a case that could shape the future of technology innovation in the United States. The case involved the Alice Corporation, an Australian company that obtains financial market patents from the United States, the United Kingdom, and other major trading nations.[70] Alice holds four patents for a business method that CLS Bank International employs to reduce risk in financial transactions. In 2007, Alice sued CLS Bank International and other companies for patent infringement, hoping to reap financial gain. CLS Bank, however, countersued Alice claiming that Alice's patents were in violation of Section 101 of the Patent Act.

Section 101 states that the U.S. government cannot grant patents for "laws of nature, natural phenomena, and abstract ideas."[71] Rather, patents must involve only practical applications of abstract ideas. But what is the difference between an abstract idea and a practical application? The answer to this question involves high stakes—billions of dollars in the IT industry.

Many lawyers who represent IT companies describe patent-enforcing companies (such as Alice Corporation) as "patent trolls." Such companies do not produce a product themselves. Rather patent trolls make money by threatening to sue technology companies that supposedly make use of their patented ideas. The patent troll is usually not the inventor, but rather a company that has purchased patents from bankrupt technology companies, usually failed start-ups.

Patent trolls generally target companies with annual revenues between $50 and $200 million. These companies are large enough to pay licensing fees, but often lack resources to pay steep litigation fees.[72]

For example, a company called Ultramercial obtained a patent for the idea of "pre-roll advertisements"—ads placed prior to the broadcasting of free video clips broadcast on YouTube and Hulu. These ads are a major revenue source for YouTube, Hulu, and other companies. One of these companies, Wild Tangent, sued Ultramercial asserting that its patent claim was invalid; however, an appellate court upheld a lower court's ruling declaring the patent valid.[73] In the summer of 2012, the Supreme Court issued a ruling in the case asking the appellate court to reconsider its ruling, which, if not overturned, would force companies such as YouTube and Hulu to pay large licensing fees to Ultramercial.

According to Google general council Kent Walker, "Abuses of our patent system cost the economy $29 billion in 2011, raising prices and reducing choice. Technology moves incredibly fast, and the United States Patent and Trademark Office need to take prompt action."[74]

Software patents were not even recognized by U.S. Courts until the *States Street* case of 1998. Up to that point, many companies had patented software ideas for business methods, but none of the patents had been enforced.[75] In 1998, the U.S. Court of Appeals recognized Signature Financial Group's patent of a business method using computers and allowed the company to collect licensing fees from States Street Bank.

Since the *States Street* decision, the U.S. court system has been floundering with the issue. Different courts have come down on different sides. In the earlier appellate hearing of the Alice case, two judges of the three-judge panel held for Alice Corporation and argued for an extraordinarily broad interpretation of patent law. Now, most of the heavyweights of the U.S. IT sector—Google, IBM, Facebook, Intel, and others—have filing *amicus* briefs, legal opinions in support of one side or the other. IBM, which has led the world in number of new patents for 21 years, filed a brief in support of Alice. Google and Facebook, which are leading product producers, filed in support of CLS Bank. Intel, a computer chip manufacturer that has many patents but is fearful of the large number of patents in the field of theoretical chip design, also filed on the side of the bank.[76]

The new appellate court decision will likely pave the way for the Supreme Court to weigh in on the matter more extensively. A decision in favor of Alice would mean an explosion of patent litigation and increase in costs for IT producers. A decision against Alice would be a boost for large IT software manufacturers and creators on online content and products who may be less careful about paying licensing fees to small patent holders. The Department of Justice has filed an *amicus* brief favoring neither side. Instead, the department has called on the appellate court not to issue a decision that would create a hard-and-fast rule, but that would allow the courts to consider each case individually.[77] This action indicates that the U.S. government feels that both positions have some merit. On the one hand, patent trolls are reducing U.S. productivity. On the other hand, the Department of Justice recognizes the need to protect the owners of intellectual property.

Discussion Questions

1. How unique does an idea need to be to warrant patent protection? Should the idea of pre-roll advertisements be patentable?

2. Are patent trolls justified in their actions? Do they provide a means of rewarding small innovators?
3. Are patent lawsuits likely to decrease or increase innovation in the United States?

2. Rockstar Consortium—Beware the Patent Troll

Nortel was a Canadian multinational telecommunications and data network equipment manufacturing pioneer. Nortel patented many innovations in the areas of wireless communications, telecommunications switching, Internet routers, modems, personal computers, search, and social networking.[78] Many of its patents are in the key areas of Long Term Evolution (LTE) and 3G technologies, which are the foundation of modern wireless networks.[79]

In 2009, Nortel filed for bankruptcy, and in the process, the company sold its business units and assets to various purchasers.[80] Approximately 6,000 of its patents were sold for $4.5 billion to a company formed by a team of information technology companies consisting of Apple, EMC, Ericsson, Microsoft, Research In Motion, and Sony.[81] The partners divided up some 2,000 of Nortel's patents among themselves and then formed a new, independent company called Rockstar Consortium to manage the remaining 4,000 or so patents.[82]

Rockstar employs just 32 people, many of them the same people who ran Nortel's patent-licensing program. Among the employees are 10 reverse-engineering specialists whose role is to examine other companies' successful telecommunications and networking products to determine if they infringe any of the former Nortel patents. Should evidence of infringement be revealed, it is documented, and the firm contacts the infringing manufacturer seeking licensing fees for the patent(s) in question. Should the manufacturer refuse to pay the licensing fees, they could be dragged into a costly patent infringement lawsuit.[83]

Legal fees and court-awarded damages can run into the millions of dollars when companies go to court to battle over patent rights. For example, in 2007, a jury ruled Microsoft had violated patents for MP3 technology belonging to telecommunications equipment manufacturer Alcatel-Lucent. The jury awarded Alcatel-Lucent damages of $1.5 billion. Unlike large companies such as Microsoft, small companies often simply cannot afford to defend themselves against costly patent lawsuits—whether the claim is raised for legitimate reasons or as a threat against entering a new market or offering a new product. As a result, the current patent system can stifle small innovators rather than help them. Even large companies may agree to pay licensing fees rather than fight a patent infringement lawsuit.[84]

A company such as Rockstar that makes no products and whose mission is to sue or coerce manufacturers who infringe on its patents (often referred to as a pure patent operation) can become very aggressive in filing patent infringement lawsuits because it produces no products that could form the basis for a patent infringement countersuit.[85]

Prior to the sale of the Nortel patents, the Department of Justice's Antitrust Division reviewed the potential sale. There were concerns about the potential use of Nortel's standard essential patents (SEPs) as a means to slow the innovation of other companies in the telecommunications and networking industry. As a result of this review, the Department of Justice stated that its concerns were "lessened by the clear commitments by Apple and Microsoft to license SEPs on fair, reasonable, and non-discriminatory terms."[86] However, John Veschi, chief intellectual property officer at Nortel and now the CEO of Rockstar Consortium, states that Rockstar

is not bound by the promises that its member companies made. According to Veschi, "We are separate. That does not apply to us."[87]

Discussion Questions

1. Clearly state three business reasons to justify why these major IT firms formed Rockstar Consortium.
2. Although Rockstar is set up as an organization independent of its founders, what are the possible reactions if the firm aggressively pursues an important customer or supplier of one its founding companies? How might the customer or supplier react? How might the founder react?
3. Do research to determine the current status of the Rockstar Consortium. Has it been successful? Has it stirred up any further controversy?

3. Google Book Search Library Project

In 2005, Google announced the Google Book Search Library Project, a highly ambitious plan to scan and digitize books from various libraries, including the New York Public Library and the libraries at Harvard University, Oxford University, Stanford University, and the University of Michigan.[88] Google's goal is to "work with publishers and libraries to create a comprehensive, searchable, virtual card catalog of all books in all languages that helps users discover new books and publishers discover new readers."[89]

Because many of the books are protected under copyright law, Google needed a way to avoid problems with copyright infringement. Therefore, Google established a process requiring publishers and copyright holders to opt out of the program if they did not want their books to be searchable. Publishers and copyright holders were incensed and argued that they should control who can view and search their books. In October 2005, the Authors Guild and the Association of American Publishers (on behalf of McGraw-Hill, Simon & Schuster, John Wiley & Sons, Pearson Education, and the Penguin Group) filed suit against Google to stop the program. They argued that making a full copy of a copyright-protected book does not fit into the narrow exception to the law defined by fair use.

After more than two years of discussions, the parties negotiated a settlement in October 2008. The settlement did not resolve the legal dispute over whether Google's project is permissible as a fair use; however, it concluded the litigation, enabling the parties to avoid the cost and risk of a trial.[90] The proposed settlement would give Google the right to display up to 20 percent of a book online and to profit from it by selling access to all or part of it. Google would also sell subscriptions to its entire collection to universities and other institutions, but offer free portals to public libraries where users could pay a per-page fee to print parts of the book.[91] In addition, Google would set aside $125 million to compensate authors and publishers for originally infringing on their copyrights, to pay the legal fees of the authors and publishers, and to establish a Book Rights Registry where rights holders can register their works to receive a share of ad revenue and digital book sales.[92]

Google, as well as many authors and publishers, defended the settlement, saying the project would benefit authors, publishers, and the public and renew access to millions of out-of-print books.[93]

However, in a further complication, the U.S. Department of Justice (DOJ) began an inquiry in April 2009 into the proposed settlement. In September, the DOJ urged the court to reject the settlement. The DOJ concluded that the settlement violated copyright, antitrust, and class action laws on three grounds. First, one goal of the settlement was to offer copyrighted materials to the public electronically while compensating copyright holders. However, the DOJ concluded that Google's system did not require copyright owners to register. Moreover, the project includes many "orphan books"—those whose copyright holders are unknown or cannot be located. In addition, the DOJ argued that the settlement should result in a marketplace in which consumers have a choice of outlets from which they can obtain the access and in which prices are kept competitive. Finally, the DOJ harshly criticized the settlement because, as a class action, it failed to protect the rights of absent class members. The DOJ generally questioned whether a class action lawsuit was an appropriate method of dealing with the issues that arise from such a large-scale project to provide public electronic access to copyrighted material. A more appropriate venue, the DOJ suggested, would be the legislature.[94]

The parties in the case quickly responded by working out a new agreement. Through the revised agreement, Google's book registry would actively seek out authors and rights holders and Google would only scan books in English-speaking countries. In addition, the settlement limited ways that Google could make money from the project.[95]

In February 2010, however, the DOJ rejected the amended settlement for violating class action, antitrust, and copyright laws. The DOJ made specific suggestions to help avoid copyright infringement, such as arranging for authors to opt in rather than opt out and listing a book in the registry for two years prior to making it available online. But, from an antitrust perspective, the arrangement was still extremely problematic, the DOJ noted, as there are no serious competitors in the market. Amazon has approximately three million to Google's tens of millions of books.[96]

This time the parties did not rush to develop a new agreement. Instead, New York Federal District Judge Denny Chin postponed a ruling on the agreement a few weeks later.[97] The judge wanted to give all parties involved time to submit comments on the amended agreement.[98] The court issued no ruling during 2010. Then in December 2010, Google launched its own online bookstore of eBooks. Of its over three million titles, only 200,000 had been licensed through publishers. The remaining 2.8 million were texts no longer covered by copyright law in the United States.[99]

Discussion Questions

1. Do you think that Google should have taken a different approach that would have allowed it to avoid litigation and a lengthy delay in implementing its Book Search Library Project? Please explain your answer.
2. As a potential user, are you in favor of or do you oppose the Book Search Library Project? Please explain your answer.
3. Do you think that the proposed settlement gives Google an unfair advantage to profit from creating an online service that allows people to access and search millions of books?

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