



Ethics in Information Technology, Second Edition

Chapter 6 *Intellectual Property*

Objectives

- What does the term *intellectual property* encompass, and why are companies so concerned about protecting it?
- What are the strengths and limitations of using copyrights, patents, and trade secret laws to protect intellectual property?
- What is plagiarism, and what can be done to combat it?
- What is reverse engineering, and what issues are associated with applying it to create a look-alike of a competitor's software program?

Objectives (continued)

- What is open source code, and what is the fundamental premise behind its use?
- What is the essential difference between competitive intelligence and industrial espionage, and how is competitive intelligence gathered?
- What is cybersquatting, and what strategy should be used to protect an organization from it?

Intellectual Property

- What Is Intellectual Property?
 - Have you ever given a CD to a friend that contained a copy of a computer game or a program?
 - Have you ever recorded a televised movie to watch later in the week?
 - Have you downloaded music or a movie from the Web without paying for it?
 - Have you e-mailed a copy of an online newspaper or magazine article to a dozen friends?
 - Have you set up a Web site about your favorite band or actor, with short videos from performances?

Q: Do you know which of these actions are legal and which are illegal, and why?

Intellectual Property

- What Is Intellectual Property?
 - The value of a painting is higher than the cost of the canvas and paint used to create it!
 - The value of intellectual and artistic works comes from the creativity, ideas, skills, labor, and other nonmaterial efforts and attributes provided by their creators.
 - Our property rights to the physical property we create or buy include the rights to use it, to prevent others from using it, and to set the (asking) price for selling it.
 - Would you produce something if anyone else can just take it away?

Q: How is it important for the individual/society to protect intellectual property?

Intellectual Property

- Intellectual Property Is:
 - Term used to describe works of the mind
Distinct and “owned” or created by a person or group
 - Intangible creative work—not the particular physical form on which it is stored or delivered.
 - **Given legal protection in the form of copyright, patent, trademark, and trade secret laws.**
 - The owner of a physical book may give away, lend, or resell the one physical book he or she bought, but not make copies.

Intellectual Property

- Intellectual Property Laws:
 - Copyright law
 - Protects authored works
 - Patent laws
 - Protect inventions
 - Trade secret laws
 - Help safeguard information critical to an organization's success

Copyrights

- Copyrights are granted for a limited, but long, time [Life + 50 yrs in 1976; 1998: Life + 70 years, 95 years for corporate work].
- With some exceptions, copyright owners have the exclusive right to:
 - Make copies of the work,
 - Produce derivative works,
 - Distribute copies,
 - Perform the work in public, and
 - Display the work in public.
- Author may grant exclusive right to others

Copyrights (continued)

- Types of work that can be Copyrighted:
 - Architecture
 - Art
 - Audiovisual works
 - Choreography
 - Drama
 - Graphics
 - Literature
 - Motion pictures
 - Music
 - Pantomimes
 - Pictures
 - Sculptures
 - Sound recordings
 - Other intellectual works
 - As described in Title 17 of U.S. Code

Copyrights (continued)

- To get Copyright:
 - Work must fall within one of the preceding categories
 - Must be original
 - Evaluating originality can cause problems

Copyright Law

- Fair-Use Doctrine

- Permission to use the work is not required.
- Allows uses of copyrighted material that contribute to the creation of new work and do not significantly affect sales of the material, thus depriving copyright holders of their income.
- Allows some research and educational uses as well as news reporting and critiquing.
- Guidelines for determining Fair Use are found in law.

Q: How does the Fair-Use Doctrine distinguish between photocopies made by students and those made by workers in a corporation?

Four Factors in “Fair Use”(1976)

- Purpose and nature of use, including whether it is for commercial \$\$ purposes or nonprofit educational purposes.
- The nature of the copyrighted work. Creative work such as a novel, music, art, have more protection than factual work – after all the facts are the facts.
- The amount and the significance of the portion used.
- The effect of the use on the potential market or value of the copyrighted work. Uses that reduce sales of the original work are less likely to be considered fair use.

Copyrights (continued)

- Copyright infringement
 - Copy substantial and material part of another's copyrighted work
 - Without permission
- Area of copyright infringement
 - Worldwide sale of counterfeit consumer supplies
- Copyrights to protect computer software exist
 - To prove infringement, copyright holders must show a striking resemblance between the original software and the new software that could be explained only by copying

Copyrights (continued)

- World Intellectual Property Organization (WIPO)
 - Agency of the United Nations
 - Advocates for the interests of intellectual property owners
- Digital Millennium Copyright Act (DMCA)
 - Added new provisions to WIPO
 - Civil and criminal penalties included
 - Governs distribution of tools and software that can be used for copyright infringement
 - Opponents say it restricts the free flow of information

Patents

- Grant of property rights to inventors
- Patents are granted for a limited time.
 - Patents protect new ideas by giving the inventor a monopoly on the invention for a specified period of time (e.g. 20 years).
- Issued by the U.S. Patent and Trademark Office (USPTO)
- Permits an owner to exclude the public from making, using, or selling the protected invention
- Allows legal action against violators
- Prevents independent creation
- Extends only to the United States and its territories and possessions

Patents (continued)

- Applicant must file with the USPTO
 - USPTO searches prior art
 - Takes an average of 25 months
- Prior art
 - Existing body of knowledge
 - Available to a person of ordinary skill in the art
- Patent infringement
 - Someone makes unauthorized use of a patent
 - No specified limit to the monetary penalty

Patents (continued)

- An invention must pass four tests
 1. Must be in one of the five statutory classes of items
 - Processes
 - Machines
 - Manufactures (Such as objects made by human and machines)
 - Composition of matter (such as chemical compounds)
 - New uses of any of the previous classes
 1. Must be useful
 2. Must be novel
 3. Must not be obvious to a person having ordinary skill in the same field
- Items cannot be patented if they are
 - Abstract ideas
 - Laws of nature
 - Natural phenomena

Patents (continued)

- Software patent
 - Feature, function, or process embodied in instructions executed on a computer
- 20,000 software-related patents per year have been issued since the early 1980s

Issues For Software Developers

- Copyright or Patent Software?
 - There is disagreement about whether copyright is the appropriate protection mechanism for software.
 - Some argue for patents, some for completely new rules designed specifically for software.
 - There are two aspects to the debate.
 - First, what is the nature of a new program? Is it an **invention, a new idea**? Or is it a “writing,” an **expression** of ideas, algorithms, techniques?
 - Second, what are the **practical consequences** of each choice in terms of encouraging innovation and production of new products?

Practical considerations

- Should You Copyright or Patent Software?
 - Copyrights:
 - Protect the expression of an idea in a fixed and tangible form.
 - Are cheap, easy to obtain, and last a long time.
 - Allow fair-use of the intellectual property.
 - Patents:
 - Protect new, non-obvious, and useful processes.
 - Are expensive, difficult to obtain, and last for short periods of time.
 - Allow licensing to other developers.

Software Patents (continued)

- Before obtaining a software patent, do a patent search
- Software Patent Institute is building a database of information
- Cross-licensing agreements
 - Large software companies agree not to sue others over patent infringements
 - Small businesses have no choice but to license patents

Patents (continued)

- Defensive publishing
 - Alternative to filing for patents
 - Company publishes a description of the innovation
 - Establishes the idea's legal existence as prior art
 - Costs mere hundreds of dollars
 - No lawyers
 - Fast

Patents (continued)

- Standard
 - is a definition or format
 - Approved by recognized standards organization (ISO,ANSI)
 - Or accepted as a de facto standard by the industry
 - Enables hardware and software from different manufacturers to work together
- Submarine patent
 - Hidden within a standard
 - Does not surface until the standard is broadly adopted

Patents (continued)

- Patent farming involves
 - Influencing a standards organization to make use of a patented item
 - Demanding royalties from all parties that use the standard

Trade Secret Laws

- Uniform Trade Secrets Act (UTSA) established uniformity in trade secret law
- Trade secret
 - Business information
 - Represents something of economic value
 - Requires an effort or cost to develop
 - Some degree of uniqueness or novelty
 - Generally unknown to the public
 - Kept confidential
- Computer hardware and software can qualify for trade secret protection

Trade Secret Laws (continued)

- Information is only considered a trade secret if the company takes steps to protect it
- Greatest threat to loss of company trade secrets is employees
- Nondisclosure clauses in employee's contract
 - Enforcement can be difficult
 - Confidentiality issues are reviewed at the exit interview

Trade Secret Laws (continued)

- Noncompete agreements
 - Protect intellectual property from being used by competitors when key employees leave
 - Require employees not to work for competitors for a period of time
- Safeguards
 - Limit outside access to corporate computers
 - Guard use of remote computers by employees

Trade Secret Laws (continued)

- Trade secret law has a few key advantages over patents and copyrights
 - No time limitations
 - No need to file an application
 - Patents can be ruled invalid by courts
 - No filing or application fees
- Law doesn't prevent someone from using the same idea if it is developed independently
- World Trade Organization (WTO)
 - TRIPs Agreement provides for a minimum level of protection for intellectual property

Summary of the WTO 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 must be available for inventions for at least 20 years and for both products and processes in almost all fields of technology. (Controversy has arisen over whether this protection applies to computer software.) |
| Trade secrets | 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. |

Legal Overview: The Battle Over Customer Lists

- Employees make unauthorized use of an employer's customer list
 - Customer list not automatically considered a trade secret
 - Educate workers about the confidentiality of such lists

Key Intellectual Property Issues

- Issues that apply to intellectual property and information technology
 - Plagiarism
 - Reverse engineering
 - Open source code
 - Competitive intelligence
 - Cybersquatting

1. Plagiarism

- Theft and passing off of someone's ideas or words as one's own
- Many students
 - Do not understand what constitutes plagiarism
 - Believe that all electronic content is in the public domain
- Plagiarism detection systems
 - Check submitted material against databases of electronic content

Plagiarism (continued)

- Steps to combat student plagiarism
 - Help students understand what constitutes plagiarism
 - Show students how to document Web pages
 - Schedule major writing assignments in portions
 - Tell students that you know about Internet paper mills
 - Educate students about plagiarism detection services

Partial List of Plagiarism Detection Services and Software

TABLE 6-2 Partial list of plagiarism detection services and software

| Name of service | Web site | Provider |
|---------------------------|-----------------------------|---------------------------|
| iThenticate | <i>www.ithenticate.com/</i> | iParadigms |
| Turnitin | <i>www.turnitin.com/</i> | iParadigms |
| MyDropBox | <i>www.mydropbox.com/</i> | MyDropBox LLC |
| Glatt Plagiarism Services | <i>www.plagiarism.com/</i> | Glatt Plagiarism Services |
| EVE Plagiarism Detection | <i>www.canexus.com/eve/</i> | CaNexus |

2. Reverse Engineering

- Process of taking something apart in order to
 - Understand it
 - Build a copy of it
 - Improve it
- Applied to computer
 - Hardware
 - Software
- Convert a program code to a higher level design
- Convert an application that ran on one vendor's database to run on another's

Reverse Engineering (continued)

- Compiler
 - Language translator
 - Converts computer program statements expressed in a source language to machine language
- Software manufacturer
 - Provides software in machine language form
- Decompiler
 - Reads machine language
 - Produces source code

Reverse Engineering (continued)

- Courts have ruled in favor of using reverse engineering
 - To enable interoperability
- Software license agreements forbid reverse engineering
- Semiconductor Chip Protection Act (SCPA)
 - Established a new type of intellectual property protection for mask works

3. Open Source Code

- Program source code made available for use or modification
 - As users or other developers see fit
- Basic premise
 - Software improves
 - Can be adapted to meet new needs
 - Bugs rapidly identified and fixed
- High reliability
- GNU General Public License (GPL) was a precursor to the Open Source Initiative (OSI)

4. Competitive Intelligence

- Gathering of legally obtainable information
 - To help a company gain an advantage over rivals
- Often integrated into a company's strategic plans and decision making
- Not industrial espionage
- Nearly 25 colleges and universities offer courses or programs
- Without proper management safeguards it can cross over to industrial espionage

A Manager's Checklist for Running an Ethical Competitive Intelligence Operation

TABLE 6-3 A manager's checklist for running an ethical competitive intelligence operation

| Questions | 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 and 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? | _____ | _____ |

5. Cybersquatting

- Trademark is anything that enables a consumer to differentiate one company's products from another's
 - May be
 - Logo
 - Package design
 - Phrase
 - Sound
 - Word

Cybersquatting (continued)

- Trademark law
 - Trademark's owner has the right to prevent others from using the same mark
 - Or confusingly similar mark
- Cybersquatters
 - Registered domain names for famous trademarks or company names
 - Hope the trademark's owner would buy the domain name
 - For a large sum of money

Cybersquatting (continued)

- To curb cybersquatting
 - Register all possible domain names
 - .org
 - .com
 - .info
- Internet Corporation for Assigned Names and Numbers (ICANN)
 - Current trademark holders are given time to assert their rights in the new top-level domains before registrations are opened to the general public

Summary

- Intellectual property is protected by
 - Copyrights
 - Patents
 - Trade secrets
- Plagiarism is stealing and passing off the ideas and words of another as one's own
- Reverse engineering
 - Process of breaking something down
 - In order to understand, build copy, or improve it

Summary (continued)

- Open source code
 - Made available for use or modification as users or other developers see fit
- Competitive intelligence
 - Not industrial espionage
 - Uses legal means and public information
- Cybersquatting
 - Registration of a domain name by an unaffiliated party