



# Information Technology Fundamentals

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# Professionalism: Intellectual Property

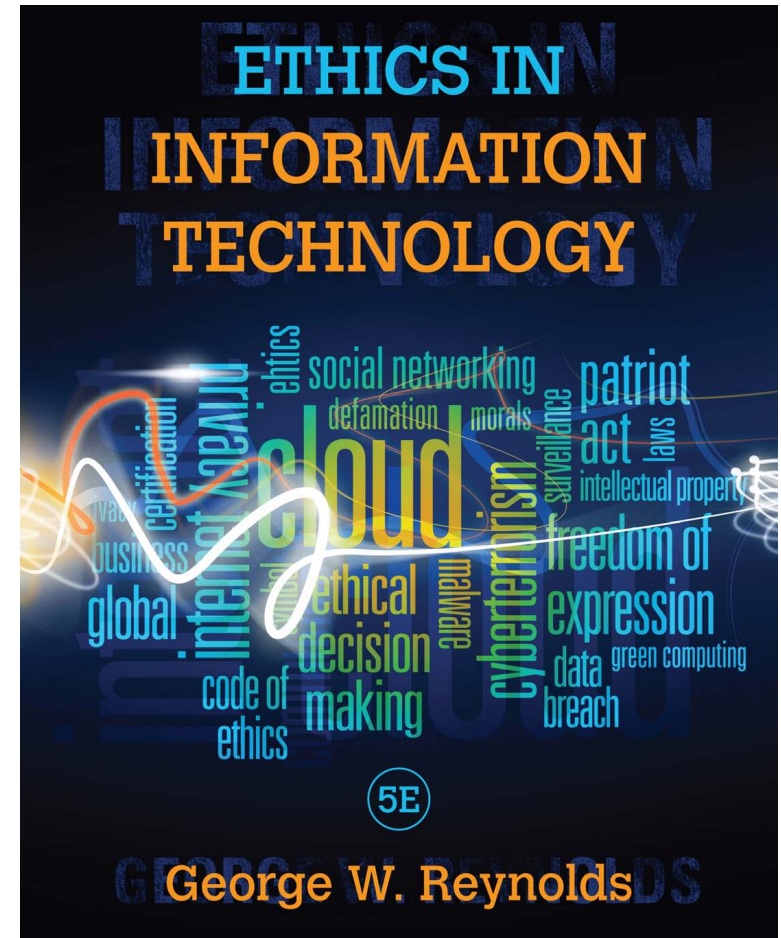
## Module 4: Part I

## **Module 4. Main Objectives**

- 1.Explain Intellectual Property: Copyright, Patent, and Trade Secret**
2. Review Key Intellectual Property: Plagiarism, Open Source Codes, and Competitive Intelligent

# Main Reference

- George W. Reynolds, 2011.  
**Ethics in Information Technology.** Engage Learning.
- Chapter 6



# Contents

- What is Intellectual Property?
- Copyright
- Patents
- Trade Secrets

# What is Intellectual Property?

- Term used to describe works of the mind
  - Distinct and “owned” or created by a person or group
- **Copyright law**
  - Protects authored works
- **Patent laws**
  - Protect inventions
- **Trade secret laws**
  - Help safeguard information critical to an organization’s success



# Copyrights

- **Established in the U.S. Constitution**
  - Article I, Section 8, Clause 8
- **Grants creators of original works the right to**
  - Distribute
  - Display
  - Perform
  - Reproduce work
  - Prepare derivative works based upon the work
  - Author may grant exclusive right to others



# Copyrights: Eligible Works

1. Architecture
2. Art
3. Audiovisual works
4. Choreography
5. Drama
6. Graphics
7. Literature
8. Motion pictures
9. Music
10. Pantomimes
11. Pictures
12. Sculptures
13. Sound recordings
14. Other intellectual works: As described in Title 17 of U.S. Code



# Copyrights: Eligible Works

1. Work must fall within one of the preceding categories
2. Must be original
  - Evaluating originality can cause problems

## **Fair use doctrine**

- Factors to consider when evaluating the use of copyrighted material

# **Copyrights: Fair use Doctrine and Infringement**

- **Fair use doctrine factors include:**
  - Purpose and character of the use
  - Nature of the copyrighted work
  - Portion of the copyrighted work used
  - Effect of the use upon the value of the copyrighted work
- **Copyright infringement**
  - Copy substantial and material part of another's copyrighted work
  - Without permission

# Software Copyright

- **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

## Copyright Term: Sonny Bono Copyright Term Extension Act

1. For works created **after January 1, 1978**, copyright protection endures for the life of the author plus 70 years.
2. 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.
3. 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.



# Copyright: Main Laws

1. The Prioritizing Resources and Organization for Intellectual Property (**PRO-IP**) Act of 2008
2. General Agreement on Tariffs and Trade (**GATT**)
3. The WTO and the **WTO TRIPS** Agreement (1994)
4. The World Intellectual Property Organization (**WIPO**) Copyright Treaty (1996)
5. The **Digital Millennium Copyright Act** (1998)

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

- Substantially increased penalties for infringement
- penalty for infringement of a 10-song album was raised from \$7,500 to \$1.5 million
- **Proponent:**
  - “the PRO-IP Act sends the message to IP criminals everywhere that the U.S. will go the extra mile to protect American innovation.”
- **Opponents:**
  - “its penalties were far too harsh and that it didn’t balance users’ rights and concerns over those of major software, media and pharmaceutical companies.”

## 2. General Agreement on Tariffs and Trade (GATT)

- Signed by 150 countries in 1947
- Includes a section covering copyrights called the agreement on **Trade-Related Aspects of Intellectual Property Rights (TRIPS)**
- Copyright protection varies greatly from country to country, and extreme caution must be exercised on all international usage of any intellectual property



### **3. The WTO and the WTO TRIPS Agreement (1994)**

- The WTO is headquartered in Geneva, Switzerland, and had 153 member nations as of July 2008.
- TRIPS Agreement, to establish minimum levels of protection that each government must provide to the intellectual property of all WTO members.



# Summary of 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: World Trade Organization, “Overview: The TRIPS Agreement,” [www.wto.org/english/tratop\\_e/trips\\_e/intel2\\_e.htm](http://www.wto.org/english/tratop_e/trips_e/intel2_e.htm).

## **4. World Intellectual Property Organization (WIPO) Copyright Treaty (1996)**

- An agency of the United Nations established in 1967
- It has 185 member nations and administers 25 international treaties
- Advocates for the interests of intellectual property owners
- WIPO Copyright Treaty, adopted in 1996, provides additional copyright protections to address electronic media
  - computer programs, selection of material in databases

## 5. The Digital Millennium Copyright Act (1998)

- Added new provisions to WIPO
- Civil and criminal penalties included
  - Five years prison and a fine up to \$500,000
- Governs distribution of tools and software that can be used for copyright infringement
- Opponents say it restricts the free flow of information



# DMCA Case Study: Content Scramble System

- **Motion Picture** companies supported the development and worldwide licensing of the **Content Scramble System (CSS)**
  - Enables a DVD player or a computer drive to decrypt, unscramble, and play back motion pictures on DVDs, but not copy them.
- **DeCSS** can break the encryption code and enable users to copy DVDs.
- Posting the software on the Web in January 2000 led to a lawsuit by major movie studios against author
- Courts finally ruled that the use of DeCSS violated the DMCA's anticircumvention provisions.

# Contents

- What is Intellectual Property?
  - Copyright
  - Patents
  - Trade Secrets

# Patents

- Grant of property rights to inventors
- 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

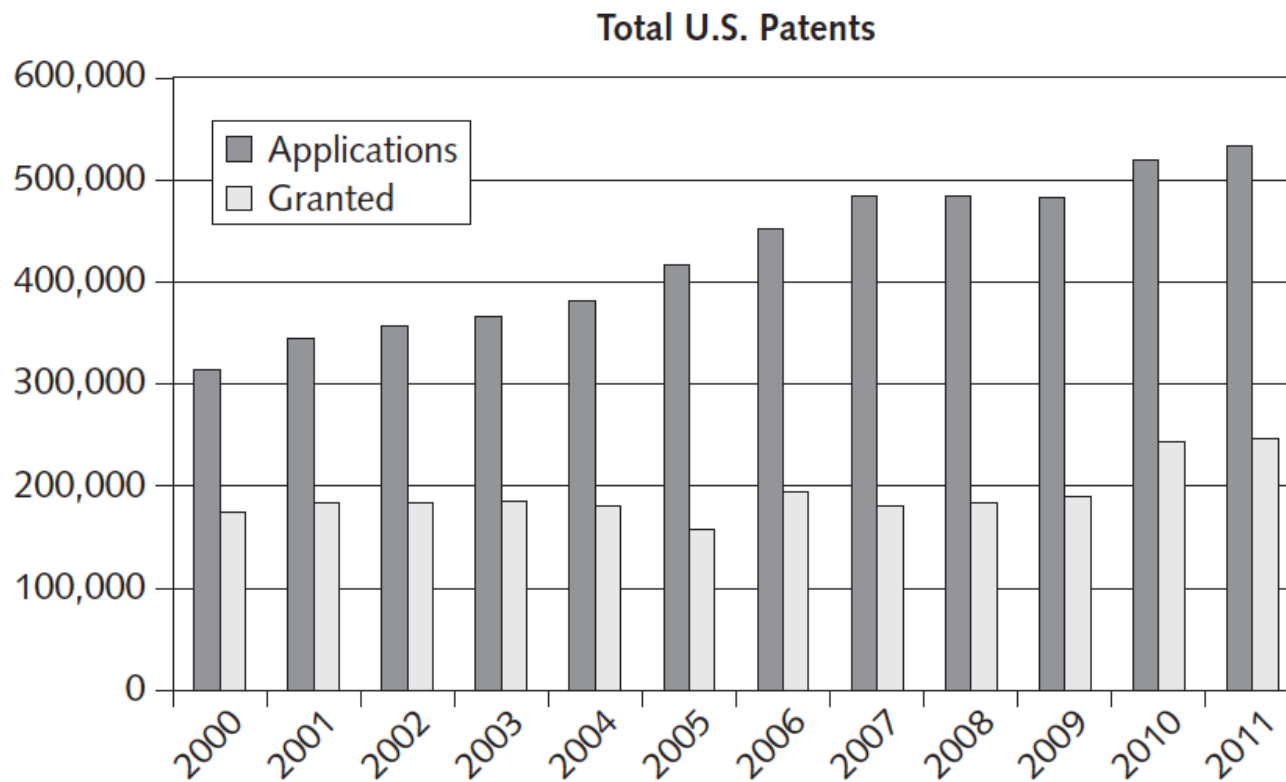


# Patents: How to Make?

- Applicant must file with the USPTO
  - USPTO searches prior art
  - Takes an average of **25 months**
- The USPTO searches the **Prior art**
  - Existing body of knowledge
  - Available to a person of ordinary skill in the art



# Patents Applied for and Granted





# Famous IT Organizations with Patents

**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% <sup>31</sup>
Google	1,151	170%
Apple	1,136	68%

# Patents: Qualification

- **An invention must pass four tests**
  1. Must be in one of the five statutory classes of items
    - Processes, machines, manufactures, compositions of matter, and new uses in any of the previous four classes
  2. Must be useful
  3. Must be novel
  4. Must not be obvious to a person having ordinary skill in the same field
- **Items cannot be patented if they are**
  1. Abstract ideas
  2. Laws of nature
  3. Natural phenomena

# Patents Infringement

- Someone makes unauthorized use of a patent
- No specified limit to the monetary penalty
- It can award up **to 3 times** the amount of the damage claimed by patent holder



# 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
  - Even fonts and icons
- Before obtaining a software patent, do a patent search
- Software Patent Institute is building a database of information

# Software Patents: Case Study

- September 1999: Amazon.com obtained a patent for “one-click shopping”
- October 1999, Amazon.com sued Barnes & Noble for allegedly infringing this patent with its Express Lane feature.

**amazon.com**  


**VS.**

**BARNES & NOBLE**  
BOOKSELLERS

# Software Patents: Case Study

- **Cygnus Systems** alleged in late 2008 that Apple, Google, and Microsoft infringed a patent that Cygnus filed for in 2001
  - Use of document-preview icons, or thumbnails
  - Apple's iPhone, Safari Internet browser, and Mac OS X Leopard operating systems; Google's Chrome browser; and Microsoft's Vista OS operating system and Internet Explorer 8 all employ this technology



# Cross-licensing Agreements

- Large software companies agree not to sue others over patent infringements
- For example, Microsoft is working to put in place 100 or more agreements with firms such as IBM, Sun Microsystems, SAP, HP, Siemens, Cisco, Autodesk, Brother, Lexmark, Cadence, Pioneer, and Nikon by 2010.
- **Small businesses** have no choice but to license patents

# 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



# Submarine Patents

- **Standard** is a definition or format
  - Approved by recognized standards organization
  - 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 Farming

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

# Submarine Patent: Case Study

- The University of California licensed exclusively to a small software company called Eolas Technologies
  - *How a Web browser can use external applications*
- Sued Microsoft for use of the principle detailed in the patent.
- The university and Eolas received a \$520 million award in August 2003 after a federal jury found that Microsoft's Internet Explorer browser infringed the patent.



# Patent Farming: Case Study

- **Rambus** allegedly influenced a standards organization to adopt its technology as part of an industry standard, without disclosing that it had a patent application in process
- By 2000, Rambus was enmeshed in a series of lawsuits with many of the world's leading memory chip:
  - **Infineon** in Germany (\$47 Million)
  - **MicronTechnology** in the United States (Not Successful)
  - **Hynix Semiconductor** in South Korea (\$397 Million)



**Rambus**®

# Famous Software Patent Infringements

- **Oracle and Google** battled over patent infringement claims associated with Oracle's Java programming language—with Oracle seeking **\$6 billion** in damages.
- **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.

# Famous Software Patent Infringements

- **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.
- 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.

# Contents

- What is Intellectual Property?
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  - Trade Secrets

# Trade Secret Laws

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





# **Trade Secret Laws vs Patent or Copyright**

1. No time limitations
2. No need to file an application
3. Patents can be ruled invalid by courts
4. No filing or application fees

# Trade Secret Laws

- 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

- **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
- **Note:** Law **doesn't prevent** someone from using the same idea if it is developed independently

## **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

# Case Study: Recording Industry Association of America

- Since 2003, the **RIAA** has taken legal action against more than 40,000 people
  - Copyright infringement
  - Illegally sharing or downloading music via the Internet
  - Fines of tens of thousands of dollars
- **Benefits:**
  - The ability of the recording industry to invest in new artists and new music
  - Giving legitimate online music sharing services a chance to be successful



# RIAA New Strategy

1. The RIAA will alert participating ISPs to what it believes to be illegal downloading activities
2. The ISP
  - Forward RIAA copyright infringement notices to its subscribers
  - Notify its customers about the notices and ask them to cease and desist.
3. The ISP can take a series of escalating sanctions against repeat offenders, ranging from slowing down the subscriber's network speed to terminating service.
4. The RIAA reserves the right to sue flagrant copyright offenders

