# Controlling Copyright Infringements of Intellectual Property: The Case of Computer Software - Part One

This is the first of a two-part series. Part One reviews the present status of intellectual property theft and global software piracy, discusses the dilemma of securing proprietary knowledge using legal means, and reviews the activities of BSA and SPA, the two most prominent industry groups pursuing legal measures. Part Two (July 1994) will discuss the legal and technological measures used to control piracy, elaborate on alternative solutions, present the end users' perspective, and make recommendations for both IS software and user managers.

In a global economy that is increasingly information intensive, intellectual property is often the most valuable corporate asset and one that is particularly vulnerable to theft.
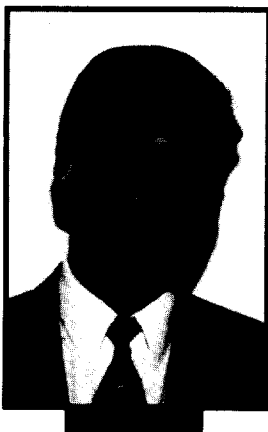
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With the increasing infusion of information technology in all facets of business, infringement of intellectual property copyrights has become a billion-dollar issue for the managers of the software companies as well as the managers of the 'user' companies. Most technological solutions devised to prevent unauthorized copying of computer software have provided only temporary protection against software theft. Although efforts of the U.S. Government and software industry groups like the Business Software Alliance (BSA) and the Software Publishers Association (SPA) have affected the passage of software copyright regulations in several countries, we have yet to see any perceptible impact of these measures as far as their global enforcement is concerned.

Because of the long-term inefficacy of the technological barriers, and the poor implementation and enforcement of the legal regulations, software companies are realizing that innovative pricing, promotion, and distribution strategies offer alternative solutions to the problem of software piracy. These customer-oriented strategies are not only proving to be more successful in controlling software piracy, they are gaining competitive advantage over rivals and the long-term loyalty of the customers.

Theft of Intellectual Property

Theft of intellectual property involves unauthorized duplication and usage of intellectual property items like software, books, movies, songs, etc. According to estimates provided by the international counterfeiting coalition and the U.S. Customs, average annual

losses due to intellectual property rights infringements amounted to approximately $20 billion over the last five years. Counterfeit trade has risen to the point that several countries, including the United States, the European Community and Canada have sought changes in GATT rules that would impose severe penalties against countries which permit the manufacture and sale of pirated goods.

According to the federal International Trade Commission, lost U.S. sales contribute greatly to the $40 billion to $60 billion in annual worldwide revenues that foreign firms earn by infringement of U.S. patents and copyrights. An independent study commissioned by the BSA found that during the past decade the U.S. software industry grew 269% while the rest of the economy moved up 30%.

Aided in part by the continuing growth of networks, computer piracy has been described as one of the fastest growing crimes in the United States. It is anticipated that losses attributed to piracy of computer software will increasingly constitute a larger share of the total losses ascribed to the global theft of intellectual property.

Piracy In the Global Market

In 1990, the total world market for software was approximately $43 billion. Europe, Asia, Latin America and other international markets accounted for 58% of the total market for software produced by the American companies. For the same year, worldwide losses due to software copyright infringements were estimated between $10 and $12 billion.

According to a more recent report by *Technology Review*, U.S. software publishers, as the world's leading producers of software, may lose between $9 billion and $12 billion annually to international piracy.

The U.S. software industry, which had annual domestic revenues of four billion dollars in 1991-92 and which accounts for almost 80% of the software used in the world, domestically looses more than two billion dollars annually due to piracy of software inside the U.S. The enormity of the software piracy problem is indeed disconcerting for the software publishers.

Until recent years, several American software companies failed to recognize that registration and legal ownership in the U.S.A. does not necessarily imply ownership in other countries. Their failure to adequately

protect their intellectual property rights in foreign lands has resulted in the loss of potentially profitable markets. Some of them have been dismayed on discovering that their assets had been appropriated and profitably exploited, without license or reimbursement, by other firms in foreign countries. They often learned that the perpetrators were also the rightful owners of the pirated asset(s) in the countries in which they were operating. In some cases, the American companies had to litigate or pay huge sums of money to secure copyright of what rightfully belonged to them.

Research indicates that patents, trademarks and copyrights have not

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been able to effectively control the widespread use of pirated software. Moreover, the degree of effectiveness of such measures is restricted by the copyright laws of the various countries and their trade agreements with the United States. Therefore, software publishers need to deploy alternate strategies that could be more effective in checking the rampant software piracy in domestic and international markets.

International Developments in Software Copyrights

The European Economic Community

According to IDC, UK Ltd., the European packaged software market was valued at $16.1 billion in 1990 and at $30 billion in 1991. The losses due to software piracy were measured at $4.3 billion in 1990 and $4.5 billion in 1989.

The European Community's Directive for Legal Protection of Computer Programs (the "Software Directive"), which was adopted in May 1991, provides protection to computer programs under the meaning of the Berne Convention. This directive is aimed at standardizing the legal protection of computer software throughout the EC

states and curbing software piracy losses throughout Europe. The directive requires all member states to provide copyright protection of software as literary work.

The Asian Marketplace

One of the main aims of North American software publishers is to prevent the sale of pirated software packages in Asia before their official versions are released. China, Taiwan, and Japan lead other Asian countries in software piracy. According to industry estimates for 1990, software piracy in Taiwan resulted in a loss of $758 million to the U.S. software companies. In the same year, the U.S. software industry lost $400 million to software piracy in China. Ongoing rampant piracy in China owes its existence to inadequate enforcement of the copyright laws and almost nonexistent prosecution of the pirates.

In part because of BSA's efforts, the governments of various nations are becoming more aware of the economic implications of software piracy: lost tax revenues, lost high-tech investment and trade, lost jobs, etc. They are adopting stronger copyright laws for protection of software. These trends will become more prominent considering the pace at which the software industry is growing.

How Does Piracy Occur?

Software is frequently copied in the computer industry; copying may be done to follow standards or to write add-on products or to fine-tune the system. PC software is more prone to copying than software in a mainframe or minicomputer environment where all the software is stored on hardware locked inside a security-controlled room. Some copying is legal under the fair use doctrine, but fair use of software is hard to define. Without an expansive and predictable definition,

the threat of lawsuits arising from copyright infringements will continue to hamper innovation, ease of use, and wide distribution of the computer's powers. Generally, theft of computer software may occur in one of two ways,

(a) theft of the physical media (paper listings, disks, diskettes, tapes etc.) on which the software is stored, or

(b) 'electronic' theft by copying of software from one disk to another either on the same computer or to a remote computer over cable or phone lines.

The two cases of software theft may be treated very differently under the laws of different states. The 'electronic' theft may not be covered at all under the criminal theft statutes of several states. These states have been in the process of modifying the existing criminal statutes to deal more effectively with computer related crimes.

Who are the Software Pirates?

Software "pirates," who illegally copy software for retail sale or internal organizational use, include [2]:

- Dealers selling hardware preloaded with illegal software;

- Retailers illegally reproducing and selling software copies;

- User organizations making unauthorized copies of software for internal use;

- Counterfeit software producers like those in pirate bazaars of Asia;

- Competitors, ex-employees or agents using unauthorized copies to develop competing derivative products;

- Bulletin board operators offering illegal software to users;

- Individual who makes a copy of someone else's program.

The last group accounts for the largest number of software pirates and they are also the hardest to prosecute. In their efforts to control piracy, software publishers generally target the wholesale pirates. Bringing suit against an individual who made an illegal copy is almost inevitably more costly than effective because the ease of illegal copying has led to a proliferation of counterfeit products.

The bulletin-boards have been often accused of distributing copyrighted code without the copyright owner's permission. On being tipped by SPA, the FBI closed down the Davy Jones Locker service of Millbury, Massachusetts, which had been accused of distributing over 200 illegally copied programs. Recently, the third largest bulletin board in the U.S., Rusty & Edie's, was shut down by the FBI over allegations that Rusty & Edie's allowed subscribers to pirate copyrighted software. The FBI is reportedly stepping up its anti-piracy activities and similar raids have been planned for other bulletin-boards.

Flagrant theft of software produced by American companies takes place in all parts of the world - developed and underdeveloped. Software piracy is institutionalized to such extent that some companies have fully equipped software-copying centers which even produce user manuals with the company logos on the covers. After the Montedison industrial group of Italy, which had 90% of its Lotus 1-2-3 and dBase software in unauthorized copies, was brought to court by the Business Software Alliance, Lotus' sales doubled in Italy.

Detrimental Effects of Piracy

Software piracy results in loss of high technology investment and trade, loss of jobs, and loss of tax revenues. Governments all over the world are realizing the need for stronger copyright laws and their effective enforcement. In several countries, legal software is usually a small fraction of the total software in use. The widespread use of counterfeit software is one of the most significant threats to the growth of the worldwide software industry.

Software: The Dilemma Over Copyrights versus Patents

Should software be patented or copyrighted? Congress had consented earlier that by virtue of being a process of the mind, computer software needs to be copyrighted, yet beginning in the 1980s software inventions were increasingly protected by patents, thus overturning previous rulings.

Copyrights

Copyrights, unlike patents, are relatively inexpensive to obtain and grant the owner the exclusive right to reproduce, revise, distribute, display, or sell the material. Ideas are not protected; only the precise way of expression of an idea such as "original works of authorship" can be copyrighted [3]. Every work on being created in a fixed form gets automatically copyrighted, but it is desirable to use the copyright notice to preserve that right. A copyright lasts for the life of the author plus fifty years. There is no international software copyright protection. Universal Copyright Protection, of which the U.S.A. is a member, provides copyright protection to residents of its member countries.

Copyright Notice

A copyright notice must contain three essential items: 1) 'copyright' or some abbreviation of the word or the copyright symbol, 2) the year of creation or first publication, and 3) the name of the copyright owner. An understanding (and implementation) of all three parts of the copyright notice is crucial. Resolving a five-year-old copyright infringement lawsuit between NEC and Intel, in 1989 a California federal judge decided the case in favor of Intel, but Intel had to forfeit its claim of ownership because it had failed to affix the copyright symbol.

Patents versus Copyrights

Copyright, by definition, protects the 'expression of an idea,' not the idea itself. Patents are more difficult to obtain but they give the users an effective monopoly over the idea. Patents provide for a broader coverage than the copyrights because they provide for ownership of the concept, not just an expression of the concept.

Of late, several software developers have been lobbying for extension of the copyright law to include the expression of ideas. Those favoring patents over copyrights argue that patents strengthen the bargaining position of the inventor with respect to big companies and expressly address the issue of "new technology" [4].

Others believe that the patent law and the copyright law serve the same function and they question the necessity of two separate laws. Several leading experts argue that software is both copyrightable and patentable. Some advocate a set of hybrid intellectual property laws expressly for software, while others contend that this may further confuse the issues.

To reduce the patent backlog and inconsistent granting of patents, the U.S. Patent and Trademark Office has already put into effect new patent application approval policies. Software experts specializing in each category of software now serve as patent examiners. The patent office had earlier claimed that software, which was essentially sequential mathematics, should be protected under the copyright law.

Intellectual property attorneys cleverly circumscribed this ruling by

expressing that several software concepts can also be construed as hardware. This has blunted the longstanding position of the patent office that computer software could not be patented and has resulted in a spate of patent and copyright lawsuits.

Copyright Law for Commercial Software

According to the SPA *White Paper on Software Piracy*, copyright law for commercial software states that it is illegal to copy software without the copyright holder's permission for any reason except making a backup. Every single instance of software copyright infringement may result in fines of up to $100,000. In 1990, the 101st Congress passed a law that "prohibits the rental, leasing, or lending of commercial software without the express permission of the copyright holder" [5].

Copyright protection of a software program includes program's code, structure, sequence and organization. The overall trend has been towards broader protection to include the structure and 'look and feel' of a program.

International Protection of Copyrights

International copyright protection is covered under the Berne Convention of 1886 for the Protection of Literary and Artistic Works, and the Universal Copyright Convention (UCC) of 1952. Under the Berne Convention, the material is protected if it is made available or published in a member country regardless of the citizenship of its author or creator. UCC, which operates under the aegis of UNESCO, provides copyright protection to residents of member countries within each other's borders.

Crusaders Against Software Piracy: BSA & SPA

Business Software Alliance (BSA)

The Washington-based Business Software Alliance, whose membership includes several prominent U.S. software publishers, has been crusading to reduce the scope and degree of international software piracy. It has been using a combination of public policy, enforcement, and public awareness initiatives to increase software users' understanding and compliance with software copyright laws. BSA has been working with governments around the world to enact and enforce software copyright laws.

It has also been working with local software associations throughout Eu-

rope to implement the European Community software directive. On behalf of the software publishers, the BSA organizes legal proceedings against software copyright infringers. Since its inception in 1988, it has brought more than 200 legal actions for software copyright infringements in countries throughout the world.

Software Publishers Association (SPA)

SPA, a Washington-based group representing more than 950 U.S. software publishers, has been fighting software piracy in North America since 1988. Its anti-piracy efforts have included cease-and-desist orders, search and seizure orders, 'corporate raids' and surprise audits of user companies' PCs.

Besides prosecuting the software pirates, the SPA has been actively pursuing an anti-piracy public campaign. It has set up an anti-piracy hotline (800-388-7478) on which it receives calls reporting software piracy — mostly from temporary, former, or even disgruntled employees. Due to the intensified anti-piracy efforts of the SPA, the losses due to the piracy in the United States were down to $2.4 billion in 1990 from $2.5 billion in 1989 and $2.9 billion in 1988.

Autodesk, the publisher of Auto-CAD and a SPA member, recovered over $6 million in 3,500 cases and used external law firms to prosecute suspected software pirates. In 1992, SPA brought action against 747 companies, of which 219 cases involved audits and lawsuits. Recently, SPA has been investigating reports of widespread software piracy on the Internet. It is encountering weak anti-piracy laws imposed by countries where the software is being illegally downloaded.

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Ed. note: Because of space limitations this month, all references for this article will be included at the end of Part Two, to be published in the July 1994 issue of JSM. We aplogize for any inconvenience.