A New Intellectual Property Policy to Accommodate Technological Innovation

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Former Foreign Minister Hata signs the final act agreement of the GATT Uruguay Round that includes the TRIPS agreement (Marrakesh, April 15, 1994). Two years after the agreement improves the global harmonization of intellectual property rights protection, new tasks have emerged.

Introduction

Disputes over intellectual property, particularly large–scale international ones, have increased in recent years as intellectual property has developed into an important factor related to the success or failure of a business. Along with this development, governments have come to recognize the importance of intellectual property to national industrial policy. In short, a need to search for a new intellectual property policy that accommodates new technological innovations using intellectual property law has surfaced. Before dealing with policy matters, it is necessary to consider fundamentally the following points: what the nature of intellectual property is, where the importance of protecting intellectual property lies, and why stepped–up protection is now being called for. I would like to begin with a review of the fundamental aspects of these issues and ultimately discuss what policies would be desirable for the future.

The concept of intellectual property and reasons for its protection

First of all, in order to resolve this issue, it is not possible to proceed without first examining what intellectual property is. In a nutshell, "intellectual property" is a type of information which is accorded legal protection while "intellectual property law" is a type of law for protecting asset–like information. More precisely, intellectual property law is a legal system that recognizes the exclusive use of a certain type of information.

So what kind of property is information? As a general rule, information is a public good and its nature is, unlike tangible assets, such that anyone can use it at anytime. Even if someone is using a particular piece of information, nothing prevents someone else from using the same information at the same time. If someone wants to use a piece of information exclusively, the most he can possibly do is to conceal it. Accordingly, in order to secure exclusive use of a particular piece of information, the only solution is to recognize the legal right through legislation or case law. This type of law is called "intellectual property law." Conversely, information which is legally protected from copying can be called intellectual property. Further, information protected by intellectual property law in this fashion attains the status of property as well as tangible assets. This type of property can be referred to as an "intellectual asset."

Intellectual property law first appeared centuries ago. Indeed, the Italian city–state of Venice had already established a patent law by 1474. However, it goes without saying that intellectual property law has come to have important implications in the modern era, particularly since the Industrial Revolution and the resulting age of mass marketing.

Intellectual property law is an information protection law and can also be considered an anti–free–ride law. However, it is important to realize that intellectual property law does not prohibit all copying (free riding). Since individuals, businesses and governments all develop by copying, prohibiting all copying would only deny progress. Prohibiting all copying would be equivalent to banning competition, meaning that developed nations would remain forever developed nations while developing nations would remain forever developing nations. It is neither appropriate nor possible to ban copying completely. However, neither is it appropriate to let all copying pass. If certain types of acts of copying are not prohibited, incentives for new creative activity will disappear.

Especially since the Industrial Revolution, leaving certain information as a public good has caused problems. In effect, not banning certain types of copying creates a situation in which fair competition goes unsecured. Especially with regard to technical information, it has become clear that failing to provide protection impedes research and development. The creator of new technology who bears development costs while conducting research would see his profits decrease if a copyist appeared straight away. On the contrary, the so–called "second–runner" (i.e., the copyist) bears no development costs and need only rake in the profits. If information is left as a public good, the only time that the creator has exclusive use of the technology is the lead time it takes the copyist to catch up. If the speed at which the copyist catches up with the creator were slow and the lead time long enough, there would be no need for legal protection with intellectual property law. However, if, on the other hand, this lead time becomes shorter, demand for legal protection of technical information as well as the necessity for intellectual property law increases in order to guarantee a return of invested capital and a reasonable profit.

Lead time is governed by the level of technological progress of the era. As the speed of information circulation becomes faster, the lead time becomes shorter. Further, as the role of software in society expands, the lead time becomes extremely short. For example, whereas such things as capital, a factory, engineers, technology, and related manufacturers, are necessary in order to copy a piece of hardware like an automobile, none of these things are required to make a pirate copy of a piece of software like a computer program, which can be copied virtually cost–free. Consequently, taking the case of video game software as an example, pirate editions of new products come on the market at almost the same time as the original. Thus, in reality, the lead time is practically non–existent. A software–based society is burdened with the fate of decreasing lead times and, if the legal system which prohibits copying is not strengthened, the incentive for creating new products will be lost. The lower the cost for producing copies or reproductions, the weaker the original product is against attack from the copied or reproduced products and the stronger the intellectual property law system must be.

The strength or weakness of the effect of the intellectual property law varies according to the state of industry and, ultimately, the important question is what form of monopoly is most desirable for the development of a society. Intellectual property law can be thought of as the law that draws a border between information for which a monopoly is sanctioned and information for which a monopoly is not sanctioned. Thus, the necessity for intellectual property law and the level of protection varies according to the demands of the time. This necessity will vary according to such factors as the state of industrial development and degree of economic internationalization, as well as the level of reproduction and copying technology. Naturally, the requirements for intellectual property law made by the circumstances of the nineteenth century when the present intellectual property law was established and the circumstances of today's information age differ. Today, as we face the next millennium, it is necessary to consider a design of intellectual property law suitable for the twenty–first century.

Technological innovation and intellectual property rights

In today's society, electronics and biotechnology are perhaps the technolo-

gies which are effecting the most striking change and have the strongest impact on society. It is necessary to consider what kind of intellectual property law is most appropriate for these two new technologies. Patent law lies at the heart of the law for protection of technology. Patent law encompasses all technology, without exception. This is recognized as well by the World Trade Organization (WTO) Trade–Related Aspects of Intellectual Property Rights treaty (TRIPS, Article 27). However, the basic framework of the current patent system was established prior to the emergence of electronics and biotechnology. Though it is imperative to give some kind of legal protection to these new technologies, there is room for further scrutiny as to whether in fact the present patent system is best suited for this task.

While the scope of protection for electronic hardware under the present patent law is probably correct, the method most suitable for software protection still requires discussion.

Patent law was promulgated with manufactured goods in mind and new technologies like biotechnology were not envisioned. There are some unique problems. Concerning subject matter, ethical considerations have been raised as the basis for an objection to patenting living inventions. How should we consider this point? Biotechnology and chemistry are beginning to integrate in leading-edge technological areas. Accordingly, as in the case of chemical research results, an awareness is growing for the need to protect biological research results under patent law in order to facilitate its further technological development. Concerning infringement, the characteristic ability of living organisms to propagate must be taken into account when deciding policy. At present, besides patent law, the Plant Variety Protection Law protects a certain kind of biotechnology. Going forward, the issue will likely be how to harmonize these two systems.

The patent system has its own long history, so reforming it from the bottom and devising a new paradigm will be quite a difficult undertaking. Nevertheless, the reform of modern intellectual property law must proceed along with international harmonization, because reform in only a single country is meaningless. In reality, gaining the consensus of over one hundred countries for a large–scale reform is an incredibly difficult task. Yet, with the appearance of technology that has surpassed the technology anticipated by the present law, it is necessary to undertake an investigation at least at an academic level, even though immediate revision of the law is not possible.

Issues ahead

Electronics and biotechnology, without doubt important technologies for the future, will likely be covered under patent law which protects technology, or some similar system. In contrast, the twenty–first century is being called the age of information and, in an age of information, an enormous quantity of information, not just technical information, will be in circulation. The circulation of enormous amounts of information itself creates a number of problems. Accordingly, it is necessary to consider what kind of system of intellectual property laws should be designed for the information age. Words such as "multimedia age," "network age" and "digital age" are used as keywords to express the age of information, and, even if their nuances differ, they all envision the same situation. In short, they all envision a huge amount of information being circulated, collected, edited, transformed and circulated again as a result of digital technology.

Naturally, in this vast amount of information lies material to which copyrights are attached. Under current law, one must obtain permission from the copyright holder to use the copyrighted material. When the amount of information in circulation was still quite small, it was possible to deal with copyright in the world of individual contract like other types of property. However, along with the vast increase in the number of rights holders and users, the amount of information has increased tremendously, creating a situation that the present system of contracts is inadequate to handle.

To facilitate the smooth flow of information, it is necessary for copyright management to proceed smoothly. There are several methods to make that happen that might be considered. First of all, as a technological method, one could conceive of a system that monitors the use of copyrighted works. Using digital technology, it should be possible to construct such a system; however, it is necessary to investigate the cost and privacy issues. Next, one can consider the centralized management of copyright. While this is already being implemented to some extent in such areas as the music entertainment field, it requires further development. It goes without saying that cost is a large issue here too.

There is a lot of information to which copyrights are not affixed. Although such non–copyrighted information is intrinsically free to use, as a practical matter, it is often the subject of commercial transactions. While in theory non–copyrighted information is free to use, as a practical problem, it can be expensive and time consuming to search for a desired piece of information from amongst the vast amount of information available and, for this reason, information is often purchased. Many databases for commercial use are of just this type. In reality, non–copyrighted information is traded as a kind of good, forcing us to reassess the status of copyright as it applies to information. In any event, the issue of legal protection of non–copyrighted information will surface in the near future, reassessing the function of copyright law in the twenty–first century.

Digital technology is bringing about mergers in all fields. In the area of copyright law, the changes mentioned above are occurring. A major issue is whether this transformation can be accomplished by revision of the copyright law or in conjunction with some other kind of special legislation in the field of intellectual property law.

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