

## What Can Substitute for the Patent System?

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The existing patent system and intellectual monopoly have been severely criticized by scholars such as Lessig, Mitchell, Boyle, Boldrin & Levine, Bessen & Meurer, and Arup & Caenegem; in the European Patent Office's (EPO's) "Scenarios for the future"; and by Pirate Party. I do not think that patent reform is the best solution for the problem. Therefore, in this paper, I investigate the possible substitute for the patent system.

Economic efficiency is propelled when companies are allowed to implement and improve innovations developed by others. A new type of intellectual property right (IPR) that can help in more efficient protection and sharing of innovations must be designed.

To foster service innovation, I propose a new type of IPR that I call "Originators' right" based on the principle of commons. This right would facilitate the protection and sharing of innovative services as commons. Although holders of the proposed right will be able to neither monopolize the market that the invention covers nor collect a license fee, the right could give inventors an effective incentive to invent innovative services. The right could protect inventions of service, promote the sharing of the innovative ideas, restrict free riding, and provide minimum incentives for inventions.

Originators' right will be effective as a patent substitute for not only inventions of service but also inventions of products that correspond to only one patent (e.g. a new drug). Note that much more complicated scheme will be needed for inventions of products than those of service.

The new intellectual property (IP) system that completely substitutes the patent system will consist of knowledge-sharing infrastructure, a mechanism of reward distribution for contributors (inventors), and a mechanism for strengthening first-mover advantages.

I believe that a combination of these mechanisms could, in the future, serve as a substitute for the current patent system.

### 1. Introduction

Is the patent system ideal in this digital age and era of open innovation? The ideal goal of intellectual property right (IPR) is to ensure global prosperity of innovations that flourish continuously. The patent system has evolved over several centuries. However, it has some significant problems. If the patent system could be substituted by another system/mechanism, what alternative would be feasible and more efficient than it?

The ideal IP (intellectual property) system should protect inventions, promote the sharing of the innovative ideas, and restrict free riding.

First, this paper surveys the problems of the existing patent system and examines the future of the IP system.

Next, it proposes a new IP system for the service industry. Because patenting services often does not benefit the public, the formulation of an alternative IP system should be given priority.

Finally, this paper proposes a new IP system that completely substitutes the patent system from a long-term perspective. The new IP system is based on the principle of commons and consists of knowledge-sharing infrastructure, a mechanism of reward distribution to contributors (inventors), and a mechanism of strengthening first-mover advantages.

## 2. Problems of the Patent System

In 2009, The Pirate Party, a political party in Sweden, has won one of Sweden's 18 seats in the European Parliament. It wants to reform the copyright laws and get rid of the patent system. Therefore, discussions on reforms of the patent system will become more active.

In this section, I survey the problems with the existing patent system.

The patent system has some significant problems. For example, problems related to patent trolls have surfaced over the past decade. Patent trolls do not manufacture products using their patent. Instead, they negotiate licensing fees with infringers. Thus, patent trolls sometimes discourage the sharing of innovations.

Is the current intellectual property rights (IPR) system the best solution for the creation and application of innovations? Is the current level of protection of patent rights too strong? Economists and jurists have raised questions such as the following in this regard:

McMillan (2002)

*A patent is a compromise solution to a problem that admits no ideal solution. It is an officially sanctioned monopoly. Offering the prospect of monopoly benefits, a patent is a powerful incentive to innovate.*

*But the patent system has a downside.*

*Patents successfully generate innovations while inhibiting their use. (p.34)*

Lessig (2004)

*In such an age, the real questions for law is not, how can law aid in that protection? but rather, is the protection too great? (p.173)*

Boyle (2008) criticizes the enclosure movement of IP.

*The argument of this book is that we are in the middle of a second enclosure movement. While it sounds grandiloquent to call it "the enclosure of the intangible commons of the mind," in a very real sense that is just what it is. (p.45)*

Fundamentally, it is waste of effort to develop different mechanism to avoid patent infringement, and patent infringement litigations are fruitless.

Boldrin and Levine (2008) criticize intellectual monopoly and point out that there are many ways to profit from the first-mover advantage. I agree that monopoly is sometimes unnecessary when the first-mover advantage is strengthened by a new type of IPR.

## 3. The Future of IPR

In 2007, the European Patent Office (EPO) published a compendium—"Scenarios for the Future"—that predicted the worldwide IP status in 2025 and investigated four scenarios.

The third scenario, "Trees of Knowledge," was illustrated as follows:

*In the year 2025, patents have survived only in some traditional fields such as mechanical and chemical engineering. Most patent offices have closed or changed into so-called Knowledge Agencies (KAs), dealing with the implementation of the various innovation incentive programs and providing support for academic researchers and SMEs.*

The fourth scenario, "Blue Skies," was described as follows:

*The kind of IP available has also evolved. There are now two distinct kinds of patent: a soft patent for complex technical fields, such as the ICT, and classic patent rights for areas such as the pharmaceutical sector. 'Soft patents' no longer offer completely exclusive rights and this means that innovation is no longer held up by blocking rights. The 'soft patents' foster collaborative innovation, e.g. open innovation networks and patent-pooling.*

These EPO's scenarios are very shocking, and we should rethink the future of IP from scratch. We should be freed from the exclusive rights system

The implementation and improvement of innovations by other companies propels economic efficiency. A new type of IPR that can help in protecting and sharing innovations more efficiently must be designed.

Scotchmer (2004) aims to investigate whether there are other mechanisms that are superior to the patent system. She examines targeted prizes, blue-sky prizes, and patent-buyouts. However, these mechanisms need more governmental effort than the current patent system. In A2K3 conference, they discussed prizes as alternative for patent<sup>1</sup>.

We need to consider the fundamental reform of IPR. Scotchmer (2004), for example, makes the following suggestion.

*Intellectual property should be designed to achieve the right balance of protection for innovators, protection for consumers, and opportunity for rivals to make improvements. (p.261)*

Boyle (2008) suggests the following:

*It is not an overstatement to say that intellectual property rights are designed to shape our information marketplace. (p.7)*

*National and international policy makers are keen to set the "rules of the road for the digital age." (p.37)*

The principle of commons is an important idea in structuring the future of IP.

Mitchell (2005) proposes the concept of "Intellectual Commons" on the basis of natural rights or moral rights. Hess & Ostrom (2006) introduce the concept of "knowledge commons," a new way of looking at knowledge as a shared resource, which is a complex ecosystem that falls in the category of commons.

Lessig (2001) comments as follows:

*The aim of an economy of ideas is to create incentives to produce and then to move what has been produced to an intellectual commons as soon as can be.*

*The extreme protections of property are neither needed for ideas nor beneficial. (p.116)*

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<sup>1</sup> A2K3 2008 (Third Access to Knowledge Global Conference) Panel "Alternatives to Monopolies: Prizes," <http://www.law.yale.edu/intellecualife/7117.htm>

Open source software is already well known for providing peer production ways freed from IPR. Furthermore, open source hardware and open source biotechnology are emerging recently.

Weber (2004) points out that the open source process reframes the problem of free riding and property.

*Open source turns what would have been called free riders into contributors to a collective good. (p.216)*

*Open source radically inverts this core notion of property. Property in open source is configured fundamentally around the rights to distribution, not the right to exclude. (p.228)*

A new type of IPR for open innovation should be designed with reference to the mechanism of the open source process. In this paper, I will propose a more concrete mechanism based on the principle of commons and the open source process.

#### **4. Promoting Service Innovations and New IPR for Service**

This section examines the ideal IPR that can promote service innovation. Since the productivity of service industries in Japan is lower than that in other developed countries, promoting service innovation is a major issue for Japan. Here, I will propose a new IPR that promotes service innovation. Although holders of the proposed right will be able to neither monopolize the market nor collect a license fee, the right would give inventors an effective incentive to develop innovative services. That is, I investigate how service innovation can be promoted by striking the right balance between controlling it by law and sharing it as commons.

If a patent is granted, the assignee obtains a strong monopolistic advantage. However, patenting services often does not benefit the public, because the diffusion of the service is delayed. Thus, an intellectual commons is essential for the service industry.

##### **4.1 Promoting Service Innovations**

Inventions of service are protected to a lesser degree by patents than are those of manufacturing. Because patenting services often does not benefit the public, adopting a pro-patent policy in service industries is inappropriate today.

Business-method patents, a type of patent for the service innovations, are usually issued when the technological aspects of business method are patentable and not issued for the business model. In Japan, inventions that include human decision or action at any stage of the process of invention are not recognized as eligible for patent. The patent grant rate of business-method patents in Japan is very low (around 8%: from 2003 to 2006). Similarly, in the United States, the patent eligibility of business models was recently denied in the *Bilski* case: moreover, Parikh (2007) studies it in the tax strategy patents case. Such a difficulty of obtaining rights seems to be one cause of the present e-Business oligopoly, because many Internet startup companies can not get enough investment by that reason.

Furthermore, the Federal Trade Commission (FTC, 2003) points out that business-method patents involve a “patent thicket” problem.

Not only business-method patents but also other types of inventions of service have potential problems. For example, medical procedures cannot be patented exceptionally in many countries. Therefore, patenting more service does not seem to be appropriate.

However, in order to increase the incentive to invent innovative services and to increase investment in venture companies that introduce innovative services, there should be some kind of IPR that protects the organization introducing the innovative service.

Inventions of service are usually market-pull ones. Since such inventions do not entail huge amounts of R&D costs, monopoly is not necessary. Instead, they merely need some kind of operational advantages. Hence, I suggest the formulation of an IPR that strengthens first-mover advantage in order to facilitate the protection and sharing of service innovations.

Figure 1 shows the rate of diffusion of service innovations in three cases. These cases differ in the level of protection they offer. In cases 2 and 3, the dotted line represents the total diffusion of an originator and the followers.

Case (1) Protection with the right to exclude. In this case, only the originator can offer the service.

Case (2) No right. In this case, a follower can implement the same service and might surpass the originator.

Case (3) Protection with a right that only strengthens the first-mover advantage. In this case, although a follower can implement the same service, the originator is able to maintain dominance for a certain period of time. This case is most desirable for the creation and efficient use of innovative services.

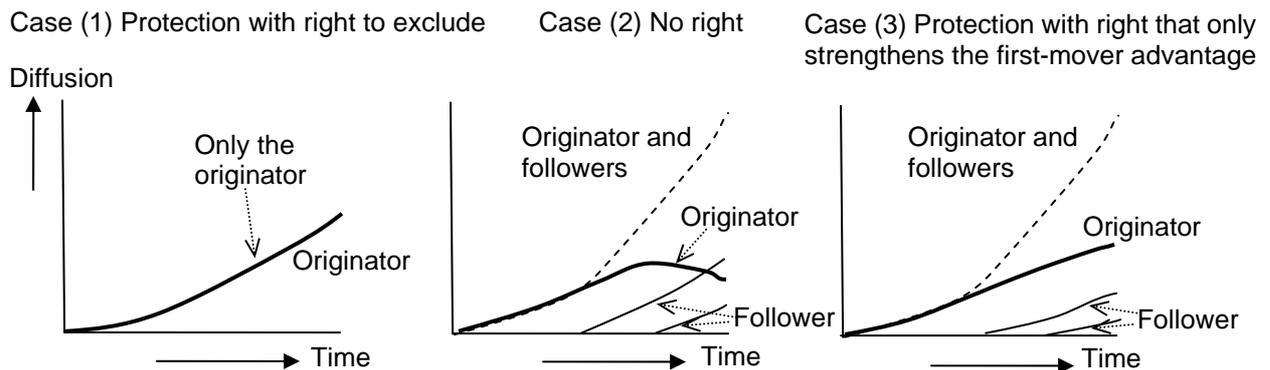


Figure 1: Three cases of protection of services

IP policy for service innovations should exclude patent owners who do not implement the patented invention, because licensing is inappropriate for the service industry. Instead, total support systems (e.g., franchising) are suitable for the service industry. The exclusion will enable the elimination of patent trolls.

#### 4.2 Proposal of a New Intellectual Property Right for Service

I propose a new intellectual property right that I call "Originators' right" (*Ganso-ken* in Japanese) to protect innovative services and share them as commons (Hatakama 2008) (Hatakama 2009). *Ganso* means "originator" in Japanese and implies that an originator advances further than followers, and *ken* means right. Although right holders will be able to neither monopolize the market that the invention covers nor collect a license fee, the right gives inventors an effective incentive to develop innovative services.

The proposed right makes it obligatory for followers that conflict with the right of an originator to display the originator's name on the follower's brochure and Web page. Further, it obliges the followers to add a link to the originator's Web page from their

Web page. Sunstein<sup>2</sup> also proposes use of Web link in regulation whose purpose is entirely different from IP. The Internet is not only a subject of regulation but also a potential means of providing incentives. Hence, IP laws should utilize the Internet more effectively.

Figure 2 shows an example of the Web pages of the originator and a follower, when the proposed right is enforced. As a result, some of the prospective customers of the follower will choose to switch to the originator. Today, Web page marketing is already widely practiced. Companies are eager to attract customers to their Web page through search engine optimization or pay-per-click search engine advertisements. Consumers do not usually look for services in shops; instead, they gather information about the service from Web pages. Thus, making it obligatory for a follower to include a link to an originator's Web page could bring a certain level of incentive to the originator. This mechanism reduces the search cost for an originator, whereby the originator can enjoy a greater first-mover advantage. The transaction cost of the follower decreases as no license negotiation is required in such a system.

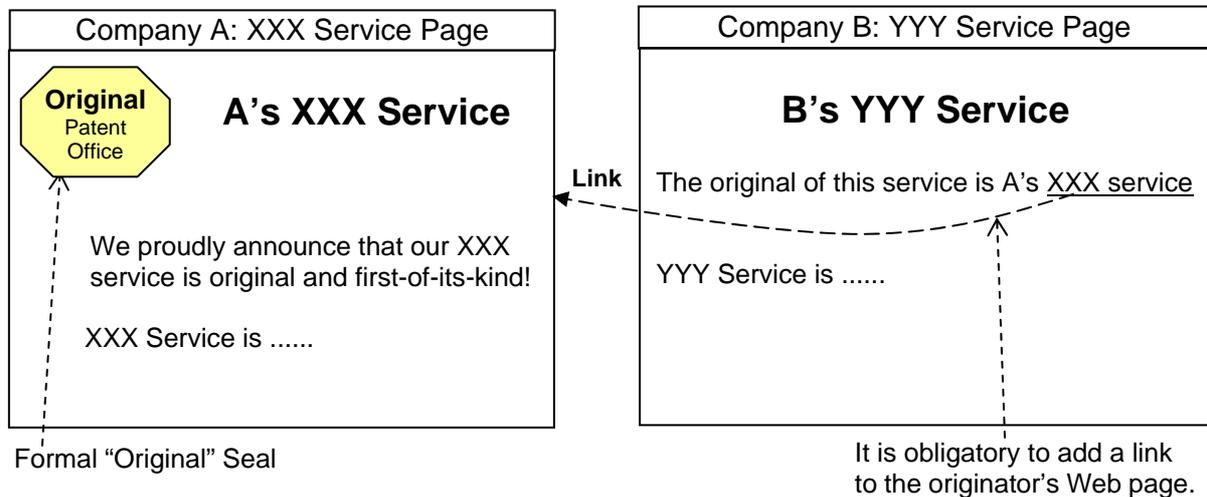


Figure 2: Examples of Web pages of the originator and follower

If a follower infringes the right (that is, if it does not provide a Web link to the originator's Web page), the originator can file a damages suit but cannot file lawsuit for injunction against the follower. The amount of damage will be calculated by predicting the number of the missing users of the originator who could come from the follower's Web page. The prediction will be based on the number of page views of the infringing follower's Web page.

"Originators' right" seems to be a type of natural right or moral right in the meaning that followers must pay respect to originators.

This right is granted only when the service is in business operation. Thus, the right strengthens originator's first-mover advantage. The right alone can not be transferred, while business with its right can be traded. This prevents patent trolling in the service industry. The proposed right assesses non-obviousness with regard to the business model as well as technological aspects, that is, the right is granted when the originator has an innovative business model and uses the technology at any stage of the process of invention. The duration of the proposed right should be much shorter than

<sup>2</sup> C. R. Sunstein *Republic.com*, Princeton University Press, 2001.

that of a patent (e.g., six years). Applications of the invention should be published immediately after filing.

The proposed IPR does not allow monopoly business but gives a relative advantage to originators of innovative services. The right will give inventors a weaker incentive than the existing patent law. However, the simple mechanism would turn a free rider into an advertising tower for the originator. Especially if a big firm imitates the service, the originator can enjoy huge consumers from the Web site of the big one. Thus, the service of the originator would be protected, and the incentive to develop innovative services would increase.

Figure 3 shows the anticipated number of users of the originators' and followers' service after they commence business. As the users of the followers' service increase, some portion of them will choose to switch to the originator. However, when most innovators and early-adopters (in the categories of adopters by Rogers<sup>3</sup>) have fully adopted, the service market will move closer to perfect competition, because majority users in the categories of adopters usually decide preferences through word-of-mouth reputation.

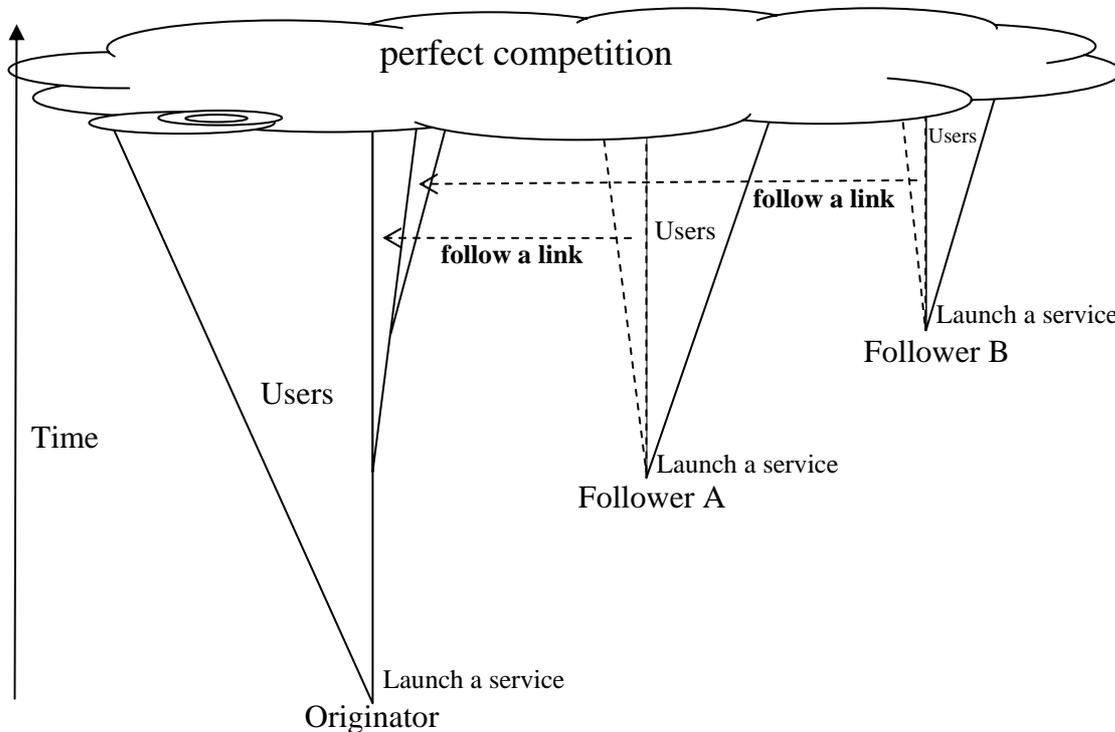


Figure 3: Competition between originator and followers

Although the market will eventually move closer to perfect competition, the originator will continue to serve as an alternative for a user even if a strong follower enters the market, because the originators' right will be protected under the proposed IPR. Note that, unlike under exclusive rights system, an originator will have to advance further or improve its service in order to survive the competition. Therefore, innovation will never stop.

Followers can enter the market without concerns about the originator's exclusive right. Users of the service can enjoy higher quality or cheaper service as a result of the competition.

<sup>3</sup> E. M. Rogers *Diffusion of innovations (fifth edition)*, The Free Press, 2003.

**5. New IPR that Can Replace the Patent System**

In this section, I propose a new IP system that can completely substitute the existing patent system from the long-term perspective of open innovation and open source movement. The new IP system will be based on the principle of commons and will consist of knowledge-sharing infrastructure, a mechanism of reward distribution to contributors (inventors), and a mechanism of strengthening first-mover advantages. Similar to the EPO’s third scenario, patent offices will change into knowledge agencies (KAs) under such a system.

Mechanism of reward-distribution	Mechanism of strengthening first-mover advantages
Knowledge-sharing infrastructure	

Figure 4: Components of the new IP system

Knowledge-sharing infrastructure is a shared space of inventions or a market of ideas. A shared space of inventions will be similar to the patent application system or a repository of academic studies. Inventions will be examined in much simpler way than that of patents (e.g. Community patent review) not for the right of monopoly but for the right of reward distribution or strong first-mover advantages. The Market of ideas will support open innovation and probably will be evolved from today’s idea intermediary companies (e.g. InnoCentive or NineSigma).

In a "one patent, one product" situation, a mechanism of strengthening first-mover advantages will be employed, as in the case of service innovations mentioned in the previous section. However, much more complicated scheme will be needed for inventions of products than those of service. Strengthening first-mover advantage of selling physical products will need not only Web links but also high propriety of positioning on shelves in shops (e.g., the golden zone) and/or high propriety of sales proposals and so on.

In the industries that face the patent thicket problem, a mechanism that has affinity with open-source process is preferable. Unlike genuine commons, reward distribution is needed in such a situation to provide incentives to develop inventions. When all technologies that used in implementation a product are open source or public domain, reward distribution is unnecessary. Otherwise, a mechanism of reward distribution to contributors (inventors) similar to patent clearing houses will be employed. The distribution ratio to each invention should be calculated from the degree of contribution to social advancement. The calculation will need support of academic researchers. Less than ten percent of the wholesale price of each product will be collected in a similar way to sales tax, and it will be distributed to contributors. This will prevent patent thicket problems and will make transaction costs between originators and followers extremely low, because no license negotiation nor litigation cost is required in such a system. As a result, only excellent inventions will be harnessed and improved by other companies, and incremental innovation will progress across companies. The world where innovations evolve continuously and prosperously will come.

It seems to be very difficult, however, I believe it is possible to legislate those mechanisms. I believe that a combination of these mechanisms could, in the future, serve as a substitute for the current patent system.

## 6. Closing Remarks

In this paper, I investigated the possible substitute for the patent system. As the patent system has some fundamental problems, notion of IP must be reconsidered totally. I proposed a new intellectual property right that I call "Originators' right" to protect innovative services and share them as commons. Such a right should be discussed more actively, because service innovation is a big issue today. Furthermore, I proposed a new IP system that can completely substitute the existing patent system from the long-term perspective of open innovation and open source movement. The proposed IPR is still only an abstract idea. However, it should be considered as an alternative to the existing patent system, because it could place many inventions into the sphere of the commons, which is ideal for the creation and efficient use of inventions.

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