Review the Literatures of the Commons, And Its Application to the Intellectual Property and the Internet

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Abstract

There are many controversial ideas of resource utilization. The main discussion is how to maximally benefit from the scarce resources; “private property” and “common property” regimes are the two major solutions for centuries. However, the private property has been taking into the major role as the most convincing principle of economics. The intellectual property has been established and developed but not exactly from the same ground of property of things. Today the intellectual property is expanding its border of exclusive rights and impairs individuals’ reasonable rights to enjoy the common intellectual property. The more problematic issue has occurred when the intellectual property are published via the internet. The intellectual property has being reviewed. Legal academics already realize the expanding border of intellectual property. They are currently trying to emphasize the solution of common property. This article is aimed to review those distinguish literatures of the commons, its application to the information age today, and its fascinating way of tomorrow.

Keyword: Intellectual Property, Internet, Commons, Public Domain
1. What is the Commons?

Originally, the “commons” were considered as any open field which commoners have a right to exercise, for example, right to pasture cattle, right to fish, right to take sufficient woods, etc. It was seen as a separated right from ownership of land. In 12th century, it began to allocate common land into “enclosures” to enhance ownership’s coverage and to restrict commoners’ rights. This was the privatization of land in England. Although there were many anti-enclosure movements, the process of enclosure was complete in 19th century particularly of “Inclosure Consolidation Act of 1801”.

Presently, the ways people share and use any particular resource is referred to as “common-pool resource (CPR)”, “common property resource”, or “common property regime”. These resources generally imply to woods, water resources, etc. which people of any particular community share and use together. It was noted that “commons” differs from “public resources” of which scope is in a sense that any one can use the resource with no problem of congestion and overuse, such as sea, sky, air, etc. However, this meaning is not true in our time, those resources have been congesting and overusing. Today, a concept of common resources is broader coverage and more important than ever.

2. Developing Ideas of the Commons

The most classical literature on an idea of the commons is “The Tragedy of the Commons” by Garrett Hardin\(^3\) in 1968\(^4\). Hardin pointed out an important aspect of scarce resources that human behavior in exploiting resources is separated from his conscience on effects to ecology. He emphasized on biological fact that a finite world can support only a finite population. Then, he put that here is no technical solution to the problem. Farming the seas or developing new strains of wheat will not solve the problem. Two possible solutions he suggested are laws or privatizations in order to manage the exploitation of scarce resources; otherwise, ruin is the destination toward which all men rush. Each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.

In the viewpoint of liberal economics, public resources will be exploited until the marginal benefit less than marginal cost which is considered as optimal utilization. Ambiguous allocation of resources not only leads to unsustainable utilization, but impede commodifications of resources. Economists prefer clear ownership and allocation which encourage economic transactions. Utilization tends to be maximized by owners. Unowned properties tend to be exploited without care. Prisoner’s Dilemma taught us better to coordinate, not free-ride. Hardin brought an important controversy in defining and dealing with common property. Among others, many see

\(^3\) American ecologist (1915-2003), his famous works includes “The Tragedy of the Commons” and Hardin’s First Law of Ecology - “You cannot do only one thing”, <http://en.wikipedia.org/wiki/Garrett_Hardin>

that it is an argument of choice: open access, profit maximization, and privatization.

From the Hardin’s point of view on population, many developed this argument to utilization of forest, environment, advertisement, internet, etc. In sum, they all tried to suggest not overusing resources.

Shortly prior to Hardin’s work, Ronald H. Coase had analyzed frequency allocation and management of FCC in 1959. He had shown that is inefficient according to its exceeding transaction cost. The most efficient way is to privatize in order to maximally utilize by mechanism of market and private property. It was doubted at the time of first publication, but it now becomes the mainstream proposition in underlying to privatization. Therefore, many spectrum auctions as a process of privatization have been taken in many countries.

However, Elinor Ostrom have studied and suggested that collective management is more efficient than private management. In the long run, collective actions would well compromise cost and benefit among individuals to the extent of access and use

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5 Kepa M. Ormazabal, “Hardin and the “Tragedy” of Profit Maximization”, (presented at the XII Annual Conference of the European Association of Environmental and Resource Economists 2003, held at Bilbao, Basque Country, Spain, from 28th to 30th June 20)
12 Federal Communication Commission (FCC)
including the process of authorization. In 1998, Hardin have written his revision of the former work: “Extension of The Tragedy of the Commons”. He accept his mistaken that he had been convinced by the economic theory of Adam Smith which relies on competition and profit maximization with the expectation of maximal mutual benefit. Now he realizes that individual profit maximization would not bring all mutual benefit. As said William Forster Lloyd, “mutual ruin was just around the corner.”

### 3. Intellectual Property and Internet as Common Resources

The internet connects computer networks all around the world which is the great phenomenon of 20th century. The internet helps overwhelmingly on cost saving of communications. The greater network, the more computer users, the greater value of the internet is. This is opposite to the proposition that supports resource utilization by private property regime. Moreover, very compact size of media such as e-books, mp3, mp4, etc. have broken through the communication barrier of physical copies and its quality distortion. The internet becomes the global-wide communication channel in some extent similar to common resources like sky and sea. However, many scholars

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15 Philosopher and economist (1723-1790) The most classic work is “The Wealth of Nations” (1776)
16 Drummond Professor at Oxford and a Fellow of the Royal Society, (1795-1852) who is the first to coin the term of “The tragedy of the commons”; his distinguish work is “Two Lectures on the Checks to Population”, (Oxford University Press, Oxford, England, 1833)
18 Carol M. Rose, infra note 51
and commentators have suggested a number of solutions to some extent that one could utilize the global communication channel. There are legal considerations that follow.

3.1 **Exclusive rights of intellectual property on the internet**

3.1.1 **Expanding border of intellectual property rights by right holders**

The basis of intellectual property is a thin layer surrounding common resources of intellectual property: public domain, which is an essence for next creativity. Nonetheless, modern economics have emphasized the importance of market efficiency with private property regime. Exclusive rights of intellectual properties have then begun to expand its coverage invading the common resources of the public. For examples, plant and animal patents, or even human genetic patents. Most supporters invoke incentives for further research and development in order that new effective medicines and treatments can be invented. On the contrary, opponents claim that intellectual properties are common heritages of mankind. Commercialization of every intellectual property in every context is unacceptable. For examples, patents of business methods and copyright of databases are undesirable expansion of IP.

Professor James Boyle described the expansion of IP with 4 types of dissemination:

(1) Transcribing from words to text such as monks’ scriptures, (2) Gutenberg printing, (3) Photocopying, and (4) Internet and online version. At each stage, copying costs are lowered and goods become both less rival and less excludable. As greater

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20 Professor of Law, Duke Law School

21 James Boyle, *supra note* 19, p.42
difficult to exclude others from the internet, a number of ways have been introduced
to restrain online reproductions. Digital Right Management (DRM) is the common
term of technical means today in dealing with internet dissemination, especially for
movies and songs. Professor Boyle called this attempt as “the second enclosure
movement.” For examples of DRM are:

- Restriction by specific hardware such as dongles, USB cards or Smart cards,
etc. These are widely used by software enterprise versions which require
plugging the hardware onto workstation when the copyrighted works are
running. This limit at least 2 rights of users: fair use right in legally obtaining
copyrighted works and using without commercial purposes, and right to use
whatever users like to after first sale.

- Encryption. Content Scrambling System (CSS) is a good example developed
by motion pictures companies. They also designed their specific players for
users to decrypt and watch their contents inside. This prevents users to run
their works on ordinary computers which also limit user rights as above.
However, reverse engineering has been a solution. DeCSS have been
developed to circumvent the encryption shortly after CSS being announced.
Although there were a number of cases regarding DeCSS in attempting to turn
it down, DeCSS is already out there.

- Registration. This is a process for software vendors to verify and enable users
to access their works. Microsoft was the first to deploy this process for its
Microsoft Reader. This additional step requires users’ personal information
and then limits user right to resale.

- Digital watermarking. Many software providers embedded its sale information
into their products so that they can verify retailers, locations allowed, and then
impose measures as necessary. This doesn’t work in practice; user information and location found cannot be affirmed. It may be stolen elsewhere.  

- XCP (Extended Copy Protection) is a program developed by a UK Company to prevent CD reproductions. Sony BMG was the first to deploy; they called “XCP-Aurora.” This was a great controversy that Sony BMG embedded the program in CD and then managed to install itself into user’s computer without a prior notice. Moreover, user cannot remove this program easily; normal removal will cause malfunctions onto CD player. Mark Russinovich exposed this information in his “Sysinternals blog” after his experiment of the program. Sony then retrieved their CD out of the market.

In addition, there is another way in restraining people to use intellectual property by imposing misleading information on users that they are infringing intellectual property rights. Then users stop doing what they are misunderstanding about IP infringement. This is so called “chilling effect”, for examples, “Fan Fiction”, “CyberSLAPP”, and “Defamation.”

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26 See “CyberSLAPP (Strategic Lawsuit Against Public Participation)”, Ibid, <http://chillingeffects.org/johndoe/>
27 See “Defamation”, <http://chillingeffects.org/defamation/>
3.1.2 Expanding border of intellectual property rights by law

WIPO Copyright Treaty of 1996 was the prominent IP expansion of international level. There are 59 members with an aim to improve copyright protection in the context of information technology which is out of Berne Convention’s coverage.\textsuperscript{28} Major issues are (1) copyright protection for computer programs as literary works,\textsuperscript{29} (2) copyright protection for compilation of data or database,\textsuperscript{30} (3) expansion of right to distribution\textsuperscript{31} and right to rental,\textsuperscript{32} (4) expansion of right of communication to the public either wire or wireless,\textsuperscript{33} (5) measures and remedies in preventing circumvention of effective technological measures,\textsuperscript{34} and (6) expansion of rights management information.\textsuperscript{35} In addition, WIPO Performances and Phonograms Treaty provides in the same manner of copyright expansion for actors and film and music producers.\textsuperscript{36}

In the United States, there are two major expansions of intellectual property law. Digital Millennium Copyright Act of 1998 (DMCA)\textsuperscript{37} was enacted for 2 main objectives in expanding IP’s coverage toward information technology age: (1) anti-circumvention of technological measures,\textsuperscript{38} and (2) defenses of internet service providers’ liability.\textsuperscript{39} In addition, Copyright Term Extension Act 1998, so called

\begin{itemize}
  \item Berne Convention for the Protection of Literary and Artistic Works, 1886
  \item WIPO Copyright Treaty, Article 4
  \item WIPO Copyright Treaty, Article 5
  \item WIPO Copyright Treaty, Article 6
  \item WIPO Copyright Treaty, Article 7
  \item WIPO Copyright Treaty, Article 8
  \item WIPO Copyright Treaty, Article 11
  \item WIPO Copyright Treaty, Article 12
  \item WIPO Performances and Phonograms Treaty
  \item 17 USC § 101-1332
  \item Digital Millennium Copyright Act 1998, Title 1
  \item Digital Millennium Copyright Act 1998, Title 2
\end{itemize}
“Sonny Bono Copyright Term Extension Act” or “Mickey Mouse Protection Act,” expands copyright protection for another 20 years.⁴⁰ This extends copyright protection for works scheduled to expire in 1998, especially for Mickey Mouse.

There was a case of Eldred v. Ashcroft in matter of term extension. Eric Eldred doing his job as a non-commercial publisher of those works in public domain, filed a suit of unconstitutionality⁴¹ of the term extension act. The U.S. Supreme Court found that, as long as the duration is limited, Congress have unconstitutionally enacted the law.⁴²

Additionally, there was an attempt in criminalizing copyright infringement over internet especially of non-commercial activities by No Electronic Theft Act 1997 (NET Act). This affected from a case of United States v. LaMacchia,⁴³ which the court found no liability on David LaMacchia, a student of MIT who have published copyrighted works on the internet without commercial purpose. Then Congress decided to expand IP’s coverage to cover and criminalize⁴⁴ electronic reproductions with much commercial values.⁴⁵

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⁴⁰ 17 USC § 302
⁴¹ "Congress shall have Power ... [t]o promote the Progress of Science ... by securing [to Authors] for limited Times ... the exclusive Right to their ... Writings.", The Copyright and Patent Clause, U. S. Const., Art. I, §8, cl. 8
⁴³ United States v. LaMacchia, Criminal Action No. 9410092-RGS, (December 28, 1994), Memorandum of Decision and Order on Defendant's Motion to Dismiss, <http://www.loundy.com/CASES/US_v_LaMacchia.html>
⁴⁴ 18 U.S.C. § 2319
⁴⁵ 17 U.S.C. § 506
In European Union, they passed EU Copyright Directive of 2001\textsuperscript{46} in compliance with WIPO Copyright Treaty. It expands protection to cover computer programs and compilation of data including rights of distribution, rental, and publication and especially for measures and remedies in anti-circumvention.

3.2 Intellectual commons

In principle, intellectual property is exclusive rights in excluding others from using, for examples, copyrights, patents, and trademarks, for limited duration. After that those IP fall into public domain. Therefore we invented intellectual property for 3 major reasons. Firstly, it is to compensate sweat of brow including labor, idea, time and necessary equipments. This is based on the concept of natural fairness and reasonable benefit of creators. Secondly, it is an incentive for innovation and publication in order that others can develop next creations for mankind. Otherwise, most knowledge will be kept secret until it lost in time. Thirdly, although we realize that there is sweat of brow in any single creation, it is in turn that every single creation has been developed on top of the formers. No one could claim that s/he write from scratch. They all stand on the shoulders of giants; they also exchange and falsify their ideas each other so that they can get better synthesis and conclusion.\textsuperscript{47}

In addition, it could be noted that the basic principle in getting an intellectual property right requires a level of creation and originality in some degree, not total creation. For examples, translation is copyrightable.\textsuperscript{48} Patent requirement of inventive step\textsuperscript{49} also

\textsuperscript{47} Carol M. Rose, \textit{infra note 51}
\textsuperscript{48} Berne Convention for the Protection of Literary and Artistic Works, Article 2
\textsuperscript{49} Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), Article 27.1
affirms this view. Therefore, exclusive rights of intellectual property are developed in balancing between incentives of individual creation and publication and public benefit of knowledge and development.

Thomas Jefferson once said:

“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of everyone, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He, who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density at any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property.”

This analogy of light was clear and simple. Intellectual property is not natural right, but invented for a specific purpose of human knowledge. In the age of information technology with low cost copying and high quality, rules of ordinary property cannot fit to intellectual property as they were.\(^{50}\) For an example, copyright rules of publication are designed for physical media that is not applied very well based on geographical territory over internet. Therefore, internet is not itself a problem of intellectual property, but internet make new environment to let us see apparently the real nature of intellectual property. In sum, it could be concluded that exclusive rights

\(^{50}\) John Perry Barlow, “The Economy of Ideas - Selling Wine Without Bottles on the Global Net”, <http://homes.eff.org/~barlow/EconomyOfIdeas.html>
are necessary for only reason of promoting investment to create public knowledge, but subject to the general principle of common resources.

3.3 Borderless internet

Internet has emerged from difficulties of communication among different kinds of networks which were developed specifically for different purposes. Open System Interconnection (OSI) has been continually developed to deal with this problem, for examples, ARPANET, X.25, UUCP and TCP/IP. Then TCP/IP becomes the dominant standard developed by European Organization for Nuclear Research (CERN). Because of its general purpose of interconnection, internet has been developed and added on existing and new expanding computer networks. The greater network of internet, the greater value of it will be.

In context of law, there is a problem according to the borderless interconnection of internet, while law is generally territorial-based systems. It is not well applicable of law onto internet. Then controversies on interpretation and application of existing law over internet have been found very often. For examples, one copy is considered as sufficient for publication over internet according to existing law, or a consideration of where is country of origin.

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51 Carol M. Rose, “Romans, Roads, and Romantic Creators: Traditions of Public Property in the Information Age”, <http://www.law.duke.edu/pd/papers/rose.pdf>, see also Gian Maria Greco and Luciano Flori, supra note 10, pp.6-8
David R. Johnson 54 and David G. Post 55 have commented that internet communications create new areas and opportunities for new emerging legal systems in order that the most suitable system would be developed. This would be true as the matter of fact that a legal system of a community reflects its history and custom. Internet will show us its distinguish history and custom which is totally different from our physical world. Personal subjects of internet legal system would be identities of emails, avatars, aliases, etc. which is apart from physical individuals. Existing rules such as non-discrimination and property will not be applied properly on the internet.

The new legal system might not be developed from any single sovereign but from consensually based rule sets. An important example is that freedom of speech had emerged when the sovereign tried to limit communication between citizens. Those suffered citizens cannot simply leave that country or jurisdiction. They had fought and sacrificed costly. Thus far the rules have been developed in opposing to discretion powers of the government. But in the context of internet, individuals and properties are intangible and moveable. People may avoid that coercion power by simply move to other desirable jurisdictions. Relation between citizens on internet is totally different to relation between state and its citizens in physical world.56

Even though internet have been developed in open standard platform as the prominent worldwide communication channel, Professor Lawrence Lessig pointed out that there is a threat of architectures of control over the internet which will gradually restrain right and freedom of people. Those control infrastructures include password, cookies,  

54 Visiting Professor, New York Law School
55 Herman Stern Professor of Law, Temple University’s Beasley School of Law
digital certificates, and cryptography. It is some hesitation of these unreliable controls at the beginning, but now those have been used increasingly in commerce which will transform to the perfect control in the future. Especially when those are controlled by the dominant content providers, the future of internet falls in hand of those big players like AOL Time Warner and Microsoft. Any new innovation and creation have to comply and be approved by a group of companies. While we do care about property rights, freedom of communication is likely to be eliminated as we never notice and object.

3.4 Intellectual commons movement

Today a number of ideas opposing the expansion of intellectual property have been initiated. Professor Carol M. Rose has proposed an idea of creative community which is free in disseminating ideas within academic community. However, they could exclude others from commercializing their intellectual properties in the same way of common-pool resource of Elinor Ostrom. Professor Rose also invoked res universitatis which is a self-management group meaning that they pool and manage their common resources collectively but exclude others from outside the group. However, she commented that all creations should finally fall into public domain.

Professor Yochai Benkler showed that there are many economic activities other than recorded market activities. Social sharing is a kind of transaction that never been

57 Lawrence Lessig, Code and Other Laws of Cyberspace, (Basic Books, 1999), pp.35-39
59 Gordon Bradford Tweedy Professor Emeritus of Law and Organization and Professorial Lecturer in Law, Yale Law School
60 Carol M. Rose, supra note 51
61 Professor of Law, Yale Law School
recorded and considered essentially as an economic activities. It always occurs in family, office and neighborhood. Only high volumes of economic activities worth focusing such as TV station, computer farms, and high volume newspapers and presses. Today internet replaces all kinds of communication channels. Communication costs have been reduced significantly. Economic activities like social sharing are possible for any scale of business. Peer production is going to replace assembly line production. Creativity on intellectual commons provides a diversity of development. Production of the information age would not necessarily require exclusive rights which merely impede knowledge accessibility.62 Similar ideas find their ways in many initiations and movements such as:

- Free Software: it is a movement to promote computer users with alternative software rather than using proprietary programs with tons of term and conditions. This was initiated by GNU project of Richard Stallman in 1983. Then he found Free Software Foundation in two years later. It is an important development of free software today. General Public License (GPL) have been invented to assign rights and freedom to software users for (1) use of any purpose, (2) education and modification, (3) distribution of verbatim copies, and (4) development and distribution under GPL. It is different from Open Source Software (OSS) that developers publish source code and demonstrate operations of their software. Any user could conveniently apply the OSS and develop further with expectations of technical benefit and diversity. They all

never see copyrighted software as evils. Today there are more than 23,000 free software projects.\footnote{The Free Software Foundation, \url{http://www.fsf.org/}}

- Creative Common (cc): it is a non-profit organization founded by Professor Lawrence Lessig, Professor James Boyle and computer and legal experts in 2001. This is to promote creative works to the public and let any person to freely and legally develop and publish. They invented a framework of licensing to the public in various forms and reserve some rights for creators, for examples, “No right reserved”, “Some rights reserved”, etc. Because the framework has emerged in the context of US, they also adapt their framework fit into 31 countries.\footnote{Creative Commons, \url{http://creativecommons.org/}}

- Electronic Frontier Foundation (eff): it is a non-profit organization founded in 1990 by Mitch Kapor, John Gilmore, and John Perry Barlow in campaigning for freedom of expression in the context of information technology. They participate in many important cases, advise courts and government, allege against chilling effect, and verify and respond to any law affecting to privates.\footnote{Electronic Frontier Foundation, \url{http://www.eff.org/}}

- Wikipedia: it is a free encyclopedia for promoting free culture of information on the internet. The web site was found by Jimmy Wales in 2001. He let people create, coordinate and correct freely based on neutral point of view. Today Wikipedia possesses more than 3,800,000 articles and 130 translations.\footnote{Wikipedia, \url{http://en.wikipedia.org/}}

In addition, other alternatives could be machines like digital repositories and online libraries which are flexible in different degrees of exclusive rights. The movements of
anti-expansion of exclusive rights correspond to a persuasive view of Professor James Boyle that we are in the similar situation of environmentalists have done in 1950-1960. There were various groups of activists give campaigns on environment including forest rangers, hunters, bird-watcher, etc. In term of intellectual property, we have software engineers, librarians, artists, critics, biographers, etc. While in 1950 there were movements of critical pollution such as building dams in national parks, oil leaking in rivers, in intellectual property, we are concerning about anti-competitive practices of Microsoft, morality and human genetic patents, and chilling effect. Then we got to have a perception of common interest among apparently disparate groups, a common interest which cuts across traditional oppositions.67 This will bring relating parties, even they see things different, to realize in mutual problem and move in the same direction.68

4. Conclusion

Intellectual property is the most important incentive of creation and innovation. Expansion of intellectual property develops dramatically in the context of internet according to the economic justification of private property. Right’s holders have possessed much greater intellectual properties. Expanding exclusive rights may not justify its underlying principles of IP. It will undermine a balance of individual incentives and public benefit.

68 James Boyle, supra note 19., pp.71-74
Today relevant movements have been initiated. The mutual campaign is to emphasize and promote the importance of public domain in order to restrain and limit IP expansion. The central idea found to be the same as Hardin’s. “It is our considered professional judgment that this dilemma has no technical solution.” Thinking of farming the seas or developing new strains of wheat will not solve the Hardin’s overpopulation problem. Expansion of intellectual property law with technological measures will also let the right holders over-utilize common resources. Mutual consideration of intellectual commons could bring those oppositions get in the same direction.

5. Reference


_____________, “Extension of The Tragedy of the Commons”, (published by The American Association for the Advancement of Science, 1998), <http://www.garretthardinsociety.org/articles/art_extension_tragedy_commons.html>


