

Law as Technological Control of the Infringement of Intellectual Property Rights in the Digital Era

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ABSTRACT

According to technological determinists, particular technological developments are the prime antecedent causes of change in society, and technology is the fundamental condition that underlies the pattern of the social system, including the law. The development of technology in the digital era has influenced the pattern of intellectual property rights infringement and enforcement. One of the functions of patent and copyright systems is the dissemination of knowledge and works well needed by the society. On the other hand, technological development in information systems also facilitates the dissemination of knowledge and works, but it has unwittingly infringed intellectual property rights. To overcome this dilemma, therefore, the legal function must be redefined so that the law can be used as a means of technological control.

ABSTRAK

Menurut para determinis teknologi, perkembangan teknologi tertentu merupakan penyebab utama perubahan dalam masyarakat, dan teknologi merupakan kondisi fundamental yang melandasi pola sistem sosial, termasuk hukum. Perkembangan teknologi di era digital telah mempengaruhi pola pelanggaran dan penegakan hak kekayaan intelektual. Salah satu fungsi sistem paten dan hak cipta adalah menyebarkan pengetahuan dan karya yang dibutuhkan masyarakat. Pada sisi lain, perkembangan teknologi dalam sistem informasi juga memudahkan penyebaran pengetahuan dan karya, namun tanpa disadari telah melanggar hak atas kekayaan intelektual. Untuk mengatasi dilema tersebut, maka fungsi hukum harus didefinisikan ulang agar hukum dapat digunakan sebagai alat kontrol teknologi.

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INTRODUCTION

The relationship between law and technological development is always signified by tension. From the copyright holder perspective, technological development has played a part in multiplying the dissemination of the copyrighted works; it has also facilitated infringement and threatens to make existing laws obsolete.¹ On the other hand, technologists considered laws to be too excessive and to hinder the development of technology, especially in the digital world and therefore impede the dissemination of information and knowledge.

The interaction between law and technology, especially information technology in the digital era, is relatively new. The quarter century between 1945 and 1970 was the first stage in the evolving relationship between law and information technology, i.e. computers, and the first article on this topic was written by Roy Freed and published in 1962 was entitled *Legal Implication of Computer Use*.² Since the development of the Internet, the interaction between law and the information technologies has become so intense that legal systems have had to develop the so-called cyber law. The tension between the two disciplines relates to the influence of each discipline on the other.

Accordingly, this paper attempts to investigate the interaction between the technological development and the legal systems particularly in the intellectual property rights regime. The investigation will lead to the next question of how the law should respond to the technological development and, more particularly, the balance that should be sought between the legal arrangement and technological development in the digital world. The methodology employed here is descriptive analysis using literature study. The paper consists of five parts. The first part is introductory and highlights the background, the research question and the methodology. The second part provides the theoretical framework and presents two competing theories, legal determinism and technology determinism. The third part describes evidence that shows the influencing relationship between law, especially intellectual property rights (“IPR”), and technology developments in the digital world. The fourth part proposes balancing between fair legal arrangements and technology development in the digital world. Part Five is the conclusion.

METHODS

There are two research method commonly used in legal research, namely normative-dochtrinal method and empirical or socio-legal method. Normative-dochtrinal legal reseach method is a process to find a rule of law, legal principles, and legal doctrines in order to answer the legal issues faced.³ On the other hand, empirical or socio-legal method is a research that examines and analyzes the legal behavior of individuals or communities in relation to the law, where the data source used is primary data obtained directly from the

¹ Brad A. Greenberg, ‘Rethinking Technology Neutrality’ (2016) 100 Minnesota Law Review 1495, 1504–1505.

² Ian J. Llyod, *Information Technology Law* (4th edn, Oxford University Press 2005) 4.

³ Peter Mahmud Marzuki, *Penelitian Hukum: Edisi Revisi* (Prenada Media 2016) 35.

community.⁴ This research used the first method, that is doctrinal-normative legal research method.

The approach used in this research is legal philosophy, which concerned with providing a general philosophical analysis of law and legal institutions.⁵ Legal philosophy aims to answer “what is law?” in relation to the nature of law and fundamental questions about the law’s reach and authority.⁶

Furthermore, the data used in this research is secondary data derived from primary, secondary and tertiary legal sources. The primary legal sources used are namely laws and regulations, its derivatives and amendments, as well as other relevant legal provisions. While secondary legal sources used are books and journals which will help to analyze, understand, and explain primary legal sources used. Lastly, the tertiary legal sources used are internet-based sources which will give further explanation on the primary and secondary legal sources used.

RESULTS AND DISCUSSION

1. Legal Determinism: Law as Categorical Imperative and Social Engineering

Kusumaatmadja & Sidhartha define law as the rules that govern the relationship among humans who live together in a group of people or society, in which the rules are binding on them, because they agree to submit to or be bound by those rules.⁷ Law, as a categorical imperative, is mostly rooted in legal positivism, such as John Austin. From legal positivism, laws are defined as a command of the law giver, which is an order from those who hold the highest authority or who hold sovereignty.⁸ Law is a logical, fixed and closed system (closed logical system), which is separate from morality. The legal rules or laws are valid, not because they are rooted in moral or natural law, but because they are authorized by legitimate authority and are accepted by the society as such. Important elements in law according to Austin are commands (orders), sanctions, obligations and sovereignty.⁹ The command element means that one party wants others to do the command element’s will; the one who is governed will suffer if the order is not obeyed. The order is a differentiation of obligations to those who are governed and those who govern, where orders can only be carried out by sovereign parties.¹⁰

⁴ Salim HS and Erlies Sepriana Nurbani, *Penerapan Teori Hukum Pada Penelitian Tesis Dan Disertasi* (Raja Grafindo Persada 2014) 21.

⁵ Kenneth Einar Himma, ‘Philosophy of Law’ (*Internet Encyclopedia of Philosophy*) <<https://iep.utm.edu/law-phil/>> accessed 20 July 2022.

⁶ Thom Brooks, ‘Legal Philosophy’ (*Oxford Bibliographies*, 8 October 2015) <<https://www.oxfordbibliographies.com/view/document/obo-9780195396577/obo-9780195396577-0176.xml#:~:text=Legal%20philosophy%20is%20about%20the,the%20law's%20reach%20and%20authority>> accessed 20 July 2022.

⁷ Mochtar Kusumaatmadja and B. Arief Sidharta, *Pengantar Ilmu Hukum, Suatu Pengenalan Pertama Ruang Lingkup Berlakunya Ilmu Hukum* (Alumni 2009) 14.

⁸ H. Lili Rasjidi and I.B Wyasa Putra, *Hukum Sebagai Suatu Sistem* (Remaja Rosdakarya 1993) 42.

⁹ H. Lili Rasjidi and I.B Wyasa Putra (n 8) 43.

¹⁰ Both morality and the legal system actually serve the purpose of keeping society stable and secure by making judgments about people’s actions, and such judgments are justified by reason. Although morality and the law have a common purpose, there are some major differences:

Another theory that reflects legal determinism's point of view is law as social engineering as championed by Roscoe Pound. There are two kinds of needs for the importance of philosophical thinking about the rule of law.¹¹ The first is the greater need of the public for public security as a necessity for peace and order, which dictated the early development of the law so that it encourages people to look for something that is certain in the form of rules governing human actions that can prevent arbitrary actions by creating an established society. The second is the need to adjust to the field of public security and to make new compromises continuously in society due to changes that require adjustment. Therefore, it is always necessary to change the law to adjust to the circumstances to produce a perfect law.¹² The law must not only adjust to the times, but it must also make social changes. Social changes are good for society, Therefore, according to this view, the law must control technology for a good society.

The concept of law as social engineering is closely related to the view of social constructions of technology ("SCOT"), if the law is defined as a social phenomenon or a social symbol¹³. SCOT presumes that social and cultural forces determine technical change.¹⁴ SCOT advocates argue that technology does not determine human action; rather, human action shapes technology. They also argue that the ways in which a technology is used cannot be understood without understanding how that technology is embedded in its social context. According to Pinch and Bijker,¹⁵ social or interest groups define and give meaning to technology. In defining, the social groups determine the design that will solve the problems that they want solved by the technologies and the desires that they want fulfilled by the technologies. They emphasize the interpretive flexibility discernible in the evolution of technologies. They believe that the various meanings given by social groups, to say the bicycle result in a number of alternative designs of that machine. The various

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1. *The making process.* Laws are enacted by authorities like parliament, whereas moral codes are developed by all members of a society from experience and reason.
 2. *Enforcement.* Laws are enforced by the authorities, like police and judges, whereas morality is not enforceable by any public enforcers.
 3. *Nature of punishments.* Unlawful acts are punishable by sanctions, whereas morality is judged based on the individual's perception of that society's morality.
 4. *Conflict resolution.* Laws are used to resolve interpersonal conflicts in a society; whereas morality is used mostly to harmonize intrapersonal conflicts.
 5. *Types of judgment.* Morality passes judgment on a person's intentions and character based on what is in the person's heart. Courts do not always ignore a person's intention or state of mind The judge must decide whether the act fulfilled the elements of the provisions of the articles in the law. See Kizza, 2010:26-27

¹¹ Mochtar Kusumaatmadja, *Konsep-Konsep Hukum Dalam Pembangunan* (Alumni 2002) 83.

¹² Roscoe Pound, *An Introduction to the Philosophy of Law* (Yale University Press 1959) 107.

¹³ Luhmann sees law as a sub-system of the social system. See Niklas Luhmann, *Law as Social System* (Klaus A. Siegert tr, Oxford University Press 2004) 72. Furthermore, Emilie Durkheim says that law is the core of social life and a symbol of social life. Weber sees law as the only important causal component among others and is thus in the first place part of the configuration of order within which social life takes place. See Wolfgang Schluchter, 'The Sociology of Law as an Empirical Theory of Validity' in Roger Cotterrell, *Law in Social Theory* (Ashgate Publishing Limited 2006) 275–276.

¹⁴ Thomas P. Hughes, 'Technological Momentum' in M.R. Smith and Marx, *Does Technology Drive History?* (MIT Press 1994) 102.

¹⁵ Wiebe E. Bijker, Thomas Parke Hughes, and Trevor J. Pinch (eds), *The Social Construction of Technological Systems* (MIT Press 1987).

designs are not fixed as the technological determinists claim. The closure does not occur until the social group believes that the problem and desires that they associate with the bicycle are solved or fulfilled.

Winston and Edelbach, the proponents of SCOT, hold that technology is a social construction.¹⁶ It develops in response to what we take to be our needs and desires. Technology is a complex compilation of techniques, knowledge, and resources that are employed by human beings in the creation of material and social artifacts, which typically serve certain functions perceived as useful or desirably in relation to human interests in various social contexts. Nye holds that a technology is not merely a system of machines with a certain function; it is an expression of a social world.¹⁷ Electricity, the telephone, radio, and others are not implacable forces mowing through history; they are social processes that emerged and that vary from one time to another and from one culture to another. They are not things that came from outside of society and had an impact; rather, each was an internal development shaped by its social context. No technologies exist in isolation.

2. Technological Determinism

The opposite theory that contradicts legal determinism is technological determinism. Moses defines technology as: (1) tools and techniques; (2) organized systems, such as factories; (3) applied science; (4) those methods that achieve, or are intended to achieve, a particular goal, such as efficiency, the satisfaction of human needs and wants, or control over the environment; and (5) the study of or knowledge about such things, sometimes to cover the use of conceptual tools (thus including abstract thought as a form of “technology”), organizations and hierarchies, legislation and government.¹⁸

The term “technological determinism” was coined by American sociologist and economist Thorstein Veblen.¹⁹ There are two versions, soft technological determinism and strong technological determinism. Soft determinists holds that technology is the guiding force in our evolution, but humans still have a chance to make decisions regarding the outcomes. In contrast, strong determinism says that technological development determines the development of human civilization that cannot be avoided and controlled by society. It is classified by Bimber into three approaches: (i) Norm-Based Account, (ii) Logical

¹⁶ Langdon Winner, ‘Artifact/Ideas and Political Culture’ in M. Winston and R. Edelbach, *Society, Ethics and Technology* (Wadsworth 2000) xv.

¹⁷ D.E. Nye, *Technology Matters: Is Technology Predictable?* (MIT Press 2006) 47.

¹⁸ Lyria Bennett Moses, ‘Recurring Dilemmas: The Law’s Race to Keep up with Technological Change’ (2007) 2007–21 UNSW Law Research Paper 9–10.

The term “technology” historically originates from the ancient Greek word “techne” for “art”, “craft” or “skill”, which itself is derived from an earlier Indo-European root, “teks”, which means to weave or fabricate. Recent archeological evidence suggests that the weaving of cloth predates the birth of agriculture and the dawn of civilization, going back about 35,000 years ago, making one of the first technologies. Winston and Edelbach classify technology as consisting of six elements: i) techniques, activity-forms or practices; ii) resources or basic materials; iii) technological products, or artifacts; iv) background knowledge; and v) the social context or organization in which the technology is developed and used. See Edelbach R. and M. Winston, *Society, Ethics and Technology* (Wadsworth 2005) xii.

¹⁹ Daniel Chandler, ‘Technological or Media Determinism’ (1995) <<http://www.aber.ac.uk/media/Documents/tecdet/>> accessed 20 August 2018.

Sequence Account, or (iii) Unintended Consequence Account. According to the Norm Based Account, the advance of technology is autonomous and deterministic. According to the Logical Sequence Account, technological developments occur according to some naturally given logic, which is not culturally or socially determined, and these developments force social adaptation and change. It is a fixed sequence of technological development in human evolution. For example, the steam-mill follows the hand mill, not by chance, but because it is the next stage in a technical conquest of nature that follows one avenue of advance. Web 2.0 will be followed by Web 3.0, Web 4.0, Web 5.0 and so on. According to the Unintended Consequence Account, technology is generally accompanied by unintended consequences that cannot be controlled by humans. Child phonography, hate speech, and IPR infringement are examples.

3. The Interaction Between Law and Technological Development in the Digital Era

3.1 Technology has Undermined Legal Principles

This section provides evidence that technological development has undermined legal principles. Thus, it presumably can be said that technological determinism prevails over legal determinism.

3.1.1 From the Rule of Law to Anarchy

Internet technology that connects one computer to another around the world by having the ability to cross country borders easily (borderless world) has given birth to a new era known as the digital era. This digital era is characterized by the ease of interaction between people around the world by utilizing the Internet network and without being hindered by a country's geographical area and territorial rules and of the convenience of everyone to obtain information. Information in this era is very easily obtained, exchanged, accessed, distributed and transmitted. Technology in cyberspace can be seen as a double-edged sword, because, in addition to contributing to the improvement of human welfare, progress, and civilization, it can be an effective means of unlawful acts.²⁰ Through the fast exchange of information and the lack of borders, the Internet provides a space for someone to commit acts of infringement, especially intellectual property infringement.

The borderless characteristic of Internet activities leads to the controversial issue of who should govern the Internet. The opinions can be divided into three groups:²¹

- a. The first group totally rejects any attempt to make legal rules for activities on the Internet based on a positive legal system. The Internet must be fully regulated by the legal system, which is considered fit with the inherent characteristics of the Internet. The weakness of this view is that it denies the facts; even though the activities on the Internet are fully operating virtually, they still involve the people who live in the real world.
- b. The second group argues that the traditional legal system should be applied to regulate activities on the Internet. The legal positive system that currently applies is the most effective way to prevent and overcome infringement through the Internet. The

²⁰ Ermansjah Djaja, *Penyelesaian Sengketa Hukum Teknologi Informasi Dan Transaksi Elektronik* (Pustaka Timur 2010) 9.

²¹ Handy Awaludin Prandika, 'Analisa Perlindungan Hak Cipta Di Jaringan Internet Menurut Undang-Undang No 19 Tahun 2002 Tentang Hak Cipta' (2015) 3 *Lex Privatum* 52.

weakness of this view is that it denies the fact that activities on the Internet present new realities and problems that are typical phenomena of society and to which the national legal system cannot fully respond.

- c. The third group is a synthesis of the first two groups. For this group, the law that regulates activities on the Internet must be carefully evolved and by focusing on certain aspects of peculiarity in transactions on the Internet. Several positive laws can still respond to legal issues arising from Internet activities, and there are also transactions on the Internet that cannot be responded to by a legal positive system.

Internet activists tend to reject any laws and regulations that govern or would govern the Internet. This view violates the principle of the rule of law, one of the elements of which, legal supremacy, requires that everything be based on and governed by the law.

3.1.2 From “*Lex Imperativa*” to “*Lex Imperfecta*” (law as symbols)

As previously mentioned, for the legal positivist, law is a command from sovereignty that demands obedience from society. The command means that the sovereign wants others to do its will and that the one who is governed will suffer if the order is not obeyed. Thus, law is a legal norm that is a categorical imperative or compelling in nature. Whenever there is a violation of law, in principle, the law should work by imposing sanctions on the infringer.

But, in the digital era, violations of the law in cyberspace, even if known by the victim or the injured party, are difficult to sanction. Law enforcement in the cyber world has become futile or difficult, even if it is known in the face of the right holders or law officers, but they never deal with it effectively. In a situation like this, the laws, which are categorical imperatives in nature, are becoming more like dead letters. What remains is at least a function of law as a symbol. The laws that are imperative in nature are becoming “*lex imperfecta*”, but in the negative version. In positive version, “*lex imperfect*” refers to a type of laws that prohibit some form of behavior without stipulating sanctions, but the society still obeys it. This is the essence of *lex imperfecta* in a positive meaning. The “*lex imperfect*” in the negative sense is just the opposite. The law actually has stipulated sanctions, but the sanctions for violating the law are difficult to impose. The imperative nature of the law is shrinking. What remains is a function of law merely as a symbol.

The difficulty of enforcement is not merely caused by the integrity or competence of law enforcers, but it is almost impossible to enforce the law against millions of infringing actions committed in cyber space. Law enforcers can carry out enforcement in a priority against major cases just to show that the law still works to a certain degree. However, this approach of targeting only major cases is contrary to the principle of equality before the law. Any violation, whether committed by a large or small perpetrator, must be penalized accordingly. This phenomenon shows that the development of technology in the digital era has undermined many legal principles.

3.1.3 From Public Enforcement to Internet Vigilantism

The conventional view holds that the law can be enforced, if there is a public authority to govern it. As quoted by Mochtar Kusumaatmadja, Pascal states: “Justice without might is helpless, might without justice is tyrannical.” This means that legal principles will be of no use if they are not enforced, and the law can only be enforced by state power and state apparatus.

The conventional view sees public enforcement as superior to private enforcement. Benton Martin & Jeremiah Newhall state that public enforcement, especially the use of criminal sanctions, is more effective in overcoming law infringement on the Internet, such as file sharing, in terms of the ability to shutter an infringing site quickly, to freeze or seize illegal assets and to collect evidence by a search warrant.

But now, technological advances in this digital era make it easier for people to commit violations. The problem faced by public enforcement in the digital era is how to get the optimal probability of detection. The role of private parties or public participation in law enforcement in the digital era will be greater, not just to participate in reporting, but also in patrolling and executing. The activities are known as Internet vigilantism, coined by Gilles Favarel-Garrigues and Laurent Gayer as collective actions, often violent and usually illegal. The proclaimed vocation of these Internet vigilantes is to maintain order and/or to render justice in the name of legal or moral norms. This movement is a result of the government's inability to police the Internet effectively. There are four methods:²²

1. Flagging
This is a form of instant indignation. Examples include taking pictures and “passenger shaming” on Instagram, the aim of which is to reinforce security or politeness.
2. Investigation
This is to identify a person or group of people usually by collective work.
3. Hounding
Identification and investigation with the clear objective of punishing the guilty party. It is more organized than investigations customarily conducted by law enforcement.
4. Organized denunciation
These are practices that are framed by devices specifically designed for whistleblowing. Wikileaks is an example of this kind of organized vigilante.

The rise of internet vigilantism shows how technology has jeopardized the principle of the rule of law.

3.2 Law has Hampered Technology Development

3.2.1 IPR Have Limited the Dissemination of Information and Knowledge

Competing views suggest that laws greatly influence and even dictate the development of technology and knowledge. Laws, especially in the IPR field, have hampered the development of new technologies in the digital world and therefore have hindered the dissemination of information and knowledge, especially through the Internet.

Technology, with all forms of innovation and its development in the digital world, is actually a means to develop culture and democracy. The Internet was introduced as a prime example of a technology that develops the culture as a “mix of captured images, sound, and commentary that can be widely spread practically instantaneously.”²³ Modern technology allows people to copy or cut and paste video clips in creative new ways to produce art, entertainment, and new modes of expression and communication that did not exist before. The resulting potential for media literacy can help ordinary people to

²² ‘Internet Vigilantism’ (*Wikipedia*) <https://en.wikipedia.org/wiki/Internet_vigilantism>.

²³ Lawrence Lessig, *Free Culture: How Big Media Uses Technology and Law to Lock Down Culture and Control Creativity* (Penguin Press 2004) 41.

communicate their concerns better and to make it easier for them to understand when they are being fooled into things that are not in their interests.

Conceptually, according to Hettinger law, IPR restricts methods of acquiring ideas (trade secrets), the use of ideas (patents), and the expression of ideas (copyrights). The concept of IPR is to give the authors/inventors a monopoly and control over the use of their works/inventions. The justification of IPR is always based on incentive theory in which limited monopoly rights are a precondition for creators and inventors who are willing to create. The existence of such rights will provide the incentives to develop works/inventions needed by society. This incentive theory can be criticized, because incentives can be given without granting private property rights. One alternative is for governments to provide funding for basic research and development, the results of which becomes public property.²⁴

3.2.2 IPR Has Impeded Innovation

Lessig asserts that laws, especially copyright law, have been extended to the point of threatening the very creativity that is a central value of the society, burdening it with insanely complex and vague rules and with the threat of obscenely severe penalties.²⁵ Copyright law at its birth protected only inappropriate copying, but it now also covers building upon or transforming that work, so called “derivative work”. The law's role is less and less to support creativity and more and more to protect certain industries against competition.

Lessig presents evidence of how the expansion of IPR, especially copyright, has greatly hampered the development of technology in the digital world in the following matters:²⁶

- a. *Duration*. The duration of protection increased from an average of 32.2 years to 95 years (for copyrights owned by corporations) between 1974 and 2004.
- b. *Scope*. The scope has increased from regulating only publishers to virtually everyone.
- c. *Reach*. The reach has expanded to every view on a computer, because computers make copies with every view, and these copies are presumptively regulated.
- d. *Control*. The copyright holder's control has expanded to derivative works, which is defined so broadly that virtually any new content can be sued by some copyright holder as a derivative work of something.
- e. *Industry Concentration*. Increases in the concentration and integration of the media industry.²⁷

The expansion of protection to derivative work has received criticism. According to Lessig, the work and technology currently protected by intellectual property rights are basically derivative works and to some extent a piracy of past works and discoveries. The famous Mickey Mouse character came with the film, *Steamboat Willie*, released in 1928. In part, it parodied the silent film *Steamboat Bill, Jr.*, released earlier that year by Buster

²⁴ Edwin C. Hettinger, 'Justifying Intellectual Property' (1989) 18 Philosophy and Public Affairs 31, 49.

²⁵ Lawrence Lessig (n 23) 19.

²⁶ Lawrence Lessig (n 23) 10–134.

²⁷ Five companies control 85 percent of our media sources. Four companies control 90 percent of the nation's radio advertising revenues. Ten companies control half of the nation's newspapers. Ten film studios receive 99 percent of all film revenue. The ten largest cable companies account for 85 percent of all cable revenue."

Keaton. Under current law, *Steamboat Willie* might be challenged for copyright violation as a “derivative work” of *Steamboat Bill, Jr.* Lessig²⁸ also has argued that the history of the content industry —film, records, radio, and cable TV— was developed by way of a kind of piracy.

The additional protection toward derivative works has caused unexpected results. Professor Lessig provided some evidence:²⁹

- a. The Recording Industry Association of America sued a freshman at Rensselaer Polytechnic Institute for \$10,000,000 for improving a search engine used only inside campus.
- b. Fox demanded \$10,000 for the rights to use a 4.5 second video clip with *The Simpsons* playing on a television in a corner of a scene in a documentary.
- c. A major media corporation, EMI, brought a lawsuit against a venture capital firm (VC) that had funded Napster.
- d. Major record companies sued MP.com, technology that allows users to have a “lockbox” to which they can upload their music and access it anywhere.

The cases mentioned above show that the law has dictated and hampered the development of technology. The freedom that the Internet and similar technologies offer is increasingly challenged by the restrictions that are placed upon them through laws that “close down that technology.”³⁰

4. Balancing the Necessity of Law and Technological Innovation in the Digital Era

4.1 Legalized Internet Vigilantism

Internet vigilantism can be legalized as an efficient way to remedy intellectual property infringement due to ineffective public enforcement in the digital world. The philosophy behind this is that law enforcement should be rested to a more efficient party, in this case to the right holders. The system is not new. The United States Congress passed the Berman Bill Act on July 25, 2002, which gives right holders the rights to engage in self-enforcement of their copyrights by disabling, interfering with, or impairing the distribution of copyrighted materials via popular peer-to-peer (P2P) transfer systems like Music City and KaZaA.

The methods for such self-help include interdiction, redirection, and spoofing, but not hacking or cracking. Interdiction is the denial of service (“DoS”), which occurs when a large volume of file requests are directed at a single peer machine, which slows the downloading. Redirection consists of index pollution; the index of files maintained on a P2P network is contaminated such that requests for copyrighted materials will return undesired, bogus files. Spoofing involves attaching nodes that contain corrupted content to a P2P network, which will slow the downloading process by denying the pirate resources for other downloads.

The only challenge to the Berman Act is based on a privacy concern. Therefore, the implementation of self-enforcement must not:

²⁸ Lawrence Lessig (n 23).

²⁹ Lawrence Lessig (n 23) 145.

³⁰ Lawrence Lessig (n 23) 47.

- a. unreasonably impair the accessibility to the P2P network of any file in which the copyright owner does not have a copyright interest;
- b. cause economic loss to any other P2P file trader;
- c. cause economic loss in excess of \$50.00 per impairment;
- d. fail to notify the Department of Justice seven days in advance of the technology employed to impair distribution or reproduction; or
- e. fail to notify the file trader, upon request, of the reason for an impairment.

The concept of self-enforcement or self-help is also recognized in the Indonesian legal system, such as the “parate executie” (self-enforcement) in relation to mortgage law.³¹ Meanwhile, specifically in relation to technology law, Indonesia still has not regulated nor allowed the concept of internet vigilantism for IPR holders. If such self-help methods as interdiction, redirection, and spoofing are implemented in Indonesia, it will likely to be considered as a cybercrime instead, which is criminally punishable under Law Number 11 Year 2008 on Electronic Information and Transactions, as last modified by Law Number 19 Year 2016. However, it should be noted that the concept of internet vigilantism is indeed developing in Indonesia lately, although it is not to used to enforce IPR.³²

4.2 From Technology Neutral to Technology Specific

In the context of regulating technology, technology neutrality means that the same regulatory principles should apply regardless of the technology used.³³ International agreements have also adopted the principle, such as those of the European Framework Directive of 2002 and the World Intellectual Property Organization Copyright Treaty.³⁴

³¹ “Parate executie” is an execution carried out directly without court intervention, fiat or court approval. The legal basis for “parate executie” (self-enforcement) is regulated in Article 1178, Paragraph (2) of the Civil Code for ship mortgages, Article 6 of Law No. 4/1996 for land and building mortgages, Article 1155 Paragraph (I) of the Civil Code³¹ for pledges, and Article 29 of Article (1) Letter (b) of Law No. 42/1999 for fiduciary guarantees. In addition, the concept of self-help occurs based on customary law. In business practice, the contract usually includes a clause that excludes Article 1266 and 1267 of the Civil Code, which requires the cancellation of contracts through the courts.

³² See for example Irnasya Shafira, ‘If the Law Can’t, We Will: How Digital Vigilantes Become the Safe Haven for Victims of Online Sexual Offender (A Closer Look at @aliskamugemash Exposé Account)’ (*Center for Digital Society*, 22 March 2021) <<https://cfds.fisipol.ugm.ac.id/2021/03/22/if-the-law-cant-we-will-how-digital-vigilantes-become-the-safe-haven-for-victims-of-online-sexual-offender-a-closer-look-at-aliskamugemash-expose-account/>> accessed 20 July 2022.\

³³ Technology neutrality can have three different meanings: (1) technology neutrality means that technical standards designed to limit negative externalities (e.g. radio interference, pollution, safety) should describe the result to be achieved, but should leave companies free to adopt whatever technology is most appropriate to achieve the result; (2) technology neutrality means that the same regulatory principles should apply regardless of the technology used such that regulations are not drafted in technological silos; and (3) technology neutrality means that regulators should refrain from using regulations as a means to push the market toward a particular structure that the regulators consider optimal. In a highly dynamic market, regulators should not try to pick technological winners. See Winston Maxwell and Marc Bourreau, ‘Technology Neutrality in Internet, Telecoms and Data Protection Regulation’ [2014] *Computer and Telecommunications L. Rev.* 1.

³⁴ Article 8: Without prejudice to the provisions of Articles 11(1)(ii), 11bis(1)(i) and (ii), 11ter(1)(ii), 14(1)(ii) and 14bis(1) of the Berne Convention, authors of literary and artistic works shall enjoy the exclusive right of authorizing any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access these works from a place and at a time individually chosen by them.

The European Framework Directive of 2002 makes “technology neutrality” one of the guiding principles for regulating the telecommunications sector in Europe. Wherever possible, regulators are to ensure that their rules are “technology neutral.” The concept of technology is designed to reflect the phenomenon of convergence between electronic communication networks and services. The idea is that regulators apply the same principles of market analysis and remedies to all kinds of electronic communication networks and services. Under the “technologically neutral” European approach, all networks and services are subject to the same competition-law based test under which regulators identify relevant markets and dominant actors on the market and apply appropriate remedies to address enduring competition problems.

The first aim of technology neutrality is to promote a statute’s longevity, that is, to future-proof the law.³⁵ By making the provisions in the statute more general, it can be easily adaptable to disruptive technology change and can avoid the time-consuming process of enacting new legislation. Secondly, technology neutrality aims for greater doctrinal equivalence. The broad provision in the statute could be applied to old, current and unforeseen technology. Third, by broadening the statutory provision, it is likely that the implementation of the statute would be left to the administrative agency or the court to regulate. Technology neutrality thus would guard copyright law against obsolescence.³⁶

By using a neutral technology approach, law can anticipate technological developments. But, on the other hand, a neutral technology approach can threaten the development of technology and innovation. Another argument against giving so much protection to right holders in the cyber world is that the copyright holder does not participate in creating a new market in technological development in cyberspace, but enjoys the protection and economic exploitation of a market that he did not play a role in creating.

When legal regimes adopt technology neutrality as a general principle, it leads to rules that are over inclusive and that speak poorly to unforeseen technologies. This makes technology neutrality socially undesirable.³⁷ Therefore, one principle to overcome this problem is allowing law to lag behind developments rather than try to anticipate markets.³⁸ The formulation of laws should be more technology specific, but they should avoid being prone to under-inclusiveness and obsolescence. In this case, copyright law should regulate the use of copyrighted works not so broadened but also not so specific. The administrative agency can play a role by, for example, issuing clear and targeted rules for whether and how copyright law applies to new technologies and by setting compulsory license rates for technologies not subject to the copyright owner’s exclusive right.³⁹

In relation to this, Indonesian copyright law does not specifically regulate nor have an exhaustive list on copyright protection for various types of technological developments,

³⁵ Brad A. Greenberg (n 1) 1512.

³⁶ Brad A. Greenberg (n 1) 1519.

³⁷ Brad A. Greenberg (n 1) 1495.

³⁸ Ian Walden, ‘Regulating Electronic Commerce: Europe in the Global e-Conomy’ (2001) 26 EL Rev 529–546.

³⁹ Brad A. Greenberg (n 1) 1457–1458.

but only generally protects it under the term "computer program".⁴⁰ Therefore, it seems to be in line with the approach described above.

4.3 Limiting Control Right

The last thing to be considered in preventing creativity and innovation from the implementation of excessive IPR regulations is to limit the control right embedded in the right holders. This can be done as follows:

- a. *Registration*. First would be to announce a system that might replace the copyright with a registration system (first to file). Requiring authors to register their work will reduce the number of protected works, decrease the number of copyright infringements and make it easier for law enforcement or the public to identify copyright infringement.
- b. *Duration*. The period of a copyright (especially held by corporation) and patent protection should be shortened. For example, the period of copyright protection for computer programs in Indonesia is 50 years, while for patent protection is 10 or 20 years (depends on the type of patent given).
- c. *Scope*. The scope of a derivative work should be narrowed.

CONCLUSION

The relationship between law and technological development in the digital world has always been marked by tension. From the legal perspective, technological development has facilitated infringement and made the law obsolete. From technologists, the presence of law, especially IPR, has hindered technological development and thereby impeded the dissemination of information and knowledge.

To balance the interests of right holders and the public to access information and knowledge, the law must be revised to facilitate the development of technology and innovation and the dissemination of knowledge in cyberspace while still providing reasonable protection to right holders. This can be achieved, firstly, by legalizing Internet vigilantism to provide more effective enforcement in the digital world due to the massive nature of technology on the Internet. Secondly, to prevent innovation and technological development from the excessive impact of regulation, the laws should be formulated to be more technology specific than technology neutral, and greater control should be exerted by requiring registration for copyright holders, shortening the duration of protection and narrowing the scope of derivative work.

⁴⁰ See Article 12 paragraph (1) of Indonesian Copyright Law.

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