

INTELLECTUAL PROPERTY FOR THE INFORMATION MANAGEMENT SOCIETY⁴⁵

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Abstract

Since the making of first draft about computer by John von Neveance then developed by Advanced Research Project Agency (ARPA) and subsequent with the project ARPANET and continuing developed with other invention based on computer and internet, hence since then have formed the society of organizer of information technology.

Information and use of computer technology and internet network have made new hegemony in the world as stated by a jargon that: "By controlling information, the party can control the world". The most concrete example is Elsevier Besloten Vennotschaap (BV) that became Elsevier Incorporation (InCorp) domiciling in America has been becoming information management society that highly influence in the world. Elsevier Incorp. has become a barometer of education world with information mastery in form of e-book such as Scopus and Science Direct. So this paper aims to analyze : (1) What constitute of information management society? (2) What intellectual Property Rights for the protection of information management society?

Keywords: *information technology, management society, intellectual property rights.*

Introduction

In 1945, John von Neveance wrote First Draft of a Report on the EDVAC, by exploring his idea in form of computer saving program and this was the beginning of creation of information technology

⁴⁵ I rewrite this paper as part of research result conducted by Didik Endro Purwoleksono., Rahmi Jened, Sujayadi, The Development Model of Information Technology management Society, Research Result of Leading Research University Program (PUPT), Direktorat General Research and Community Service, 2016.

supported by computer technology. Computer is defined as: “a set of technology consisting of hardware, software, and memory storage.”⁴⁶

Next in 1957, computer-powered space shuttle Sputnik was launched as the establishment stake of Department of Defense of United States of America. After that in 1964, as a part of response, computer technology was combined further with telecommunication technology by the Advanced Research Project Agency (ARPA). ARPA was the idea of Paul Baran from the RAND Corporation as an organization illustrated as “Cold War Think Tank”.⁴⁷

Furthermore, in 1969, computer-based communication network with 4 connection control points (nodes) was developed. Then in 1972, the communication network was developed into 37 connection control points (nodes).⁴⁸ One of its greatest development was the development of communication standard called as Transmission Control Protocol (TCP) or internet Protocol (IP).⁴⁹ In this case, the component of TCP is: “device that responsible for converting messages into streams of packets”. While IP is: “responsible for addressing and routing the packets to their intended destination”.⁵⁰

In April 1976 Apple Inc. was established by Steve Jobs and Steve Wozniak then in 1977 became Apple Computer Inc.⁵¹ Further develop of this, on 1 January 1983, a project named ARPANET was developed by adopting TCP/IP Protocol technology mentioned above. ARPANET was a military project of United States of America.⁵² After that, the information technology started to be used by non-military by directly accessing to super computer existing in universities so that the network expanded and ARPANET became INTERNET.⁵³

461 Ian Lloyd, *Legal Aspects of the Information Society*, Butterworths, London, 2003, 23-24

47 Daniel H. Purwadi, *Mengenal internet jaringan informasi Dunia*, Elex Komputindo, Jakarta, 2002, p. 16-18

48 Jonathan Rosenoer, *Cyberlaw: The Law of the Internet*, Springer, new York, 1999, p. 2-3.

49Ibid

50Ibid., p. 12

51www.apple.com.education.

52Daniel. H. Purwadi, *Op.Cit.*, p. 16-18

53Ibid

Succeeding in 1991, a user-friendly navigation tool in form of Archie, Gopher, and Veronica was introduced that was far different from the previous use of computer and internet that required a quite high level of engineering competence that it could only be performed by academics.⁵⁴ Subsequent in the same year, the National Science Foundation (NSF) was established which aimed to develop internet infrastructure in United States of America, but it was constrained by many regulations and prohibitions.⁵⁵

Following in 1992 World Wide Web (www) was introduced by Tim Berner, a physicist from Nuclear Physics Research Center from Conseil Europeen pour la Recherche Nucleaire (CERN). Since that time, various kinds of computer technology-based and information-contented application have occurred.⁵⁶

Consequent on 4 February 2004, Mark Zuckerberg inspired by a dating site "Hot or Not" created a site named Facebook with address URL:www.thefacebook.com. Next in 2006, Skype was launched by Niklas Zennstrom. After that in 2009, WhatsApp was created by Jan Koum.⁵⁷

Convergence and development of telephone, computer, and internet make a society with information environment. Nowadays the use of internet in the world is estimated to reach 200 million people per day, while the use of internet in Indonesia is not less than 3 million people.⁵⁸ The use of internet in Indonesia was widely used for the last decade. It is marked by the occurrence of Internet Service Provider (ISP) and various dot.com companies. The companies mostly specialize themselves as portal, such as detik.com, astaga.com, although the biggest tendency is the field of online trade (electronic commerce or e-commerce).

Information and the use of computer technology and internet network have made new hegemony in the world, namely" by

⁵⁴Angus LC., Protecting Intellectual property in Emerging Digital Environment, no pulisher, 2004, p. 9.

⁵⁵Ibid

⁵⁶Peter Drahos and John Braithwaite, Information Feudalism: Who owns the knowledge of Economy?, Earthscan, London, 2002, page 48, also on <http://www.computerhistory.org/timelive/topress/computerpage>.

⁵⁷collected from various reference among others, . Ian Lloyd, Loc. Cit.

⁵⁸Angus L.C., Lo.Cit.

controlling information, the party can control the world". It is proved by the history of information development started from war industry that finally reached business, including education world. The most concrete example is where Elsevier Besloten Vennotchaap (BV) a multinational corporation (MNC)⁵⁹ domiciling in Amsterdam then became Elsevier Incorporation (InCorp) domiciling in America has been becoming information management society .

Elsevier Incorp. has enormous influence in the world education worldwide and become the barometer of education world with information mastery in form of e-book, Scopus and Science have been becoming compulsory references of scientific academic writings, research and publication, even the determiner of ranking accreditation of scientific journal management not only in Indonesia, but almost around the world.

What Constitute of Information Management Society?

There are some definitions of technology, among others, according to United Nations Industrial Development (UNIDO) as the following: *"Technology is a composite of techniques, constituted of craft skills (welding, shopping, assembling} requiring primarily the dexterity of hand and eye and conceptual skills (knowledge and information), such as operating data, design engineering, construction, production and maintainance"*.⁶⁰ According to Mansfred: *"technology is the society pool of knowledge used regarding the principles of physical and social phenomena or knowledge regarding the application of production"*.⁶¹ Furthermore, Daniel J. Boorstin states that technology is: *"technology is synonym for experiment"*.^{62 <?>17}

⁵⁹John H. Dunning. "MNC's as A multinational enterprise is one which undertake foreign direct investment for examples which owns or controls income gathering assets in more than one country, and so doing produces goods or services outside its country of origin..." Rahmi jened, *Teori dan Kebijakan Hukum Investasi Langsung (Legal Theory and Policy of Direct Investment)*, Prenada Media, Jakarta, 2015, p. 2-3.

⁶⁰www.unido.org.

⁶¹Mansfield, *The Production and Application of New Industrial Technology*, Norton, New York, 1979, p. 10.

⁶²HerminHadiati Joeswadji, "Teaching Material on The Law of Transfer of Technology", Posgraduate Program of Doctoral Degree, Airlangga University, Surabaya, 2003, p. 3-4.

Whereas the word 'information' is defined as: " knowledge that you get about someone or something". " While data is : " (1) accurate and timely, (2) specific and organized purpose, (3) presented within a context that gives it meaning and relevance, (4) can lead to an increase in understanding and decrease in uncertainty".⁶³ Information is valuable because it can affect behavior, a decision, or an outcome. It is stated that to inform-information is data that has been processed into a form that is meaningful to the recipient and is used of real or perceived value in current or prospective action or decision.

Information has specific characters that become vital things and need special handling by managers of an organization. Currently, managers have to act efficiently, effectively, and produce profit for the company. The company's resources as follows.⁶⁴

- a. Workforce;
- b. Money;
- c. Material;
- d. Energy;
- e. Information.

All of them can be calculated except information. However, if the value of information can be calculated, it will facilitate the duties of a manager. Unfortunately, information is different from other resources because information is intangible and cannot be measured. Currently, many organizations and companies realize that information is their most important and valuable resources.

Furthermore, Edmon states that: Information can also be categorized as a commodity that does not have obsolescence for the ones needed it and constitutes an expensive commodity because not every party can process raw data into a form and characteristic of information pursuant to their needs. It is considered that implementing information technology development in a form of organization and management requires a quite complex knowledge and expertise. In the practice, development of business organization forms gets more complex in accordance with the existence of information system

6318. www.techopedia.com.

64Edmon Makarim , *Kompilasi Hukum Telematika (Compilation of Cyberlaw)*, Raja Grafindo Persada rajawi, 20012, p. 29

addressed as support of administrative process and managerial activities toward networking.⁶⁵

Moreover the word “society is defined as:” the aggregate of people of living together in a more or less ordered community”. Or people and general thought of as living together in organized communities with shared laws, tradition and thoughts.”⁶⁶

In addition the word “ management “ is defined as :” the act or skill controlling and making decision about a business..”⁶⁷ Whereas information management is:” the process of collecting, storing, managing and maintaining information in all its forms. So is a broad term that incorporates policies, and procedures for centrally managing and sharing information among different individuals, organizations and/or information system throughout the information lifecycle.⁶⁸

Convergence between information and communication technology has made a statement of information environment:⁶⁹

This immense network which has been described as ‘ an information environment’ is not only the largest, but the most complex structure ever created. Fr the surprising fact is that is one single entity. In the theory, any piece of information, the telemetry of the spacecraft, the details of bank statement or the harmless gossip of phone call can move through the entire system . and in the theory given the connection it can be accessed at any other point.

Thus ‘information management society’ refers to a long journey where the use of information has led the military, diplomatic, or successful business in their activities. Eventually, data from satellite imaging have been used for diplomatic negotiation in military control. Therefore, by information as negotiation control, information fostered by government and private industries will develop computerized information system, after that social system and political system will respond to support their existence.

65Ibid

66Merriam Webster Dictionary, <http://merriam-webster.com>

67Ibid

68www.techopedia.com.

69Edmon Makarim , Op.Cit.,p . 29

In terminology in the internet, it is known World Wide Web (www) that gives facility to access the internet. Wwww is the address of cyberspace and internet is the name of network. If someone accesses the internet, various features in various forms will occur. The view is known as the term home page that means the first page of a website, while website is a set of pages with content in form of images or texts of hypertext markup language (HTML). This view format can show documents that contain texts, images, sounds, animations, or videos. Documents showed in HTML format usually have link or connection with other information or sources.⁷⁰

Besides that, technology infrastructure in ICT media commonly uses Recommender System (RS) used by the providers of online activities to help users personally to get the intended information. The RS can be measured and can work real-time despite its great size and capacity up to several milliseconds used simultaneously by millions of users. Besides that, it is known a device called as Magnetic Resonance Imaging (MRI) commonly used to observe soft tissue that mostly constitutes human brain performance, then with computer-aided image to analyze technically shows the direction of imaging development and automatically detects anatomy structures. The method is also used in digital form and reforms it to adjust to data image to be analyzed.

In education world, the occurrence of knowledge society and the demand growth of workforce with high level of expertise and education demands change of traditional teaching and learning process to be various methods of learning systems based on computer (computer-based learning system/CBT) and web-based training (WBT), and virtual classroom as the complement of conventional method.

Some of Information technology reflected in internet activities is usually called as digital technology or multimedia with capability as diverse communication and information media, including aspects of sounds, images, sounds and images, and other characters, besides the content of information presented. The result of research by JICA

⁷⁰Dian Safitri, Copyright protection for images on Internet, Law Faculty of Airlangga University, Surabaya, 2000, p2-3.

conducted in 2000 showed information technology covers many kind of multimedia products with revenue as follows:⁷¹

- a. Film (US\$67, 7 billion);
- b. Video (US\$120,2 billion);
- c. TV program (US\$ 107 billion);
- d. TV transmission service (US\$ 151 billion);
- e. Recorded music (US\$ 3, 84 billion);
- f. Karaoke (US\$240 billion);
- g. magazine (US\$ 83,7 billion);
- h. Book (US\$85,3 billion);
- i. Newspaper (US\$1555,2 billion);
- j. Radio and billboard advertising (US\$47,8 billion);
- k. Video games (US\$28,8 billion);
- l. internet and access fee (US\$40,2 billion);

This value can be doubled in the last 10 (ten) years. Meanwhile there are various activities can be conducted by using information technology among others:⁷²

- a. Communication;
- b. Resources sharing;
- c. Resources discovery;
- d. Community forming;
- e. E-commerce.

Generally information society or virtual communities (VCs) get access information for the need of:⁷³

- a. Download articles from their mode;
- b. Participate in for a and pose questions;
- c. Read FAQs and search for keywords;
- d. Use the site search engine;

⁷¹Japan Patent Office (JPO), IP and Multimedia, Hanbook of IP Training for IP Practitioners, Japan International Cooperation Agency (JICA) and Association Overseas Training Service (AOTS), Tokyo, 2003, p. 3.

⁷²Benny Silverstern, *Business to Business Marketing*, Maximum, Canada, 199, p. 82.

⁷³Anonius Andreatos, *Virtual Community And Their Mportance For Informal Learning*, CCCc Publication, US, 2007, p. 39.

e. Contact sage members.

While the view occurring on computer screen includes all creations that are conventionally in tangible forms but showed in form or image in electronic media, including:⁷⁴

- a. Literary Work, namely all form of work based on texts with forms that obtain copyrights. Literary work here includes poems, books, articles, and so on expressed in a number of words, symbols, and others;
- b. Database, namely a set of data, normally obtains copyrights as a set. It is in form of data (as long as not related to fact) such as price list, URL address for sites, private and public keys used for encryption or digital signature and database in form of compilation and collection of data;
- c. Characters, namely fictional characters in visual form, such as Mickey Mouse and Superman, and in literature form, such as Sherlock Holmes, Hardy Boys, or James Bond. Fictional characters exist in visual form, story texts; animations in form of video and audiovisual works, films, video tapes, video discs or videograms, TV programs;
- d. Musical Works, namely musical works that obtain copyrights. Protection of copyrights for musical works includes both things: words and music. Musical works in form of music with or without texts, musical instrument digital interface (MIDE). Sound recording works in form of recording of sounds, natural sounds, or special sound effects;
- e. Sound Recording, namely sound recording produced from recording, such as serial music, talks, and other sounds;
- f. Photographs and Still Images, namely images and graphical works that obtain copyrights, including: comic, strips, advertisements, technical drawings, and diagrams. Photographs and still images are in form of graphical and pictorial works including advertisements, cardboards, images, paintings, designs, games, maps, mosaics, patterns,

⁷⁴Rahmi Jened, "Copyright on Multimedia Production", Research Result, Oral presentation as the Outstanding Lecturer of Airlangga university, 2007, p. 4-6(quote from James Lahore, *IP and Antitrust Law*, Butterworth, Sydney, Australia, 1999, p. 2..

- montage photos, art multiplications and printing results, technical drawings, design patterns, architectural building design patterns, blueprint of mechanical drawings, and diagrams;
- g. Motion Pictures and Other Audiovisual Works, namely motion pictures, videos, and audiovisual works that obtain copyrights;
 - h. Software, namely software that obtains copyrights. Software in form of source code and object code;
 - i. Compilation and Derivative Works. Compilation is a work formed by collection, installation, procurement of material or data that is then selected, coordinated/arranged that then produces work as the whole original work of the author, such as magazines and catalogs;
 - j. Derivative Works, namely a work based on one or more works, such as translations, fictions, motion picture versions, and so on. Multimedia Works, namely general works that combine one or two of the existing categories into single medium.

Intellectual Property Protection for Information Management Society

In terms of copyrighted work, legally there are 3 (three) levels of protection for information management society and intellectual creation in digital and electronic form including internet, namely:⁷⁵

- a. Copyright and neighboring right protection;
- b. Technical protection to block access; *DRM software, the right of information management society*
- c. Legal protection against circumvention.

Pursuant to the Law No. 28/2014 on Copyright, issues related to the rights of information technology management society and digital technology or internet protected by copyright are implicated by two agendas namely the World Intellectual Property Property Organization (WIPO) Copyright Treaty (WCCT) dan WIPO Performances and

⁷⁵Lewinsky Silke, "European Copyright law", Teaching Material of training of Trainer, European community and ASEAN intellectual Property Rights cooperation Program (ECAPII), Munich Intellectual Property Law center (MIPLC) Max Planck Institute, Munchen, Germany, August - December 2004, p. 2-4.

Phonograms Treaty (WPPT) ratified by Decision of President of the Republic of Indonesia No. 19/1997. WCCT is complementary international rule of the Berne Convention for the Protection of Literary and Artistic Works. While WPPT complement the Rome Convention for the Protection of Performer, Producer of Phonograms and Broadcasting Organization.

Setting standard of the two agenda usually called as Digital Agenda actually widens economic right of the creator or copyright holder pursuant to Article 9 of The Law No. 28 year 2014 and the holder of rights related to copyright pursuant to Article 20 to 25 of The Law No. 28 year 2014.

Firstly, it widens the right of communication to the public contained in Berne Convention, that including announcing in form of texts and images. Secondly, it adds the right of making available to the public because the determination of access does not depend on the creator but on the users of internet.⁷⁶

Traditionally copyrights grants right to data base, even though the right to data base has now become "a sui generic" protection. The right on database is: "Grant the right to legal person who make substantial investment of database... an exclusive right to authorize or prohibit the extraction or utilization of data base".⁷⁷

Technology is very helpful for humans to perform their activities. Humans can optimally create with the help of technology. However, it cannot be denied that copyright faces tough challenges from technology advancement.

Regarding with technology development there is the digital right management (DRM) means: "refers to access control technologies used by publisher, copyrights holders and hardware manufacturers to limit usage of digital media or devices".⁷⁸ Differ from the substance of copyright protection that only attempts to prohibit unentitled multiplications of files saved in any media.

⁷⁶Rahmi Jened, Coyright Law, Citra Aditya Bhakti, Bandung, 2014, p.

⁷⁷Lewinsky Silke, "Right of Database", Teaching Material of training of Trainer, European community and ASEAN intellectual Property Rights cooperation Programme (ECAPII), Munich Intellectual Property Law center (MIPLC) Max Planck Institute, Munchen, Germany, August – December 2004, p. 1-2.

⁷⁸Austin Russ, DRM overview, SANS Indtitute, security Essential, vI, 25 Juli 2001, 1-3.

★ The digital right management (DRM) gives power for the publisher to control “what can” and “what cannot be done”. The publisher can limit the number of multiplications that can be seen or with what media the thing can be transferred. In this case DRM is used by Sony or Microsoft factory to control user access to their technology.

The second layer protection for the information management society is the technical protection to block access. Technological measure defined as: “technological instrument in form of secret code, password, barcode, serial number, decryption or encryption.” In the two treaties that mentioned above, technological measure is broadly defined as: “*any technology, device or component that, in formal course of its operation, it is designed to prevent or restrict acts, in respect of works or other subject matter, which are not authorized by the rightholder of any copyright, related right or the sui generis right*”.⁷⁹

The technological measure is considered effective if the use of creation protected by copyright or other creation is controlled by the holder of rights by implementing access control or protection process, such as secret code, password, barcode, serial number, encryption, decryption, scrambling, or other transformation of creation, or other creation, or a mechanism of copying control that can ensure protection objectively.

In terms of this technological measures, the society of information management has ~~the~~ the right of information management means: “any information provided by the rights holder which identifies the work, its author or owner or information about the terms and conditions of use of work and any numbers or codes that represent such information”.⁸⁰

This right of information management gives protection against any action of technology misuse. It protects against any action of deletion or elimination of electronic information management rights attached to copyright (related to technological measure). This standard is also implemented for creation of show and sound recording presented digitally or via internet media.

⁷⁹Ibid

⁸⁰Lewinski Silke, Loc.Cit.

Nevertheless this right of information management is becoming discourse- pro -cons On one side some people are willing to have this right, while some others think that in the implementation of digital technology and internet , legal protection should be proportional and does not constrain normal operation of technological devices and does not constrain the development of technology itself. Neither protection requires excessive obligations for design of devices, products, components, nor services attached to the technological measure, as long as the devices are not products of right infringement. Excessive protection will create abuse of right and excessive technology monopoly of creation use.

Finally the third layer of protection for the information management society is legal protection against circumvention. It means member countries of aforesaid digital agendas also have to provide an adequate legal protection (such as punishment) against circumvention of effective technological measure done by someone who has knowledge for that purpose, or should know the goals of implementation of the technological measure. Every action considered as law violation including producing, importing, or renting any tools designed specifically to eliminate technology control facility or to prevent or to limit multiplication of a creation. In Indonesia the legal instrument to protect against circumvention among others are:

- a. The Law No. 11/2008 on Information and Electronic Information *Transaction*
- b. The Law No.8/1999 on Consumer Protection;
- c. The Criminal Code;
- d. Code of Civil Law;
- e. Circulars of Head of Indonesian National Police No. SE/0/X/2015 on Hate Speech;

The Law No. 11/2008 regarding with illegal use of electronic information and transaction,; privacy and surveillance, computer fraud, hacking, and virus; The Law No. 8/1999 regarding with defective software products. Criminal Code related to criminal responsibility for content and defamation. In addition there is a Circulars of Head of Indonesian National Police No. SE/0/X/2015 that regulates special handling case of hate speech and defamation.

In addition the Law of Civil Code applied to the case of breach of contract and tort that relating to activity of the information management society . There is also Internet Cooperation for Assigned Names and Numbers (ICANN) that regulates electronic contract, electronic commerce.

Finally the Law No. /1983 regarding General Provisions and Procedure of Taxation can enforce tax for electronic commerce as an implementation of Regulation of Minister of Finance No. 16/PMK.10/2016 regarding Income Tax of Article 12.

Besides that, the access of creation in the internet has to be observed, whether it is free access or fee for access. In case of free access, users should be introspective to examine whether their actions violate the law or not. On the contrary, in case of fee for access, it can be an element of defense for users if there is allegedly copyright infringement.

The society that organize information can also be protected by Patent Law No.13/2016 on Patent. There is Article 4 stated that "invention does not include:... (d) rules and methods that contain only computer program. In other word if the computer program implements the invention or so called software related invention, then it can be patented.

Closing Remarks

With the existence of convergence of information and communication technology (ICT), then information environment is developed and furthermore it forms information management society initially started by negotiation and diplomatic function in field of military into business managerial function and processing process with various interests. Even in field of education, such as Elsevier Incorp., that controls electronic products Scopus and Science Direct.

Various forms and networks of interests become the basis of formation of information technology management society. It can be seen from the needs to communicate, share information source, search information source, form community with the same interest. In education world, the occurrence of knowledge society and the demand growth of workforce with high level of expertise and education .

The protection of intellectual property rights to the information management society under the Copyright Act and Patent law. Copyright protection for content and information itself as copyrighted works and other subject matters. Whereas the patent protection for computer programs that meet the requirements of patentability and does not include the exception and limitation set forth in Article 4 and Article 9 on the Law No. 13/2016.

The government should anticipate technological developments with fair regulation and discretion in view of the many societies that impact and affected by technology development. Various legal rules need to be harmonized with the technological development.

Intellectual property rights protection for information management society based on copyright law and patent law need to be more socialized to programmer developers and information technology managers so that Indonesia is not just being a user of information technology based from technology producers from overseas, but also provide adequate protection for domestic information technology manufacturers.