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EDITORIAL TEAM

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EDITORIAL NOTE ON THE VOLUME 9, ISSUE 1, 2020

Editorial Note

Dr. Christy, Yachi Chiang

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National Taipei University of Technology (Taiwan).

Being the Editor in Chief of this issue, I'm very grateful for all submissions and for all time and efforts the authors invest in their works. Special thanks also go to all expert reviewers who helped to maintain the academic standard of this journal.

As self-explained in the title of this journal, it is aimed at establishing a rigorous and meaningful dialogue between IP laws and IP management issues in both a regional and global context. We hope that our readers will be pleased and benefit from the publication of this issue.

Editor in Chief

Dr. Christy, Yachi Chiang

Associate Professor

Graduate Institute of Intellectual Property

National Taipei University of Technology (Taiwan)

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The Multilateral Legal System under Globalization: The Conflicts and Co- Competition between the National Laws and Transnational Laws in Taiwan's IP Law and Legal System

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Abstract

Without doubt, the trends of globalization have accelerated changes in politics, culture, and the socio-economic development from the industrial economy to the current knowledge based economy. There is no denying that the impact of globalization includes advantages and disadvantages at the same time. It is regrettable that the values of a multi-cultural society have been threatened by the mainstream view of globalization, and the sovereignty of national law is also facing boundary challenges and legal problems. Actually, Taiwan law is German-based civil law, so it differs from English-based common law. Obviously, in order to connect with international society, Taiwan law must comply with transnational laws under the globalization trends. All WTO Members are required to obey WTO regulations with regard to IP dispute resolutions; this includes Taiwan Patent Law's connection with transnational law, and the chapter of this paper explores the situation of Taiwan's legal system under globalization trends, in particular, the conflicts and co-competition between the national laws and transnational laws.

Keywords: Globalization Trends, Knowledge based Economy, National Law, and Transnational Law

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I. Introduction

It is well known that laws are influenced by history, culture, economics, politics and the social environment. Along with the changes to electronic information techniques and the rapid development of the Internet, the political, economic, social and cultural environments are changing and have begun to cross national boundaries to accelerate the exchange and integration of information, capital, commodities and labor within different countries. Thus, the barriers of traditional national boundaries are gradually disappearing and are being replaced by a borderless global village. For example, the international economic system includes the International Monetary Fund (IMF), the World Health Organization (WHO), the European Union (EU), the North American Free Trade Agreement (NAFTA), the Asia Pacific Economic Cooperation (APEC), the Organization for Economic Cooperation and Development (OECD), and the World Trade Organization (WTO). Through the mutual integration of national and international trade, global trading, financial and monetary systems, information techniques, legal systems, medical and health care services, etc., cross national boundaries and are becoming the single core system of the world. As we know, globalization trends have accelerated changes to the environment, including politics, economics, society and culture. There is currently a socio-economic development shift from industrial economies to knowledge based economies. There is no denying that the impact of globalization has brought both advantages and disadvantages at the same time. It is regrettable that the values of a multi-cultural society have been threatened by the mainstream view of globalization; thus, the sovereignty of national laws is also facing the challenges of boundary changes and legal problems. In fact, Taiwan law is based on German civil law, which differs from English common law. Obviously, to connect with international society, Taiwan law needs to comply with transnational laws under the trends of globalization. All WTO members are required to obey WTO regulations with regard to IP dispute resolution, including Taiwan Patent Law. In view of this, Taiwan Patent Law must connect with transnational law.This chapter will explore the state of the Taiwan legal system under the trends of globalization, where there isconflict and co-competition between national laws and transnational laws.

II. The impact of the knowledge economy on globalization

An article titled “Knowledge-based Economy Series” published by the Organization and Economic Cooperation and Development (OECD) emphasizes the core elements of knowledge, including: the usage, generation, accumulation, classification, expansion, inspiration, and innovation of knowledge as its core elements. That article officially indicated that the economic era of human society has transformed from an industry-based economy to a “Knowledge Based Economy” built upon the creation, expansion and application of knowledge and information. The ability and efficiency of creating and applying knowledge surpasses traditional production elements, such as land and capital. Moreover, it has proven to be the main force for sustainable and continual economic development. Therefore, along with the rise of the knowledge based economy, the economic behavior of human beings is no longer limited to capital, land, factory buildings, production machinery/equipment, petroleum, mineral products, etc., as was the case when large scale production was the major strength of economies. The current trends in economic behavior focus on

building mechanisms with which to manage knowledge efficiently and thereby turn intellectual property into a commodity with a market value.

Under the trends of knowledge based economies and globalization, knowledge innovation is continually updated and changing with every passing minute, meaning that technology, management and legal protection mechanisms related to intellectual property rights have become the core of business competition. Consequently, for the judicial strategies of high-tech enterprises, Intellectual Property Rights (IPR) can be actively turned into a weapon for securing royalties from manufacturers who have used patent technology without authorization, as a means of aiding the recovery of R&D costs and investments and to make a profit. Today, IPR has also become a defensive weapon, which can be employed as a bargaining chip for negotiations or cross-licensing. In addition, by means of intellectual property rights, high-technology industries will increase the obstacles for competitors to enter their market, gain a dominant position, and increase their market share percentage. Furthermore, by means of intellectual property rights, high technology industries may apply technique value or technique stock shares as assets on the balance sheet, and may use the collateral to secure bank loans to raise further capital for R&D. Under the impact of the current knowledge based economy, high-technology industries are able to turn the application of intellectual property rights from passive self-defense in lawsuits into actively involved strategic marketing activity. However, there is a pertinent question to be asked. What is globalization? Until now, the issues of globalization have entered public discourse in the research on several different subjects. The IMF has interpreted globalization as a process of integration, across frontiers, of liberalizing market economies at a time of rapidly falling costs of transportation and communications, particularly through the movement of goods, services, and capital across borders. In addition, it also refers to the movement of people (labor) and knowledge (technology) across international borders.[1] Other scholars who are engaged in the public discourse on globalization have offered their own definitions of globalization.

David Held et al. (1999) contended that[2]: "Globalization can be conceived as a process (or set of processes) which embodies a transformation in the *spatial* organization of social relations and transactions, expressed in transcontinental or interregional flows and networks of activity, interaction and power."Ulrich Beck (1999) asserted that[3]: "Globalization as the processes through which sovereign national states are crisscrossed and undermined by transnational actors with varying prospects of power, orientations, identities and networks". In the article "The Globalization Markets", published in the Harvard Business Review, Theodore Levitt (1983[4] referred to the business activities of multinational enterprises in the globalization markets; he used the word globalization to explain the diffusion of commodities, services, capital and techniques on globalized production, consumption and investment. In other words, globalization is about multinational enterprises which set up operation facilities and product marketing sites in different countries, so that the production, financing and trade are done on a global scale. Hill (2006) explained

[1] Martin Wolf. (2000), *Why this Hatred of the Market*? in Lechner, J, Frank and Boli John (ed.) *The Globalization Reader* .(Massachusetts : Blackwell Press, 2000), pp.9-11.

[2] David Held, Anthony McGrew, David Goldblatt, Jonathan Perraton (1999), *Global Transformations: Politics, Economics and Culture*, Cambridge: Polity Press, pp.47-166.

[3] UlrichBeck (1999), *What Is Globalization*? Cambridge: Polity Press, pp.17-63.

[4] Theodore Levitt (1983), *The Globalization of Markets*, Harvard Business Review, pp.92-102.

that[5]: Globalization means a world economic body that is highly integrated and interdependent, and includes two aspects: 1. Market globalization, and 2. Production globalization. First of all, market globalization refers to the separate world markets of different nations which are being integrated into a unified market. In fact, the reduction in the barriers to transnational trading has enabled many enterprises to readily sell their products on the world market. Subsequently, production globalization refers to the way enterprises may take advantage of the differences in the costs and quality of global elements (e.g., labor, energy, land, capital) to proceed with product services and purchases to bring down costs and improve the quality and functions to obtain the best competitive advantages. In addition, Robertson (1990) indicated that[6]: "Globalization as a concept refers both to the compression of the world and the intensification of consciousness of the world as a whole." In this account, Robertson further points out that globalization involve the crystallization of four main components of the "global-human circumstance": societies (or nation-states), the system of societies, individuals (selves), and humankind; it therefore also takes the form of processes of socialization, internationalization, individuation, and generalization of consciousness about humankind.

Actually, even though globalization is a complicated phenomenon such global consistent trends are inevitable; in the world culture globalization means different things to different people. Because of the differences in the definition of globalization among scholars, David Held, Anthony McGrew, David Goldblatt and Jonathan Perraton provide an overview of different concept on globalization dominant in the 1990s. They describe three perspectives on globalization, referred to here as the hyperglobalization, skepticism, and transformationalism views.[7] First of all, the theory of hyperglobalization, considers globalization as an inevitable trend, which will bring a brand new era in global economics in which all existing systems will be broken down under the wave of new economic activity. The idea of sovereignty will face unprecedented challenges from "economic unification" when nation states will also become a thing of the past.[8] Under the trend of globalization, nation states will lose influence and be forced to operate increasingly through multilateral institutions, especially the G7, IMF, World Bank, WTO, etc. Secondly, with regard to the theory of skepticism, Paul Hirst and Grahame Thompson are two representative scholars who are highly skeptical and negative toward the theory of hyperglobalization. Such skeptical scholars emphasize globalization as merely a myth, and therefore the development of globalization will only lead human beings towards a more unbalanced future. For example, economic globalization will only push the integration of America, Japan and the European Union. On the other hand, skeptics think that the capability of the nation states still exists, even though the world is under the trend of non-nationalization as proposed by hyperglobalization. In other words, skeptics believe that the hyperglobalists ignore the continued primacy of national power and

[5] Charles W. L Hill & G. Tomas M. Hult. (2016), *International Business-Competing in the Global Marketplace.*, 10th Ed., McGraw-Hill, NY, pp.2-37.

[6] Robertson Roland (1990), *Mapping the Global Condition: Globalization as the Central Concept*, in Mike Featherstone (ed.) *Global Culture: Nationalism, Globalization and Modernity*, pp.15–30.London: Sage.

[7] David Held et al. (1999), supra note 2.

[8] Ohmae, Kenichi (1990), *The Borderless World: Power and Strategy in the Interlinked Economy,* London: Collins, pp.180-198.Ohmae, Kenichi. (1995), *The End of the Nation State: The Rise of Regional Economies,* New York: The Free Press pp1-6, pp59-70..

sovereignty.[9] In addition, scholars Anthony Giddens and Ulrich Beck are two skeptics of the theory of transformationalism. They consider globalization to be a contingent historical process. Nobody can predict the future development of globalization. As a result, they neither deny the existence and impact of globalization, nor agree with the idea that the nation state will disappear, as advocated by transformationalism. They believe that under the trend of globalization, the traditional nation will no longer have absolute sovereignty; rather, every nation must adjust its own power under the challenges of international issues and international organizations.

There can be no doubt that the impact of globalization has brought both advantages and disadvantages. The advantages include: (1) Lower production costs while raising profits through transnational production methods; (2) Strengthening the competitive capability of enterprises through free trade mechanisms; (3) Reducing trade disputes through the establishment of national and international trading organizations; (4) Cancelling tariff protection barriers through all kinds of free trade agreements and regional economic organizations; (5) Speeding up transportation, communication, convenience and the economy itself through the rapid development of electronic information and the Internet. Inevitably, however, there are also disadvantages such as: (1) National sovereignty is facing challenges of boundary issues and legal problems; thus, it is necessary to find a balance. (2) The highly-developed R&D technology has caused the global ecology and biogeography to change and deteriorate rapidly. (3) The developed countries have an advantage in the technology market, while the undeveloped countries must comply with the regulations of the WTO with unfair conditions for competition, so the gap between the rich and the poor is widening. (4) The value and culture of mainstream society introduced by globalization has threatened diversified social culture. (5) Globalization has brought keener competition between enterprises, and those which are at a disadvantage will soon face problems of survival and unemployment, and will experience an industrial hollowing-out crisis.

Since the development of globalization is neither fair nor balanced, the question of how to reach a balance with localization under the trend of globalization has become an issue worthy of further discussion. This study argues that the individual differences of culturally diverse societies must be respected in order to achieve justice and fair competition. In other words, whether it is hyperglobalization, skepticism or transformationalism, the elements of localization must not be ignored in the development of globalization. Clearly, based on reasons of public health needs, low and middle-income countries (LMICs) may use the rights of compulsory licensing according to Article 31(f) of the TRIPS Agreement and Public Health (known as the Doha Declaration) of 2005.This merely affirms that the individual differences of culturally diverse societies should be respected.

III. The globalization of law: the trend of transnational laws

Along with the changes in electronic information techniques and the rapid development of the Internet, political, economic, social and cultural environments are also changing and have begun to straddle national boundaries to accelerate the

[9] Hirst, P. and Thompson, G. (1999), *Globalization in Question*, second edition, Polity Press, Cambridge, pp.1-18.

exchange and integration of related information, capital, commodities and labor between countries. Thus, the barriers of traditional national boundaries are gradually disappearing, and are being replaced by the borderless global village in the era of globalization. Globalization has led to the diversification of international legal affairs, especially for human rights, labor affairs, international trading, finance, E-commerce, intellectual property rights, medicine, healthcare, environmental protection, the judgment and arbitration in foreign courts, etc. These subjects have gradually formed the scope of Transnational Law.[10] That is to say, Transnational Laws regulating the legal subject activity and behavior across national boundaries are not limited to International Public Law or International Private Law, but also cover other laws.[11] In summary, Transnational Law is based on a state's sovereignty and reinforces itself with a state's punitive system; therefore, there is an unconventional legal order between countries, but domestic law within one nation.[12]

The homogeneity and standardization which have emerged from the trend of globalization pose a significant threat to multi-cultures and have also helped the great power states to take control over international organizations in the name of globalization. Furthermore, from the perspective of law and economics, this homogeneity and standardization allow the major powers to fully take over transnational law and thus influence mainstream thoughts on international law. For example, the TRIPs Agreement Article 41, signed by the World Trade Organization (WTO) members, asks member countries to abide by the minimum level of practical protection; thus, it will offer appropriate judicial protection mechanisms. Conversely, if member countries do not fulfill their responsibilities in this regard, it may be viewed as a new type of trading obstacle; hence, they will face trade sanctions. However, for certain developing countries which are in need of treatments for Acquired Immune Deficiency Syndrome (AIDS) / Human Immunodeficiency Virus (HIV), they have to comply with the related laws and regulations of patents and medicine manufacturing, which goes against Article 25 of the Universal Declaration of Human Rights (UDHR) and Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR).

Today, due to the rapid changes in globalization, under the surface of complicated and diverse social value norms, there are often conflicts in the legal system between national laws and transnational laws. In fact, when looking into the conflicts between national and transnational laws, the logic is similar to the Laws of

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[10] The Oxford Dictionary defines globalization as, "extending beyond national boundaries", as quoted in Thompson, The Concise Oxford Dictionary of Current English, 9th Ed, Oxford University Press 1995, pp.1483. In addition, Harold J, Berman asserted that "world law" underpins global civil society along the lines of common law, which also includes Judge Philip's concept of "transnational law", cited by Harold J, Berman, "The Role of International Law in the Twenty-first Century: World Law", 18 Fordham Inte'l L.J., 1995, pp.1617, pp.1621 In this chapter, both "world law" and "global law" are collectively referred to as "Transnational Law" to avoid confusion.

[11] Judge Jessup, in Storrs Lectures, Transnational Law, 1956, "….to include all law which regulates actions or events that transcend national frontiers. Both public and private international laws are included, as are other rules which do not wholly fit into such standard categories [as pure domestic laws]."

[12] Gunther Teubner (1997), *Global Bukowina: Legal Pluralism in the World Society*, in Global Law without A State 7 (G. Teubner ed., 1997)., cited by Chia Yin Chang (2008), *An Analysis of the System Theoretical Reflections on Legal Globalization*, Collected Papers from the Editor: Peng-Hsiang Wang, Jurisprudence and Social Change 2008- Refereed Anthology NO7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139.

Physics, in which the point is not the individual elements made with atoms or molecules, but the interactions formed by the permutations and combinations of atoms and molecules. For example, the carbon atoms that make up a diamond do not themselves give off light; rather, it is the special permutation and combination of the structure of the carbon atoms which results in the sparkle.[13] In other words, National Law combines the relevant elements required to compose the international social structure. However, many national law member countries signed transnational law agreements with one another to establish the rules of the game based on mutual interests to maintain the order of international society, the contents of which may have nothing to do with the nature of the national law. In view of this, the question of how to address the gap between national laws and transnational laws in seeking to connect the two has become an important issue worthy of further discussion.

In general, a traditional legal system takes the nation as its subject. Therefore, the effectiveness of the law to solve a legal dispute is usually limited to the range within the reach of the national government. However, to make consistent the legal norms of the different national laws of a variety of countries, international organizations usually set globally consistent legal norms by signing international treaties, to offer a solution mechanism whenever international legal disputes arise. For example, trade between and within trade zones, such as the IMF, WHO, EU, NAFTA, APEC, OECD, and WTO, can help global trade, finance, information techniques, legal systems, medicine and health affairs to straddle national boundaries and become the single core system of the world.

Actually, along with the knowledge based economy and globalization, intellectual property rights protection, fair trade, human resources issues and high-tech enterprises have been included in transnational law. To seek fair competition relationships in international economic and trade development, in addition to enabling intellectual property rights protection mechanisms to become a globally consistent legal norm, the legal norms and legal dispute resolving mechanisms beyond the scope of transnational law can be integrated among different WTO member nations under the TRIPS agreement regulated by the WTO. Meanwhile, intellectual property rights laws and fair trade laws in particular offer globally consistent legal norms and dispute resolving mechanisms. It is well known that Taiwan's legal system is derived from the civil law system, which is quite different from the common law system; it also has to obey certain regulations of the WTO, such as the TRIPS agreement, after Taiwan's participation in the WTO. Hence, the question of how to effectively integrate the differences between national law and transnational law in the legal system in Taiwan is a core point of this paper, to match people's demands and support. Accordingly, this paper argues that according to the requirements of the justice system, the design mechanism of patent dispute resolutions in Taiwan should comply with people's needs and meet the standards of transnational law. Both national and transnational laws can then be effectively integrated in today's globalized world.

[13] Mark Buchanan (2007), *The Social Atom: why the Rich Get Richer, Cheaters Get Caught, and Your Neighbor usually Looks like You*, Bloomsbury: New York, USA, pp.1-20.

IV. The co-competitive relationship between transnational laws and national laws

With regard to the globalization of laws, Teubner and Fischer-Lescano have interpreted the development of globalization according to Luhmann's theory. They view globalization as a process of polycentric globalization[14] and consider the process of globalization to possess a polycentric form.[15] Moreover, its major motivation is derived from the autonomous social system accelerating social diversification, where each society will surpass the boundaries of national territory, and finally transcend transnational communities to form a holistic self-organization. The systems or fields described above have all come together to form an autonomous global system[16], thus making transnational laws both plural and diverse.[17]

Briefly, since local common law mechanisms do not meet the global issues of concern, including the globalization of business, medical treatments, intellectual property rights and labor rights; thus, it will lead to self-organization through politics, economics, society and religion to create its own substantive laws[18], such as global business law, transnational copyright law, patent protection for medicines and world labor laws.[19] It is clear that transnational laws are formed diversely in the economic departments and spread into other social departments. Furthermore, transnational laws

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[14] A. Fischer-Lescano & Gunther Teubner (2004), *Regime - Collisions: The Vain Search for Legal Unity in the Fragmentation of Global Law*, 25MICH. J. Int'l. 1018 (2004), pp.1006, cited by Chia-Yin Chang (2008),*An Analysis of the System of Theoretical Reflections on Legal Globalization*, Collected Papers from Editor: Peng-Hsiang Wang**,** Jurisprudence and Social Change 2008-Refereed Anthology NO.7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139.

[15] Gunther Teubner (2003), *Societal Constitutionalism: Alternatives to State-centered Constitutional Theory*, in Constitutionalism and Transnational Governance 3-28 (Christian Joerges, Inger-Johanne Sand & Gunther Teubner eds., Lain L. Fraser trans., 2004), cited by Chia-Yin Chang (2008), *An Analysis of the System of Theoretical Reflections on Legal Globalization*, Collected Papers from Editor: Peng-Hsiang Wang**,** Jurisprudence and Social Change 2008-Refereed Anthology NO.7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139. A. Fischer-Lescano & Gunther Teubner (2004), cited by Chia-Yin Chang (2008), supra note 14, at pp.85-139.

[16] A. Fischer-Lescano & Gunther Teubner (2004) cited by Chia-Yin Chang (2008), supra note 14, at pp.85-139.

[17] Ibid.

[18] Jean-Philippe Robé, *Multinational Enterprises: The Constitution of a Pluralistic Legal Order*, in Global Law without A State 45 *infra* (Teubner ed., 1997), cited by Chia Yin Chang (2008), *An Analysis of the System of Theoretical Reflections on Legal Globalization*, Collected Papers from Editor: Peng-Hsiang Wang**,** Jurisprudence and Social Change 2008-Refereed Anthology NO.7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139. Peter T. Muchlinski, '*Global Bukowina' Examined: Viewing the Multinational Enterprise as a Transnational Law-making Community*, in Global Law without A State 79 *infra* (Teubner ed., 1997) cited by Chia-Yin Chang (2008), *An Analysis of the System of Theoretical Reflections on Legal Globalization*, Collected Papers from Editor: Peng-Hsiang Wang**,** Jurisprudence and Social Change 2008-Refereed Anthology NO.7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139.

[19] Ralf Rogowski (2004), Aufbruch in das Weltrecht: Thesenzu Recht und Politik in Luhmanns Welt gesellschaft, Iablis 2004, cited by Chia-Yin Chang (2008),*An Analysis of the System of Theoretical Reflections on Legal Globalization*, Collected Papers from Editor: Peng-Hsiang Wang**,** Jurisprudence and Social Change 2008-Refereed Anthology NO.7, Taipei: Institutum Iurisprudentiae, (Preparatory Office) Academia Sinica, pp.85-139. A. Fischer-Lescano & Gunther Teubner (2004) cited by Chia-Yin Chang (2008), supra note 11, at pp.85-139.

are not the product of national sovereignty or of international politics, nor do they belong to traditional international laws.[20]

Compared to the differences with local laws, Luhmann, Teubner and Fischer-Lescano proposed another concept of the unity of global law, believing that transnational laws lead to the unity of laws via inter-legality, rather than to the consistency of local law orders.[21] At the same time, the operations of different laws may vary; however, the consistency of global law is based on the legal process-based normative consistency, which means the law orders in different systems will have much more binding legality.[22] In other words, the regulations of international organizations lead to binding legality[23] and to independent law orders in transnational laws.[24]

For example, for many years, disputes over patents have been centered on national territory. However, as this kind of dispute often happens between countries, we should focus on different areas and let WIPO and WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) Agreement take care of any disputes. Nonetheless, the crucial factor for restricting national differences is national territories, so the regulations of international organizations intercede with different criteria and reach the minimum level of protection based on the concept of mutual benefit.[25] Teubner and Fischer-Lescano claim that we should create a mutual law (common language), which is expected to put greater emphasis on national, international and transnational laws.[26] Hence, this paper argues that since the terms of compulsory licensing have already beenadopted by The World Trade Organisation's Declaration on Article 31(f) of the TRIPS Agreement and Public Health of 2005, there this is nothing left but to create mutual laws (common language) among national, international and transnational laws.

V. The state of co-competition between transnational laws and national laws

With the trend of globalization, both time and space are being compressed; thus, the changing process of system conversion has accelerated rapidly, which leads to transnational laws constantly affecting national laws. In other words, national laws have been made according to the experience of history, society, technology, cultures and customs. Under the influence of globalization, to become a part of international society, nations have to obey transnational regulations and draft their own laws accordingly. Today, faced with the interaction (co-competition) between transnational laws and national laws, the question of how to create common law languages[27], which can value both national and international laws and transnational laws, has become a major issue. In view of the above, this paper uses the empirical social phenomenon of law to explore the competitive relationship between transnational law and national law.

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[20] A. Fischer-Lescano & Gunther Teubner (2004) cited by Chia-Yin Chang (2008), supra note 14, at pp.85-139.
[21] Ibid.
[22] Ibid.
[23] Ibid.
[24] Ibid.
[25] Ibid.
[26] Ibid.
[27] Ibid.

A. If transnational laws are in a competitive relationship with national laws, the results may show that the national laws performance has a negative relationship.

The formation and establishment of national laws follows the pattern of self-organization, including historic experiences, social order, technological improvements, finance and cultural customs. Thus, when searching for any interaction between them, transnational and national laws can interact in harmony; otherwise, the development of transnational and national domestic laws may lead to a negative relationship. Take the following as an example. The TRIPS agreement on intellectual property rights protection set the minimum standards of protection, including the pharmaceutical patents of developed countries. However, the result is that governments and people in developing countries or undeveloped countries can't afford essential medicines for AIDS, malaria and epidemic diseases, which highlights the conflict between the protection of intellectual property rights and public health. Obviously, the relationship between the TRIPS Agreement (transnational law) and developing countries or undeveloped countries (national domestic law) for patent protection is in a competitive state, and thus will result in an inverse relationship between transnational law and national domestic law.

B. **The harmony of interaction between transnational laws and national laws (co-competing relationship) creates a system of common law language, and the two are in a positive symbiotic relationship.**

With regard to the question of how to reconcile the interaction (competitive relationship) between transnational law and national domestic law, Teubner and Fischer-Lescano advocate that a common law language should be created in the legal systems to make legal norms with regard to national, international and cross-boundaries.[28] For example, after the November 2001 round of negotiations held in Doha, the WTO jointly issued the Implications of the Doha Declaration on the TRIPS Agreement and Public Health to assist the developing and undeveloped member countries to protect public health and ensure the availability of medicines for the treatment of infectious diseases. Furthermore, the WTO proposed a resolution in 2005 that Article 31(f) of the Doha Declaration on the TRIPS Agreement should be modified. According to the new Article 31(f), the Doha Declaration on the TRIPS Agreement states that the compulsory licensing of patented drugs is no longer required to supply the domestic market, allowing compulsory licensing of drugs to be exported to the markets of developing and undeveloped member countries. It is quite apparent that the patent protection, by allowing the authorities to force the importing of drugs according to Article 31(f) of the Doha Declaration on the TRIPS Agreement, created common law language between the TRIPS Agreement (transnational law) and undeveloped member countries (national domestic law); therefore, the connection between the two is a positive symbiotic relationship.

[28] A. Fischer-Lescano & Gunther Teubner (2004) cited by Chia-Yin Chang (2008), supra note 14, at pp.85-139.

C. **Results**

In fact, with regard to the empirical social phenomena of law, despite belonging to the same transnational law or national law, they are still not entirely consistent; therefore, they may also show an inverse relationship among each other's transnational law or national law. The analysis follows.

1. The relationship between national domestic laws is not always positive

In general, the national laws shall be applied in their state, territory and region, but there are some exceptions to this rule. Take the following as an example. Any issues concerning the Arbitration Act shall either apply general arbitration (arbitration at law) or equitable arbitration (arbitration in equity). However, in the Netherlands, the regulations are completely opposite for domestic and international arbitrations. According to Paragraph 1, Article 45 of the Arbitration Law of the Netherlands, in the case of domestic arbitration, the court applies arbitration in equity as the main principle; this is supplemented by arbitration at law if there are any exceptions. On the other hand, according to Paragraph 2, Article 45 of the Arbitration Law of the Netherlands, the court should rely mainly on arbitration at law supplemented by arbitration in equity. Furthermore, the legal systems of China and Hong Kong belong to two different systems, despite the fact that Hong Kong is one of China's cities, resulting in the so-called "one country, two systems". However, there are inconsistencies between the two legal systems, since Hong Kong inherited the British common law system according to the Basic Law of Hong Kong, which also includes patent law. Consequently, Chinese patentees are not entitled to any rights in Hong Kong, and vice versa.

2. The relationship of co-competition between members of transnational law is not always positive

In theory, each member state shall comply with the transnational law, but which does not often follow this rule in practice. For example, the European Patent Convention 1973 (Convention on the Grant of European Patents, EPC) currently has 38 Member States. Therefore, when a patent dispute arises there may be more than 30 different kinds of laws to apply for legal application and proceedings. As a result, legal conflicts arise between EU member states and the European Union, or between individual EU member states. Without doubt, this problem results in legal uncertainty in patent litigation. After spending more than three decades on conference discussions between EU member states and the European Union, on December 11, 2012, the European Parliament finally passed a unified patent system bill to be implemented in 2017.[29] Therefore, if the case does not belong exclusively to jurisdiction provisions, in theory, there will inevitably be different judgments in the future.

[29] Making sense of Europe's Unitary Patent, WIPO Magazine, June 2014. *Data available at:* http://www.wipo.int/wipo_magazine/en/2014/03/article_0003.html. (Visit Date2018.07.20)

VI. Conclusion: Finding a balance in the competition between transnational and national domestic law may lead to the creation of a common law language for the applicable laws in legal systems

The question of how to harmonize the interactions between transnational and national laws and reach valid consistency between the two has become a key issue worthy of further discussion. Today, historic experiences, social order, technological development, finance, and cultural customs all have their own differences, while international society holds yet different beliefs on certain issues. A good example is the United Kingdom, which doesn't use the Euro as its official currency although it is part of the European Union.

The argument offered by this thesis is that the interaction between transnational and local laws is akin to the relationship of competition, in which two sides continuing to compete against each other will inevitably lead to a vicious cycle. Conversely, if the two remain in a relationship of co-competition, they should benefit from each other. In other words, any cooperation between international and national laws is akin to the interaction between TRIPS and developing or underdeveloped countries which are in need of certain types of medicine, benefitting each other by creating a mutual law (language) and remaining in a positive relationship. However, the question of how to settle the conflicts between transnational and national laws, and create a common language for the applicable legal systems (such as constitution) is becoming a more important issue in today's globalized world. In view of this, this thesis posits the following arguments:

A. The disadvantaged minorities in the world economy shall be allowed differentiated treatment.

In today's globalized world, the economic condition and competitiveness of each country varies. In the case of underdeveloped and developing countries, the fully-developed countries should exercise tolerance in the field of finance. For example, the TRIPS agreement claims that, based on public health and benefits, developing countries can balance the public interest and the patent rights with two measures: enforced approval and parallel imports, to solve any desperate needs for medicine. In another example, according to Article 31(f) of the Doha Declaration on the TRIPS Agreement, the compulsory licensing of patented drugs is no longer required for supplying the domestic market, allowing compulsory licensing of drugs to be exported to the importing developing and undeveloped member countries. In the same situation, since Taiwan's technology industry is mainly based on OEM and ODM, its difference to the USA or EU is mainly based on OBM. Obviously, each member state has a different state niche; therefore, the legitimacy of transnational laws will be questioned if WIPO and WTO Agreement on TRIPS put all of them in the same standards. In view of the above, this paper argues that if transnational laws and national laws are inconsistent, the disadvantaged minorities in the world economy should be allowed differentiated treatment. Accordingly, this paper advocates that Taiwan's Legislature, Judges of IP Court, and Arbitrators of Arbitration Tribunal shall take this viewpoint to review each IP case.

B. Fundamental human rights should be respected when any conflict arises among transnational, international and national laws.

The concept of globalization is mainly derived from the rapid development of Internet technology and the popularity of high-tech industries, such as electronics and information technology. In addition, globalization has caused changes in economics, society, cultures, the environment and politics, and has moved on to straddle traditional national boundaries. This phenomenon has accelerated the transfer of international information between countries, liquidity, and the integration of goods and services, resulting in the fact that the borders of traditional territories are gradually disappearing and being replaced by several virtual neighbors in a global village. As for basic human rights, the concept is quite similar to globalization, which is gradually and generally going beyond national border restrictions, since fundamental human rights are a universal value of peoples, irrespective of location in the world. As everyone knows, privacy is an essential component of fundamental human rights under Taiwan's Constitution.[30] But, it is regretful that the new technology often imperceptibly infringes people's privacy. In IP legal practice, Facebook has used photo-scanning (Deep Face program) to collect user private information, such as classifying user personality, identifying user environment, tracking user routine, inferring user habits, and predicting user future actions. Lastly, it causes the argument whether this technology breaches the privacy right. In 2018, the United States District Court in the Northern District of California ruled that Facebook's photo-scanning technology violated an Illinois law by gathering and storing biometric data without consent.[31] Consequently, this paper claims that fundamental human rights should be respected when any conflict arises among transnational, international and national laws. Therefore, this paper believes that Taiwan's Legislature, TIPO (Taiwan Intellectual Property Office) officers, Judges of IP court, or Arbitrators of the Arbitration Tribunal shall take this viewpoint to review each IP case.

C. Individual differences in global localizationshould respect each other.

The concept of global localization originated from the marketing strategy of multinational companies, which is to cater to different regions and diverse consumers,

[30] Interpretation No. 603, Justices of the Constitutional Court, Judicial Yuan, Taiwan, R.O.C stated that: "To preserve human dignity and to respect free development of personality is the core value of the constitutional structure of free democracy. Although the right of privacy is not among those rights specifically enumerated in the Constitution, it should nonetheless be considered as an indispensable fundamental right and thus protected under Article 22 of the Constitution for purposes of preserving human dignity, individuality and moral integrity, as well as preventing invasions of personal privacy and maintaining self-control of personal information (see J. Y. Interpretation No. 585). As far as the right of information privacy is concerned, which regards the self-control of personal information, it is intended to guarantee that people have the right to decide whether or not to disclose their personal information and, if so, to what extent, at what time, in what manner and to what people such information will be disclosed. It is also designed to guarantee that the people have the right to know and control how their personal information will be used, as well as the right to correct any inaccurate entries contained in their information. Nevertheless, the Constitution does not make the right of information privacy absolute, which means that the State may impose appropriate restrictions on such right by enacting unambiguous laws as far as such laws do not transgress the scope contemplated by Article 23 of the Constitution."

[31] In re Facebook Biometric Info. Privacy Litig. *Data available at:* https://www.pbwt.com/content/uploads/2018/05/In-re-Facebook-Biometric-Info.-Privacy-Litig._-2018-U.S.-redactedpdf.pdf.(Visit Date2018.07.20)

as well as to gain access local markets.[32] This concept has been applied from the commercial dimension to another social dimension. Roland believes that global localization has both universality and particularity, and that the relationship between the two is both reliant and independent, as a result of which it becomes two aspects of one thing.[33] In other words, once local matters become international matters, they will acquire universal development. When the universal character is applied to other areas, it will blend into the local characteristics and conditions, and become part of the local market.

Take human rights as an example. Basic human rights signify a universal value for people, and are universally applicable. In general, the protection of basic human rights for the USA or European Member Countries is stipulated by the constitution related to the provision, following which it became transnational law around the world. Therefore, this development process is enough to explain that basic human rights arise from the universal value. Nevertheless, basic human rights of universal values depend on the different conditions of each region or country, including its culture, history, religion, etc. So, standards of basic human rights are also inconsistent within the USA or the EU. As a result, this development process is enough to explain that the implementation of basic human rights must pay sufficient attention to the particularities of different regions or countries.

In addition, in terms of the protection of patent rights, the Paris Convention for The Protection of Industrial Property, the Convention on the Grant of European Patents, the World Intellectual Property Organization, the World Trade Organization, and the Agreement on Trade-Related Aspects of Intellectual Property Rights all uphold the principle of protecting patents, which can be regarded as universality. Nevertheless, the methods used by different countries may vary from area to area, which can be thought of as particularity. In view of the above, this thesis considers that if conflicts arise among transnational, international and national laws, then any individual differences in global localization should be respected between the various parties. For example, based on the reasons of public health needs, low and middle-income countries (LMICs) may use the rights of compulsory licensing according to Article 31(f) of the TRIPS Agreement and Public Health of 2005. Obviously, this is enough to explain that respect for individual differences in global localization is extremely important.

D. Legal conflicts among states shall be eliminated with the passage of time.

In today's globalized world, the situation of the various legal systems is dynamic through the recycling process of input, conversion, output and feedback. Hence, the differences between transnational laws and national domestic laws can be handled through input, output, reversion and feedback to reach a dynamic equilibrium. This situation is akin to the economic theory of supply and demand (cobwebs theory), pursuing dynamic equilibrium, and forecasting future trends. Finally, conflicts between transnational laws and national domestic laws will be eliminated in legal

[32] Kenichi Ohmae (1990), *Borderless World: Power and Strategy in the Interlinked Economy*. London: Collins. Robertson Roland (1992), *Globalization: Social Theory and Global Culture.* London: Sage. Robertson Roland (1995), *"Globalization: Time-Space and Homogeneity-Heterogeneity." in Global Modernities*, Featherstone, M., Lash, S. and Robertson, R. eds., pp. 25-44.

[33] Robertson Roland (1995), supra note 32, at pp.25-44.

systems.[34] As mentioned above, the national legal order and regulations are not always positively related, not to mention the relation between the national law and transnational law or among the members of the transnational law. Thus the time series of relationship between the transnational law and national law are elaborated as in the following. In patent practice, the establishment of patent system is not easy to achieve. Take the example of the conference of EU member countries and the European Union, where, after more than three decades of discussion, the European Parliament finally passed a unified patent system bill on December 11, 2012, to be implemented in 2017. Accordingly, this thesis argues that legal reforms shall be made step-by-step to achieve consistency with the passing of time when any conflict arises among transnational, international and national laws. In fact, many IP legal opinions are not uniform at present. With regard to the patent scope, should it apply the Central Definition or Peripheral Definition? With regard to the principle of exhaustion, should it apply Domestic Exhaustion or Global Exhaustion? Without doubt, these questions also involve state interest and competitions besides patent technology. Therefore, it is obviously not easy to achieve uniformity in the near future. Accordingly, this paper deems that the legal reforms shall be step by step to gain consistency with the passing of time, when conflicts rise among transnational laws, international and national laws.

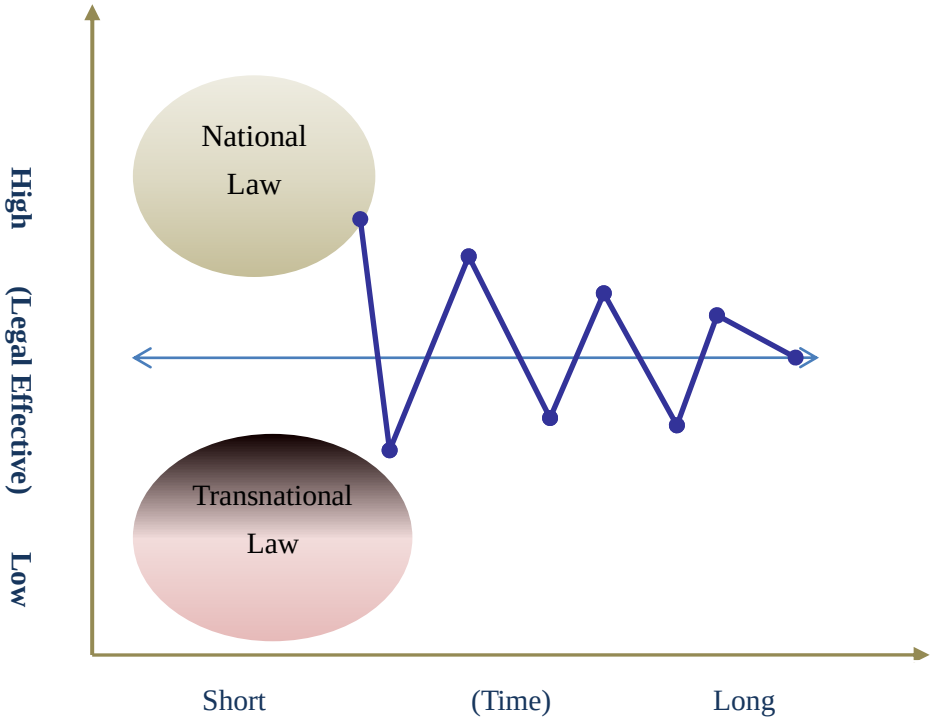

Figure 1:

The dynamic equilibrium between the transnational law and national law

Source: Author's Concepts based on a Time Series

[34] Chin-Lung Lin (2018), *Crossing the Justice Gap between Substantive Justice and Procedural Justice: An Example of Patent Disputes Resolution in Taiwan's High-Tech Industries*, NTUT Journal of Intellectual Property Law and Management, pp.24-45.

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Roland, Robertson (1995), *Globalization: Time-Space and Homogeneity-Heterogeneity*. *in Global Modernities*, Featherstone, M., Lash, S. and Robertson, R. eds., pp.25-44.

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Patent Protection System for Computer Programs in Indonesia and Its Comparison with Several Countries: What's the Issue?

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Abstract

This paper attempts to examine patent protection systems for computer programs in several countries. During this time, computer programs were known as objects of copyright protection systems. But in reality, computer programs have become objects of patent protection systems (Article 27 (1) TRIPs Agreement). On this basis, it is interesting to study the history of patent protection systems, patent protection systems for computer programs internationally and their arrangements in Indonesia and some countries. The results show that there are similarities and differences in patent protection systems in Indonesia, Japan, the United States, and China. Factors cause this equation; (1) the basis of international law which is used as the same reference, which refers to Article 27 (1) TRIPs Agreement, in which the four countries are members of the WTO/TRIPs Agreement; (2). National interests of each state related to the importance of patent protection on computer programs, all of which assume that the patent protection system is needed in protecting computer programs produced by the community. Factors cause the difference; (1) ways to formulate laws that are different from the four countries, (2) experiences from these countries, and (3) national interests in implementing patent protection strategies on different computer programs.

Keywords: Patent, Computer Program, Indonesia, Comparison, and Several Countries

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I. Introduction

Computer programs in the perspective of intellectual property rights are objects that get copyright protection. Article 10 TRIPs states that: "computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)." In the end, this encourages the assumption of computer program development that computer programs can only be given protection through the copyright protection system.

In its development, computer programs not only become objects of copyright protection systems but also get a patent protection system. There are several reasons patent protection systems can be used against computer programs. These reasons include; *First,* computer programs are part of broad technology. This is understood from the interpretation of the provisions of Article 27 (1) TRIPs Agreement which states: "... patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve inventive steps and are capable of industrial application. ... With the statement: "... a patent shall be available for any inventions ...in all fields of technology ...", Then this has the meaning including for computer programs as well; *Second,* computer programs are technologies that in some cases have specific functions that can solve problems; and *Third,* computer programs which are these technologies by several countries have already been applied as objects that can be protected by patents.

This paper is intended to reveal the comparison of patent protection systems on computer programs both internationally and nationally in Indonesia and several other countries. The several other countries that will be compared are the United States, Japan and China. The selection of these countries with reasons, namely; *First,* these countries include groups of countries that have mastery and development of information technology, including computer programs and patent systems that are developed and rapidly developing; *Second,* these countries have national legal systems that are different from one another, which represent bureaucratic legal systems such as the United States, communist legal systems such as China, and Japan represent hybrid legal systems; *Third,* the patent culture in the United States, Japan and China is very good; and *Fourth,* three selected countries that can be reviewed properly about the application of a patent protection system for computer programs.

II. First Part

A. History of Patent Protection Systems

Patent[1] protection systems are provided for inventions in the field of technology in the form of products or processes. The requirements of an invention in the field of technology can be granted a patent if it meets the requirements of novelty, inventive step and can be applied in the field of industry (industrial applicable). The patent protection system is internationally initiated from the UK. At its peak, when Queen Elizabeth and James 1 gave monopoly treatment on the use of patents through a

[1] The term comes from the Latin language, namely from the word *Auctor,* which means opened. The term Patent itself comes from English, namely Patent, in Dutch known as *Oktrooi,* while in France it is known as *the Brevet de Inventor*.

prerogative policy of the kingdom known as the Statute of Monopolies of 1623[2]. The Statute of Monopolies of 1623 was the first patent law of the modern nation.[3] In line with this in Venice in the 15th century, there was also the development of monopoly treatment for inventors. Then, this practice was widely followed by Western and Central Europe in the 16th and 17th centuries.[4] At the beginning of the 18th century, several countries developed the patent law in the world. In 1791, Francis had applied patent law through the establishment of the Constitutional Council (Constitutional Assembly). In the same year, the United States had established its first patent law through the American Congress.[5] Furthermore, after running for some time, patent law was also developed in several countries, namely in Austria (1810), Russia (1812), Prussia (1815), Belgium and the Netherlands (1817), Spain (1820), Bavaria (1825), Sardinia (1826), Vatican State (1833), Sweden (1834), Wurttemberg (1836), Portugal (1837), and Sexonia (1843)[6].

At the beginning of the 19th century, patent law debate seemed serious between supporters of the patent system that gave a monopoly with supporters of international trade, which required minimal restrictions on the exchange of goods and services. The debate encouraged Switzerland and the Netherlands to revoke provisions on intellectual property rights. In 1869, the German state also revoked the provisions of the patent in 1817. From this condition, it became very clear that the patent legal system did not find co-exist with the free trade system at that time.[7]

In 1873, the debate over the patent system began to fade after the emergence of a large economic depression, increasing protectionism and developing economic nationalism. The fading of the debate is also caused by the defense law system defenders starting to accept the principle of compulsory licensing as part of patent law. This is evidenced, where England applied it in 1874, Germany in 1877, Japan in 1885, and Switzerland in 1887. Since then, patents have become an accepted part of domestic and international legal regimes.[8]

As stated above that in 1873 the debate over the patent system began to fade, so there were symptoms among inventors who did not want to reveal their invasion. The incident happened one of them at the time the Austria-Hungary International Exhibition of Inventions was held in Vienna. Austria as the holding of the exhibition made an effort by specifying the law specifically to provide temporary protection for the matter.[9]

In 1878, the Vienna Congress held an international congress for industrial wealth in Paris. From this Congress, an international agreement was proposed for the

[2] Fritz Machlup and Edith Penrose (1950), *The Patent Controversy in The Nineteenth Century*, 10 (1) The Journal of Economic History, pp. 2.
[3] Ibid.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] Cícero Gontijo (2005), *Changing the Patent System from The Paris Convention to The TRIPs Agreement the Position of Brazil*, 26 Global Issues Paper, pp. 5.
[8] Ikechi Mgbeoji (2003), *The Juridical Origins of the International Patent System: Towards a Historiography of the Role of Patents in Industrialization*, 5 Journal of the History of International Law, pp. 420.
[9] Seth M. Reiss (2008), *Commentary on The Paris Convention for The Protection of Industrial Property*. Retrieved from http://www.lex-ip.com/Paris.pdf (Visit Date 2018.09.07)

protection of industrial property by the Franciscan Government together with invitations at the international conference in Paris in 1880. The agreement was accepted, and then in 1883, the convention was concluded through the Diplomatic Conference, where gave birth to Paris Convention on the Protection for Industrial Property that was approved and signed by Belgium, Brazil, El Salvador, France, Guatemala, Italy, Netherlands, Portugal, Serbia, Spain, and Switzerland. This Paris Convention was effective July 7, 1884, at that time Britain, Tunisia and Ecuador were also participants. The United States joined immediately after 1887. Currently, the participants of the Paris Convention have numbered 172 countries.[10]

In the Ministerial Declaration on the Uruguay round on September 20, 1986, it was agreed to include the field of intellectual property rights in the framework of international trade, to stop the piracy and smuggling of counterfeit or counterfeit goods. After going through several negotiations, the WTO/TRIPs Agreement was finally agreed in Morocco on April 15, 1994.[11] This included agreeing to the patent provisions contained in the WTO/TRIPs Agreement.

The TRIPs Agreement is included in one of the main parts of the WTO is the agreement of Member States that are determined to reduce distortions and obstacles in international trade, taking into account the need to support and seek effective and adequate IPRs protection to ensure that efforts and procedures to enforce IPRs does not in itself become an obstacle to legal trade.[12]

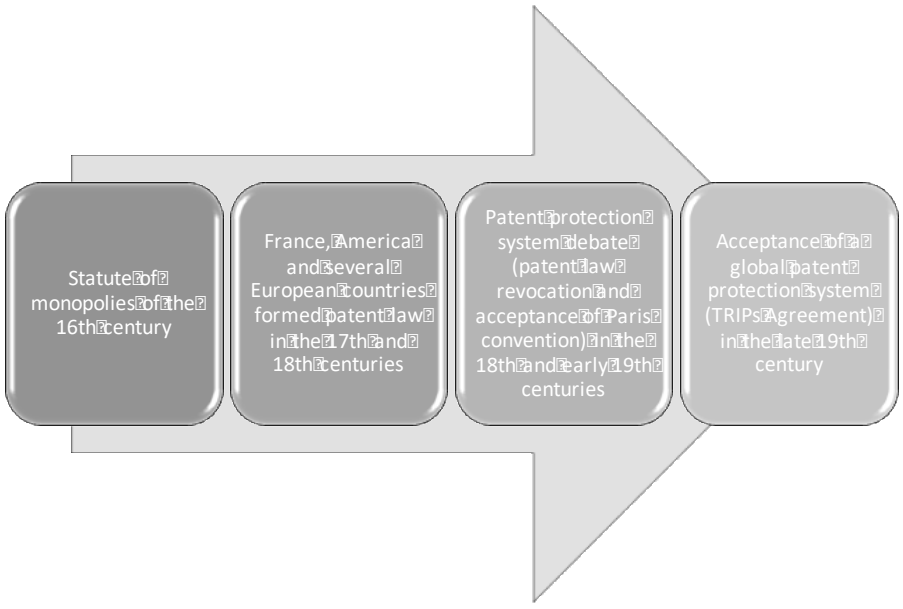

Figure 1:

History of International Patent Protection Systems

Source: Trade Related Aspects of Intellectual Property Rights - A Negotiating History

From this historical process, it appears that this patent protection system is

[10] Ibid.

[11] Ross Wesserman (1993), *Trade Related Aspects of Intellectual Property Rights - A Negotiating History*, Washington, pp. 22 in Marni Emmy Mustafa (2007), *Principles of Law in Patent Law Enforcement in Indonesia Associated with TRIPS – WTO*, pp. 109.

[12] Ibid.

undergoing a long evolution. Evolution itself is influenced by the existence of a pro and contra situation for the application of a patent protection system. However, in the end, the patent protection system can be accepted as a global protection system. This is marked by the agreement of the WTO/TRIPs Agreement, which includes a patent protection system.

B. International Patent Protection System for Computer Programs

As stated above, the basis of the international patent protection system is based on the provisions of the Paris Convention for the Protection of Industrial Property (Paris Convention) and Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs Agreement). Within the Paris Convention, the provisions of patents include (1) Article 1-3 and Article 11 concerning the basic principles of patent protection systems; (2) Article 4-5 quarter concerning the substance of patents; and (3) Article 28 concerning the settlement of patent disputes. In its development, the Paris Convention was considered by Advanced Countries, including the United States, to be ineffective in providing patent protection globally, so at the time of the Uruguay round related to the WTO Agreement, it was proposed that intellectual property rights protection be an integral part of the WTO agreement. Therefore, the TRIPs Agreement is currently the international foundation of international arrangements regarding patents. As for its relationship with the Paris Convention, the TRIPs Agreement strengthens the international foundation.

TRIPs Agreement provisions governing the patent protection system are contained in Article 1-8, Article 27-34, Article and Article 41-73 There are substantially several things regulated, namely (1) Article 1-8 regarding general provisions and basic principles of patent protection systems; (2) Article 27-34 concerning standards regarding the availability, scope, and use of patents; (3) Article 41-73 concerning the enforcement, acquisition, and maintenance of patents related to procedures between third parties, dispute prevention and resolution, transition arrangements, and institutional arrangements.

Based on the international provisions above, there are relations with several international conventions. Specifically, about patent protection systems for computer programs, the provisions of international conventions that can be used as a basis are Article 27 (1) TRIPs Agreement. Provisions Article 27 (1) TRIPs Agreement fully states "Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are a new and inventive step and are capable of industrial application. Subject to paragraph 4 of Article 65 paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.[13]

The consequences of the above provisions are, all member countries will not issue all technology fields to be granted patents, except those determined through

[13] Galal Wafaa Mohamedien (2001, May), *Under the TRIPs Agreement: Concerns and Strategies for Developing Countries*, in the International Conference on Intellectual Property, The Internet, Electronic Commerce and Traditional Knowledge, Meeting conducted in Sofia, Bulgaria, pp. 4.

Agreement's TRIPs. Then, patents will be available without discrimination. The invention and patented products are imported or produced in the local market. From this also, Article 27 (1) of the TRIPs Agreement has encouraged several countries to expand the patent protection system. Patent protection systems are also given to computer programs. For example the United States and Japan, both have implemented a patent protection system for computer programs. However, on the different side of several countries, it seems that they still do not agree that the patent protection system is extended to computer programs. This is an example of the EU Parliament's rejection, on July 6, 2005, of a proposed Directive on computer-implemented inventions. The proposed Directive to harmonize the way that national patents deal with computer-implemented inventions, and to ensure that those who invest in developing new products dependent on implemented technology can obtain patent protection. To some extent, inventions can already be patented by either the European Patent Office (EPO) or the national patent offices of the Member States. However, patent enforcement is dealt with by national courts and, as the law may differ between the Member States, the level of protection may, in practice, also vary.[14]

In reality, this has led to pros and cons. For groups that are pro-computer programs as objects of patent protection are based on the opinion that a patent can protect a concept underlying the computer program, and thus would promote the development of the software industry and computer-related industry. A further argument supporting the patent protection of software relies on the technical interaction between hardware and software. The software provides an allow a machine to indicate, perform or achieve a particular function, task or result. In that sense, both hardware and software exhibit technical behavior[15].

On the other hand, there is opposition to the protection of software from the viewpoint of social and economic policy. One argument is that computer programs are already protected by copyright, and thus it is not necessary to provide any other titles of protection. Some of the smaller software developers would not be able to enjoy expensive patent protection and would be a position to pay royalties to patents owned by big corporations.[16] In its development, these pros and cons have never ended until now.

From the description of the patent protection system on computer programs internationally can be understood several things; namely; *First*, the computer program as an object of patent protection system has an international legal basis in Article 27 (1) TRIPs Agreement; *Second*, the existence of a legal basis for the implementation of the patent protection system for computer programs has encouraged several countries to implement patent protection systems for computer programs in their national patent system; *Third*, even though the patent protection system is used for computer programs in several countries, but there are also some countries that state rejection; and *Fourth*, protected computer programs based on patent protection systems

[14] International Bureau of WIPO (2007, May), *International IP Protection of Software: History, Purpose and Challenges*, WIPO Asia Pacific Regional Seminar on Intellectual Property and Software in the 21st Century: Trends, Issues, Prospects, Meeting conducted in Colombo, Sri Lanka.

[15] International Bureau (2003, November), *Patentability of Computer Software and Business Methods*, in WIPO-Most Intermediate Training Course on Practical Intellectual Property Issues in Business, Meeting conducted in Geneva, Switzerland.

[16] Ibid.

internationally have a legal basis, while nationally depend on the legal politics of their respective countries.

III. Second Part

A. Patent Protection System for Computer Programs in Indonesia

Indonesia is one of the countries that are members of the WTO. Consequently, Indonesia must harmonize its national law by the agreements contained in the WTO. One of the agreements contained in the WTO is contained in the TRIPs Agreement. TRIPs Agreement is a multilateral agreement that underlies the provisions of intellectual property rights relating to trade.

When looking at its history, the patent protection system in Indonesia began with the first change to Octrooiwet 1910 S. No. 33 yis S. 11-33, S. 22-54. Changes are made by issuing two temporary announcements. The first announcement was on 12 August 1953, where the government issued announcement No. J.S 5/41/4 B.N. 55 to accommodate domestic patent applications. The second announcement was on October 29, 1953, where the government issued announcement No. J.G 1/2/17 B.N 53-91 to accommodate foreign patent applications. In 1989 Indonesia issued Law No. 6 of 1989 concerning Patents. Law no. 6 of 1989 was the first patent law in Indonesia.

In 1997 Indonesia made changes to Law No. 6 of 1997 concerning Patents. Changes from Law No. 6 of 1989 to Law No. 6 of 1997 were partly because Indonesia had ratified the TRIPs Agreement. Consequently, Indonesia must harmonize patent law with the TRIPs Agreement. In 2001, Indonesia had made further changes to Law No. 6 of 1997 into Law No. 14 of 2001 concerning Patents. This change is also based on one of them because Indonesia has ratified international agreements in the fields of technology, industry, and trade. In 2016, Indonesia again made amendments to Law No. 14 of 2001 into Law No. 13 of 2016 concerning Patents. This change is also based because Indonesia has ratified several other international agreements.

Looking at the development of the Indonesian patent law, it can be said that the Indonesian patent law has been accommodative to the consequences of the ratification of international agreements in the field of intellectual property rights, including the TRIPs Agreement. By paying attention to efforts to harmonize the Indonesian patent law with international agreements in the field of intellectual property rights and including the TRIPs Agreement therein, there is progress in the patent protection system in Indonesia. Such progress can include aspects of the scope of the patent, patent protection procedures and law enforcement systems of the patent protection system itself.

One that can be found related to the progress of the Indonesian patent protection system is in the scope of the patent. As is known, Law No. 13 of 2016 concerning Patents has expanded the scope of patent protection. This expansion shows the scope of the protection of Indonesian patents to computer programs. This can be found in the Elucidation of Article 4 letter d of Law No. 13 of 2016 which state: "... however, if the computer program has characters (instructions) that have technical effects and functions to produce solutions to problems, both tangible and intangible are inventions that can be granted patents. The computer is arranged in the explanation

section and not on the torso, but this can still provide a legal basis that the Indonesian patent protection system has reached the computer program.

Normatively, computer programs that can be used as scope of patent protection systems in Indonesia must have the following qualifications: *First,* computer programs have characters (instructions) which have technical effects and; *Second*, computer programs have a function to produce problem-solving both tangible and intangible; and *Third,* both of these things must be fulfilled cumulatively and not alternatively, remembering in the formula contains the words "and" not "or". Then, in addition to qualifications, this computer program is not a rule and method that only contains computer programs. This is in accordance with the contents of the provisions of Article 4 letter d of Law No. 13 of 2016.

From this context, there are several things that can be understood, namely; *First*, computer programs in Indonesia are no longer only the scope of copyright protection, but also the scope of patent protection. As is known, in the provisions of the Patent Law before the enactment of Law No. 13 In 2016 the scope of patent protection in Indonesia includes inventions in the form of products or processes, where there are no provisions explicitly stating the computer program as subject matter of the invention is patentability. However, with the declared computer program as the subject matter of the patentability invention explicitly in the Explanation of Article 4 letter d of Law No. 13 of 2016, this has provided expansion and certainty in the scope of patent protection in Indonesia.

Second, computer programs are part of an integrated patent protection procedure in Indonesia. The explanation, when the computer program as the subject matter of the invention is patentability, consequently the patent protection procedures as stipulated in Law No. 13 of 2016 which is based on the registration system (first to file principle) of course applies also to computer program patent protection procedures. This implies that when a computer program meets the requirements as subject matter of the invention which is patentability, then the application for registration must be protected. Concretely the registration provisions contained in Article 24 to Article 73 and Article 130 to Article 141 of Law No. 13 of 2016 also applies to inventions in the form of computer programs.

Third, computer programs are an integrated part of the patent law enforcement system. The integration of the patent law enforcement system on computer programs implies the provisions of Law No. 13 of 2016 related to patent law enforcement, this applies also to patent computer law enforcement programs. The provisions of Law No. 134 of 2016 relating to patent law enforcement starting from the provisions of Article 142 to 166 Law No. 13 of 2016. The provisions contain law enforcement in civil and criminal law.

Indonesia turned out to have implemented a patent protection system for computer programs since 2008. This can be found when there is a computer program entitled Jembatan Tipe with a patent holder Microsoft Corporation has been granted a patent by the Directorate General of Intellectual Property of the Republic of Indonesia Ministry of Law and Human Rights with No. Patent ID 0 021 842 dated September 2, 2008. From this practice, the patent protection system for computer programs in Indonesia was enacted before Law No. 13 of 2016 concerning Patents. The invention that is granted a patent is a computer program related to the invention.

Based on the description above, Indonesia is both normatively and practically a patent protection system for computer programs is something that can be done at this time. However, in practice before the enactment of Law No. 13 of 2016 concerning Patents, a patent protection system was granted to computer programs relating to inventions, but after the enactment of Law No. 13 of 2016 concerning Patents, a patent protection system is given to computer programs and not only to computer programs related to inventions.

This certainly marks a very rapid development of Indonesia's patent protection system. There are two reasons that underlie this. These two reasons are obtained from the General Section Explanation of Law No. 13 of 2016 which explains the formation of Law No. 13 of 2016. Establishment of Law No. 13 of 2016 is carried out with general reasons, to strengthen Indonesia in the face of global competition and national development that can take place consistently and sustainably with the support of the role of technology, including information technology. Meanwhile, special reasons, the establishment of Law No. 13 of 2016, namely; *First*, optimizing the presence of the state in the best service of the government in the field of intellectual property, *Second*, aligning with Indonesian interests without violating international principles, and *Third*, realizing economic independence by moving strategic sectors of the domestic economy by encouraging national inventions in the field of technology to realize technology strengthening. From general and specific reasons for the establishment of Law No. 13 of 2016, it can be analogous that this reasoning also applies to the establishment of a patent protection system for computer programs in Indonesia contained in the Explanation of Article 4 letter d of Law No. 13 of 2016. From this it is also a logical thing, when the establishment of Law No. 13 of 2016 can accommodate computer programs as the subject matter of the patent protection system in Indonesia.

B. Comparison of Patent Protection Systems for Computer Programs between Indonesia, Japan, the United States, and China

The patent protection system is a globalized system as disclosed in the history and international patent protection system above. Therefore, it is not surprising that currently, countries in the world harmonize their respective national patent laws. The process of harmonizing the patent protection system in each country is based on reference to the same international conventions, such as the TRIPs Agreement, but this is also strongly influenced by the perspective, objectives, socio-political situation of each country. From this situation, it is not surprising that the harmonization process is carried out by the provisions of national patent law, each of which differs from one another. These differences can include the scope of patents, patent protection procedures and enforcement of the patent law. In line with this, this also applies in the context of patent protection systems for computer programs.

Since the publication of Law No. 13 of 2016, Indonesia has determined that computer programs can be used as objects of patent protection. This provision can be found in the Elucidation of Article 4 letter d of Law No. 13 of 2016, not located in the body part of Law No. 13 of 2016. This also turns out to apply also in some countries in this case Japan, the United States, and China. In Japan, a patent protection system for computer programs is based on the provisions of The Japanese Patent Act No. 121 of 1959 as amended up to 2006. In Article 2 paragraph (1) stated that Invention in this

Act means that it is highly effective of technical ideas utilizing the laws of nature. "From the meaning of the invention as outlined in Article 2 paragraph (1), then the invention must be highly technical, utilizing the laws of nature.

The application of the invention requirements as intended in Article 2 paragraph (1) due to computer programs can be inventions in the form of products or methods in The Japanese Patent Act No. 121 of 1959 as amended up to 2006. This can be found in Article 2 paragraph 3 item (i) states: "in the case of an invention of a product (including a computer program, etc., the same shall apply hereinafter), producing, using, assigning, etc. (assigning and leasing and, in the case where the product is a computer program, etc., including providing telecommunication line electricity, the same shall apply hereinafter), ... "and Article 2 paragraph 3 item (iii) states; "In the case of the process for producing a product, in addition to action as provided in the preceding items, acts of using, assigning, etc., ..."

In the JPO page as quoted by YOO, Ji-Hye stated that the purpose of this law was to make it clear that computer program inventions could be considered as product inventions and the transmission of computer program inventions included in their scope[17]. Therefore, in the view of Yoo, Ji Hye, protected computer programs in Japan can encompass method or process inventions. Invention methods such as the computer-readable recording medium, while product inventions such as the computer or system apparatus.[18] According to him again, to determine the status and scope of patent protection in Japan, it must be started from the general principle to limit the demarcation of the scope of the patent. This can be done by understanding two things, namely; *First,* understanding an invention in a claim and deciding the invention can be considered a better technical idea than before; *Second,* determining the scope of patent protection for inventions from prohibiting others.[19]

Historically, the patent protection system for computer programs in the United States was deemed not to meet the requirements. During the 1960s and 1970s, where the debate originated, computer programs were refused to meet the requirements for protection through the patent law system. This is because computer programs are merely mathematical methods. Computer programs are likened to mental processes and the simple fact that the process tested in the machine does not change its nature. This was strengthened again, the order when Supreme Court decided the 1972 Gottschalk vs. Benson case and Parker vs. Flook in 1978 that computer programs did not meet the requirements to be protected by a patent system.[20]

In its development, along with the rapid progress of computer programs, many companies want a system of protection for computer programs that are very strong so as not to "clone" their computer programs. From this context, the patent protection system is the choice. In line with this, a theory has also been developed. The theory states: "if the program contains a mathematical formula if the formula is implemented within a structure or via the process that" when considered as a whole, a function that the patent laws were designed to protect. "Based on this, the program the computer

[17] YOO, Ji-Hye (2016), *A Study on the Status of Software Patent Protection in Japan - Comparison with Status in Korea,* 25 IIP Bulletin, pp. 2.
[18] Ibid.
[19] Ibid.
[20] Rosa Maria Ballardini (2012), *Intellectual Property Protection for Computer Program: Development, Challanges, and Pressures for Change*, Helsinki: Edita Prima Ltd, pp. 15.

during the business method is deemed to meet the requirements for patent protection.[21]

In 1998 this limitation was eliminated. This happened when a Federal Circuit decision was issued in the case of State Street Bank & Trust Co. vs. Signature Financial Group Inc. in 1998. In this decision, there is an approach that the process can be patented if a computer program produces something useful, concrete, and tangible results, only if the results are expressed in numbers, such as price, profit, percentage, cost or loss. A further consequence of this Federal Circuit decision has given birth to a new class of 705 in the US patent classification system for data processing, financial business practice, management, or cost/price determination.[22]

In 2008, the Bilski case essentially interpreted the patented scope based on 35 U.S.C $ 101, where this case was purely related to business methods but was often carried out using computer programs. Computer programs are included in this case. The Bilski case was initially rejected at the US Patent Office (PTO) and the Board of Patent Appeal and Interface (BPAI). When this case was brought to the Court of Appeal for the Federal Circuit (CAFC), where on October 30, 2008, a decision was made and in that decision gave consideration that substantially reconsidered the criteria for assessing claims that could be patented. In such cases, the court recommends that testing using useful, concrete, and tangible results are insufficient to determine whether a claim is fulfilling patent requirements under $ 101 and adopted a machine or transformation test (MoT). According to the court, patents can be given if the process is connected to a specific machine or transforms a specific object / object into a different thing. However, the use of specific machines must force meaningful restrictions on the scope of claims for processes that meet the requirements.[23]

In the end, Bilski appealed to the Supreme Court, and on June 28, 2010, accepted the decision. In this context, the Supreme Court confirms that categorical exclusion such as business methods cannot be illegally accepted under the US Patent Law. Supreme Court corrected the CAFCs' decision by referring to the "Machine or Transformation" test or "a Useful or Important Clue, not" the sole test "of the patented process. Therefore, The State Street and The Machine and Transformation are both used to determine patentability in the United States.[24]

In China, patent laws are contained in the Patent Law of the People's Republic of China on August 05, 2000. Article 1 of the China Patent Law states: "The Patent Law is enacted to protect patent rights for inventions-creations, to encourage invention-creation, to foster the spreading and application of inventions, and to promote the development and innovation of science and technology, for meeting the needs of the construction of socialist modernization." There is no explicit provision in China Patent Law about computer programs as objects patent protection. This can be found when on April 1, 2017, China revised the Examination Guidelines. The Examination Guidelines are revised in Part II, Chapter 1, Section 4.2; Part II, Chapter 9, Sections 2, 3 and 5.2; Part II, Chapter 10, Section 3; Part IV, Chapter 3, Section 4.2; Part IV, Chapter 3, Sections 4.3.1, 4.6.2 and 4.6.3; Part V, Chapter 4, Section 5.2; Part

[21] Ibid.
[22] Ibid*., hlm. pp. 15-16.*
[23] Ibid.
[24] Ibid.

VII, Chapter 7, Sections 7.4.2, 7.4.3 and 7.5.2. In the Examination Guidelines, the applicant is allowed to claim a medium with the computer program process. Claims can also be made to the apparatus that contains computer programs as an integral part. Claims surrounding business methods will not be excluded from patent protection if part of the description of business rules and methods, where they cover aspects of technical features.[25]

When compared between patent protection systems for computer programs in Indonesia, Japan, the United States and China in several aspects, namely; legal basis, patent subject matter, protection procedures, and protection period can be stated as follows:

Table 1: Comparison between Patent Protection Systems for Computer Programs in Indonesia, Japan, the United States and China

No.	Description	Countries			
		Indonesia	**Japan**	**United States**	**China**
1.	Legal Source	Elucidation of Article 4 letter d of Law No. 13 of 2016	The Japanese Patent Act No. 121 of 1959 as amended in 2006	• Street Bank & Trust Co. Cases in 1998 • Bilski Cases in 2010	Revision of 2017 Examination Guidelines
2.	*Patent Subject Metter*	Software related invention and Computer Programs	Product invention (apparatus of computer program) or method invention (computer readable recording medium)	Business methods, processes or process related specific machines	Software related Invention
3.	Protection Procedure	First to File Principle	First to File Principle	First to File principle	First to File Principle
4.	Protection Period	20 years from filing date	20 years from filing date	20 years from filing date	20 years from filing date

It can be seen in the table above that the patent protection system for computer programs in four countries has several similarities and differences. The equation of the patent protection system for computer programs is included in; (1) There is a legal basis used to realize the patent protection system for computer programs; (2) The application of a patent protection system for computer programs is carried out with an

[25] EPO (2017), *China: Revision of SIPO's Examination Guidelines*. Retrieved from https://www.epo.org/searching-for-patents/helpful-resources/asian/asia-updates/2017/20170331.html (Visit Date 2018.09.17)

evolutionary pattern, in which a patent protection system is granted to patents that computer programs are related to inventions, and only in its development can they also include products or processes; (3) The application of the first to file principle system on patent protection systems for computer programs; and (4) The period of patent protection system is 20 years from the date of receipt and cannot be extended. Furthermore, differences that occur in the case of patent protection systems for computer programs include the following: (1) The legal basis used varies; some regulate the explanation of the patent law, patent law, court decision and examination guideline; and (2) when paying attention to the positive law of the four countries, the patent subject matter has a different scope.

Several reasons that can underlie some similarities in terms of patent protection systems between Indonesia, Japan, and the United States seem to be due to factors; (1) the basis of international law which is used as the same reference, which refers to Article 27 (1) TRIPs Agreement, in which the four countries are members of the WTO/TRIPs Agreement; (2) National interests of each country related to the importance of patent protection on computer programs, all of which assume that the patent protection system is needed in protecting computer programs produced by the community.[26]

Meanwhile, some of the reasons underlying some differences regarding patent protection systems between Indonesia, Japan, the United States, and China appear to be due to factors; (1) how to formulate a legal basis in each country is different. As in Indonesia as outlined in the explanation of Article 4 letter d of Law No. 13 of 2016, Japan has written The Japanese Patent Act No. 121 of 1959 as amended in 2006, the United States in the form of court rulings, and China regulates it in the 2017 Examination Guidelines Revision. Also added to Indonesia are countries that adopt the continental system, while the United States adheres to the Anglo-Saxon system. It is this different way of formulating the legal basis and legal system that ultimately differentiates the legal rules of the patent protection system in the four countries; (2) Experience and advances in information technology greatly affect the patent protection provisions on computer programs. The United States and Japan[27] are countries that have been very advanced in developing information technology including computer programs. This turned out to have greatly impacted the complexity of its patent protection on computer programs, Indonesia and China were countries that had just been concerned about developing information technology including computer programs but given their limited experience, they were still cautious in providing patent protection for computer programs; and (3) National interests of each country (Indonesia, Japan[28], the United States[29], and China[30]) also seem to affect the patent protection strategy for computer programs.

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[26] John E Giust, Noncompliance with TRIPs by Developed and Developing Countries: Is TRIPs Working? , 8(1) IND INT'L & COMP. L Rev, pp. 72. See, Zheng Chengsi, *The TRIPs Agreement and Intellectual Property Protection in China,* 9 Duke Journal of Comparative & International Law, pp. 226.

[27] Motohashi Kazuyuki (2009), *Software Patent and its Impact on Software Innovation in Japan,* RIETI Discussion Paper Series 09-E -038.

[28] Rico E. Collado (2017), *Software Patent Eligibility and the Learnings from The Japanese Experience in Addressing Challenges and Issues on Software Patenting,* JPO Long Term Study-Cum-Research Fellowship Program.

[29] Aura Soininen (2005), *The Software and Business-Method Patent Ecosystem: Academic, Political Legal and Business Developments in The U.S and Europe,* B:1 IPR University Center.

IV. Conclusion

The history of patent protection systems has evolved long ago and led to the application of patent protection systems, as a globalized system. Almost all countries have implemented the current patent protection system. This is a consequence of the involvement of these countries in the Paris Convention and TRIPs Agreement which contains a patent protection system. Specifically, in the case of a patent protection system for computer programs, at the international level, it has been possible to apply it to each country based on Article 27 (1) TRIPs Agreement. However, this has led to the pros and cons. Apart from all this, in reality, some countries, including Indonesia, Japan, the United States, and China have implemented patent protection systems in computer programs. In practice, patent protection systems for computer programs in Indonesia, Japan, the United States, and China have similarities and differences. The equation covers the legal foundation of the patent protection system, the evolutionary process of the patent protection system on computer programs and the patent protection system based on the principle of first to file and the period of the patent protection system, while the difference lies in different legal foundations and different patent subject matters. The background of the equation is due to the same international legal basis, namely the TRIPs Agreement and the national interest in the patent protection system for computer programs. Meanwhile, the background of the differences is due to ways of formulating laws that are different from the four countries, experiences from these countries, and national interests in implementing patent protection strategies on different computer programs.

[30] Richard P. Suttmeier and Xiangkui Yao (2011), *China's IP Transition Rethinking Intellectual Property Right in a Rising China*, The National Bureau of Asian Research, NBR Special Report #29.

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Should Indonesian Copyright Law be Amended Due to Artificial Intelligence Development?: Lesson Learned from Japan※

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Abstract

Artificial Intelligence is the most groundbreaking technology in this era. Artificial Intelligence can have massive impact on national purposes with economic value being the main target, as it brings the state more prosperity with technology innovation. The Indonesia government encourages the development of AI, however, current Indonesian Copyright Act is out of date and is not in line with the spirit of industrial revolution 4.0.One of the reason the existing Copyright Act is incoherent with the new technology is because the use of Fair Use doctrine is too narrow making it a barrier for the inventors. The Strict Fair Use doctrine has become irrelevant in the era of AI. This article will consider the ways to avoid the potential infringement of AI, and the concept of fair use doctrine that are relevant in the era of AI. This will include the modern copyright law optimizing the economic value of AI, and to reformulate copyright act to be more in line with the current technology development. The article will conclude with how flexible fair use will generate more economic value and benefits for state purposes and generate more economic value.

Keywords: Artificial Intelligence, Industrial Revolution 4.0, Indonesian Copyright Act, Fair Use

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I. Introduction

Artificial intelligence is now a hot topic around the world. The issues about automatic cars, creative machines, and learning algorithms make scientists, lawyers, and customers more aware of the benefits and needs of AI. It means that AI can now perform specific task like human beings.[1]

Artificial intelligence (AI) is one of the most groundbreaking technologies of this era.AI has become sophisticated enough to approach a technological tipping point of generating groundbreaking effects on humanity and is "likely to leave no stratum of society untouched". Progress in AI has shown tremendous potential for benefitting mankind by improving efficiency and savings in production, commerce, "transport, medical care, rescue, education and farming", along with cultivating "the ability and level of social governance".[2] But AI's technological advances are also expected to disrupt numerous legal frameworks, including various aspects of Copyright Law, notably the Indonesian Copyright Law 2014.

With the emergence of artificial intelligence, more and more creative works have been the result of non-human authors. Computer algorithms and learning machines have become a new subject of creativity. However, it has been slow to acknowledge the significance of AI in the creative process by denying copyrights of non-human works and releasing them into the public domain.

AI system with big datasets is much more sophisticated than those with small datasets. It means that the "brain" of AI has a lot of knowledge to analyze data for outputs.[3] And finally, as discussed previously, the sheer quantity of data needed for AI system — such as the number of photographs necessary to acquire the ability to recognize facial detection algorithm — is simply too large for many would-be AI creators to obtain without relying on the copyrighted works of others.[4] The database is like a brain of human that can stimulate what they want to do or produce. With more datasets saved in the database, machines can learn to function more quickly.

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[1] Office of The President (2016), *Artificial Intelligence, Automation, and The Economy*. Retrieved from https://perma.cc/5wn8-5umd; also Nick Bostrom (2014), *Superintelligence: Paths, Dangers, Strategies*. New York, NY: Oxford University Press, pp. 115; Stuart Russell, Daniel Dewey, & Max Tegmark (2015), *Research Priorities for Robust and Beneficial Artificial Intelligence*, 36(4) AI MAG.105, pp. 112–113.

[2] World Economic Forum (2019), *Artificial Intelligence Collides With Patent Law*. Retrieved from http://www3.weforum.org/docs/WEF_48540_WP_End_of_Innovation_ProtectiPr_Patent_Law.pdf. Argues that besides the benefit of Artificial Intelligence, there is also the disadvantage of that technology such as breaking legal framework which could collide patent system.

[3] See, e.g., Chen Sun, Abhinav Shrivastava, Saurabh Singh, & Abhinav Gupta (2017), *Revisiting Unreasonable Effectiveness of Data in Deep Learning Era*. Retrieved from https://arxiv.org/pdf/1707.02968.pdf [https://perma.cc/74DR-Q8UX] (finding, in part, a logarithmic improvement on vision tasks with the increased volume of training data)

[4] Amanda Levendowski (2018), *How Copyright Law Can Fix Artificial Intelligence's Implicit Bias Problem*, 93 Wash. L. Rev. 579, pp. 621. She explains to make some AI's creation, AI needs huge complex data to train its intelligence to be much better.

In the development of AI, there in fact lie certain benefits, notably economic benefits, since the AI can function effectively and efficiently. AI is already changing our daily lives, improving human health, safety and productivity and offering transformational possibilities for consumers, businesses and society as a whole. Cooperated with key technologies such as the Internet of Things (IoT), Big Data Analytics or blockchain, AI has the potential to create a new basis for economic growth and to be the main driver for competitiveness and job creation. Based on data released by the European Commission, AI could contribute up to EUR 13.33 trillion to the global economy in 2030 which is far more than the current output of China and India combined. From that data, EUR 5.6 trillion from increased productivity and EUR 7.73 trillion from consumption-side effects. The ability to analyze levels of data that are beyond human comprehension allows companies to personalize experiences, customize products and services and identify growth prospects with a rapid and proper unprecedented prediction.[5] Thus, the economy-wide implication of AI concerns the fact that technological change driven by AI is embodied in effective ways, and accessible to a wide range of users as well,[6] hence AI can bring some positive trend in the global economic market. The Economist points out that today the most valuable resource is no longer oil, but in fact data.[7] We can assume that digital business has a major role in the world economic development.

Unfortunately, copyright law might drive artificial intelligence into vain. Academic learning for high-tech machines has become uncertain since the number of scholarships available has become very few along with fewer high-tech job vacancies. The doctrine of fair use contributes to the strong economic interests of the company, however, with the owners of private rights making sacrifices. The current copyright principle must be used and supported to promote distribution capital in the AI era.[8] These governance challenges can be an obstacle for companies who want to invest their technology, but they face legal problems that can cause the risk of investment failure.[9] Therefore, the corporation must make a legal breakthrough to a wider scope.

By using AI intelligence, the companies can make their data more valuable

[5] See the Article from the European Commission (2017), *Harnessing the Economic Benefits of Artificial Intelligence*, pp. 2. Retrieved from https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/DTM_Harnessing%20the%20economic%20benefits%20v3.pdf

[6] Ekkehard Ernst, Rossana Merola, & Daniel Samaan (2018), *The Economics of Artificial Intelligence: Implication for the future of Work* (DTP-SCR-REP). Geneva, Switzerland: ILO, pp. 17.

[7] The Economist (2017), *The world's most valuable resource is no longer oil, but data*. Retrieved from https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data

[8] Benjamin L. W. Sobel (2017), *Artificial Intelligence's Fair Use Crisis*, 41 Colum. J.L. & Arts, 1, pp. 49.

[9] World Economic Forum (2018), *Creative Disruption: The impact of emerging technologies on the creative economy*, pp. 11. Retrieved from http://www3.weforum.org/docs/39655_CREATIVE-DISRUPTION.pdf

while also improve the digital markets. Many authors have learned from predecessor works, a technique called "machine learning" or "deep learning" enables artificial intelligence to emulate the work of the original author after sending data into the database of AI. Artificial intelligence can learn how to create human activities, paintings, films, and musical compositions according to the material being taught. These "database" often consist of thousands of authors who are copyrighted, and these copies are repeated and modified repeatedly during the analyzing process.[10] The data entered into the first AI database will get permission from the copyright holder in compliance with the principle of current fair use. However, this is not in accordance with AI's work.

Some input data is digitally assembled on physical media. The other is made by copying and processing natural digital data such as electronic books and news photos. Many such data sets seem to have been assembled without permission from the copyright owner included in the creation. There are several explanations for this practice: computer engineers may not know the principles of copyright law and/or intellectual property law that they must obey while collecting data through mass cloning of copyright data that tends to violate copyright. Some people might argue that fair use will exempt their behavior. Others may believe that there is no effective way to provide the data they use and tends to violate the law. Regardless of the right reasons, researchers who distribute copies and/or distribute copyrighted material as input data usually depend on the exception of fair use to do so.[11] However, this situation makes it difficult for researchers and investors to innovate and invest. This is also very bad for the legal environment.

While collecting data, people might simply copy without any permission from the copyright holder. This paper addresses the issue of the protection of the copyright principle in developing artificial intelligence. It argues that, in the development of AI which needs big data and algorithm which collecting data, notably creative work, they need to get permission from the copyright holder, but on the other side, this mechanism will be a barrier in the development of technology due to the slow response and long bureaucracy. This reformulation of copyright principle “fair use” would give AI developer more space to research while benefiting the economic value for the state purposes and scientific purposes as well.

II. Copyright Principles

According to Tim Visi Yustisia, Intellectual Property Right (IPR) should be protected by laws of every country for two main reasons. First is to give legal

[10] Ibid.
[11] Ibid.

expression to the moral and economic rights of creators in their creations and to the rights of the public in accessing those creations. The second is to promote creativity, its distribution and application, and to encourage fair trade, which would contribute to the economic and social development.[12] In addition, the IPR system supports a good documentation system in the form of human creativity, so that the possibility of producing the same technology or other similar work can be avoided. With good documentation to support, hopefully, the community can utilize and maximize their daily needs and to develop further to provide higher added value. IPRs consist of many rights including copyright, and any copyrighted work must be respected and appreciated.[13]

IP should have played an important part in Indonesia, but unfortunately according to the reports from the U.S. Chamber International IP Index 2019, Indonesia is bottom six countries to play the role of the IP growth in the world. It means that Indonesia's applicability of direct linkage between the strength and enforceability of a country's IP rights and its ability to capitalize on domestic innovative and creative capacity, as well as to access the world's innovations needs to be repaired.[14]

Since 2012, Indonesia has been included in the Priority List of Controlled or Priority Watch List (PWL) related to the protection of intellectual property rights (IPR) that was launched by the United States Trade Representative (USTR). Being in the list means the enforcement and protection of IPR in Indonesia are still problematic and even weak.[15] Referring to the PWL report USTR which is presented in 2014, Indonesia is side by side with a number of countries that have a problem relating to copyright such as Algeria, Argentina, Chile, China, Indonesia, Pakistan, Russia, Thailand, and Venezuela,[16] therefore, a change in copyright law in Indonesia is needed.

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[12] World Intellectual Property Organization (2004), *What is Intellectual Property?*, WIPO Publication No. 450(E). Geneva, Switzerland: WIPO. Retrieved from http://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf (Accessed: December 2014)

U.S. Chamber of Commerce (2019), *Intellectual Property Index "Inspiring Tomorrow"* (7th ed.). Washington, DC: Global Innovation Policy Center.

[13] Tim Visi Yustisia (2015), *Panduan Resmi Hak Cipta: Dari Mendaftar, Melindungi, hingga Menyelesaikan Sengketa*, Visimedia: Jakarta.

[14] U.S. Chamber of Commerce (2019), *Intellectual Property Index "Inspiring Tomorrow"* (7th ed.). Washington, DC: Global Innovation Policy Center.

[15] RED (2014), *Dubes AS Berharap Pembajakan di Indonesia Berkurang*. Retrieved from http://www.hukumonline.com/berita/baca/lt5481adc8e944b/dubes-as-berharap-pembajakan-di-indonesia-berkurang (Visit Date 2014.12.27)

[16] Ok Saidin (2013), *Aspek Hukum Hak Kekayaan Intelektual (Intellectual Property Right)* – Ed. Revisi – Cet. 8. – Rajawali Pers, Jakarta.

Indonesia must enact a change of law as it falls into the category of copyright infringement countries. In 1994, the government ratified the establishment of the World Trade Organization (WTO), which includes the Agreement on Trade-Related Aspects of Intellectual Property rights - TRIPs (Agreement on Trade Aspects of Intellectual Property Rights). Ratification is manifested in the form of Act No. 7 of 1994. In 1997, the government ratified the back of the Berne Convention through Presidential Decree No. 18 of 1997 and also ratified the World Intellectual Property Copyrights Treaty Organization (WIPO Copyright Treaty) through Presidential Decree No. 19, 1997.[17]

Since the growing industrial development and trade in Indonesia, the country has faced increasingly competition. With the World Trade Organization (WTO), trade liberalization of APEC in 2010 for developed countries and 2020 for developing countries and CEPT Scheme for AFTA-ASEAN in 2003, the movement of world trade has become more dynamic and faster. IPRs are not merely technical issues concerning the legal but also the economic interests[18] so in order to follow the current development, copyright protection has been revised by Law No. 28 of 2014 as it regulates copyright and related rights.[19]

In Indonesia the protection of copyright creations has been valid for 50 (fifty) years since the first announcement.[20] While the protection of copyright creation of applied art shall be valid for 25(twenty-five) years since the first announcement. The validity period of moral rights is in force without the time limitation and shall apply mutatis mutandis to the moral rights of Performers.[21]

While in Japan, copyright law is regulated in the Law No.48, promulgated on May 6, 1970, last amended in December 2019. The purpose of this law is to protect the rights of authors and the rights neighboring with respect to works as well as performances, phonograms, broadcasts and wire diffusions, to secure the protection of the rights of authors, etc., having regard to a just and fair exploitation of these cultural products, and thereby to contribute to the development of culture.[22]

Indonesia and Japan both share the concept where people can use certain work for free, which is regulated in the Berne convention. In connection with free use for reproduction, the Berne Convention contains general rules and has no explicit

[17] Ibid.
[18] Elucidation of Indonesian Copyright Law no. 28 of 2014.
[19] Loc.cit.
[20] Article 59 of Indonesia Law no. 28 of 2014 of Copyright.
[21] Article 62 of Indonesia Law no. 28 of 2014 of Copyright.
[22] Article 1 Japanese law No.35, of May 14, 2014.

restrictions or exceptions. Article 9(2) states that member states may provide free reproduction in certain special cases where that act does not conflict with the normal exploitation of a work and does not unreasonably prejudice the legitimate interests of the author. For example, many national laws allow individuals to reproduce special work for personal, private and non-commercial use. However, easy, high-quality individual copying made possible by digital technology has led some countries to introduce systems or sometimes referred to as personal copy levies that allow personal copying but incorporate appropriate payment mechanisms to owners for prejudices generated against their economic interests.[23]

In addition to the specific categories of free use stipulated in national laws, many countries' laws recognize the concept of fair use or fair dealings. This broad general limitation or exclusion allows the use of works without the rights owner's permission, taking into account factors such as the nature and purpose of use, including whether it is for commercial purposes; the nature of work used; the number of works used is related to the overall work; and the possible influence of use on the potential commercial value of work.[24]

The aim of the copyright protection system in Japan is to promote cultural development through the protection of the rights of writers and other rights holders, but also to find other rights or values in society such as education, art, culture, social welfare, and democracy. Securing the "balance" of copyright and other rights or values. This provision is made carefully with strict and detailed provisions to prevent violations of the interests of rights owners unfairly.[25]

It is permissible to perform, recite and cinematographically present work for non-profit-making purposes and without charging any fees to the audience or spectators, provided that the performers or reciters concerned are not paid for such acts.[26] It is permissible also to lend copies of a work to the public for non-profit-making purpose and without charging any fees to borrowers of such copies. However, in the case of cinematographic works, the above lending (public lending) is permissible only for the facilities designated by the Cabinet Order, and the facilities which carry out such lending is to pay a reasonable amount of compensation to the

[23] World Intellectual Property Organization (2016), *Understanding Copyright, and Related Right* (2nd ed.). Geneva, Switzerland: WIPO, pp.16.
[24] Ibid.
[25] Japan Copyright Office (2015), *Copyright System in Japan*. Tokyo, Japan: Copyright Research and Information Center.
[26] Article 38 of Japanese Copyright Law No.35, of May 14, 2014

copyright owner.[27]

In Japan, the "Introduction of the so-called Japanese version Fair use" was proposed in November 2008 by the Intellectual Property Expert Examination Committee in the Digital Network Society of the Intellectual Property Strategy Headquarters of the Cabinet.[28]

While in Indonesia there is no law that specifically regulates the limits of fair use or restrictions on copyright. In fact, the application of the Fair use principle must be supported by the implementation of article 44 of the Copyright Law. If the provision of article 44 does not apply to the rules below, what is expected from article 44 in implementing the Fair Use principle will not be achieved. Because the copyright law itself remains unclear regarding the Fair Use principle.[29]

Article 44, which regulates on the fair use principle only states that: "The use, retrieval, reproduction and/or modification of a work and/or products related rights in all or a substantial portion is not considered a violation of copyright if the source is mentioned or included completely for the purposes of education, research, scientific thesis, report writing, criticizing or reviewing an issue as long as does not harm the normal interest of the Author or the Copyright Holder; security and governance, legislative, and judiciary; discourse which is merely for the purpose of education and science; or performances or staging which is are free as long as do not harm the normal interest of the Author. Besides the use of facilitation of access to the work for the blind, persons with impaired vision or limitations in reading, and/or users of Braille, audiobooks, or other means, are not considered a violation of copyright if the source is mentioned or included in full, except for commercial purposes." [30]

"Manufacture and distribution of copyright content through the media of information and communication technology which are not commercial and/or beneficial Creator or related parties, or the Creator declared no objection to the

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[27] Ibid.

[28] Yeyoung Chang (2010), *Debates on Introduction of "Fair use" to the Copyright Act of Japan and Korea. Do Japan and Korea need Fair use?* (Working Paper No. 2), Comparative IP Academic Workshop 2009. Retrieved from http://www.win-cls.sakura.ne.jp/pdf/22/16.pdf Debates on Introduction of Fair use to the Copyright Act of Japan and Korea - Do Japan and Korea need Fair use.pdf (Accessed: January 2019)

[29] Retno Sari Widowati, Sentot P.Sigito, M.Hum., & M. Zairul Alam (2015), *Penerapan Prinsip Fair Use Dalam Hak Cipta Terkait dengan Kebijakan Perbanyakan Buku di Perpustakaan Perguruan Tinggi (Studi Perbandingan Hukum Berdasarkan Undang-Undang Hak Cipta di Indonesia Nomor 28 Tahun 2014 dan Australia)*, Jurnal Mahasiswa Fakultas Hukum Universitas Brawijaya. Malang, Indonesia: Brawijaya University. Article can be found in https://media.neliti.com/media/publications/35328-ID-penerapan-prinsip-fair-use-dalam-hak-cipta-terkait-dengan-kebijakan-perbanyakan.pdf

[30] Art 44 of Indonesian Copyright Law no. 28 of 2014.

creation and distribution, are not considered a violation of Copyright."[31]

"Copying for the personal benefit of creation that has been announced can only be made as much as 1 (one) copy and can be done without the permission of the Author or the Copyright Holder. However, the copy does not include works of architecture in the form of a building or other construction; the whole or a substantial part of a book or music notation; the whole or a substantial part of database in the digital form; Computer programs, except for research, development, and archives; Doubling for private interests whose implementation is contrary to the normal interest of the Author or the Copyright Holder."[32]

Based on the Elucidation of Article 44 paragraph (1) letter a of the Copyright Law, what is meant by "reasonable interests of the Author or Copyright Holder" is an interest based on a balance in enjoying the economic benefits of a Work.[33] Within the scope of copyright law, the point of fair use is not only based on the purpose which is for commercial use or not but whether it harms the fair interests of the copyright holder or not. Thus, even if one spreads the works not on the intention to seek profit, but if the action is damaging to the economic interests that are reasonable of the copyright holder; then it can be considered as a violation of Copyright.[34]

Indonesian law on fair use is vague since the exact limitation of reasonable interests of the Author or Copyright Holder is unclear, but if we learn from the U.S law, fair use as contained in the Copyright Law of the United States, is regulated as follows:[35]

Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include:

(1) The purpose and character of the use, including whether such use is of a

[31] Art 43 (d) of Indonesian Copyright Law no. 28 of 2014.
[32] Art 46 of Indonesian Copyright Law no. 28 of 2014.
[33] Elucidation of Article 44 paragraph (1) letter (a) of the Indonesian Copyright Law
[34] Brian A. Prastyo (2015), *Pembajakan Lagu*, Faculty of Law, University of Indonesia. Article can be found in https://www.hukumonline.com/klinik/detail/cl6954/pembajakan-lagu (Accessed: February 2019)
[35] See US Copyright Law of Fair Use, can be found on: Legal Information Institute (2012), *17 U.S. Code § 107.Limitations on exclusive rights: Fair use*. Retrieved from https://www.law.cornell.edu/uscode/text/17/107

commercial nature or is for nonprofit educational purposes;

(2) The nature of the copyrighted work;

(3) The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and

(4) The effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.[36] Based on the law above, it can be seen that what is meant by "reasonable interest" is an interest related to the economic interests of the creator or the copyright holder, the benefits of which are acceptable to the creator or the copyright holder of their creation.

With the emerging of the Fourth Industrial Revolution era, the ways to use copyrighted works have been changing rapidly. As new types of use have arisen, it has raised a legal issue as to how we should strike a balance between the protection of copyright and the public interest for free use especially in the era of the internet and artificial intelligence. Therefore, not only because of the vagueness of the law of fair use but also in order of to compromise with the development of Artificial Intelligence and technology, Indonesia should consider its development of law too.

Japan is a good example of a country when discussing a correlation between technology and the law since Japan is one of the first countries to grant new rights under copyright law to address legal issues involving the Internet. More precisely, in 1986 Japan led in giving the author the right of works to prohibit the transfer of works on the Internet without permission (protection). In 1997, the same rights were given to sound recorders and producers.[37] Hence, Japan is a good example on the development of Artificial Intelligence and its correlation with the law.

III. Economic Values of Artificial Intelligence

Since the term AI first coined in 1956 at the Dartmouth conference, AI has developed through various studies on theory and principles. The development of AI

[36] (Pub. L. 94–553, title I, § 101, Oct. 19, 1976, 90 Stat. 2546; Pub. L. 101–650, title VI, § 607, Dec. 1, 1990, 104 Stat. 5132; Pub. L. 102–492, Oct. 24, 1992, 106 Stat. 3145.) See: Legal Information Institute (2012), *17 U.S. Code CHAPTER 1—SUBJECT MATTER AND SCOPE OF COPYRIGHT*. Retrieved from https://www.law.cornell.edu/uscode/text/17/chapter-1

[37] JCO, *Copyright System in Japan*, Loc.Cit, pp.13.

experienced ups and downs following enthusiastic researchers and available research funds. In the period 1966 to 1974, AI development began to dwindle. But since 1980, AI has become a large industry with rapid development. Many large-scale industries are investing heavily in the field of AI nowadays.[38]

The era of the fourth industrial revolution was marked by a pattern of the digital economy, artificial intelligence, big data, robotics, and so on, known as the phenomenon of disruptive innovation. This disruption is also an exception to the legal sector as social development does not always complement the social order.[39] As some problems may be static, it will be easier to solve conventional algorithms in compare to using AI methods. However, for problems that are dynamic, AI provides more convenience compared to conventional algorithms.[40]

In the actual world, most problems are dynamic, very easy to change depending on the surrounding environment, and these changes are often difficult to predict. With its flexible nature, AI can solve various real-world problems, such as search, optimization, classification, forecasting, recognition, clustering and so on. AI Engineering allows us to build adaptive systems with a knowledge base that is better and in accordance with the environment it faces.[41]

At present, AI is trying to imitate human thinking that is intuitive (using feelings) with the emergence of soft computing studies. In the problem of giving scholarships, we will find it difficult to make decisions intuitively, it is fair to use a hard-computing approach using first-order logic. However, we might be able to solve the problem using soft computing approaches such as fuzzy logic.[42]

AI, in particular, is expected to have a fundamental impact on the fourth industrial revolution and is the term coined in the article of Klaus Schwab. Through the Industrial Revolution of Things, Schwab sees AI, robotics, Internet of Things (IoT), 3D and self-printing, physical, digital and biosphere combined to be characterized by the Fourth Industrial System, which is affecting all industries and governments.[43]

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[38] Suyanto ST MSc. (2014), *Artificial Intelligence – Searching, Reasoning, Planning, dan Learning* (2nd Revision). Bandung, Indonesia: Informatika, pp. 11.

[39] Normand Edwin Elnizar (2018), *3 Strategi Negeri Singa Harmoniskan Hukum dan Teknologi di Era Revolusi Industri 4.0.*. Retrieved from https://www.hukumonline.com/berita/baca/lt5ac746938ce04/3-strategi-negeri-singa-harmoniskan-hukum-dan-teknologi-di-era-revolusi-industri-40

[40] Suyanto, op.cit, pp. 271.

[41] Ibid.

[42] Ibid.

[43] World Intellectual Property Organization (2019). *WIPO Technology Trends 2019: Artificial*

AI is still in the initial development stage as a whole. From a macroeconomic perspective, there is an opportunity that developing markets have more advanced markets. One can become a market leader in one of today's start-ups or a business that hasn't even been founded yet, or one could also be the market leader in ten years' time.[44]

Today, artificial intelligence is used everywhere from cloud data, search engine, smart phones, to autonomous vehicles, nanotechnology and digital fabrication applied in material and biomedical sciences; and quantitative computing technology. Big Data Analysis is used in everything, from drug development to market analysis to consumer preference. This new technology has challenged "traditional" business models around the world by increasing global value chains and increasing consumers, customer expectations and experiences, and product durability.[45] Not only the technology of the new Fourth Industrial Revolution but the speed of change is truly unique and marked by "a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres."[46]

Besides, the use of AI is quite simple as it looks for keywords in gigabytes of data. Doing this saves a lot of time and money which otherwise would be spent paying attorneys to find relevant documents. Then, AI is used to eliminate duplicate documents and connect email sequences, again doing in minutes what will take days if done by people. And finally, AI is now able to search documents for context, concepts, and tones with what is known as predictive coding, far beyond simple keyword search. Predictive coding is even used as a tool in internal compliance investigations to filter data mounds in minutes or hours.[47] Like all new technologies, AI provides benefits to the adopters. However, this also poses challenges. AI affects the company while changing technology, threatening employment and income. Concerns about data are overwhelming, ranging from security violations and hackers' fears, privacy and approval issues, algorithms, and ethical questions to potential prejudices in data evaluation.[48]

Intelligence. Geneva, Switzerland: World Intellectual Property Organization.

[44] PricewaterhouseCoopers (2019), *Sizing the prize: What's the real value of AI for your business and how can you capitalize?*, PwC's Global Artificial Intelligence Study. Retrieved from https://www.pwc.com/gx/en/issues/data-and-analytics/publications/artificial-intelligence-study.html

[45] Ibid.

[46] K. Schwab (2015), *The Fourth Industrial Revolution, What It Means and How to Respond,* Foreign Affairs. New York, NY: Council of Foreign Relations.

[47] Sterling Miller (2017), *Benefits of artificial intelligence: what have you done for me lately?*, Thomson Reuters. Retrieved from https://legal.thomsonreuters.com/en/insights/articles/benefits-of-artificial-intelligence

[48] Ibid.

Productivity benefits from companies that automate processes, including the use of autonomous robots and vehicles, increasing consumer demand for productivity, individuals and the availability of high-quality AI from companies that increase existing labor by increasing existing workforce.[49] Machine learning certainly provides many things. Technology is increasingly being used in our lives because it has been widely adopted by many companies in various industries. By providing automation and creative knowledge about everyday work, all sectors from insurance to medical care benefit from machine learning. E-commerce platforms use machine learning algorithms to promote the purchasing process and the personality of their products according to customer actions.[50]

Companies gain competitiveness with AI-based solutions used for definite forecasting and the creation of business insights. Sophisticated voice and image recognition functions have been applied to mobile applications that are easy to use. While a few years ago only a few companies such as Google, Microsoft, and Facebook were able to develop ML-powered software, now a large number of companies can do this as well. Thanks to the emergence of various tools, libraries, and frameworks for building machine learning-based software, machine learning technology is becoming more available for businesses.[51]

Prices are set for each case individually. For insurance fraud detection devices, the price ranges from $ 100k-300k. However, it all depends on the scope and complexity of the project, customer and system requirements, and other factors mentioned earlier. Companies slow to adopt AI-based productivity improvements should be aware: Artificial intelligence is the biggest commercial opportunity for companies, industries, and nations over the next few decades, according to a recent report from PwC. AI advances will increase global GDP by up to 14% between now and 2030, the equivalent of an additional $15.7 trillion contribution to the world's economy.[52] The greatest economic gains from AI will be China (26% boost to GDP in 2030) and North America (14.5% boost), equivalent to a total of $10.7 trillion and accounting for almost 70% of the global economic impact.[53]

Adding AI and machine learning to a product's description boosted the

[49] Azati Software (2019, January 23), *How much does artificial intelligence (AI) cost in 2019?* [Web log post]. Retrieved from https://azati.com/how-much-does-it-cost-to-utilize-machine-learning-artificial-intelligence/
[50] Ibid.
[51] Ibid.
[52] Wladawsky-Berger, Irving (2018, October 26). *The Economic Value of Artificial Intelligence*, The Wall Street Journal [Web log post]. Retrieved from https://blogs.wsj.com/cio/2018/10/26/the-economic-value-of-artificial-intelligence/
[53] Sizing the prize: *What's the real value of AI for your business and how can you capitalize?*, Op.Cit.

willingness to pay by over 12%. Mentioning only A.I. boosted willingness to pay by 11.8% while mentioning only machine learning boosted willingness to pay by 2.3%.[54] Technological advances in the era of the fourth industrial revolution have changed the way people in the digital age interact with the law.

AI will also change productivity, and some researchers predict that it will reduce the conversion costs of industrial operations by 20 percent.[55] The predictive qualities of AI hold unquestionable benefits. AI makes predictions based on past data and cannot possibly predict societal changes and progressive thinking.[56] Nevertheless, there is a need for rules and regulations. Not only does it force regulators to change their approach, but law professionals and law enforcement officials must also adapt.

Likewise, in April 2017 the Ministry of Economy, Trade, and Industry (METI) in Japan had issued intellectual property rights for the fourth industrial revolution. This report is the result of collaboration to hold professional debates regarding the 2016/17 process for government institutions such as METI, Japan Patent Office (JPO) to improve new disruptive technologies IP System.[57]

This report examines future assignments and suggests potential adjustments to the IP framework for the development of technologies such as Internet of Things, artificial intelligence, biotechnology, robotics, other high-tech industries that are generally labeled as the fourth industrial revolution. One of the core areas discussed in the report is the condition of the license for standard essential patents (SEP). In particular, the report said that the emergence of new technologies, including the Internet of Things, the increase usage of SEP, and the increasing number of potential legal conflicts could delay the development of new technologies and industries. In June 2018, the JPO issued a guideline document concerning negotiating licenses, including the required standard patent rights. This guideline discusses thoroughly and in detail about the complexity of the negotiation process and the legal challenges faced by implementers and the SEP holder.[58]

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[54] Patrick Campbell (2018), *Artificial Intelligence, Machine Learning, and the Impact on Pricing*, ProfitWell. Retrieved from https://www.priceintelligently.com/artificial-intelligence-machine-learning-pricing

[55] Ibid.

[56] Dominica Nectarcova (2018), *Report on Tech.Law Fest 2018 in Singapore* (CBFL-Rep-1804). Suntec, Singapore: National University of Singapore.

[57] U.S. Chamber of Commerce (2018), *Intellectual Property Index "Create"* (6th ed.). Washington, DC: Global Innovation Policy Center.

[58] U.S. Chamber of Commerce, *Intellectual Property Index "Inspiring Tomorrow*, Op. Cit.

In the future, AI is challenged to create an intelligence that almost matches human intelligence. Ray Kurzweil predicts that this will be possible through the stages of prediction he made gradually until 2099.[59]

IV. REFORMULATE THE COPYRIGHT LAW IN INDONESIA: COMPARATIVE STUDY OF JAPAN

A. Current Copyright Law in Indonesia

Indonesian Copyright Act Number 28 of 2014 gives partial legal protection to the artists. In this case, the copyright principle can be potentially infringed due to the development of Artificial Intelligence (AI), hence some articles could become the barrier to developing AI. First is Article 9 Paragraph (2) and (3).Whoever wants to do their economic rights, they must get permission from the copyright holder, and in the next paragraph, the act said that whoever has no right to exploit economic right if they have no permission from the copyright holder. Which means that Indonesian Copyright Act has restricted to the researcher to develop AI. They shall get permission first from the copyright holder. This way gives some legal consequences, that will wasting time and more administrative requirement which could be the barriers for advancing technology. Article 44 Paragraph (1), Article 45 Paragraph (1) of Copyright Act. In this article said that the scope of fair use is for non-commercial research, for education, security, etc. So, those Article gives some restriction scope that fair use is only for the individual purpose and everyone who copied copyrighted work shall have one sample for their research. It does not make sense that one institution with so many research division and development only has one sample for all the development of AI. Besides that, the Indonesian copyright law itself is still unclear and out of date regarding the Fair Use principle.[60]

For the development of AI, researchers can only copy one sample. It's hard for the AI researchers to develop their technology since they will need more research division within. Consequently, the law shall broaden its doctrine of fair use that gives more space to the copying process to big data. This support of doctrine will encourage developers to advance their technology which can boost the economic impact on the state.

Indonesian Copyright Act hinders Indonesia’s development and makes

[59] Suyanto, op.cit. pp. 11.

[60] Retno Sari et all, *Penerapan Prinsip Fair Use Dalam Hak Cipta Terkait dengan Kebijakan Perbanyakan Buku di Perpustakaan Perguruan Tinggi (Studi Perbandingan Hukum Berdasarkan Undang-Undang Hak Cipta di Indonesia Nomor 28 Tahun 2014 dan Australia)*, Loc. Cit. Indonesian law on fair use can be considered as vague since the exact limitation of reasonable interests of the Author or Copyright Holder is undescribed in the law.

Indonesia stuck as the developing country in term of technology. Indonesia ranks 4th as the most infringed country in the world.[61] Which means that copyright law cannot encourage the stakeholders to make technology innovation due to regulation barriers.

Hence, Indonesia needs a legal breakthrough to encourage researcher/stakeholder to conduct research that would allow the implementation of technology that could bring the state development.

B. Legal Reason for Changing the Copyright Law: Fair Use Doctrine

The Copyright Act identifies four key (but non-exclusive) factors for analysis: (1) the purpose and character of the use of copyrighted materials; (2) the nature of the copyrighted work; (3) the amount and substantiality of the taking in relation to the copyrighted work as a whole; and (4) the impact on potential licensing revenues, or market harm, for the underlying work.[62] Technology may change the contents of protected legal interests.[63] Technically, AI requires access to data—machines cannot "learn" unless they have large data sets from which can discern patterns.[64] In the development of law and science, the regulators must be one step ahead to see global legal issues, which is stated here as technology. Indonesia, as a rule of law state, its enactment of law must be in the front line in running the state. Consequently, the law is beyond and as a guidance of social life. As Roscoe Pound said that the law is a tool of social engineering, encourage the taw to support can adapt towards the social phenomenon.[65]

This is also in line with the theory of *Ubi Societas Ibi Ius,* which means if there is a society, there must be the law. The relationship between the society and the law cannot be separated, because in reality the law itself was created to regulate people's lives. Then the words of Cicero can be justified that where there is a community there

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[61] Pramita Tristiawati (2016), *Pembajakan Hak Intelektual di Indonesia Masuk 4 Besar Dunia*. Retrieved from https://www.liputan6.com/news/read/2527345/pembajakan-hak-intelektual-di-indonesia-masuk-4-besar-dunia

[62] Jim Rosenfeld & Cydney Swofford Freeman (2018, April 10), *Artificial Intelligence, Fair. Use, and Using AI to Create New Works* [Web log post]. Retrieved from https://www.dwt.com/blogs/artificial-intelligence-law-advisor/2018/04/artificial-intelligence-fair-use-and-using-ai-to-c

[63] Umberto Izzo, Matteo Macilotti, & Giovanni Pascuzzi (2013), *Introduction: A Law and Technology Approach to The Law of Biobanking*, Comparative Issues in the Governance of Research Biobanks: Property, Privacy, Intellectual Property, and the Role of Technology, 1, pp. 2.

[64] See White Paper of Mirjana Stankovic, Ravi Gupta, Bertrand Andre Rossert, Gordon I. Myers, & Marco Nicoli (2017), *Exploring Legal, Ethical and Policy Implications of Artificial Intelligence*, GLOBAL FORUM on LAW, JUSTICE and DEVELOPMENT. Washington, DC: The World Bank, pp. 19.

[65] Linus J. McManaman (1958), *Social Engineering: The Legal Philosophy of Roscoe Pound*, 33(1) St. John's Law Review, 1, pp. 17. Retrieved from https://scholarship.law.stjohns.edu/lawreview/vol33/iss1/1

is a law. So, if the AI is a linkage between human and machine, it should also be regulated to increase legal certainty.

C. Comparing to Japanese Copyright Law

Japan is becoming the first country to amend its Copyright Law in order to develop Artificial Intelligence as a main source of generating Japanese income. In this amendment, Japan has given more space for the inventors to transform massive technologies into more sophisticated ones which allow Japan to become a leading country in terms of innovation and exploiting it through intellectual property. In 2019, Japan was ranked as the 1st of the most innovative country in the world.[66] The Japanese copyright law includes data access exceptions since 2009. This exception allows the cancellation of data protected by all types of copyright except databases created for clear purposes for data mining. The approach to exclusion is tolerance. Japanese law includes extensive descriptions of data mining and does not limit exceptions to certain types of users or specific purposes. Finally, Japanese law explicitly agrees to make derivative products as part of the data mining process. This provides protection for the work of data mining.[67] The first copyright law has given researchers legal guarantees for researchers to develop AI, get more economic benefits, and make Japan as a center of Artificial Intelligence.

In May 2018, the Japanese parliament approved the amendment on the 'Human Rights Act', a reform focused on enabling the flexibility and legal certainty needed for innovators, and it came into force in January 2019. The main objective of this amendment was to promote services of digital intellectual and innovative public (AI) by eliminating the ambiguity of the use of works protected by copyright in understanding and analysis. Japan has guaranteed that copyright cannot be an obstacle in the development of AI. Because Indonesia is preparing for the appearance of the 4.0 industrial revolution, it is necessary to see how Japanese MPs have correctly linked machine learning technology to the development of AI and how they can balance copyright regulations to support their technical ambitions.[68]

The amendment of copyright law in 2018[69] aims to promote the development of

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[66] Sintia Radu (2019), *Top 10 Countries People See as Most Innovative*. Retrieved from https://www.usnews.com/news/best-countries/articles/2019-01-25/worlds-most-innovative-countries-by-perception

[67] Element AI Inc. (2018), *Promoting Artificial Intelligence in Canada: A Proposal for Copyright Reform*, Element^{AI}, 1, pp 8.

[68] European Alliance for Research Excellence (2018), *JAPAN AMENDS ITS COPYRIGHT LEGISLATION TO MEET FUTURE DEMANDS IN AI AND BIG DATA.* Retrieved from http://eare.eu/japan-amends-tdm-exception-copyright/

[69] Previously the reproduction for any reproduction both profit making or non-profit making are prohibited according to the Japanese Copyright Law

Japanese-made intelligence industries and big data, as well as support Abe's ambitions and two technologies that are not entirely text-dependent and data mining. The 2018 Amendment introduces the following three articles, by removing copyright barriers that are recognized for AI:

New article 30-4 lets all users analyze and understand copyrighted works for machine learning. This means accessing data or information in a form where the copyrighted expression of the works is not perceived by the user and would therefore not cause any harm to the rights holders. This includes raw data that is fed into a computer program to carry out deep learning activities, forming the basis of Artificial Intelligence;

New article 47-4 permits electronic incidental copies of works, recognizing that this process is necessary to carry out machine learning activities but does not harm copyright owners;

New article 47-5 allows the use of copyrighted works for data verification when conducting research, recognizing that such use is important to researchers and is not detrimental to rights holders. This article enables searchable databases, which are necessary to carry out data verification of the results and insights obtained through TDM (Text of Data Mining).

Japan is just one of the examples of a country that has taken major steps to make a legal breakthrough to encourage the development of future technologies, which will have a critical role in guaranteeing global economic growth in the next few years, and is expected also to accelerate technological developments in fields of critical economic importance for the country.

D. Reformulating the Copyright Law in Indonesia

Globalization has entered a new phase with increasingly sophisticated technological advancements while putting into the perspective that there has always been a close relationship between technology development and legal reform. When technological developments bring new changes in human social life, it also brings challenges in existing legal relationships; laws will often be adjusted and reformed in order to address new problems. The development of this new technology has encouraged copyright adjustments.

There is no other way for Indonesia to become a developed country besides taking lessons from various successful practices of other countries. Including

harmonizing between technological progresses with the right regulations to frame it.

Based on the aforementioned statement, to encourage Indonesia, to manifest the fourth industrial revolution, and to advance its technology, there shall be a legal breakthrough by the parliament and government through revising the copyright law to be more elastic notably for the Artificial Intelligence use. There are some articles that must be amended, for example, Article 9 Paragraph (4) and (5) also Article 44 and Article 45, that there must be an exception for the development of AI. No matter what kind of purpose (commercial and non-commercial).

The adjustment and reformation of the Indonesian copyright law will affect the technological development of AI in many ways since the use of AI is inseparable from daily life, including the development of biomedical sciences that will help many people. The reformed law will not only affect the development of technology but also give legal certainty on fair use.

V. CONCLUSION

In the end, almost all activities and sectors will benefit from the use of Artificial Intelligence (AI). The influence of AI can be seen in applications that are used by people such as transportation, health, finance, and law in our everyday lives. Policy-makers need to stand ready to predict the societal impacts and prepare people for the tech revolution to come. The next technological revolution is inevitable and it would be unwise to obstruct its progress.

The benefits can bring the state more modern, effective, efficient, and integrated-system for the society. Besides that, the state can generate a lot of economic value with the use of AI, but this shall be supported by the law which might pose as a barrier to the development of technology. In the way of collecting data, the main legal issue becomes the fair use doctrine. Current fair use doctrine has no space for researchers to develop their invention due to the restriction of fair use. This could bring legal risks to the researchers as well as for the investors that may be in legal dispute between the copyright holder and researcher in the future.

In Indonesia, current Copyright Law cannot encourage the development of AI because the fair doctrine within that law is too strict. The development of AI has a big correlation with the fair use where the input data into machine learning is very limited. Therefore, in the Artificial Intelligence era, the law shall be adjusted to in order to generate more benefits for AI innovations in order to keep up with the world industrial changes.

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Dysfunctional Regulations and Ineffective Implementation of Intellectual Property Rights – Based Banking Collateral: A Critical Analytical Study

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Abstract

This research carried out a critical analytical study of Intellectual Property Rights – IPRs (focused on Copyright, Patent, and Trademark) as important industrial and commercial property also as business capital. By conducting juridical normative methods with descriptive explanatory research, this research started with inevitable facts concerning the effect and further potential of IPRs assets in a business. However, although proved to have high economic visibility, the pledging of these IPRs asset as banking collateral may lead to some difficulties and challenges, in the terms of IPRs assets or the law applicable to its pledge process and the implementation mechanism in practical scope. The result shows IPRs – Based Banking Collateral becomes ineffective caused by dysfunctional regulations as domestic law failed to provide harmonious ground to implement the IPRs Based Collateral. The main challenge lies in harmonization and the development of relevant implementing regulations. We suggest "a double cover" mechanism for IPRs based collateral binding. This method expects to solve the practical problems and provide better access to funding for intellectual capital-based – businesses, also the safety and guarantee for the banking institution in implementing prudential banking principles. This “Double Cover Method” also creates massive opportunities for IPRs – Based Collateral in creating a weightless economy with high potential economic growth. The implications of this study are relevant to the development of both intellectual property and banking regulations and practices.

Keywords: Intangible Business Capital, Intellectual Property-Based Banking Collateral, and Double Cover Binding Method

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I. Introduction

The development of a knowledge-based economy carried by the creative economy raised to be the most rapidly growing sector worldwide. Indonesia's creative industry proved its resilience during the global economic crisis and show strong growth in 2017, contributing 990.4 trillion Indonesian Rupiahs to GDP. The creative economy sector has continuously achieved positive and significant growth since 2015 and consistently contributes 7.44% on average to the country's GDP.[1]

Indonesian economy needs to reinvent itself and develop new key drivers in escalating national economic growth. During this decade, Indonesian government highly focused on the creation and development of creative businesses with the establishment of Creative Economy Agency ("CEA" Known as "Badan Ekonomi Kreatif" - **Bekraf**) in 2015 with the purpose to escalate creative and innovative business. These businesses expected to be the driver of the Indonesia economy since they are serving a huge promising niche market. To achieve this goal, the government has prepared and supporting measures including a new platform, incentives, grants, and new regulations primarily concerning the protection of intellectual property and intellectual capital also related to creative business funding. The most strategic platform is the innovation that comes from knowledge and creativity in forming intellectual capital-driven companies that have worldly proven capable of creating jobs, boost economic growth[2] and upgrading social welfare. According to BEKRAF data, the creative industry sector provided 16.4 million employment in 2017 or 15.9% of the total workforce in Indonesia. Globally, the creative industry also gains significant export value: 19.4 billion USD in 2017. However, a major problem for an intellectual capital-driven company with the intangible assets as the main capital lies on the limited (and complicated) access to funding. BEKRAF and Statistical Central Bureau released disturbingly ironic data related to funding for the creative industry as one of the most rapid-growing sectors worldwide in Indonesia. Around 92.37% of creative industries players in Indonesia are independently self-funded and have not received any outside funding such as banking credit/loan or investment and the most frequent cause is the limited and the lack of access to funding provided by the financial institution, especially banking institution for such businesses. Despite all the IPRs regulations and the creation of BEKRAF, IPRs - Based funding in Indonesia remains problematic because of the financial institution's conventional approach in determining collateral qualifications, collateral value, and collateral pledging/binding methods. Therefore, this research recommends improving both legal and financial approaches and strategic implementation between government agencies and the banking sector by seeking the funding and collateral pledging method as a complying bridging instrument for intellectual based capital business to access funding. Another critical importance is

[1] Global Business Indonesia (2018), *Indonesia's Creative Industry: Set to Become the Economic Powerhouse*.

[2] Irina Bokova, The Director-General of UNESCO stated that the cultural and creative industries have capitalizing US 2,250 billion and nearly 30 million jobs worldwide and become a major driver of the economies of developed as well as developing countries, EYGM Limited (2015) , *Cultural Times, The First Global Map of Cultural and Creative Industry*, pp.5.

that this method should be the intersection between business interests and banking principles.

II. Objectives of the study

There has been a lack of confidence among banking and financial institution in Indonesia to provide IPRs based funding with IPRs based collateral that hampered the growth and development of IPRs based businesses as reflected in issues such as limited IPRs based funding from banking and the financial institution, an unfortunate irony in a knowledge-based economy era. To a great extent, even the domestic IP law had failed to offer a strong and comprehensive regulatory support system for IPRs based collateral. Therefore, the main objective of this study is to identify and analyze the dysfunctional elements of Indonesian IPRs system (for this research the scope limited to the copyright, patent, and trademark) start from regulative factor, implementing regulation to a practical aspect that might create challenges and obstacles in promoting and implementing IPRs based banking funding and collateral as well as promoting the potential solution for those challenges and obstacles.

III. Research methodology

This research conducted by implementing these following methods:

A. Approach Methodology

The approach methodology in this research is juridical normative method. The juridical normative method is a method that analyzes the provisions in current law and regulations.

B. Research Specifications

This research conducted with descriptive-explanatory research where researchers provides information from the relevant area of the research and the legal material including laws, regulations, policies, literature review and also commentaries and further assembling facts, legal issues related to the research topic.

IV. Theoretical studies and legal literature

A. Intellectual Property: Intangible Assets with High Potential Economic Viability

During the last two decades, intellectual property and intangible assets are getting more and more important in creative economy businesses. According to the International Accounting Standard Board (IASB), *"intangible asset is an identifiable non–monetary asset without physical substance."*[3] Non–monetary doesn't mean

[3] Global Business Indonesia (2018), *Indonesia's Creative Industry: Set to Become the Economic Powerhouse*. Retrieved from https://www.ifrs.org/issued-standards/list-of-standards/ias-38-intangible-assets/

intangible assets do not contain an economic value, on contrary, these assets posses actual and potential economic value and play important role in current business trends for their ability to be economically exploited to obtain revenues and profits for the business. The phrase *"without physical substance"* means that (mostly) intangible assets do not have physical shape, however, they capable to produce tangible products and derivative products or attached to physical goods. The identification of intangible assets can be observed by the ability of the asset to be sold, transferred, and licensed.

Intellectual property especially patent, trademark, and copyright arise to be amongst the most beneficial intangible assets for the business. Generally, Intellectual property means the legal rights which result from creative intellectual activity in the industrial, scientific, literary, and artistic fields.[4] The approach of protection is not on the ideas but on the expression and creation. The creation can be expressed in art, industry, science, or includes all of such fields. Intellectual Property has become the global concept through the World Trade Organization (WTO) and its instruments: The Trade-Related Aspect of Intellectual Property Rights Agreements (*TRIPs Agreement*).

Indonesia ratified WTO as international legal system[5] through Law of Republic Indonesia Number 7 the year 1994 concerning the Ratification of Agreement Establishing the World Trade Organization. Indonesia also ratified several important treaties and conventions such as the Paris Convention for the Protection of Industrial Property,[6] Berne Convention for the Protection of Literary and Artistic Works, and others WIPO – Administered Treaties.[7] These ratifications require Indonesia to comprehensively harmonizing Intellectual Property regulations by taking a legal approach in covering the protection of Intellectual Property under international standards. [8]

Intellectual property becomes one of the most important intangible assets in business since those assets provide potentially high economic value by granting rights and privileges to the owner/holder that potentially create various income streams for example through royalties and license fee payments. Intellectual properties are strongly related to numerous important segments of businesses. There are technology and production – related intellectual property such as patent and trade secret, artistic related- intellectual property: copyright and also market – related intangible asset: trademark and brand name. Intellectual property and intellectual capital become a strong instrument to ensure long term business sustainability, for example, Intellectual Property and Intellectual Capital based companies like Google, Apple, Merck, Netflix

[4] World Intellectual Property Organization (2008), *WIPO Intellectual Property Handbook*, pp.8. Geneva, Switzerland: WIPO Publication.

[5] Further understanding of WTO as legal system see David Palmeter (2000), *The WTO as a Legal System*, Fordham International Law Journal, Volume 24, Issue 1, Article 19, pp. 444-490.

[6] Ratified by Republic of Indonesia Presidential Decree No. 24 the Year 1979, May 10th, 1979.

[7] WIPO Administered Treaties consist of Convention Establishing the World Intellectual Property Organization (December 18, 1979), Trademark Law Treaty (September 5, 1997), Patent Cooperation Treaty (September 5, 1997), WIPO Copyright Treaty (March 6, 2002), WIPO Performances and Phonograms Treaty (February 15, 2005) and Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks (January 2, 2018).

[8] Organization for Economic Cooperation and Development (2014), *Global Value Chains: Challenges, Opportunities, and Implications for Policy: G 20 Report*, World Trade Organization (WTO) & World Bank.

have market advantages, create jobs and fostering innovation through the creation, utilization, and dissemination of new technologies, inventions, and creativities.

Intellectual Property and intangible capital rise to be major drivers for companies and industries in creating a new business or develop existing businesses, however, even the importance of intellectual property and intangible capital is widely accepted and recognized, Intellectual Property and Intangible Capital are economically poorly understood, unutilized and also, although considered as a valuable asset, to measure the value of the intangible asset is quite challenging. The valuation of an intangible asset usually involves objective and subjective indicators that may vary according to different industries. For example in pharmaceuticals industries, the patent has the highest value, while in the music industry or publishing industry copyright is the most important intangible asset, as for a trademark, it almost has its value since trademark functioned as product identity and also the identification of the producer and attached on goods and services in market trade. Despite the complexity in valuation, the massive potential of economic value and its importance in the business competition are compelling based on the analysis conducted by the United States Bureau of Economic Analysis (BEA). The result shows that since 2012 the value of the annual investment in intellectual property products by private businesses in the United States continuously growing throughout the years and reached U$ 938 billion by the end of 2018.

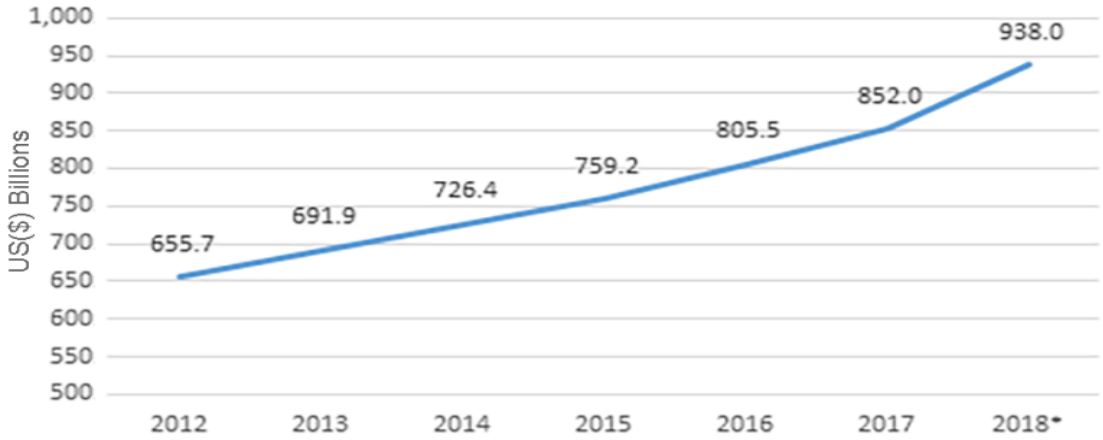

Figure 1:

Investment in Intellectual Property Products

Source: United States Bureau of Economic Analysis (October 2018)

B. Intangible Assets and Intellectual Capitals in Business

Companies and business, in general, depends on both tangible and intangible assets in running the business. Tangible assets simply define as visible assets for example land, factory, machines, vehicles, and inventory. Intangible asset defines as an asset that is not physical in nature or asset that cannot be seen, touched, or physically measured, for example, rights, relationship, business images, and intellectual property.[9] Further, intangible assets are all the elements of a business

[9] Archana Dinesh Mehta & Pankaj M. Madhani (2008), *Intangible Assets: an Introduction*, the ICFAI University Press, pp.11-12.

enterprise that exist in addition to working capital and tangible assets. They are elements that make the business work and are often the primary contributors to the earning power of enterprises. Intangible assets are generally classified into 2 broad categories:

1. Indefinite Intangible Assets: intangible assets with no limitation of time or can be kept or stays with the company for as long as it continues business operations, for example, trademark and trade secret, business reputation.
2. Definite Intangible Assets: intangible assets limited by a certain period of protection, ownership or terms, for example, patents, copyright, license agreement.

During the shift from the industrial era to the knowledge-based economy era, Intangible assets growth as current major drivers for companies and industries, the determinant factors for competitiveness. IP asset becomes the primary method for securing a return on investment in innovation, not only to protect innovations and creativity but also an important source of cash flow and income stream and a critical factor in attracting investors for example through a license agreement. The license agreement has a multiplier effect and generates economic benefits as well as other benefits like the acceleration of technology transfer by providing technical assistance because the licensor/IRPs owner has legal rights to control the use and implementation of the license agreement to be compliance with agreed standards.

The importance of intangible asset and IP assets is increasingly critical to business value and competitive edge, yet current conventional asset valuation standards in Indonesia are no longer sufficient for the massive development of intellectual capital business. The economic potential of IPRs asset should have led to emerging related and required fields like IP valuation to calculate the real value of IPRs or IPRs management to manage and maximize the economic exploitation of IPRs synchronized with the business core of creative economy where companies rule their business by turning their IPRs asset into profitable ventures.

C. Copyright

Copyright protects the rights of intellectual creators. Indonesia regulates copyright on Law Number 28 the Year 2014. Copyright defines as the exclusive right of the creator that arises automatically based on the principle of declarative after creation is embodied in tangible form without the prejudice to the restriction under the provisions of the legislation.[10] As an Intellectual Property, copyright consists of moral rights[11] and economic rights[12].

[10] Article 1.1 Republic of Indonesia Law Number 28 the Year 2014 on Copyrights.

[11] Moral right indefinitely inherent to the creator and cannot be assigned during the creator's lifespan,

Economic rights become a compelling source of revenue, according to article 9 of Copyright Law, the economic rights covering the rights of publication, reproduction of creation in all forms, translation of the work, adaptation, transformation, distribution, announcement, communication of creation and also to perform and to rent the creation to another party. The scope of the economic rights in relation to a particular piece of creation covers : (i) Publication; (ii) Reproduction; (iii) Translation; (iv) Adaptation, Arrangement and Transformation; (v) Distribution and Copies; (vi) Performance; (vii) Announcement (viii) Communication and (ix) Rental. According to article 40 of Copyright Law, the creations protected by copyrights are the creations in the field of science, art, and literature.

Consider the wide scope of copyrights protection and many potential options for utilization to gain economic benefit, copyright consider to be one of the strongest capital in the creative economy since its potentially create many derivative products and creating simultaneous financial revenues, for example, the author will be able to gain royalty from the selling of their novel, and also in case of the novel is adapted into movies/television series, the royalty for adaptation or licensing fee will also be paid to the author. Economic benefit also can be obtained through the transfer of ownership (in a whole part or partially). Article 16 verse (2) Copyright Law regulates the procedures of authorized copyright transfer: inheritance, grants, endowments, testament or written agreement and another media of copyright transfer justified and in accordance with the provision of law and regulations.

D. Patent

Trademark plays a vital role in the modern economic world as an inevitable part of product identity to provide distinctiveness among like products and services. Indonesian Trademark law defines as the sign which is graphically visible in form of drawing, logo, name, words, alphabets, numbers, color composition in two-dimensional form and/or 3-dimensional form, sound marks, hologram or the combination of two or more elements to distinguish goods and/or services produced by the person or legal entity in the commercial activity of goods and services.[13] Trademark is applied to commercial products so that the buyers will be able to identify the product. Over the years, the importance of trademark is getting more significant in international trading. The business faces the urgencies to individualize

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but the implementation of these rights can be assigned by testament and based on the prevailing laws and regulations after the creator passed away. Moral rights constitute the perpetual rights of a creator to (i) include or not to include his/her name to a copy of a piece of work that is in the public domain; (ii) use an alias name or pseudonym; (iii) change (his/her work) in accordance with the proprieties of the community (iv) change the title and subhead of a piece of work; and (v) defend his/her rights in the event of a distortion, mutilation or modification of the work, or things that may be detrimental to his/her honor or reputation.

[12] Economic right is the exclusive right of the creator or copyright holder to gain economic benefits of the creation.

[13] Article 1 verse (1) Republic of Indonesia Law Number 20 the year 2016 on Trademark and Geographical Indications

and personalize their products and sharpens the distinctiveness from the competitor's products to strengthen the impression of their product and services.[14]

Trademark developed to be one of the most important and valuable business' assets, for example in 2015 *Forbes* magazine listed "Google" as the world's most valuable trademark with US $ 44 billion value. Trademark is one of the strongest attention-drawing factors, at its essence, the trademark is an economic tool to expose the quality of a product based on the reputation of the manufacturer or producer and further, the trademark becomes one of the strongest factors in influencing consumer's buying decision and important binding instrument in keeping consumer's loyalty.

E. Trademark

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[14] Mauritius Research and Innovation Council (September 2013), *Basic of Intellectual Property Rights*. Retrieved from http://www.mrc.org.mu/English/Documents/Basics%20of%20Intellectual%20Propert%20Rights.pdf

[15] Article 1 verse (1) Republic of Indonesia Law Number 20 the year 2016 on Trademark and Geographical Indications

[16] MRIC, *supra* note No.14.

F. Preview on Collateral, Collateral Binding and Banking Collateral in Indonesia

In general, collateral is an asset pledged by the debtor to the creditor until a loan is paid back, in case there is an event of default by the debtor, the creditor has the right to seize the collateral and sell it to pay off the loan. [17]Collateral is one of the most important issues and great economic importance for the financial institution, especially banking institution. According to World Bank Enterprise Surveys performed in over 1000 countries, collateral was required in over 75 % of all loans.[18] Although capital and financial ability of debtor have a direct correlation with loan repayments, collateral still required to overcome the risk of the fail or default of loan payment that possibly occurred, the existence of collateral consider to make the loan secured. Banking Institution preferred a secured loan for its lower risk and collateral rise to be the powerful tool in overcoming Non-Performing Loan by securing the repayment from auction or execution of collateral.

Indonesian Banking system clearly has a high preference on a secured loan, where promises of repayment are backed by collateral that lenders can seize and sell in the event of default regarding loan repayments. Collateral, in general, regulates on the Indonesian Civil Code: *"Any possession of debtors both existed possession and later possessed by debtors are generally perceived as collateral and repayment guarantee for debtor's debt"*.[19] In practice, collateral may be a tangible asset such as property, vehicles, machines, and inventory or intangible assets such as account receivable, company shares, and intellectual property. The first requirement to be considered and qualified as collateral there has to be an asset, with existing economic value and marketable. This means collateral must be able to protect against the possibility of partial or total losses with its strength to be sold or transferred to cover loan repayment. The second requirement, there has to be a pledge by the debtor to the creditor, formally by a contractual obligation on the collateral binding. For the collateral to serve the creditors into a privileged position vis-à-vis other creditors. The essence of collateral mortgage is in the transfer of legal possession (not ownership) from the mortgagor debtor to the mortgagee creditor, without this transfer of possession such collateral mortgage shall have no legal effect and give no justification of preferential and privileged position of mortgagee creditor against other parties.

Banking institutions in developing countries (including Indonesia) often narrowly perceived – and preferably received collateral as physical assets. Creative and capital based especially in the start-up stage may not have such assets and the further consequence is the funding options for intellectual capital-based business are quite rare and the access for bank credit is mostly inaccessible for those companies, which qualified as companies with lack of collateral in bank point of view. The further result and consequence is reluctant of the bank to accept intangible and movable assets as collateral due to inadequate legal and regulatory environment[20] and some other practical reasons regarding the pledging mechanism and execution.

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[17] B. Balkenhol & H. SchÜtte (1995), *Collateral, Collateral Law and Collateral Substitutes (2nd Edition)*, Working Paper No. 26, Employment Sector, International Labor Office Geneva, pp. 7.

[18] Enterprise surveys are available at http://www.enterprisesurveys.org.

[19] Article 1131 Indonesian Civil Code (unofficial translation)

[20] Inessa Love, Maria Soledad Martinez Peria & Sandeep Singh (April 2016), *Collateral Registries for Movable Assets: Does Their Introduction Spur Firms' Access to Bank Finance*, World Bank Policy Research Working Paper No. 6477.

Financing for creative industries commonly comes from angel investor sponsorship and crowdfunding with limited funding power comparing to banks and other financial institutions and as the consequences, creative business, in particular, are hit hard by the lack of funding access and options which dampens the productivity and innovation and their intangible – movable assets become "dead capital".

G. Legal Standing of Creative Business: Forming Creative Business as Desirable Financing Candidates

Based on data released by BEKRAF in 2017, 53, 49 % of creative industry businesses are not established as Limited Liability Company (LLC) and 88, 95 % of their products or innovation has not obtained intellectual property rights.[21] These two factors made a huge impact in making such business qualified as not desirable and proper for financing and investment candidates. The development of legal credibility among creative industry players is important in forming trust from financial institutions and investors. Another factor is the professionalism and accountability of company data. To obtain credit / banking loans, debtors are required to submit a financial report, however, less than 4 % informal businessmen consistently keep this report.

The status of Limited Liability Company (LLC) undoubtedly brings multiple effects and opens many opportunities for the creative business. LLC in Indonesia regulated by Law Number 40 the year 2007 defines as legal entity constitutes a capital alliance, established based on an agreement to conduct business activities with the Company Authorized Capital divided into shares.[22] LLC consider being the ideal business entity in the term of financing and also stipulated as specific legal requirements for companies to enter market export. Banking and financial institutions in Indonesia have a certain preference for LLC as the business structure of their debtor for several important reasons:

1. Separate Legal Entity from its owner: This characteristic provides the company independent legal standing and subject to state law also clear cut responsibility of its organs.
2. Limited Liability: The limitation of liability considering the capital is measurable with defined and certain criteria. For the shareholder, the liability proportionally based on the ownership of the shares, they have no liability beyond their investment (unless proved to do any damages for the company) but they have the right to participate in management decisions of LLC for example in electing directors.
3. Certainty in operation procedures with adequate regulations: Law number 40/2007 on Limited Liability Company provides the general rule in operation procedure and legal consequences from the establishment, restructuring like merger, consolidation, acquisition, and liquidation.

Recognized as a globally accepted standard business entity: Although the laws governing LLCs are outlined in regulations are vary between states but there are

[21] Global Business Indonesia, *supra* note No.3.

[22] Article 1 Number 1 Republic of Indonesia Law Number 40 the Year 2007 on Limited Liability Company (Unofficial Translation)

generally common characteristics that apply in all jurisdictions. LLC also a popular business entity type among entrepreneurs and business because LLC structure provides the flexibility as well as certainty and predictability also expand business opportunities, for example regarding the access to the export market.

V. Result of analysis

A. Intellectual Property Rights-Based Collateral According to Indonesian IPRs Law and Banking Regulations: Dysfunctional, Inconsistency and Impractical Regulations

We analyzed the core principle of collateral stated on Article 1131 Indonesian Civil Code and identify that viewing "collateral" as something rigid or limited to tangible assets is a common dangerous fallacy. IPRs as intangible assets contain the economic value, potentially create high economic value and often outperform the value of tangible assets with endless potential in resulting derivative products and revenues; hence IPRs based funding collateral in Indonesia is almost inexistent. Banking institution still relies heavily on fixed assets as collateral. Although there are some credit applicants/companies include their IPRs assets in their portfolio credit, banking institution perceived these IPRs asset as additional collateral or business valuation factor in credit approval consideration rather than as credit collateral. This hampered the credit allocation to a plentiful business entity, while in fact, credit is one of the most important banking facility that has a vital role in economic development and important for funds circulation,[23] credit also encourage business to increase productivity and to expand the business scope by providing funding capital.

The analysis of IPRs and banking regulation found several dysfunctional elements of IPRs and Banking regulations in Indonesia:

1. **The normative legal approach in Indonesia IPRs regulation** – Copyright[24], Patent[25] and Trademark[26] laws show the first and most important dysfunctional aspect in supporting IPRs based collateral. Copyright law by far is the only Indonesia's IPRs Law that implicitly regulates that copyright as property can be used as collateral through fiduciary collateral binding,[27] as for patent and

[23] Etty Mulyati (2018), *The Implementation of Prudential Banking Principles to Prevent Debtor with Bad Faith*, Padjadjaran Journal of Law, Volume 5 Number 1, pp. 89-108.
[24] Law of Republic Indonesia Number 28 the year 2014 on Copyright
[25] Law of Republic Indonesia Number 13 the year 2016 on Patent
[26] Law of Republic Indonesia Number 20 the year 2016 on Trademark and Geographical Indications
[27] Article 16 verse (3) Copyright Law by nature is a regulative clause. This clause needed to be supported by implementing regulations to be practically applied.

trademark law both do not implicitly provide legal standing for patent and trademark as collateral nor regulates the collateral binding instrument (Fiduciary).

2. **The implementing regulation related to banking practice**: Bank of Indonesia Regulation (PBI) No. 7/2/PBI/2005 (last amendment based on Bank of Indonesia Regulation (PBI) No. 9/6/PBI/2007) concerning Asset Qualification Rating for Commercial Banks specifically regulates collateral asset qualification and until recent time does not include intellectual property assets, which is unfortunate considering the intellectual property is recognized as intangible assets by various critical regulations like Civil Code, Fiduciary Collateral Law, and Copyright Law. Article 46 regulates the eligible collateral consist of:
   a. Securities and shares actively traded on a stock exchange in Indonesia or rated investment grade and bound under pledge;
   b. Land, residential property, and building bound under the deed of mortgage.
   c. Aircraft or ships with dimensions exceeding 20 (twenty) cubic meters, bound under hypothec; and/or
   d. Motor vehicles and inventory bound under fiduciary transfer.

Furthermore, there are general requirements that collateral shall be accompanied by valid legal documents (proof of ownership), bound under the applicable laws and regulations in such manner as to confer preferential rights on the Bank and protected by a banker's clause, providing Bank with the rights to receive the insurance disbursement in the event of the claim payout.[28]

In the practical field, there are several dysfunctional elements of IPRs and banking regulations in Indonesia, for example, the Copyright law implicitly stated copyright as the fiduciary collateral object but this law failed to trigger further synchronization with Bank of Indonesia Regulation (PBI) as one the most important implementing regulation in collateral banking practice. Furthermore, Indonesia banking system to develop alternative funding with IPRs based collateral in the term of implementing regulations.

B. Registration as Instrument of Intellectual Property Recognition: How to Properly and Optimally Monetize IPRs

There are requirements for an object to be qualified as fiduciary collateral. Article 5 Law of Republic Indonesia Number 42 the Year 1999 on Fiduciary Collateral states that the imposition of a Fiduciary over objects is made by notaries' deed in the Indonesian language in the form of Fiduciary deed. The deed of the

[28] Article 47 verse (1) Bank of Indonesia Regulation (PBI) No. 7/2/PBI/2005 (last amendment based on Bank of Indonesia Regulation (PBI) No. 9/6/PBI/2007)

fiduciary collateral binding should (at least) contain.[29]

1. The identity of the parties: The Fiduciary Giver[30] and Fiduciary Recipient[31] as mortgagor and mortgagee.
2. The information considering the loan, credit/agreement secured by fiduciary collateral.[32] The information usually covers the date and number of credit agreement, the amount of credit secured by fiduciary collateral.
3. Description of Fiduciary collateral object. This is an instrument to identify the fiduciary collateral object and require proof of ownership. This description commonly provides information concerning the number of fiduciary objects, type, specimen, and other necessary information and the identification of fiduciary object ownership.
4. The value of collateral binding (the agreed value to cover the loan/credit repayment based on the actual and potential value of the fiduciary collateral object).
5. The value of the fiduciary collateral object (based on market value or appraiser value).

Regarding those requirements, we identified the core principles of fiduciary collateral binding: since fiduciary is a transfer of legal possession of an object based on trust with the provision that the control of fiduciary collateral object remains on owner's, it is critical important to clearly define and state important things regarding both subject and object. Emphasizing on the object, the banking institution mostly require the proof of ownership (some prefer to keep the proof ownership during the loan term), hence to obtain this proof of ownership, IPRs should be registered.

The registration of IPRs is an important step, especially for those types of IPRs with constitutive system protection / *first to file principle* where registration consider to be the requirement of rights ownership, the first, registrant will be acknowledged as authorized owner – unless proved otherwise. Indonesia adopts this constitutive system in most of the intellectual property protection, for example, patent, industrial design, and trademark. On the other hand, registration also plays an important role in copyright, although Indonesian Copyright Law regulates the declarative system and

[29] Article 6 Law of Republic Indonesia Number 42 the year 1999 on Fiduciary Collateral.
[30] Fiduciary Giver is an individual or corporate owner of the fiduciary object bind by fiduciary (Article 1 point 5 Law of Republic Indonesia Number 42 the year 1999 on Fiduciary Collateral – Unofficial Translation)
[31] Fiduciary Recipient is an individual or corporation that has receivables for which payment is secured by the Fiduciary (Article 1 point 6 Law of Republic Indonesia Number 42 the year 1999 on Fiduciary Collateral – Unofficial Translation)
[32] This based on the nature of the collateral agreement as an accessory contract, the existence depends on the Credit Agreement / Loan Agreement as Primary Contract.

automatic protection based on the *first to use principle*. The importance of registration is in obtaining a certificate as proof of ownership to provide the highest degree of legal certainty in case of an ownership dispute. Furthermore, certificate of ownership also critical in escalating company value since registered IPRs have greater potential and value to turn ideas into commercially successful products and enhance the value of business and company profits by generating income and revenue through commercialism and licenses. Registered IPRs also possess a competitive advantage in marketing and promoting the business' products and services. IPRs are an important part of creating product identity and product image in the eyes of consumers. Reputable registered IPRs are important in generating public trust, attract a potential partner and investor and also expand export opportunities for example reputable trademark and good industrial design will open the opportunity for the product to market abroad, involve in franchise or license agreement. Registered IPRs will be an advantage in applying funding / financial support whether its government aid, funding, grant, subsidies and also in applying for credit and loan from financial and banking institution since registration legally ensure the higher certainty of legal ownership, legal protection and exclusive rights regarding the utilization of such IPRS assets.

C. Opportunity and Challenges in Formulating Intellectual Property Rights – Based Collateral in Indonesian Banking System

IPRs and creativity based businesses mostly have a limited amount of tangible assets. Intangible assets are not considered as stand-alone assets but rather as a business model or corporate identity or the image of business/company reputation, [33] the major challenges problem to enforce and promote IPRs based collateral in Indonesia still lies with the poor, ineffective, and inconsistent implementation.

The motivation of financial institution, especially banking institution in supporting new business model based on IPRs asset and intellectual capital in Indonesia restrained by the *"common fallacy"* in understanding credit risk rate for IPRs collateral, whereas a successful banking and funding system has become essential in the economic life of modern society,[34] especially in relation to business affairs.

Indonesia banking institution took an important step in supporting the creative business by launching Credit Facility for Small Business (known as "KUR") to

[33] Tim Karius (2016), *Intellectual Property and Intangible Assets Alternative Valuation and Financing Approaches for the knowledge Economy in Luxembourg*, European Institute for Knowledge and Value Management (EIKV), Luxembourg, pp.6-7.

[34] Andreas Busch (2009), *Banking Regulation and Globalization*, pp.23. New York, NY: Oxford University Press.

support government financing programs offering a lower interest rate than the market interest rate, distributed through the banking institution. This credit facility is given to creative industry players without a collateral requirement by providing proof that they have been in business for a minimum of 6 (six) months. This financing scheme, however, considers as an important breakthrough in creative business funding, hence from a total KUR quota of 110 trillion Indonesian Rupiah on 2016, only approximately 1 trillion of KUR was initially allocated for the creative industry[35] and this allocation portion did not be able to promote the IRPs as valuable business assets and collateral. To secure this credit, the bank is backed up by special credit insurance. Another important milestone is Government Grants distributed by BEKRAF in 2017 with 6 billion totals in amount, with a maximum of IDR.200 million per creative industry player in the form of fresh money. Despite numerous good schemes of funding, IPRs collateral, however, still perceived as high-risk collateral based on the inability of a creditor to explore the economic value of IPRs collateral caused by the high cost and complicated procedure to execute economic value of IPRs and following reasons:

1. Although IPRs possess high economic value, the stability and certainty of this economic value is perceived to be unstable.
2. The IPRs economic value depends on many complex components and factors with dynamic nature, such as trends, market tendency, and consumers' taste.
3. The massive volume of IPRs infringement and unfair business competition and the weaknesses in IPRs law regulation and its implementation and enforcement.
4. Conventional appraisal agencies in Indonesia generally do not have sufficient experience.
5. Concerning the lack of legal certainty, comprehensive protection, and unstable business environment it's difficult to accurately predict the future revenue of IPRs.
6. In the case of collateral execution, the banking institution is not always occupied with sufficient knowledge and element to exploit the economic value of IPRs.

Those factors, however, are very reasonable for "heavy regulated" institutions like banking institutions. The obligation to implement prudential banking principles[36] is indubitably requirement for banking institutions consider the source of credit funds

[35] IPSOS Business Consulting (April 2018), *Financing Opportunities in Indonesia's Creative Industry*, Final Report Prepared for Indonesian Financial Services Association (APPI). Retrieved from https://www.ifsa.or.id/download/article/kajian_APPI_economy_creative.pdf

[36] Prudential Banking principles famously known as 5 C's: Character, Capacity, Capital, Collateral, and Condition of Economics, means that banks must always comply with all effective laws and regulations in policymaking and conducting its business based on good faith.

came from public trust: the customer deposited funds in the bank through savings, demand deposit, current accounts, obligation, investment, and other kinds of saving products. These funds are managed by banks in order to perform one of its traditional and most important functions as a financial intermediary / monetary transmission channel between the one in the need of financial resources and the one with surplus financial resources. A banking institution needs to implement risk management. It's crucial thing for a bank to manage and evaluate credit risk prudently because it's determinant for profitability[37], public trust level and the bank's survival.

As financial institution as well as a business entity, the consideration of funding distribution should be conducting through a proper assessment to ensure the repayment of the loan alongside with the credit profit obtain from interest, provision and credit administration fee, or at least minimize the risk of loses and Non-Performing Loan. Although security and certainty of risk management mostly provided by the existence of collateral, the common fallacy of heavily rely on collateral in credit consideration is not a healthy condition for economic development in the creative economy era. The bank should aware that the basic purpose of business loan credit is repayment from the revenue of the funded business itself. The banking institution needs to emphasize business trend consideration and potential profit in deciding loan/credit distribution. Following the massive development of the creative economy worldwide, it's important for a banking institution in Indonesia to consistently and comprehensively implementing the creative economy concept in business funding by understanding its characteristics, nature, and business model. The bank can no longer blindly and heavily rely on a tangible asset as collateral because the income stream in the creative economy arises from an intangible and intellectual asset such as creativity and innovation and in fact, the tangible asset is not always a dominant instrument in running the creative business. Intangible assets and intellectual capital as the core assets require funding as an important element to transform the creative economy as a concept into factual and economically viable result: Creative Industry.

The challenges also come from internal factors: The company and the owner of IPRs assets and Capital Asset themselves often in a lack of consciousness to seriously treat IPRs as a valuable and potential business asset. Most of the time, they do not provide proper protection of such assets by step aside from the importance and urgencies of the registration process to obtain the certificate as proof of ownership.

[37] Abu Hanifa Md. Noman, Sajeda Pervin, Mustafa Manir Chowdhury & Hasanul Banna (2015), The Effect of Credit Risk on the Banking Profitability : *A Case on Bangladesh*, Global Journal of Management and Business Research, Finance Chapter, Vol. 15, Issue 3, pp.46.

The creative economy actors (especially in the level of micro and small businesses) haven't properly treated and optimizing their IPRs asset in creating beneficial products and generating revenues. They seldom explore modern and effective techniques of monetizing IPRs assets, for example by licensing, sale and license back, etc.

D. Breakdown Challenges and Potential Solution

There are several challenging situations concerning the IPRs based collateral funding in Indonesia ranging from regulation and implementing aspects, we will try to describe and analyze the core problems and formulate a potential solution for those challenges:

1. **The problem concerning the instability of IPRs value:** The value of IPRs influenced by various complex factors. The invention of new technology may make a patent become obsolete and irrelevant and may detain any further incomes or revenues. A Certain trademark would no longer be trendy as the result on changing trends and books or songs protected by copyright may lose popularity or consider being out of fashion as the result of new genres or the rise of a new artist. To overcome these challenges, after credits or loans are granted, banks routinely supervise the credit status include its collateral value to avoid deviations from the credit agreement and evaluate the value of collateral to ensure its coverage towards given credit. When a bank found out there would be a potential decrease of collateral value, it's possible for the bank to demand new collateral to overcome the insufficient value of existing collateral in covering the total of the loan.
2. **The problem concerning complex components influencing the economic value of IPRs collateral**: there is indeed no proper and accurate way to determine the value of IPRs, each of the IP valuation methods has its shortcomings, and in case the valuation is done in the first place, the intangible nature of the IP asset would render it very difficult to be accurately and reliably value determined in stable amount certain period because the value of IPRs can increase or even decrease in a short amount of time. To overcome this challenge and uncertainty, it is possible for the bank to determine the insurance requirement for IPRs as collateral and bear the insurance premium to the debtor. By this scheme, the bank can avoid the loss in case the valuation of IPRs collateral is decreasing at the moment the bank needs to execute the collateral for credit repayment.
3. **The massive volume of IPRs infringement and unfair business competition**: The illegal download software, the massive selling of CDs and DVDs

diminished the value of IP and strongly affect the collateralizing security and certainty. The weaknesses in IPRs law regulations and its implementation and enforcement should be overcome with strategic collaboration between state holders and stakeholders, particularly government and banking institutions. The responsibility of the government is formulating comprehensive regulation and creating a supportive ecosystem for IPRs based businesses by consistently develop strategic regulation and supporting infrastructures to create an ideal marketplace for creative industries. In correlation with IPRs infringement, it's important to build stronger and more effective law enforcement against IPRs violation and infringement. With the rapid development of the creative economy, banking institutions as one of the most crucial stakeholders should innovate and reinvent the new model of funding and financing structure support that allows the creative business to stimulate and foster more creativity and innovation to accommodate the needs and requirement of business trends. Banking institutions need to get back to the basic principle of credit. Collateral – however important and assurance for bank – is only one factor among many others in determining the credit revenue.[38] The bank needs to perceived collateral in its original form[39] widely as any possession of debtors and not rigidly limited to a fixed asset and certain non–fixed assets and create better fund allocation for creative industry development.

4. **Conventional appraisal agencies in Indonesia generally do not have sufficient experience:** This challenge requires the collective and synchronize action from providing an independent appraisal agency capable of intangible assets valuation such as intellectual property. Furthermore, Bank as a financial institution usually occupied with an internal appraisal unit, the key point lies not in the creation of a new appraisal agency but in the development of appraisal instrument, methods and knowledge and ability of appraiser concerning intangible asset and how to identify the economic value of such assets.
5. **Concerning the lack of legal certainty, comprehensive protection, and unstable business environment**: To overcome difficulties to predict the future revenue of IPRs, it is critically important for the bank to be supported with comprehensive and sharp analysis from appraiser (whether internal appraiser or independent appraiser). There are several methods to be applied based on earlier practices, for example:

[38] Article 1 point 23 Republic of Indonesia Law Number 7 the year 1992 as Amended by Law Number 10 the year 1998 on Banking defines collateral as an additional guarantee provided by debtor to Bank to obtain credit facility or financing facility (unofficial translation)
[39] Article 1131 Indonesian Civil Code.

a. **Relief from Royalty Methods (RRM)**: Using market approach and income approach, this valuation based on the royalty rate of the existing contract and by estimating a suitable royalty rate for the intangible assets considering the royalty rates from publicly available information or previous royalty contract.
b. **Real Options Pricing (ROP):** Mostly used to value those intangible assets that have the potential to create cash flow in the future but do not have a net present value, for example, undeveloped/ongoing medicine patent can be valued by estimating the price of such medicine after the patent is developed by identifying the price of alike medicine.
c. **With and Without Methods (WWM):** This conduct by separating the IPRs asset and its revenue from company assets to find out the value gap between the condition with the existence of IPRs and without the existence of IPRs. The gap value consider as the calculated value of IPRs asset.

E. The Proposal and Suggestion: Model of Intellectual Property Rights – Based Collateral

To support innovation and creative economy, Indonesia has to support intellectual property and intellectual capital assets as the main drivers for an innovative and creative company. The necessity for addressing new and innovative models for Intellectual Property Rights – Based Funding and Collateral are increasingly acknowledged concerning the influence of IPRs aspect for economic decision making, including investment decision is currently highly discussed. It's crucially important to create suitable collateral binding methods. Firstly, it needs to be emphasized that the main purpose of IPRs Based collateral from the bank's point of view is to secure the economic value of IPRs / IPRs based economic value to perform loan repayment. The important point is to secure economic revenue; the asset should have a reasonably predictable cash flow or future revenue. To secure this, we suggest the bank perform "*Double Cover Collateral Binding*" consists of a fiduciary bind for both the IPRs and the (future) economic revenues.

Examples illustrated as follows:

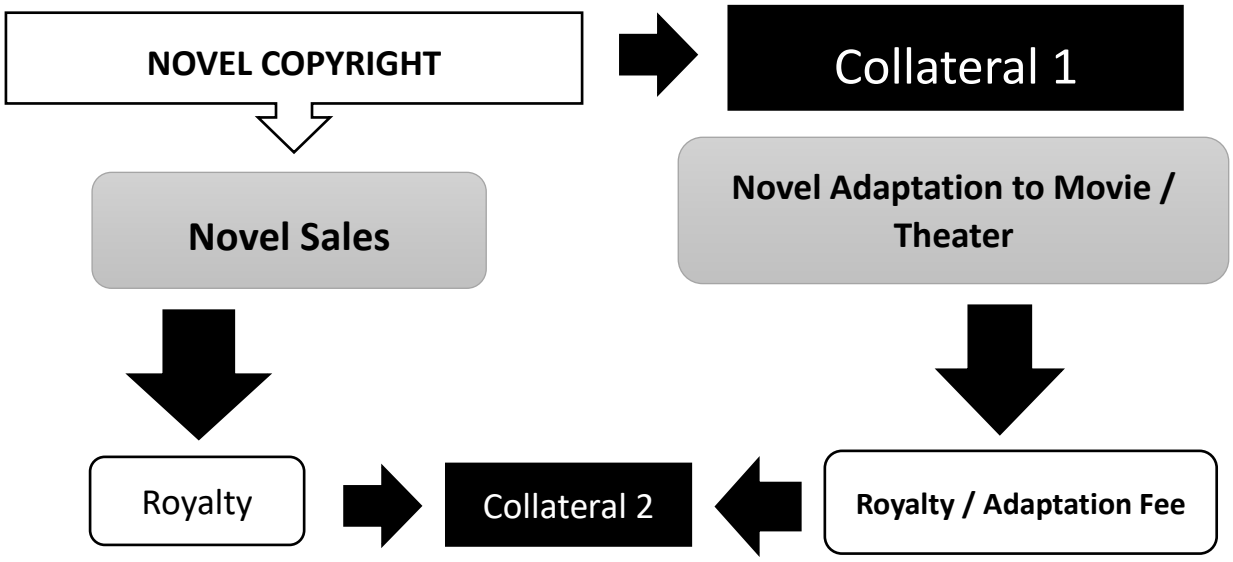

Figure 2:
Double Cover for Copyright Collateral Illustration
Source: Author's Concepts based on "Double Cover Collateral Binding"

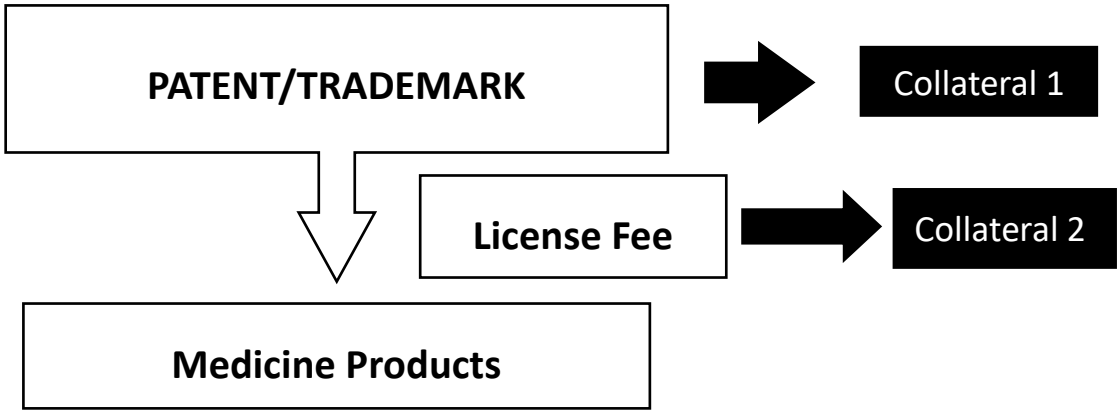

Figure 3:
Double Cover for Patent/Trademark Collateral Illustration
Source: Author's Concepts based on "Double Cover Collateral Binding"

The cumulative existence of both Collateral 1 and Collateral 2 are the most critical points in our double cover method for IPRs Based Collateral. Our argument based on the function of each collateral in performing as each other's binding instrument in securing bank preference rights on collateral as described further below:

Table 1: The function of each collateral in performing as each other's binding instrument in securing bank preference rights on collateral.

No	Criteria	Collateral 1	Collateral 2
1	Collateral Object	Copyrights/Patent/Trademark as the source of revenue	Revenue (Royalty/License Fee)
2	Collateral Categorization	(Intellectual Property) Rights	Legal Rights to claim future payment/revenue
3	Binding Purpose	To prevent the transfer of rights (Copyright/Patent/Trademark) as the source of revenue during the Loan Period	To cover the loan payment and ensure that the economic benefit used properly on the loan payment
4	Binding Instrument	Fiduciary Collateral	*Cessie* / Fiduciary Collateral (for Royalty payment/license fee payment)

1. Collateral Object

a. Collateral 1: Copyrights, Patent/Trademark

Copyrights, Patent, and Trademark as the collateral object is the first and most important step in IPRs collateral. Copyrights, Patent, and Trademark as the source of revenue is bind by the bank to prevent the debtor to transfer the ownership to other parties to secure the source of revenue. Intellectual Property as collateral possesses economic value since those assets providing many advantages for the owner/company. The first and most important advantages of intellectual property asset as their exclusive rights to provide entry barriers in preventing competitor to copy or imitate those protected intellectual properties and also they differentiate products and even the value of commodities and competitive advantages in the market, and also during the last years, Intellectual Property has become a frequently traded asset.

b. Collateral 2: Revenue (Royalty/License Fee)

The function of Collateral 2 is to bind economic revenue derived from the utilization of Collateral 1. Collateral 2 provides an economic guarantee for the

bank to secure the repayment of credit. For example: Based on the royalty contract, the copyright holder will receive a certain amount annually as the royalty payment. This annual payment can also be used for credit repayment. Collateral 2 provides simpler methods for the bank to gain repayment without having to execute the IPRs collateral. Collateral 2 also provides valuation certainty. The amount of royalty or license fee can easily identify from the royalty contract/license agreement.

2. Collateral Categorization

a. Collateral1: (Intellectual Property) Rights

Intellectual property rights as collateral in the Indonesian law system are under Article 499 of the Indonesian Civil Code concerning the classification of property: Tangible and intangible, goods, and legal rights. Intellectual Property Rights as an intangible asset in the form of legal rights granted and protected by the state with economic and moral aspects attached to those rights. This legal right is obtained through creation and registration and based on a certificate of ownership granted by the state.

b. Collateral 2: Legal Rights to claim future payment/revenue

In a broad sense, royalty is a payment to an owner for the ongoing use of their intellectual property asset. Royalties are designed to compensate the owner for the commercial utilization of their intellectual property asset. Royalties are typically a percentage of the gross or net revenues or specifically regulates based on the agreement between the parties since in most cases, royalties are defined based on a contract and they are legally binding. Other legal rights to claim future payment or revenue is a license fee. The license fee is mostly used in patent and trademark. For example, when a pharmaceutical company obtains a patent for a new medicine, this Company can grant a license to other pharmaceutical companies worldwide to produce the medicine with a certain amount of payment through the license agreement.

3. Binding Purpose

a. Collateral 1: The purpose is to prevent the transfer of rights (Copyright/Patent/Trademark) as the source of revenue. During the loan period, the collateral binding on intellectual property assets is performed in order to secure the ownership of IPRs as the source of revenue and also the economic benefit that comes with it. The transfer of ownership is forbidden because such transfer in most cases will automatically transfer the economic

rights of such IPRs. The importance of this collateral binding is to keep the ownership and control of IPRs.

b. Collateral 2: To cover the loan payment and ensure that the economic benefit used properly on the loan payment. The binding of existing and potential economic benefits derived from intellectual property is essential in ensuring that the revenue will be used properly to cover the credit repayment. In practice, the bank and debtor might agree that a certain percentage of annual revenue (royalties/license fee) will be used in credit repayment to gradually reduce the credit amount.

4. Binding Instrument

a. Collateral 1: Fiduciary Collateral

Intellectual Property

b. Collateral 2: *Cessie* / Fiduciary Collateral

We propose this ***"Double Cover Collateral Binding"*** as an effective and practical solution IPRs collateral binding. This method will be able to bridge the commercial requirement for collateral as well as the legal platform to secure IPRs as the sources of commercial revenues. According to Article 10 the Law of Republic Indonesia Number 42 the Year 1999 on Fiduciary Collateral, Fiduciary collateral includes the proceeds of the object of fiduciary means it includes anything derived from the Fiduciary Object. Further, the fiduciary collateral binding covers the claims of insurance, if the object of fiduciary collateral is insured. The purpose of this provision is to confirm that in case the fiduciary object was insured, the insurance claim is the subject to the right of the recipient of the fiduciary (following the term of credit and fiduciary collateral agreement).

The IPRs based collateral mortgage and the intangible nature of IPRs have led to the urgency of registering this mortgage and create these mortgage collateral records, history, and current status that can be accessed by related parties. This is critical points since Fiduciary mortgage collateral intends to accommodate the requirement of current business activities by providing the owner of IPRs the ability to utilize the IPRs asset although these assets are currently pledged to banking institutions as collateral. Article 17 Fiduciary law stated that fiduciary mortgage is prohibited to pledge in the same object which already registered as fiduciary collateral. This additional fiduciary is prohibited to protect the interest of the fiduciary mortgagee because the legal possession has been transferred to the creditor (fiduciary mortgagee).

This provision shows that the secondary pledge of fiduciary collateral is not allowed hence a banking institution must conduct the collateral assessment to ensure that the object pledged for fiduciary collateral is not repeatedly pledge as collateral to another party.

Synchronization between the fiduciary collateral record and IPRs status record is required as checking device for a banking institution in conducting prudential banking principles in ensuring that IPRs asset pledge for fiduciary collateral is clean and clear from other mortgages. Both fiduciary collateral and IPRs system in Indonesia have accommodated the system to provide the records and history of such matters, unfortunately not in a harmonious and synchronizing way. In the terms of fiduciary collateral, article 13 verse (3) Fiduciary law states: Fiduciary Registration Office submit fiduciary collateral registration on the date of application based on the registration statement on Fiduciary Collateral deed.[40]

The record and documentation in Fiduciary Registration Office, however, are more about administration than examination/verification. The current record and documentation system unfortunately still enables submission for the same object with the different fiduciary collateral deed. The elucidation of Article 13 verse (3) Fiduciary Collateral Law clearly states that Fiduciary Registration Office does not conduct validity assessment on registration statement of fiduciary collateral, the assessment limited to the completeness of data required by Article 13 verse (2) consists of:

a. The identity of fiduciary collateral mortgagor and fiduciary collateral mortgagee;
b. The description of the fiduciary deed (Number, date, the name of the notary and the legal domicile).
c. Information of agreement guarantee by fiduciary collateral;
d. The value of the fiduciary collateral guarantee.
e. The value of the fiduciary collateral object.

Fiduciary Registration Office does not conduct sufficient examination procedure to decide whether the fiduciary object has been submitted as fiduciary collateral before registration or not and as the consequences, there will be no rejection on the same object repeatedly pledged as fiduciary collateral as long as the submission succeeds to submit the required data. This registration further can be accessed by entering the number of Fiduciary Collateral Certificate, other than that the registered

[40] Article 13 verse (2) Law of Republic Indonesia Number 42 the year 1999 on Fiduciary Collateral.

data cannot be accessed. On the other hand, Copyright Law, Patent Law, and Trademark Law regulate the documentation concerning the transfer of rights and licensing. Rights on registered copyright, patent and trademark may be transferred due to inheritance, testament, waqaf[41] (endowment), grant, agreement, or another manner. The transfer of copyright, patent, and trademark obliged to be recorded and reported to the Ministerial of Law and Human Rights along with supporting documents. Further, the transfer of rights will be published in the Trademark/Copyright/Patent Gazette. Without the record of rights transfer, there are no legal consequences to the third party.

Both databases record by Fiduciary Registration Office concerning the registration of fiduciary collateral and the Ministerial of Law and Human Rights are conducted separately and independently. Fiduciary Collateral Agreement as a temporary transfer of legal rights does not register as it's not classified as a transfer of rights and licensing. This implementation system does not support the needs of a valid and reliable database concerning whether intellectual property rights are on a pledge as collateral or not. The banking institution as mortgagee required to perform the independent assessment rely on appraisal and good faith from the debtor/mortgagor. For fiduciary collateral, the creditor often required to keep the certificate of ownership of the fiduciary object to prevent the same object is pledging to other creditors.

The bank needs to comprehensively implementing prudential banking principle in an integrative way in accordance to Article 8 Law Number 7 the year 1992 as Amended by Law Number 10 the year 1998 on Banking (Banking Law) emphasized bank to conduct prudential banking principle comprehensively and proportionally in credit assessment, not partially and heavily only focused on collateral. The ultimate purpose of credit is assuring the credit repayment and gaining profit through interest and credit-related fees. The bank needs to comprehensively considerate and implements Prudential Banking Elements in credit assessment as follows:

1. **Character:** Character assessment of debtor is crucial for the bank in determining the good faith of credit applicants in repaying the credit. There are several helpful tools to judge the applicant's character for example by checking the credit history through Bank of Indonesia Checking System (Known as BI Checking). This system would provide the credit history completed with past and current credit statuses (qualified as performing/non-performing loan).

[41] "Waqaf " is an Arabic word which may be equal to the endowment, based on Islamic Law "Waqaf " is the dedication of a property by a person through a will or otherwise for pious, religious or charitable purposes.

2. **Capacity**, Capacity assessment mostly about examining the payment capacity of prospective debtors. For example, in the case of the personal debtor (consumer credit), the bank would examine his/her stream of income to calculate the repayment capacity to determine a proper amount of credit, term of credit, and monthly installment payment. In the case of commercial credit (business entity as debtor) the bank would examine the business revenue, average profits, and also potential revenue of this business to ensure the credit / financing is given to the company that would be capable to repay the loan.
3. **Capital,** Capital assessment focused on the measurement of business capital or asset calculation in determining whether the prospective debtors possess sufficient and adequate resources in running their business that would be the source of credit repayment. Business capital should be comprehensively understood as the sum of capital - tangible and intangible capital – including intellectual property, intellectual capital, business reputation, and market power. The bank should provide advanced capability in assessing the working capital of a business. The elements consider as working capital is different, depend on type and characteristic of each business. Working capital commonly defined as capital capable to continuously produce cash flow for the company.[42]The analogy of working capital in business is like the life-blood / nerve center of business. In this knowledge-based economy era, intellectual capital comes as an important measurement of business financial position and profitability. Intellectual property could be an effective working capital to ensure a company has sufficient cash flow to fulfill its short term payment obligations and operating expenses through the revenue in the form of licensing fee (Patent / Trade Mark) and royalty (Copyright).
4. **Collateral,** practically, the most important function of collateral is to guarantee the credit revenue. The collateral pledged by debtors may help attenuate the potential problem/adverse faced by the bank during credit.[43] Collateral assessment is important to ensure that the value of the collateral to cover the amount of credit. Collateral considers as the bank's safety net, the instrument to secure the credit. There are several factors in the collateral assessment.
5. **Condition of Economy,** the assessment of the debtor's business prospect concerning related aspects for example economic policy, industry trends and

[42] Balasundaram Nimalathasan (2010), *Working Capital Management and its Impact on Profitability: A Study of Selected Listed Manufacturing Companies in Sri Lanka*, Information Management, No. 12, pp.76- 82.
[43] Chan, Y.S & G. Kanatas (1985), *Asymmetric Valuation, and the Role of Collateral in Loan Agreements*, Journal of Money, Credit and Banking, Volume 17, pp.85-95.

development, and market situation to predict the prospect of credit repayment. Credit quality primarily shall be classified based on[44]: business prospects,[45] performance of the debtor[46] and repayment capability[47]. Executing collateral principally should be the last resort in the case of Non-Performing Loan (NPL). When the bank comes to the stage of collateral execution, it means that the assessment of another 4 aspects (Character, Capacity, Capital, and Condition of Economy) are do not accurately conducted by Bank.

VI. Principal conclusions

The regulations concerning Intellectual Property Rights – Based Banking Collateral in Indonesia currently found to be dysfunctional and ineffective. Firstly, such regulation only appears in copyright law but none of such regulations are regulated in other IPRs regulation (such as patent and trademark), secondly, this regulation have no adequate supporting and implementing regulations. This regulation also failed to create synchronization with related regulations, especially with banking regulations.

Even though dysfunctional regulations lead to the practical problem resulting in ineffective implementation, we found the ground to formulate the platform/method to accommodate relatable interest with currently available regulations in the form of ***Double Cover Methods.*** Double Cover Methods in IPRs Based Collateral Pledge potentially solve practical problems and provide better access to funding for intellectual capital-based businesses also the safety and guarantee for the banking institution in implementing prudential banking principles.

Double Cover Method requires the integrative and comprehensive implementation of Prudential Banking Principle and support facilities and infrastructure ranging from qualified appraisers, applicative implementing regulations to an adequate executorial platform, and supporting ecosystem for intellectual property and intellectual capital–based businesses.

The right mindset and willingness from state holder and stakeholders to adapt to the current disruptive and creative economy era by embracing the intellectual capital including IPRs as potential business assets should be transformed into the factual and practical platform to create massive opportunities of IPRs – Based Collateral in creating a weightless economy with high potential economic growth by fostering the

[44] Article 10 Bank Indonesia Regulation Number 7 / 2/ PBI/ 2005 Concerning Asset Quality Rating For Commercial Banks.

[45] Business prospects scope of assessment includes the assessment of several components: potential for business growth, market conditions and position of a debtor concerning the competition, management quality, and labor problems, *support from the group or affiliates and measures taken by the debtor to conserve the environment, see* Article 11 verse (1) Bank Indonesia Regulation Number 7 /2/ PBI/ 2005 Concerning Asset Quality Rating For Commercial Banks.

[46] Debtor performance scope of assessment includes the assessment of the capital structure, cash flow, and sensitivity to market risks.

[47] Repayment Capability scope of assessment includes the assessment of promptness in repayment of principal interest, availability, and accuracy of financial information on the debtor, completeness of Credit documentation, compliance with the Credit Agreement, appropriateness of use of funds and viability of source for payment of obligations.

emersion of creative business based on intellectual capital and intangible assets and support the idea capitalization as business capital.

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Conceptual Model for Evaluating Brand Equity from The Perspective of Customers

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Abstract

A well-known and established brand in the public domain is one of the most important elements of the success of a company and organization, and also a driving force for selling more products and gaining more profit and income. Brand is a powerful tool for customer engagement that distinguishes the company with all of its details in the eyes of the customers. The research carried out in connection with the creation of a brand equity model in a case study (Iran's Industrial Development and Renovation Organization). In this research, with the aim of brand pricing, the articles were reviewed by using the method of meta-analysis research. By identifying the factors and variables affecting brand equity, a new model for brand valuation was created. This model is based on customer's view based on 4 customer trust indicators, customer loyalty, brand quality and brand advertising.

Keywords: Brand Equity, Brand Evaluation, Brand Evaluation Models, Intangible Asset, Brand Evaluation Methods

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I. Introduction

A brand is a name, phrase, design, symbol, or any other attribute that specifies a service or product that distinguishes them from other similar products and services.[1] Recent researches on brand value suggest that today the value of the brand is the focus of many leading companies.[2] The key to brand management and development is to understand what customers are looking for. What customers are looking for is a list of features that goes beyond the physical and tangible dimensions of the product. The value added or the growing profitability of a product derived from the brand is called the brand equity.[3] Brand equity can increase or decrease the value of services that the company offers to its customers.[4]

The research method used in this study was meta-analysis. In this study, 216 articles were extracted from the Emerald Insight, IEEE, ProQuest and directory of open access journals scientific databases. In order to extract these articles, Brand Equity; Brand Evaluation; Brand Evaluation Models; Intangible Asset; Brand Evaluation Methods keywords were used. The period in which articles were searched was between 1980 and 2017. All articles were in English. In the first stage, the articles were reviewed regarding the relevance of the title, abstract and conclusion to the subject of this research. Then, Critical Appraisal Skills Program (CASP) was used, which is a qualitative evaluation method. In the CASP method, ten qualitative terms are designed to evaluate each article in a qualitative way. Each article is faced with these terms, with a score of 1 to 5. Articles with a total score of 25 and above would be qualitatively verified and the remaining articles were omitted. The conditions for the CASP method in this research are as follows: (1) The relevance of the objectives of the article examined to the objectives of the following research; (2) The research logic of the article under consideration; (3) The proposed scheme in the article; (4) The under review article method of sampling; (5) The manner and quality of the data collected in the under review article; (6) Reflection level (the possibility of expanding the results and achievements) of the under review article; (7) The rate and manner of observance of common ethical points in the writing of research texts; (8) The accuracy of data analysis in the article; (9) The clarity of expression in the presentation of the findings of the article; (10) The overall value of the article under review. The researcher evaluated the article qualitatively by giving a score for each question to each article. The result of the review of these articles was 22 suitable articles for the subject of following research.

II. Literature Review

Based on selected articles, the key points of their findings are as follows:

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[1] Aaker, D. A. (1996), *Measuring Brand Equity Across Products and Markets*, California Management Review, 38(3), pp.102–120. ; Colleen Collins-Dodd & Jordan J Louviere (1999), *Brand equity and retailer acceptance of brand extensions*, Journal of Retailing and Consumer Services, Volume 6, Issue 1, pp.1-13.

[2] Romero, J., & Yagüe, M. J. (2015), *Relating brand equity and customer equity*, International Journal of Market Research, 57(4), pp.631–651.

[3] Aaker, *supra* note No.1.

[4] Ibid.

Introducing the brand equity[5]; reviewing the importance of brand management[6]; introduction of the brand as an important factor in marketing[7]; impact of price and advertising on brand equity[8]; introducing brand evaluation model[9]; research on brand image from customers point of view[10]; brand role-playing in the value chain[11]; introducing brand trust from customers as a result of brand performance[12]; introducing factors for assessing loyalty to brand[13]; reviewing 3 common brand valuation methods including revenue-driven, market-driven and cost-driven approaches[14]; introducing a brand equity concept[15]; surveying brand as a customer attraction tool[16]; proofing the effect of brand awareness, perceived quality, brand association, brand reputation and brand loyalty on brand equity[17]; analysis of the effect of brand management in the field of soccer on the expectations of football fans[18]; studying the effect of brand equity on customers' satisfaction[19]; research on the effect of brand-related consumer emotional relationship on brand equity[20]; impact of customer satisfaction on merchandising and brand equity[21]; proofing the quality of food on the brand of pleasure ships[22]; introducing brand awareness and brand image

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[5] Ibid.

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as brand equity components[23]; showing the relationship between brand equity and stock's value[24]; demonstrating the positive impact of advertising in mass media on brand assessment from customers' perspective[25]; measuring the value of intangible assets with the help of time-series[26].

III. Conceptual Model

Regarding to the research background and the search among selected research topics, the main indexes for brand equity evaluation were selected. These criteria included trust, loyalty, quality and advertising. In the following, the sources of these four criteria were introduced. In 1996, Aaker introduced five factors affecting brand that were brand awareness, precepted quality, brand associations, brand loyalty and other brand assets. In 2000, Yoo Considered the factors of price, store image, distribution, advertising costs, price transactions, perceived quality, brand loyalty and awareness of brand to examine brand equity. In 2003, Keller introduced a brand equity evaluation model. This four-level model introduces various stages of interaction with customers from the deep and extensive awareness of the brand, brand associations, positive feedback and loyalty. In general, among the models used to measure brand value, we can identify various factors such as brand awareness, brand image, perceptual quality, brand satisfaction, brand associations, brand trust, customer loyalty to brand, perceived value by customer, etc. The innovation in proposed model in this study was combining some of these factors with each other and designing a new questionnaire based on them and based on customer's view.

The assumptions of this research included the following: (1) Customer trust in the brand has a positive and significant effect on its value. (2) Customer loyalty to brand has a positive and significant effect on brand equity. (3) Brand quality has a positive and significant effect on its value. (4) Brand advertisements have a positive and significant effect on its value. Figure 1 represents the conceptual model of this research.

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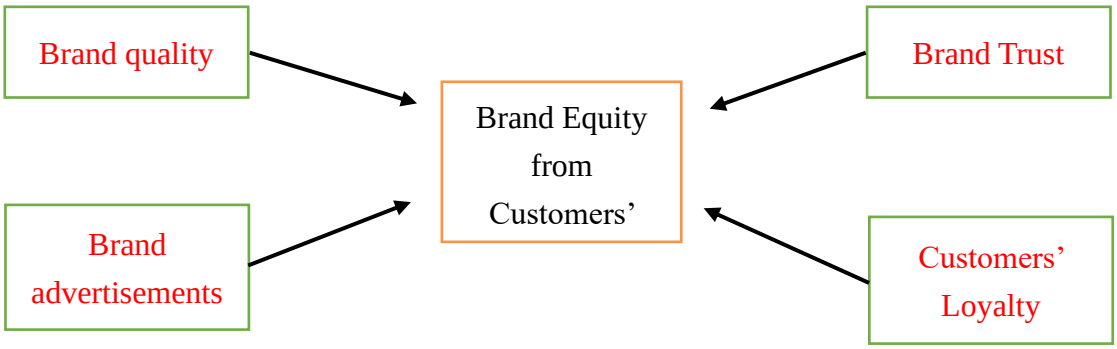

Figure 1

Concept of designed model

Source: Author's Concepts based on brand equity evaluation

IV. Case Study and Statistical Tests

Along with its social development during the 1960s, Iran experienced a small-scale industrial revolution, leading to an increase in GDP, greater number of factories and enhanced production rate in certain industries. Extensive government support increased as the industrial sector went through a broad range of plans and projects offered over this period. Given the fast-growing changes, Industrial Development and Renovation Organization (IDRO) of Iran were established on July 1965, so as to carry out two key tasks of creating new industrial enterprises and renovating old enterprises. By the victory of the Islamic Revolution in 1978, IDRO had launched roughly 136 companies operating in industrial, manufacturing and engineering areas. For several years since then, IDRO has been engaged in a wide variety of industrial activities so as to fight against economic colonialism. Throughout nearly half a century of involvement in implementation of major industrial projects, IDRO has taken huge steps toward expansion of Iranian industries, marking numerous crucial turning-points in the history of the Iranian industrial development. IDRO was selected as case study of this research. A questionnaire with 13 questions related to the 4 introduced factors for evaluating brand equity was designed and distributed among 30 experts of IDRO in order to assessing its validity and reliability.

In order to assessing the validity of the designed questionnaire, expert employees of IDRO were asked to submit their written comments to the questions raised. The purpose of the validity assessment is to measure the relevance of the questions designed with the subject matter of the questionnaire designer (the measurement of brand equity from the employee's point of view). The reliability of the questionnaire is that, if we share the same questions among the same people multiple times, how likely is the answers of individuals to each question the same. In order to assess the reliability of the questionnaire, experts were asked to give questions from 1 to 5 points. Score 5 means the most importance and relevance of the question raised below the recommended index for evaluating the brand equity of an organization from its employees' point of view and score 1 means the least importance and relevance for the question posed by the research topic. After obtaining points, they entered the SPSS software to apply the Cronbach's alpha test. The result of the Cronbach's alpha test is given in Table 1.

Table 1: Cronbach's alpha test Results

Cronbach's Alpha	N of Items
.886	13

As shown in Table 1, the result of the Cronbach's alpha test was 0.88. According to the Cronbach's alpha test standard, if the result of this test is more than 0.7, then the reliability of the questionnaire is acceptable. Therefore, the reliability of the questionnaire was confirmed by this test.

Next, the scores given by each of the experts to each of the questions were entered into SPSS software and the One-way T-Student's statistical test was taken. This test by SPSS software was used to calculate and compare the mean scores of different scores below each main index and compare it with the average score that could be given to each question (in this study, this score was 3). The results of this test are presented in Table 2.

Table 2: One-way T-student test results

Main Indexes	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Trust	16.827	29	.000	1.3367	1.174	1.499
Loyalty	5.631	29	.000	.7300	.465	.995
Quality	10.363	29	.000	1.2833	1.030	1.537
Advertisement	8.848	29	.000	1.0833	.833	1.334

According to the result of T-test, if the output of this test is greater than 0 (t column in table 3), it indicates the confirmation of that index and its positive and significant relationship with the subject of the research and therefore confirms the research hypothesis. But if the t-test output is negative, then the index is not directly or significantly related to the measured factor. If, as a result of the t-test, for an index be 0, then the index is neutral to the evaluated agent and has no effect on it. According to Table 2, it is seen that the t-value for all indexes is higher than 0, indicating that there is a positive and direct effect of all the indicators considered on the brand equity;

this means that all the research assumptions' correctness was proven.

V. Conclusions

The purpose of this study was to review articles related to brand equity and to design a new model for brand equity evaluation via using the results of similar previous studies. The new innovative model was developed based on the views of the employees of a development organization including four indicators. The four main indicators considered in this study were: 1- trust; 2- loyalty; 3- quality; 4- advertising. By designing a questionnaire containing 13 questions and distributing it among 30 experts of Iran's Industrial Development and Renovation Organization located in Tehran, we tried to prove the positive and direct correlation of each introduced brand evaluation index. According to the results of t-student test, it was concluded that all of the considered indicators have a positive and significant relationship with brand value.

One of the limitations of this study was the lack of examination of the interconnections between each of the four factors considered together. Therefore, it is suggested that in future, researches, survey the rate and quality of communication between each of these seven factors with each other. It is also possible to investigate the impact of each of these four factors on other brand dimensions, such as brand development strategies, marketing, management, and so on in future researches. It should be noted that the value of the brand can be evaluated based on other beneficiaries (such as employees, shareholders, and so on) point of view.

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