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EDITORIAL TEAM

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EDITORIAL NOTE ON THE VOLUME 10, NUMBER 2, 2021

Editorial Note

Dr. Kuang-Cheng Chen

Professor,

Graduate Institute of Intellectual Property,

National Taipei University of Technology (Taiwan).

Being the Executive Editor of this issue, we would like to express our appreciation to all the authors, reviewers, editors, and advisors who have helped to maintain the academic quality of this journal.

The selected articles in this issue of the journal cover all kinds of IP issues, including IP management, IP comparative law, trade secrets, patent, and copyright. This indicates that submissions from legal, managerial, or interdisciplinary areas related to IP issues from all over the world are welcome. We hope that our readers will be pleased and benefit from the publication of this issue.

Executive Editor

Dr. Kuang-Cheng Chen

Professor

Graduate Institute of Intellectual Property

National Taipei University of Technology (Taiwan)

CALL FOR PAPERS

NTUT Intellectual Property Law and Management is a multidisciplinary journal which concerned with legal, economic and social aspects of IP issues. This journal is included in the SCOPUS, WESTLAW, WESTLAW HK, LAWDATA, AIRITI

LIBRARY citation databases, and it welcomes contributions to address IP topics at national, regional and international level.

Submission:

1. A manuscript has to follow the citation format of The Bluebook: A Uniform System of Citation. If the citation format for a particular reference is not provided, please give a citation in a form: [Author], [article title], [volume number] [Journal Title] [first page] (publication year), for instance, Zvi Griliches, Patent Statistics as Economic Indicators: A Survey, 8 Journal of Economic Lirerurure 1661, 1661- 707 (1990). If your article relates to management or business, pin-point citation is not required. For all manuscripts, a list of references is not required.

2. A regular manuscript is expected to be 6000-8000 words in length, including the main text and footnotes. Potential authors are encouraged to contact Dr. Chih- Yuan Chen for a manuscript template.

3. A regular manuscript has to include an abstract of at most 300 words and at most five keywords.

4. The authors are responsible for the factual or legal accuracy of their papers. No payment is for contribution. Two copies of the journal will be supplied to the authors free of charge.

5. Manuscripts must be typewritten in English. Electronic submissions are preferred. Please provide Microsoft Word files and email to iipjournal@ntut.edu.tw.

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Sy Luong Nguyen, *Internet Intermediaries' Safe Harbour for Third-Party Copyright Infringements from the Comparative Views*, 10.2 NTUT J. OF INTELL. PROP. L. & MGMT. 124 (2021).

Risks in Intellectual Property Management

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Abstract.

The article reviews theoretical and practical aspects of intellectual property risks. The goal of this study is to identify and systematize risks that occur in the intellectual property rights market. These risks are the integral part of the risk management system and they ensure effective intellectual property management that allows preventing possible financial losses of economic entities. The practice of using exclusive rights in economic activity justify the relevance of the research. The methodological base for this study is formed with general research methods such as analysis, systematization and classification. Judicial practice discussed in the article discloses practical aspects of intellectual property risks and emphasizes the significance of risk management system for an enterprise. Cases from judicial practice allow the authors to conduct deeper research into risks confronting different subjects of the intellectual property market and to identify the weaknesses of the risk management system. Analysis of the factors that cause risk emergence in the intellectual property market reveals the lack of systematic approach towards risk management, insufficient control and level of competence in the issues of protection of the intellectual property rights. The study identifies main elements of the intellectual property risk management system. This system is aimed at preventing risks and minimizing economic losses for the economic entities in the exclusive rights market.

Keywords: Classification of Intellectual Property Risks, Patent Protection, Exclusive Rights, Intellectual Property Market, Risk Management.

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Living in the material world it is uncommon to ponder over an intangible world existing alongside, while it is in that world where future material tangible values are created. Capital usually means money and other tangible values, property most commonly means the right to a plot of land, an apartment, a summer house, a car.

However, any material thing people use has a reverse “dark” and invisible side like the Moon. It is not material, but intelligible. An innovative product has a period of “non-material life”, like a fetus in the mother's womb until the moment of birth – this is an "intellectual life period", resulting in with quite tangible outcomes usually formalized in the form of intellectual property (IP) rights.

IP rightholders (natural or legal entities) have the opportunity to dispose of the existing rights to the IP in almost the same way as in case of transactions with tangible property. At the same time, copyright holders enter the real world of market relations, where they face risks – predictable business losses from external and internal economic, political, environmental and other factors.

However, in the regulatory documents of the leading countries of the world governing relations in the field of intellectual property the legislator does not mention the construct of "risk" and, unlike in the norms of property (material) law, does not impose the consequences of risk-associated circumstances on the subjects of intellectual rights.

International journals publish numerous articles that contain the word “risk” in their title, abstract or keywords list. Theoretical approaches to understanding the economic nature of risks are considered in the works of a number of scientists including [Friedman, M. and J. L. Savage. “The utility analysis of choices involving risk.” Journal of Political Economy 56, no. 4 (1948): 279–304]; [Tobin, J. “Liquidity preference and behavior towards risk.” Review of Economic Studies 25, no. 2 (1958): 65–86]; [Kahneman, D. and A. Tversky. “Prospect theory of decisions under risk.” Econometrica 47, no. 2 (1979): 263–91.]; [Tversky, A. and D. Kahneman. “Advances in prospect theory: Cumulative representation of uncertainty.” Journal of Risk and Uncertainty 5, no. 4 (1992): 297–323.]; [Furman, E. and R. Zitikis. “Weighted risk capital allocations.” Insurance: Mathematics and Economics 43, no. 1 (2008): 263–9.]; [Sriboonchita, S., W. K. Wong, D. Dhompongsa, and H. T. Nguyen. Stochastic Dominance and Applications to Finance, Risk and Economics. Boca Raton, Florida: Chapman and Hall/CRC, 2009.]; [Udo Broll, Martın Egozcue, Wing-Keung Wong, and Ricardas Zitikis. Prospect Theory, Indifference Curves, and Hedging Risks // Applied Mathematics Research eXpress, Vol. 2010, No. 2, pp. 142–153]. While preparing this study for publication the authors have reviewed and analyzed more than a hundred of academic publications and standards. Analysis was conducted in order to understand how exhaustively and effectively methods of risk assessment, their abilities and possible application spheres are elaborated, mostly with regard to intellectual property field. Initial analysis of the articles reviewed shows that almost each author interprets the term “risk” differently, although there are legal documents that define the term “risk” for various spheres. Main documents that formulate the term general definition for different spheres are the standards. Speaking of the State Standards (GOST) there are several spheres, in which this term is defined.

The currently operative international standard ISO 31000 "RISK MANAGEMENT" (https://www.iso.org/iso-31000-risk-management.html) interprets the concept of “risk” as the impact of uncertainty on goals. In Russia, there is a “mirror” GOST R ISO 31000-2019 “Risk management. Principles and Guidelines” with the title changed in accordance with national legislation.

In Russia, in conducting activities in the sphere of intellectual field one should refer to GOST R 52806-2007 “Project Risk Management. General Provisions” during the process of risk analysis and management. The application area of GOST R R 52806-2007 is defined as the “activities connected solely with managing risks of a project in uncertain circumstances” including uncertainties which exist, emerged or will emerge during the project realization. It

means that organization's operational risks that emerge during the organization's operation and conducting its activity (not only risks emerging during the project realization but also those occurring in the course of regular activities). It appears that peculiarities of various industry branches and the organization or enterprise activity scope are defined in terms of their clients, criteria, circumstances, employees etc. The main feature of GOST R 52806-2007 application area is the "definition of circumstances (context)" as activity conducted during the risk management [GOST R 56275-2014]. In the course of conducting its activity, an organization has to continuously define the circumstances (context) considering relevant goals of the organization, influence of its operation on the environment, environment of its interaction with business partners, employees and the social sphere in which these goals are achieved. At the same time all parties concerned should be taken into account considering the variety of emerging risk criteria - all these factors eventually influencing the organization activity in the form of economic, ecological, social, reputation and other risks.

In the other sphere of the risk management (the "material" or substantial activity), efforts are aimed at developing the list of actions for natural and technogenic emergency prevention (for example, GOST R 55059-2012 "Safety in Emergency Situations. Emergency risk management").

In terms of risk management for an emergency situation, the term "risk" is defined as the risk of emergency situation occurrence: the degree of emergency situation threat that combines the possibility of its occurrence and its consequences [GOST R 55059-2012 "Safety in Emergency Situations. Emergency situation risk management. Terms and Definitions"].

Accordingly, definitions of the term "risk" are different in these two documents. In terms of the project risk management the risk is defined as the consequence of the uncertainty influencing the achievement of a set goal. The definition is clarified by the Federal law of Russia №184 "On Technical Regulation" of 27.12.2002: "Risk is the possibility of damage done to people's lives or health, to the property of individuals or legal entities, to the state or municipal property, to natural environment, animals and plants health and lives considering the magnitude of such damage". It is also explained that "consequence of the uncertainty influence" should be understood as the (positive and/or negative) deviation from the expected result or consequence [GOST R 51897-2011 "Risk Management. Terms and Definitions"][1]. The standard further clarifies goals that may be different in their substance (economic, health, ecological goals etc.) and allocation (strategic, considering the organization, considering the specific project, product or process). At the same time, according to Note 3 of GOST R 51897-2011 risk is often characterized by describing the possible event (emergence or change of the combination of specific circumstances) and its consequences (the result of events affecting the object) or their combination. Note 4 of the Standard also states that the term "risk" is often represented as the consequence of a possible event (including the change of circumstances) and the respective probability.

The authors believe that it would be promising to compare the definition of terms in the GOST R 51897-2011 and the GOST R 55059-2012. The comparison is made in Table 1 below. GOST R 51897-2011 "Risk Management" considers more general scope of activity than GOST R 55059-2012 "Safety in Emergency Situations". It can be clearly seen when comparing definitions of "risk management", "risk evaluation", "risk source", "Danger/Threat", "Risk analysis", "Consequence", "Probability", "Risk matrix", "Acceptable risk", "Risk acceptance", "Remaining risk", "Risk registry", and "Risk management audit". However, GOST R 55059-2012 "Safety in Emergency Situations" considers specific features of emergency situations, accidents and incidents. Comparison of terms shows that in general they are compatible, although there is a major significant difference: GOST R 51897-2011. "Risk Management. Terms and Definitions" defines risk as the consequence of an uncertainty affecting the set goal

[1] This standard is identical with the ISO Guide 73:2009 "Risk management - Vocabulary - Guidelines for use in standards", IDT.

achievement which is vague and implies that uncertainty may influence the achievement of set goals both negatively and positively which questions the correctness of definition. Note 4 of the paragraph 1.1 clarifies that risk is often represented as the consequence of a possible event (including the change of circumstances) and the respective probability. GOST R 55059-2012 "Safety in Emergency Situations" defines the emergency situation risk as the degree of emergency situation threat that combines the possibility of its occurrence and its consequences.

Table 1: Comparison of definitions for the terms connected with the "risk" concept

GOST R 51897-2011. "Risk Management. Terms and Definitions"		**GOST R 55059-2012 "Safety in Emergency Situations"**	
№	**Term**	**№**	**Term**
1.1	**Risk** - Consequence of the uncertainty influencing the stated goal achievement	2	**Risk of an emergency situation** - The measure of an emergency situation threat that combines the possibility of its occurrence and its consequences
1.1 Note 3	**Risk** is often characterized by describing the possible ***event*** (emergence or change of the specific circumstances' set) and its ***consequences*** (the result of events influencing the object) or their combination		
1.1 Note 4	**Risk** is often represented as the consequence of a possible event (including the change of circumstances) and the respective probability		
2.1	**Risk management** - coordinated efforts in governing and managing the organization in the circumstances of risk	24	**Emergency situation risk management** - coordinated efforts in governing and managing the organization in order to reduce the emergency situation threat by using the key indicators of emergency situation risk reduction to the acceptable level or keeping it in the set acceptable range
3.2.1.1	**Party concerned** - Each individual, group or organization that may influence the risk, be affected or feel like being affected by risk	3	**Emergency situation victim** - An individual who was killed and/or injured, lost his property wholly or partially with his living conditions worsened by an emergency situation
3.4.1	**Risk evaluation** - The process that includes ***risk identification*** (the process of risk elements' definition, description and unification in a single list), ***risk analysis*** (the process of studying the nature of a risk and defining the ***risk level*** [the measure of risk or combination of several risk types that are characterized by their ***consequences*** {the result of events affecting an object} and their credibility/possibility {characteristic representing the possibility and frequency of event occurrence / measure of event occurrence possibility that is represented by the real number varying from 0 to 1 where 0 means "impossible" and 1 means "credible event"}]) and the ***comparative risk assessment*** (the process of risk analysis results' comparison with the ***risk criteria*** [combinations of factors by comparison with which risk importance is assessed] in order to assess the risk acceptability	19	**Emergency situation risk evaluation** - Overall process of the emergency situation threat identification, the analysis and comparative assessment of its risk
3.5.1.2	**Source of the risk** - An object or an activity that may increase the risk either on their own or in combination with other objects/actions	9	**Emergency situation risk source** - Objects or activities that may increase the emergency situation risk either on their own or in combination with other objects/actions
3.5.1.4	**Danger** - The source of potential harm (Note - danger may be the risk source)	6	**Threat of an emergency situation** - Characteristic of an emergency situation risk source defined as possibility to cause material damage in case of emergency situation occurrence
3.6.1	**Risk analysis** - (the process of studying the nature of a risk and defining the ***risk level*** [the measure of risk or	17	**Emergency situation risk analysis** - Process of the information processing aimed at identifying

	combination of several risk types that are characterized by their ***consequences*** {the result of events affecting an object} and their credibility/possibility {characteristic representing the possibility and frequency of event occurrence / measure of event occurrence possibility that is represented by the real number varying from 0 to 1 where 0 means "impossible" and 1 means "credible event"}])		emergency situation risk sources, the possibility of an emergency situation occurrence and its consequences
3.6.1.3	**Consequence** - The result of an event affecting an object	4	**Emergency situation consequences** - Direct and indirect losses of people and material resources as a result of the possible or occured emergency situation threat realization measured by casualties and/or the material damage extent
		5	**Emergency situation material damage** - The measure of damage done to people's lives or health, to the property of individuals or legal entities, to the state or municipal property, to natural environment, animals and plants health and lives, that is measured in natural or monetary units
3.6.1.4	**Possibility** - measure of event occurrence possibility that is represented by the real number varying from 0 to 1 where 0 means "impossible" and 1 means "credible event"	8	**Emergency situation occurrence possibility** - The level of assurance that the emergency situation may occur at the given period of time on the given territory that is represented by a number varying from 0 to 1 where 0 means the impossibility of an emergency situation occurrence and 1 means the credibility of an emergency situation occurrence
3.6.1.7	**Risk matrix** - The instrument of risk classification and representation (1.1) by consequence ranging (3.6.1.3) and credibility/possibility (3.6.1.1 / 3.6.1.4)	21	**Emergency situation risk matrix** - The table form of emergency situation risk assessment in order to rank its threats, that shows ranges of emergency situation consequences' magnitude and the possibility of their occurrence at the given period of time on the given territory
3.6.1.8	**Risk level** - [the measure of risk or combination of several risk types that are characterized by their ***consequences*** {the result of events affecting an object} and their credibility/possibility {characteristic representing the possibility and frequency of event occurrence / measure of event occurrence possibility that is represented by the real number varying from 0 to 1 where 0 means "impossible" and 1 means "credible event"}]		
3.7.1.3	**Acceptable risk** - Risk that the organization and the ***parties concerned*** are ready to keep after the ***risk processing*** (the process of risk modification - 3.8.1)	16	**Acceptable risk of an emergency situation occurrence** (not recommended - *affordable risk of an emergency situation occurrence*) - The emergency situation risk that is acceptable for socioeconomic development of a given territory and this acceptability is substantiated
3.7.1.6	**Risk acceptance** - Substantiated decision to accept the risk	26	**Emergency situation risk acceptance** - Substantiated decision to accept the emergency situation risk
3.8.1.6	**Remaining risk** - Risk the remains after the ***risk processing***	28	**Remaining risk of an emergency situation** - The measure of emergency situation occurrence risk that remains after actions to reduce such risk have been conducted
3.8.2.4	**Risk registry** - The form of writing down information on the identified risk	23	**Emergency situation risks registry** - The array of entries on identified emergency situation risks
3.8.2.6	**Risk management audit** - Systematic, independent, documented process of gathering evidence and evaluation of their credibility in order to define the ***risk management*** structure adequacy and effectiveness	29	**Audit of an emergency situation risk management** - Systematic, independent, documented process of gathering evidence and objective evaluation of the emergency situation

	(Interconnected elements that ensure the realization of principles and organization measures that are applied during the design, development, implementation, monitoring (3.8.2.1), analysis and continuous enhancement of the organization ***risk management***) or its parts		risk management system adequacy and effectiveness

Based on the above analysis of academic publications and standards, the authors conclude that the term "risk" connected with the certain event should be understood as the measure of this event threat that combines the possibility of such event's occurrence and its consequences. It means that the specific feature of such an approach is that some "event" must be present. Therefore, the academic publications using the "risk" term in their text and/or in the title without considering "an event" are of no practical or theoretical interest.

Modern world is actively developing and, in the circumstances when the environment is rapidly changing and is hard to predict, enterprises have to pay increased attention to the risk management system, including that in the intellectual property sphere. Informatization of business processes and growing importance of the intellectual component in business demand safeguarding the intellectual property rights as the basis of economic entities' potential for innovation. Effective functioning and development of intellectual property institution and the intellectual property market must be built considering the risk management system that includes elements such as identification, systematization, analysis and control. The intellectual property market development is the high priority for the overall economic development that positively influences the whole market investment attractiveness.

The objective of the study is identification and systematization of the risks that emerge on the intellectual property rights market, as well as the identification of reasons and recommendations on minimizing financial losses of enterprises.

Review of theoretical, methodological and practical aspects of the intellectual property market is the basis of this study. Intellectual property rights are used as the subject in different kinds of deals, including the financial deals (intellectual property rights security in the loan contracts) in the world practice[1234].

Russian researchers V.N. Lopatin, P.A. Sachkov, E.A. Hramicheva, Y.V. Lelikova, M.V. Agadzhanova, M.V. Klyashnya examine different aspects of the intellectual property market, problems and risks that economic entities face in the sphere of intellectual property legal protection, including the contracts using them as security[5678]. Risks that occur during the intellectual property creation as well as measures to minimize and to prevent them are discussed in the article of O.E. Koteneva and K.N. Kolchina[9]. Preventive measures for the intellectual property legal protection, namely measures at the stage of submitting the industrial design application for the Russian applicants, are suggested in the paper of E.V. Petrakovskaya[10].

External factors significantly affect the intellectual property market risks manifestation. For example, issues of regulation and bank provision for intellectual property security are described by Ranti Fauza Mayana, Ahmad M. Ramli and Tisni Santika[11]. In particular, WeiMing Mou, Wing-Keung Wong and Michael McAleer (2018) in their work revealed the peculiarities of risks in lending to small and medium-sized enterprises as the key players in the economy. At the same time, the authors identified three main types of risks: lending, guaranteeing and operational risks [WeiMing Mou, Wing-Keung Wong and Michael McAleer. Financial Credit Risk Evaluation Based on Core Enterprise Supply Chains // Sustainability 2018, 10, 3699; doi:10.3390/su10103699].

Research published in the NTUT Journal of Intellectual Property, Law and Management states that authors from different countries (Chin-Lung Lin, Palapan Kampan, Adam R. Tanielian et al.) discuss aspects of intellectual property rights protection, problems and tendencies of this institution development in the context of

"knowledge economy" and globalization[111213]. Particularly, the researchers highlight issues related to the rights to artificial intelligence and the risks arising in relation to such IPOs, including the transfer or exchange of data [Dr. Vandana Singh, Mehak Rai Sethi. Digital Trade and Artificial Intelligence: Role of Intellectual Property // NTUT J. of Intell. Prop. L. & Mgmt [2021] Vol. 10, No.1, pp. 45-66, P.56 https://iip.ntut.edu.tw/var/file/92/1092/img/2036/vol.10(1).pdf]. Other authors (Reza Allahyari Soeini, Has-san Javanshir, 2020) consider risk as one of the parameters influencing the brand value of [Reza Allahyari Soeini, Hassan Javanshir. Combining Brand Equity Questionnaire with Weighted Av-erage Cost of Capital // [2020] Vol. 9, Issue 2 NTUT J. of Intell. Prop. L. & Mgmt, pp. 55-107].

The main sources of information that enable experts to identify risks in the field of intellectual property and the possibility of managing these risks in Russia are the sources in the judicial system. In this regard, information base of this study focused on the practical aspects of the intellectual property protection is composed of court judgements and rulings published on the court findings and legal acts Internet portal (https://sudact.ru) and Federal Institute of Industrial Property (FIIP) materials.

The subject matter of this research is the process of emergence and identification of intellectual property market risks.

Analysis of academic literature and legal acts, methods of information systematization and synthesis, induction and deduction form the methodological basis for this study.

Different types of intellectual property risks and approaches to their classification are examined by Russian and foreign scholars[1415161718]. K.R. Mukhametgalieva examines the intellectual property risks based on the case of startups highlighting legal and administrative risks. L.I. Lukicheva and A.S. Volkov examine risks of intellectual property objects and suggest their classification. They also highlight such risks as the risk of intellectual property development and use that include specific and operational risks (personnel, process, technology, physical interaction environment risk)[18]. The suggested classification does not exhaustively represent all features and characteristics of this category and does not give a systemic view of intellectual property market risks.

After systematizing theoretical and methodological basis and judicial practice in the sphere of intellectual property legal protection as well as supplementing it considering the research conducted before[19], the authors suggest the following classification of intellectual property risks (Fig. 1).

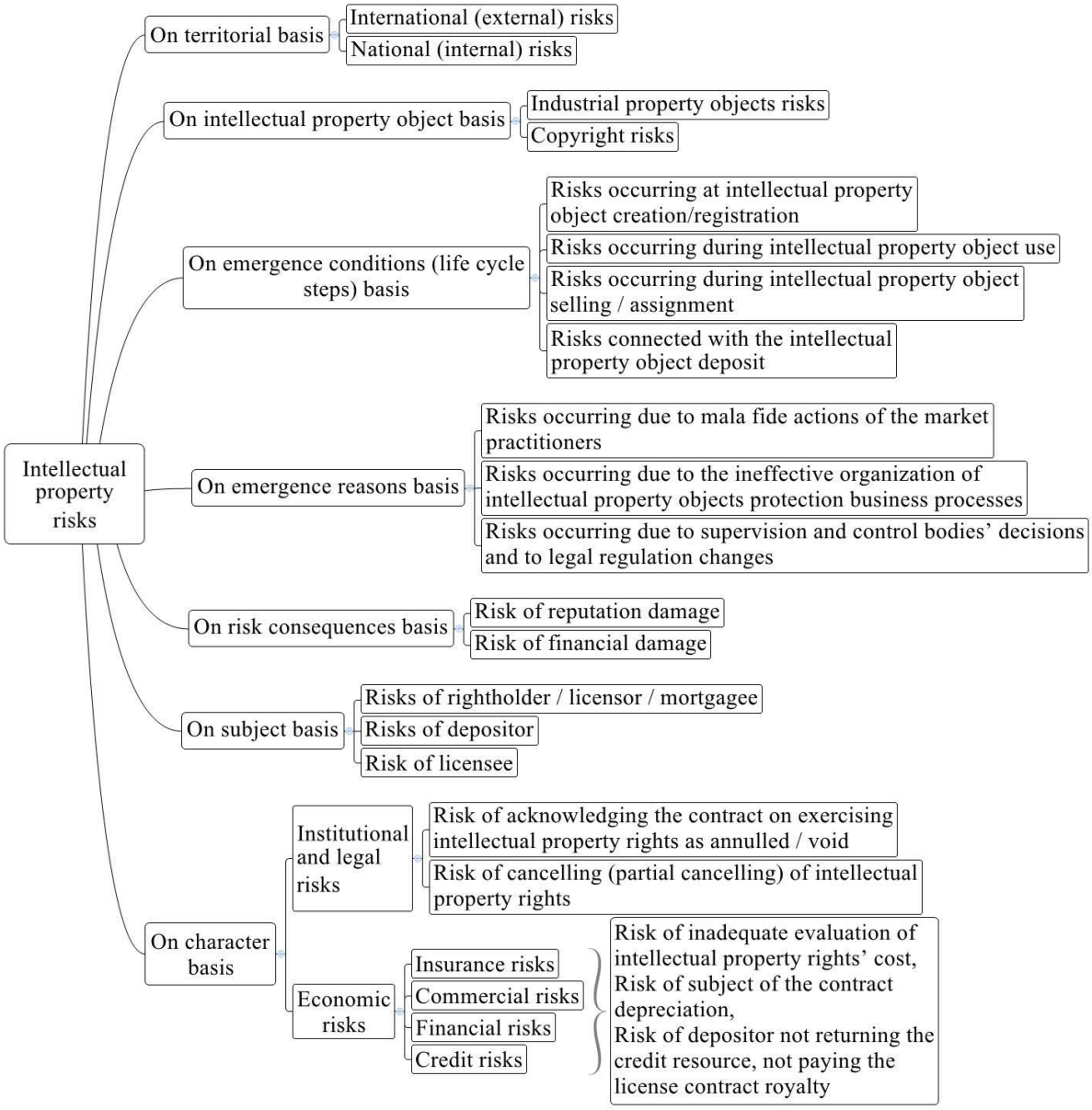

Figure 1:
Classification of intellectual property risks

Examining reasons of the risk occurrence is crucial for identification and prevention of their possible negative consequences in the future. Mala fide behavior of the intellectual property market practitioners may lead to significant economic or reputation losses for the enterprises that hold intellectual property rights. Risks of such behavior are harder to predict, but effective organization of business processes allows to minimize them. In turn, ineffective business processes' organization in the sphere of intellectual property rights' protection includes the following: lack of employees' legal knowledge, non-existent or weak exclusive rights control, lack of complete and credible information etc.

Some examples of the institutional and legal risks should be examined - namely the risk of acknowledging the contract on exercising intellectual property rights as annulled / void. CJSC "Center for Science and Technology "Jupiter-Z" on the request of the

Russian Ministry of Defence in accordance with the state contract has engaged "Jupiter-3" LLC as a subcontractor for development works. It concluded the loan agreement with "Jupiter-3" LLC using the intellectual property rights as security. Later "Jupiter-3" LLC submitted an application and received a patent for the "Projector" utility model.

Ministry of Defence considered such disposition of intellectual property rights as violating the law as the intellectual property had been developed within the state contract framework, as well as its previous use as security. It filed a lawsuit to acknowledge the loan agreement as null and void as well as to annul the utility model patent in the part of recognizing "Jupiter-3" LLC as a patent holder and to recognize the Russian Federation represented by the Ministry of Defence of Russian Federation as a patent holder. The Intellectual rights court (IRC) has ruled in favor of the Ministry of Defence on all its claims[20].

During the intellectual property object registration, the possibility of risks connected with annulment of legal protection provision should be taken into account. Rospatent may decline the trademark registration if it does not comply with the requirements of the Civil Code of the Russian Federation (paragraph 10 of Article 1483) regarding specific goods and services due to including the designation of other individual's intellectual property even after the registration procedure if a complaint from a third party has been received. Extensive court practice of settling disputes over cancelling of trademark registration recognizes Rospatent actions as legal and indicates that this group of risks is not considered at the stage of trademark designation[21].

Court practice examples demonstrate that the right of utility model legal protection cannot be always fully exercised. It must be taken into consideration that, in accordance with the Civil Code of the Russian Federation Article 1358 paragraph 3, in order to identify if another individual uses the utility model, all features that exist in the independent formula point and the compared product (decision) should match each other. It means that using specific features of a utility model in an independent point without the patent holder agreement does not violate his exclusive right (Paragraph 123 of the Russian Federation Supreme Court Plenum of 23.04.209 №10 "On the application of the Part 4 of the Russian Federation Civil Code"). "Promrubezh" LLC manufactured and vendored technical devices which, from the position of "PermEnergoMash" LLC violated its exclusive right on a utility model. The court dispute has shown that the utility model patent has been violated only in specific features. The economic disputes Judicial Board of the Russian Federation Supreme Court, processing a "Promrubezh" LLC cassation appeal, has ruled that the courts of first and second instance as well as IRC did not set the legal protection scope that the utility model patent grants, thus there was no ground for satisfying the claim - their decisions to satisfy the "PermEnergoMash" LLC claims have been annulled and the case has been sent to the court of first instance again[22].

We should examine the example demonstrating the consequences in case of the rights holder change. OJSC "Petrocommerce" Bank has signed several loan agreements with "EnergoKomplekt" LLC with exclusive rights for trademarks used as the security. OJSC "Petrocommerce" Bank was reorganized via integration with the PJSC "FC Otkrytie". PJSC "FC Otkrytie" has sent an application to Rospatent to register the agreement for the exclusive trademark right loan but this application has been declined because of the different information of pledgor's location. PJSC "FC Otkrytie" has filed a complaint (request) to "EnergoKomplekt" LLC asking to conduct actions required for the loan registration, but the complaint has not been satisfied by the pledgor. Later "EnergoKomplekt" LLC and "TD Baltic Cable Company" LLC signed the contract on

disposition of exclusive rights for these trademarks which has been registered by Rospatent. PJSC "FC Otkrytie" has filed a complaint for Rospatent actions. The court has identified that Rospatent decisions, namely the notifications on refusal to register the trademark exclusive rights loan agreements, are fully in compliance with law of the Russian Federation, and the complainant has missed a 3-month deadline that is set for filing a complaint for acknowledging Rospatent decisions as void. Due to the rights holder change, when the court ruled to satisfy the complainant's claims, the execution of such ruling is impossible. Considering all circumstances of the case, the court decided that claims shall not be satisfied[23].

Another court practice example demonstrates that the fact of trademark exclusive rights loan will not be valid for settling disputes with contracts on disposition of exclusive rights for trademarks if the Rospatent did not register such loan agreement. "Sommelier" LLC has requested to annul the contract on disposition of exclusive rights for trademarks, on cancelling the state registration of the contract and transition of trademark exclusive rights to the claimant signed between CJSC "United Wine and Spirits Distributors" and CJSC "United Distributors" (acting as the defendants).

Trials on inadequate compliance with the loan agreement requirements, including the exclusive rights loan, by the pledgee are the common practice for arbitration courts, and in most cases claimant's requests are fulfilled wholly. Debtors' property realization is performed via open auction. However, most of the exclusive rights auctions are recognized as failed due to no participants allowed.

It should be noted that the fact of temporary loss of intellectual property right by the rights holder (due to the untimely payment of a state fee that is required to maintain the patent) has legitimate possible consequences. For example, a complaint on Case № A03-20610/2015 has been sent by "AFCT ADVANCED FREIGHT CAR TECHNOLOGY LIMITED" to the Altai Territorial Arbitration Court. The complaint stated the utility model exclusive right violation and asked for collection of 113,625 million roubles from JSC "Altaivagon" as compensation for losses. Claimant has pointed out in his claim that since 03.05.2012 (priority date) it holds the utility model patent[24]. However, Claimant did not reflect the information that the patent has been prematurely terminated due to the untimely payment of a state fee for patent maintenance. The patent was restored on 10.10.2014 after the payment of a mentioned fee. During this year and a half period the utility model patent has been inactive, thus allowing the unlimited number of entities, including JSC "Altaivagon", to use the utility model at will without obtaining rights holder agreement during this period.

The accumulated experience of court trials allows to minimize certain risks occurring on both licensor and licensee sides, even if the contract has not been officially registered by the state. Intellectual rights court, examining the claim of the sole entrepreneur R.A. Akhilgov to "Topgun" LLC to annul the entitlement for commercial use of the complex of rights obtained via the commercial concession agreement, has come to a conclusion that, "as the contract concerned had not been registered properly, it does not engender consequences that may affect rights and interests of the third parties that did not know of the contract conclusion and its conditions. At the same time liabilities under the contract's provision (legal relations between licensor and licensee) appear independently of the contract's registration. Such contracts entails legal consequences for parties' relations since the moment when parties agree upon all significant contract elements and after the official registration it may entail any consequences it is directly aimed to entail"[26].

Not all intellectual activity results are subject to patenting, although the court practice demonstrates that they may be legally protected in case of legal dispute. The legal protection of tableware design is ensured regardless of the object being registered as an industrial design (IRC Statement of 13.11.2014 on the Case № A66-6209/2013). The exclusive right for tableware design has been verified by the Claimant by the author contract for designer art drawing, the act of acceptance as well as the certificate of object deposition registered in the RAO "Copyrus" registry. Submitting information to such registries is not mandatory but allows to ensure copyright protection in case of emerging disputes. Documentary support for one's rights is important for risk minimization in defending the intellectual activity results.

Additional risks may appear when copyright disputes arise if a Defendant company is a foreign resident and does not have an office (branch) in Russia and the rights' violation has happened out of the Russian Federation borders. We may use on example of "Danone Russia" JSC ("Activia" brand) complaint to the Moscow arbitration court against PJSC "Savushkin Product" ("Optimal" brand) residing in Brest, Belarus asking for twofold compensation for 88 million roubles worth of goods using the illegally reworked "Activia" design for "Optimal" yoghurts packaging. The first instance court decided to stop proceedings as it has been confirmed that Defendant is the Republic of Belarus resident that does not have Russian office or branch as well as that design in question has been created on the foreign state territory. Later the court of appeal and the IRC has approved the first instance court decision and did not fulfill the cassation appeal[27].

Investigating the experience of international intellectual property protection on the example of the Tea Board of India has demonstrated that colossal effort is required for a claimant to safeguard his rights. Annual legal protection cost may reach more than $50 thousand, and intellectual property rights protection on the foreign territory entails lots of problems and complications that are insurmountable for most of the companies. The Tea Board of India, in order to protect its intellectual property, namely the Darjeeling tea, has filed complaints to the courts of France, Japan, USA, Russia, Germany, Israel, Norway etc. The experience of the Tea Board litigations demonstrates that not all countries participating in the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) are following its principles[28]. India in community with other countries advocates for enhancement of TRIPS regarding this issue. For example, the proponents of expanding the list of goods with geographical indication protection are such countries as Bulgaria, the European Union, Guinea, India, Jamaica, Kenya, Madagascar, Mauritius, Morocco, Pakistan, Sri-Lanka, Switzerland, Thailand, Tunis and Turkey. Expansion of such a list, in their opinion, would facilitate their products marketing enhancement and its better distinction from competitors' products. They also oppose other countries "usurping" their conditions. The opponents of the expansion are Argentina, Australia, Canada, Chile, Columbia, Dominican Republic, Ecuador, Salvador, Guatemala, Honduras, New Zealand, Panama, Paraguay, Philippines, Chinese Taipei and the United States. They claim that the existing level of protection under the Article 22 of TRIPS WTO is adequate and warn that providing additional protection would be burdensome and would violate existing legal marketing forms[29]. There is no consensus on this issue so far. As Chin-Lung Lin notices, "a harmonized system of international and national legislation should be built in the area of intellectual property rights' protection"[30].

Legal basis lies in the foundation of risk management on the intellectual property market. While examining measures for prevention and minimization of risk, one should consider the development of legislation both on national and international levels.

Legislation regarding the intellectual property protection in Russia has gone through a significant reform process in 1990–1995. The transit period of the Russian intellectual property market has finished with the adoption of a federal law at the end of 2006 which stated that since the 1st of January, 2008 the Part 4 of the Russian Federation Civil Code would enter into force (section VII "Rights for intellectual activity results and individual designation").

Examining the intellectual property system development in Asia, we should notice that its legislation has significantly changed since 1990s to 2000s. The main reason for this change was the necessity for national intellectual property systems to comply with the WTO TRIPS. Modern intellectual property systems of Asian countries are comparable to the ones of the developed countries. As the WTO TRIPS defines only a minimal number of requirements and considering specific national considerations, Asian intellectual property systems have unique features[31].

In Russia, intellectual property rights violation may entail civil, administrative and criminal liability. Administrative liabilities are the administrative fine, including the confiscation of counterfeit goods, as well as materials and equipment used for their manufacturing or any other utilities used to commit an administrative offence. Criminal liabilities include fine, mandatory community service for a term up to 480 hours, forced labor for a term up to 2 years or an imprisonment for the same term. If multiple crimes have been committed by a person or the crime has been committed by a group of individuals or caused significant damage, this entails harsher punishment.

In China, intellectual property rights violation entails administrative or criminal liability. Administrative liabilities include fines, confiscation and liquidation of the production that violates the intellectual property rights as well as the equipment used for its manufacturing. If the damage done to the exclusive right holder is notably significant, it entails criminal liability in the form of imprisonment for a term up to 3 years (depending on the damage amount). In the context of customs measures for intellectual rights protection, legislation of PRC allows for fining the exporter (importer), suspension of counterfeit goods export (import) custom clearance or its confiscation if violation of rights has been detected[32].

Examining the multi-level intellectual property rights' protection system in Russia and the Eurasian Economic Union (EAEU), we should highlight that it includes the customs protection as well. Maintenance of the intellectual property rights protection at the stage of custom clearance is the obligation of custom services. EAEU member states and WTO TRIPS members are guided by international obligations in the area of intellectual property rights protection. Custom services have the right to suspend the clearance procedure if they identify the indicators of intellectual property rights' violation. In the future it is planned to expand the list of intellectual property objects that are protected by the custom services by including geographic indications in the list.

Systematization of intellectual property risks, examination of the court practice and identification of risk emergence reasons allow us to make the following conclusions:

- Examination of the court practice in the area of intellectual property rights protection facilitates the research of issues in interactions of intellectual property market practitioners, and accumulated information allows other economic entities to avoid mistakes;
- Intellectual property market has its own unique features, and the possible risks it contains, including the risk of acknowledging intellectual property rights as void, demand for detailed business processes' control in the area of intellectual property

rights protection, specific knowledge and high professional skills of enterprises' employees;

- Risk management on the intellectual property market is a relevant and vital element of an enterprise management system.

L.I. Lukicheva and A.S. Volkov discuss two groups of risk management methods in order to minimize intellectual property risks[15]:

1. Prior the risk event occurrence - elimination, reduction, keeping, transfer;
2. Following the risk event occurrence - damage prevention and minimization of consequences.

Methods of risk management are reviewed in general, without their adaptation to the intellectual property field. Insurance is suggested as an effective method of intellectual property risk management that does not correspond the intellectual property risk management system challenges to the full, thus not allowing to reach the goal of risk management - to prevent negative consequences of the risk occurrence in the form of keeping and raising the competitiveness and security level of an enterprise, preventing the excessive consumption or loss of resources, ensuring the reaching of financial indicators. System approach towards risk management at the enterprise, including the intellectual property management, must be implemented as a balanced mechanism allowing to reach the goal.

Risk analysis and assessment should be carried out at all the life cycle stages of an intellectual property object: creation - registration - use (pledge) - sale (transfer). In order to minimize intellectual property market risks, specific features of this market and of the legal protection of such assets should be realized. It should be taken into account that two strategies may be employed for the protection of intellectual activity results:

1. Patenting (including the "underwater patent" tactics);
2. "Know-how" protection;

If an enterprise prefers patenting, it is ready to disclose the information about its invention and goes through the patenting procedure in order to protect it. Patenting contains several drawbacks in terms of intellectual property protection: information disclosure in application publication, limited timeframe of protection as patents have a period of validity, inability to amend (modify, supplement) the patent after its registration. These drawbacks entail risks at the stage of intellectual property object exploitation.

"Underwater patents" tactics should be highlighted - this is the tactic of delaying patent registration, thus delaying the development process information disclosure. In accordance with the Russian Federation Civil Code (Article 1375, paragraph 1), the patent application may contain information about not a single invention but a group of inventions connected between each other as part of a single design. An applicant files additional application - the ones that are filed on the basis of an existing application thus keeping their priority in the consideration queue. Additional application is filed within 12 months since filing of the previous application which allows retaining priority in the queue without disclosing the development process information. The application may be turned into a patent at any time while keeping the priority in the queue which prevents competitors from registering their own patents basing on the right of prior use. This tactic significantly increases advantages of the intellectual property protection, as the development process information is not disclosed for a long period of time while retaining its queue priority and allowing the applier to modify the invention formula or supplement the application. At the same time this tactic decreases the risk that additional inventions of an applier would not be eligible for patenting. Using the "underwater patent" tactic, on

one hand, decreases risks of a developing company, but on the other hand it significantly increases risks for its competitors, thus making the risk management process more complex, in general.

Intellectual property protection in the "know-how" regime requires the organization of specific business processes aimed at safeguarding of the commercial secret, namely identification of the information massive that compose the commercial secret, classification of material carriers of such information as a commercial secret, defining the access and reference procedure and control after how this procedure is followed, regulation of relations considering the commercial secret use in the contents of employment or civil contents, keeping the registry of individuals who have the access to the information and individuals, whom this information has been transferred or presented to. Relevance of such strategy is defined by the fact that not all intellectual property objects are subject to patenting, or there may occur differences on the registration stage, or unauthorized use may be difficult to prove or the access to information should be restricted as it will lose its importance if it is made public.

It is possible to combine patenting strategies with the "know-how" regime when part of the information remains the commercial secret and the other part in the form of invention (utility model, industrial design) comes through a patenting procedure.

As a recommendation for minimization of financial and non-financial losses in case of intellectual property risk occurrence, the authors suggest the following:

1. Information monitoring of the intellectual property market tendencies and court decisions that will allow to identify possible problems and risk for market entities;
2. Intellectual property risks identification considering the circumstances and specific features of enterprise's operation on the intellectual property market, its existing and potential intellectual property objects;
3. Qualitative and quantitative analysis of the identified risks in order to measure the possibility of their occurrence and to assess their consequences and predict possible financial and reputation damage. Recommendations on the choice and the procedure of risk assessment are extensively presented in the GOST R 58771-2019 "Risk management. Technologies of risk assessment" that has been developed on the basis of international standard IEC 31010:2019 «Risk management - Risk assessment techniques», NEQ;
4. Development of operating procedures for risk management based on the use of different instruments of risk minimization (risks insurance, intellectual property rights protection outsourcing, upgrading of employees' qualification etc.)

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Transboundary Movement of Intellectual Property Items in the EAEU in the ERA of Digitalisation

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Abstract

This article addresses a problem of legal protection of intellectual property items during the transboundary movement of goods. The article analyzes the role of Customs Service in the process of IP enforcement taking into account both: patent rights and copyright and related rights. With Russia participating in the EAEU the authors concentrate on the benefits of such integration for the IP sphere. Some foreign regulation is also taken into account. Moreover, the authors dwell upon the adaptation of customs mechanisms to the modern digital reality including the technological aspect, the aspect of the digital transfer of goods. The conclusions outline some trends of customs regulation of IP items movement, the results of its adaptation to modern reality.

Keywords: Intellectual Property, Customs Law, Copyright, Transboundary Movement, Digital Environment.

I. Introduction

It is said that the main 'commodity' of the information society is information. But if we talk about the IP aspect of this motto, we may find that all the IP objects contain information which subsequently can be used commercially: either we talk about trademarks that identify popular brands, goods or businesses, or about patents that contain promising technologies. Even copyrighted works can be used for commercial purposes when promoted accurately.

Nobody would deny that our world is becoming more and more global and all the countries are becoming interconnected not only with traditional trade ties but also in cultural, sociological, political and scientific spheres. The current state of globalization and economics requires new approaches towards the legal regulation including apart from national level of legislation all the benefits of international cooperation.

The rationale of the topic is (like everything in the IP law) based on the conflict of interests. On the one hand, there are interests of the right holders and on the other hand there is the concept of dissemination of knowledge for the sake of cultural, technological and in general sociological development. If we take traditional industrially used intellectual property (patent law items) the balance is slightly moved towards rights protection, but when we talk about copyright law, more often than not we face the slogans connected with cultural heritage and the era of free information. Let us add the fact of fewer formalities in copyright law and here we get to more abstract (less specific) forms of protection of copyright.

This article is focused on the regime of transboundary movement of IP items, so the regulation at question also goes beyond the interests of one country. The major concern is the position and activities of Customs service which is a legal control point for thousands of goods transferred from one country to another either directly of in transit.

It is the Customs service that shall develop and apply the principles of legal and economic regulation which would serve best interests of all three groups: convenient access to intellectual valuables for consumers, sufficient commercial profit for right holders, and fair remuneration for creators.

Apart from traditional 'offline' transfer of goods we should not forget about the new digital agenda — thousands of goods are sold and bought online and while some of them really cross the borders in post parcels, the other are transmitted online directly to the digital consumer. Satellite and cable broadcasting are developing, the Internet has become an integral part of our lives. In this article we try to analyze to what extent the Customs service's powers extend towards the digital transfer of IP objects.

As for the scientific papers in the field, they are not specifically devoted to the aspects outlined in this article. Of course, IP rights protection in general is discussed in some large theoretical studies[2], but not much attention is given to the customs mechanisms of protection. On the other hand, there are traditional works on customs law[3], where vice versa not much is told about IP rights protection.

As for articles in the sphere, authors primarily analyze some specific aspects of IP enforcement. Firstly, there are articles which concentrate on the public aspect of the

[2] See Entin V.L., *Intellectual Property in European Union Law* (2018), Novoselova L.A., (ed.) *Intellectual Property Law: textbook. Vol. 1: General Provisions* (2017).

[3] See Bekyashev K.A. & Moiseev E.G., *Customs Law: textbook* (2015), Galuzo V.N., *Customs Law: textbook* (2018).

Customs activities[4]. Secondly, numerous articles deal with the problem of counterfeit products either form scientific[5] or practical[6] point of view. Thirdly, the topic of parallel imports has recently become also very popular[7]. The aspect of the EAEU integration in the IP sphere is practically not outlined in current scientific works.

A similar situation can be found on the international scale. Counterfeit is generally the most provocative topic — apart from scientific articles[8] there are studies analyzing the issue of counterfeit from different positions: sources of counterfeit, consequences for economy and health, ways to combat this concept and so on.[9] Much work is conducted also in practical sphere, for example there are special Internet portals explaining basic principles of IP protection and fight with counterfeit.[10]

Copyright issues in transboundary movement of goods are not in principle examined individually. That is why in this article we try to specifically analyze copyright issues in the spere. The same situation has arisen with the digital agenda — this article is intended to fill the gap in the discussion of the adaptation of Customs IP enforcement to the information society.

II. Common Intellectual Property Market as a Solution to Infringement

The Russian Federation is a member of the Eurasian integration — Eurasian Economic Union (hereinafter — EAEU).[11] Eurasian integration aims at ensuring economic progress through joint actions aimed at solving common problems — and with the formation of EAEU Customs Union it has become a common problem to control IP

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[4] See Agamagomedova S.A., *Evolution of the Customs Control of Goods Containing Intellectual Property Items: The Administrative Law Aspect.* 2 Customs Affairs, 3 (2020)

[5] See Didigova L.R. *The Means of Combating of Counterfeit Goods Trafficking: on the Example of the Customs Union of the EAEU*, 5 Administrative law and process, 82 (2018).

[6] See Kudryashova E., Casetti M. Digital technologies in wine sector: Russian legislator preferences. *IOP Conference Series.: Earth and Environmental Science.*699: 012002 (2021); Reznikova I., *How The Customs IP Register protects brands from counterfeit* (2021). URL: http://www.garant.ru/gardium/guide/kak-tamozhennyj-reestr-obektov-intellektualnoj-sobstvennosti-trois-zashchishchaet-brendy-ot-kontrafakta/

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[11] *Treaty on the Eurasian Economic Union* (Signed in Astana on May 29, 2014). URL: https://docs.eaeunion.org/docs/ru-ru/0003610/itia_05062014; Verlaine M., Shashkova A.V., Kudryashova E.V. Amendments to Russian Constitution and International Institutions Decisions: EAEU Prospective 5 Polis. Political Studies.164-176 (2020)

infringement at the border. IP rights are involved as a part of the common market for goods — it is not declared as an independent segment of market relations in foreign trade.

However, there is yet a separate Section XXIII 'Intellectual Property' in the Treaty on the Eurasian Economic Union, where some general provisions as to the common goals in the spere are set. The list contains such areas as scientific and innovative development, commercialisation of intellectual property, favourable environment for copyright holders, coordinated measures to prevent and combat trafficking in counterfeit goods and protection of intellectual property rights, including on the Internet.[12] As we can see, the strategic part of the Treaty is quite up-to-date — all this is clearly conforming with modern trends and needs, even the protection of IP rights in the Internet is mentioned specifically.

It is worth mentioning that the EAEU integration in the IP sphere is developing and is now rooting into substantive regulation. Since 2021 the concept of the EAEU trademark has been introduced[13]. It is possible now to register a trademark that will be protected in the territory of all the EAEU countries. The process of registration is much easier as it is carried out on a one-stop method — there is no need to file several forms in several jurisdictions.

This kind of harmonization and further unification will make it possible to create a 'territory of innovation' and promote scientific and technological breakthroughs by creating and developing highly productive, inter alia, export-oriented, economy sectors, to expand digital technology in various areas of economic activity and to participate in joint research, projects and activities in scientific and technological development.

Leaving substantive regulation apart, let us move to a more urgent topic. It is in generally worth mentioning that technological issues are considered important in the EAEU. Not only does it encourage innovation in the business and industry sphere in the EAEU countries, but it also promotes innovation in the very functioning of the EAEU: the creation of technology platforms for efficient communication, achieving transparency throughout special websites so that any person whose rights or obligations may be affected by any regulatory legal acts of EAEU could become familiar with them, posting online the information about current investigations as well as decisions on reviewed cases of violations online and so on.

Technology is closely connected with the IP market — it is easier to keep records in electronic form, any description helping to identify IP objects can be kept in electronic form, some IP objects can only exist in electronic form. This is a significant cause to manage documents workflow in electronic form which has now become a preferable form in all the EAEU countries customs bodies.

It is obvious that infringement is easier to control and to prevent while acting together, that is why the EAEU countries set the goal of technological cooperation of customs service. As a result, there will be the EAEU Customs register of intellectual property — a unified electronic register which contain all the IP objects that shall be checked at the border (a more detailed analysis can be found further in the paper).

[12] See Article 89 of the *Treaty on the Eurasian Economic Union* (Signed in Astana on May 29, 2014). URL: https://docs.eaeunion.org/docs/ru-ru/0003610/itia_05062014

[13] *Treaty on Trademarks, Service Marks and Appellations of Origin of Goods of the Eurasian Economic Union* (Moscow, 03 February 2020, entered into force on 26 April 2021). URL: https://docs.eaeunion.org/docs/ru-ru/01426627/itia_03022020

Currently such a register does not exist yet due to technological unavailability of some of the countries.[14]

In general, according to strategic goals of the Russian Customs Service by 2030 they will introduce modern integrated digital information technologies focused on the security and simplification of customs procedures.[15] The key is the improvement of the automation tools for customs operations and customs control based on the integration of information resources on the national and international levels, including the level of the EAEU integration, of course.

III. Intellectual Property Customs Control

Any goods transferred cross the border of a country are subject to Customs control. At this stage Customs services shall check if there is any infringement of IP rights. With the Customs control being like a bottle neck for an endless flow of goods, is impossible to thoroughly inspect each and every product in transit, that is why there have been developed the mechanisms of declaration and registers.

Customs service sets up a register of IP rights where the interested right holders can submit the information about their IP rights that can be infringed by some imported products. Customs authorities then will use this information during comprehensive documentary control and subsequent random inspections. If a corresponding IP item is found, Customs authorities then check if the movement of such products consists infringement.

When talking about the EAEU it is worth mentioning that a two-level system of intellectual property registers is introduced (at the level of a EAEU Member State and at the level of the EAEU itself). It means that right holders wishing to protect their intellectual property in all the countries of the EAEU will be able to file a form for one register, but only if their rights are eligible for protection in all these countries (it is important in case of license agreements and IP rights that are protected on a territorial basis upon registration). This approach is definitely saving time and reducing paperwork, as well as the necessity to conform with all the different formalities of national legislation in the existing system of national registries.

The register system has proved to be quite an effective method of preventing and controlling IP infringement in transboundary movement of goods and it is now widely used all over the world, including in the US, in the EU and so on.

Another point that needs clarification is the content of the term Intellectual property in connection with Customs control. Though the register-based system has existed for quite a long time now in different countries, it is yet not covering all the type of IP items, and more interestingly, the lists of controlled IP objects differ from country to country.

In the Russian Customs IP Register one can register copyright, related rights, trademarks and geographical indications. The European Union Custom control list embraces copyright, related rights, trademarks, patents, industrial designs, utility models, plant variety rights and integrated circuit layout design protection — quite a long list. The

[14] EAEU Customs register of intellectual property. URL: http://www.eurasiancommission.org/ru/docs/Pages/intellectual.aspx

[15] *Development Strategy of the Federal Customs Service until 2030*. (2020). https://www.alta.ru/tamdoc/20rs1388/#str

US Customs control list is shorter and includes trademarks and copyright items, and industrial design inclusion initiative is still under discussion[16].

It is still a drawback of Russian IP Customs enforcement system that patents to inventions and industrial design is not covered by the procedure. These are the types of IP rights that are the mostly connected with technological development, innovation, industry and not just with commerce like in case with trademarks.

Let us look more precisely at the very procedure of Customs control. We have already mentioned that everything starts with documentary control and random product inspections.

If the Customs authorities have any impression that the product constitutes an infringement, they may suspend the release of the goods for the period of investigation. Such period differs depending on whether the IP item at question is listed in the Register or not (10 and 7 business days accordingly). This is a part of the so-called 'ex officio' procedure — the ability of the Customs authorities to suspend goods without any preliminary order from the right holder, even when the potentially infringed IP right is not included in the Register. Such a mechanism is deemed to provide authorities with additional time to contact with right holders as it is their task to understand whether particular imported goods infringe their IP rights.

An important developing aspect of this procedure is to assure that the Customs authorities are able to identify infringing goods. The fact is that we do not speak just of counterfeited goods. From the terminological point of view there is made a distinction between counterfeit products (infringing rights to trademarks and geographical indications) and pirated products (infringing copyright or related rights, sometimes also rights to industrial design)[17].

Many right holders prepare special guidelines for Customs authorities where they explain the difference between counterfeit and genuine goods with some photo examples explaining the correct position, shape, color, material of design elements.

Moreover, Customs control may reveal an attempt to import genuine products which, however, are imported by an unauthorized importer — the so-called 'parallel import' of goods constituting 'grey market'.

The legality of the 'parallel import' depends on different understanding of the principle of exhaustion of rights: either as a national or an international one and on the basic understanding of economic rights. According to the common IP regulation (and the Russian IP legislation is not an exception) the right to import is part of the exclusive economic right of the right holder (initially the author) and therefore only the right holder may authorize the importation of the goods with her IP items in the territory of any country. So, the Customs service presumes that the importer is either the right holder itself or acts upon the right holder's permission (according to a license agreement, for example). It is important to stress here that we take in the account the territorial character of the IP rights. It is not uncommon to have economic IP rights spreading over one or several countries. So there might be a situation when there are different authorized importers for

[16] Ferrill E.D. & Liu E.A. *New Legislation Would Empower U.S. Customs to Seize Products Infringing Design Patents at the U.S. Border March*, IP Owners Quarterly (2020). URL: https://www.finnegan.com/en/insights/articles/new-legislation-would-empower-us-customs-to-seize-products-infringing-design-patents-at-the-us-border.html

[17] Organization for Economic Co-operation and Development, *The Economic Impact of Counterfeiting* (1998). URL: https://www.oecd.org/sti/ind/2090589.pdf

different jurisdictions as they are so empowered by different licence agreements and as a rule they may not interfere with the territory of one another.

It is said that it is too harsh to apply the same strict enforcement measures to genuine goods (in comparison with counterfeited goods, for example), that is why the status of such goods is widely discussed[18]. Thus, in Russia the status of the 'parallel import' is confirmed by court practice[19] — it is not legalized but in certain cases no civil liability will be imposed on the parallel importer. Moreover, it is confirmed that seizure and destruction rules do not apply to such quasi-legal goods, unless they are defective or insecure.

As a rule, if a right holder comes to a conclusion that a goods infringe her IP rights, such goods are prevented from entering the internal market, they are confiscated and further destroyed (not fully applicable to 'gray products'). The right holder may choose to initiate civil, administrative or criminal proceedings depending on the amount of damages.

The register-based mechanism of Customs control has proven to be an effective method. First of all, the Customs authorities have visual information in advance — they know what to look for. Second, when the IP rights are registered there surely is the contact information of the right holder and the extended time period is enough to get the right holder's position on the goods at question.

The application procedure has also become easier — now all the information may be submitted by the importer electronically. Moreover, all these benefits of the customs protection are available for right holders on a free-of-charge basis. However, it is necessary to provide for an insurance certificate securing the liability of the right holder in case of any unreasonable delay or damages to the importer. For the right holders anxious about the bureaucratic mechanisms there is even a possibility to sign insurance contract after having received a favorable opinion of the competent body on the question of the register inclusion petition.

In principle, somewhat a similar system of suspension has existed in the USA for a while now — all started as a means of economic protectionism and then spread over suspension of counterfeited products[20]. This problem has been addressed again recently with the discussion of the Counterfeit Goods Seizure Act of 2019 (CGSA)[21], which spreads the CBR IP enforcement over another IP right — the right to industrial design. It would seem that such an inclusion may lead to dual protection of many goods (being a designed item, the good is most often provided with a trademark sign) but the fact is that

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[18] See Counterfeit, parallel import and parasites: problems of IP (2018). URL: https://pravo.ru/story/206261/; Federal Antimonopoly Service in Mass Media: When we permit parallel import we supplement the system of distribution, not break it (2019). URL: https://fas.gov.ru/publications/18345; Ivanov N.V. *Exhaustion of exclusive right to a trademark and parallel imports*, 2 Statute 127 (2019); Gavrilov E.P. *The Principle of Exhaustion of Exclusive Rights and Its Interpretation in the Decision of the Constitutional Court*, 5 Business and Law 36 (2018).

[19] Ruling of the Constitutional Court of the Russian Federation dd. February 13, 2018 No. 8-П on the Case of Verification of the Constitutionality of Provisions of Clause 4 of Article 1252, Article 1487, and Clauses 1, 2, and 4 of Article 1515 of the Civil Code of the Russian Federation with Regard to the Claim of PAG Limited Liability Company.

[20] Smoot-Hawley Tariff Act of 1930 // Legal Information Institute: a project of the Cornell Law School. URL: https://www.law.cornell.edu/uscode/text/19/chapter-4
Title 19 of the Code of Federal Regulations. Part 133 - Trademarks, Trade Names, And Copyrights. URL: https://www.law.cornell.edu/cfr/text/19/part-133

[21] S.2987 — Counterfeit Goods Seizure Act of 2019. URL; https://www.congress.gov/bill/116th-congress/senate-bill/2987?s=1&r=1

such inclusion will on the contrary help to seize those designed goods that according earlier regulation would have been released as the potentially infringing trademark have not been attached before the Customs control or have been darkened or covered by additional design elements[22].

While American regulation is wider and more autonomous in comparison with that in Russia, the powers of Customs authorities in the EU[23] are stricter, narrower and somewhat more specific. It is not strange as we speak about a huge integration of countries, so it is necessary to eliminate any kind of ambiguity or difference in application. Thus, Customs authorities are officially aimed at protecting the private interests of right holders, so measures resulting from the suspension of goods which, according to Customs authorities, violate intellectual property law are only possible on the instruction of the right holder[24].

As we have found out, very much depends on formalities — it is much easier to identify products infringing one's trademark rights, but when we start analyzing copyright infringement during Customs control, we may face some inevitable difficulties.

First of all, there are no formalities connected with the origination of the rights — the author obtains all the rights for a work from the moment of creation according the Berne Convention and overwhelming majority of countries of the world. The problem upon documentary control is that the burden of proof is borne by the importer. Of course, this is originally convenient as presumably the importer shall have all the documents (e.g., license agreements). But yet we cannot set an exhaustive list of documents: if the importer is the very right holder the evidence of his rights can be proven by a wide range of items of evidence like protect templates, drafts, outline drawings, etc., and only in the case of very farsighted person will there be a deponent certificate. Of course, a deponent certificate is the most likely and convenient document for the purposes. But it is impossible to set it as a mandatory document in the Customs legislation as in the basic copyright law in most countries there is no such prerequisite and such an imposition would be a harshening rule.

Keeping the above mentioned in mind we can say that the only way to practically conduct custom control in respect of copyrighted items is to check the imported good against the Customs register. In that case there is at least some accuracy. There may be also some result in the goods imported constitute copies of some copyrighted works. But when it comes to similar objects that just resemble original copyrighted works there might be a dispute between the importer and the original right holder over the infringement: it might be an infringement due to adaptation of a work or not an infringement due to a parody exception to copyright. Such case may be proceeded in court with the involvement of expertise and bringing further evidence.

Let us now analyze real situation of Customs control of a copyrighted item. The case happened in 2017 and was connected with a famous copyrighted image — Homunculus loxodontus, or 'Zhdun' which can be roughly translated as 'the one who waits'. This

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[22] Meaghan H. Kent & Ashley W. Craig, *Fighting Counterfeits at the U.S. Border: The Counterfeit Goods Seizure Act of 2019 Would Expand Customs and Border Patrol Enforcement to Design Patents*. (August 13, 2020). URL: https://www.venable.com/insights/publications/2020/08/fighting-counterfeits-at-the-us-border-the-cou

[23] Regulation (EU) No 608/2013 of the European Parliament and of the Council of 12 June 2013 concerning customs enforcement of intellectual property rights and repealing Council Regulation (EC) No 1383/2003 // EUR-Lex: Access to European Union Law. URL: http://data.europa.eu/eli/reg/2013/608/oj

[24] Briatta M. *Building a "Fortress Europe" in the air: A critical review of the European customs enforcement of IPRs*, 22 The Journal of World Intellectual Property 292 (2019). DOI: 10.1111/jwip.12132

character has become quite popular in recent years (as a character of Internet memes, toys, stickers and so on). A Dutch artist Margriet van Breevoort transferred her economic rights on the territory of Russia for a fixed period to a Russian company CD land[25]. That means that it is the CD land company that is empowered to control the import of the goods infringing the 'Zhdun' rights in the territory of the Russian Federation.

The description in the declaration sounded as follows: 'a ceramic figure in the form of a legless gray creature with the head of a northern elephant seal, the body of a giant larva, and the arms of an elderly man sitting on a chair in the waiting room'. In this description the Customs authorities found a potential infringement of someone's IP rights and initialized their 'ex officio' procedure suspending the goods from release. While submitting the import documents the importer did not support any evidence confirming his right to use or import the goods. Finally, after the petition of the right holder the goods were found pirated, and administrative proceeding were commenced.

When the discussed case reached publicity there were a lot of headings saying 'customers will not get their goods', because such a customs goods suspension may indicate that any online shops that offer goods with 'Zhdun' for sale to Russian customers are now at risk. It is really important to understand that we now live at the age of digital trade — there are thousands of online shops settled in different countries available from all over the world offering lots of goods for sale and delivery to anyone's home. And no matter how these shops import their goods: either in a batch or individually in parcels — this import is subject to Customs control, and therefore is checked against IP infringement. According with Article 19 of the Universal Postal Convention counterfeit and pirated articles shall not be admitted to postal services[26].

IV. Customs Control of IP Rights and the Digital Environment

Now let us again refer to the abovementioned example. Primary sphere of existence and exploitation of 'Zhdun' is the Internet. Everything has started with some images and funny comments. People started to adapt the work and to create digital content, like 'stickers' for social networks messaging. Once such content is sold, we may face a legal relationship between people from different jurisdictions. It is easier to explain this topic referring to major digital markets as eBay or Amazon where we can buy ('get access to') digital content from abroad. As a rule, such websites can be accessed from all over the world, so if they give rise to any legal relationship these may be qualified as transnational. Of course, digital goods may contain or even may constitute an IP object — a song, a book or a picture like in our case.

Here is an interesting situation: earlier such content had to be transported cross the border on a physical data carrier, and potentially counterfeiting good could have been suspended from release into the territory of a country. But nowadays such digital content either legal or pirated or counterfeit may be transferred digitally going past Customs service.

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[25] Russian Company Buys Rights to Zhdun Viral Sensation, The Moscow Times (2017). https://www.themoscowtimes.com/2017/07/06/russian-company-buys-rights-to-zhdun-viral-sensation-a58320

[26] Decisions of the 2016 Istanbul Congress. *Universal Postal Convention* (2017). URL: https://www.upu.int/UPU/media/upu/files/UPU/aboutUpu/acts/actsOfCurrentCycle/actsActsOfThe26ThCongressIstanbul2016En.pdf

The questions are: whether these transfers can be qualified as cross-border and whether Customs service has any authority over such contracts and transfers, so in general — are those transfers subject to Customs control.

First of all, according to current regulation digital relationship are not subject to Customs control. But on the other hand there are obvious drawbacks of such order of things. For example, the government obviously receives less Customs payments, however this is a public interest that may be neglected as it doesn't serve the interests of the society directly. Another negative consequence is that such online piracy inflicts damages to the right holders. This argument is of more importance as it destroys balance between the interests of the society at large and the right holders. Moreover, it constitutes an obvious infringement of the law itself.

Such negative aspects however do not mean that the Customs service shall be responsible for control in this sphere. At the least due to technological difficulties that would be connected with the establishment of such control, and at the most due to the fact that people would have to divide the Internet into some strict national spheres. With the Internet treated as a global network the modern society is surely not ready for 'separation' of national sectors of the Internet. It may be put into reality on the scale of one country with huge restrictions (we can examine some formalities introduced, for example, in China), but it is impossible to spread over the whole network.

That is why in general the control over digital content transferred on a global basis is left for the responsibility of individual national government bodies that by means of pre-trial claim letters exchange or judicial investigation ensure blocking of sources of pirated content. For example, in Russia there is a law empowering Roskomnadzor[27] to block websites that provide for pirated content upon the court decision[28].

With the Customs service being now left out of this process there may still be some activities in the digital sphere. This primarily concerns export control — let us imagine the situation of technological outflow. Such information may have value for public interests of a country, for example if it is connected with the sphere of national security or weaponry. Current Russian legislation about Customs control does not cover such digital form of transfer. We only have a term 'controlled goods and technologies', which covers items that 'may be used in the development of weapons of mass destruction, their means of delivery, other types of weapons and military equipment, or in the preparation and/or perpetration of terrorist acts' (Article 1 of the Federal Law on Export Control)[29]. Traditional 'offline' cross-border export of such technologies is subject to licensing.

Whereas the European Union is quite advanced in its regulation of export control: there is special Customs control for dual-use items (programs and technologies that can be adapted for both civil and military use) to help preserve peace in the multinational plain. According to special regulations, export will also mean the transfer of relevant technology or software in an electronic form: by fax, email, oral communication by phone, etc. (Article 2.2.(iii))[30].

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[27] Federal service for supervision of communications, information technology, and mass media. URL: http://eng.rkn.gov.ru/about/

[28] Federal law of the Russian Federation No. 149-FZ of July 27, 2006 'On information, informational technologies and the protection of Information'. URL: https://data.gov.ru/sites/default/files/documents/149_zakon_na_angliyskom.pdf

[29] Federal Law No. 183-FZ of 18 July, 1999 'On Export Control'. URL: https://fstec.ru/eksportnyj-kontrol/zakonodatelstvo/96-zakony/309-federalnyj-zakon-rossijskoj-federatsii-ot-18-iyulya-1999-g-n-183-fz

[30] Council Regulation (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of

V. Customs Payments as a Method of Funding or Influencing Final Price

Customs Service is a public body which among other things fulfills public duties of IP control at the customs border of a country. We already mentioned that application for the Customs IP Register is a free-of-charge service, but the process of import is not. There is a sort of a fiscal component — all the importers shall pay customs payments.

The amount of customs payments is linked to the value of the imported item. The problem consists in the difficulty to presuppose the amount of value of the IP item, so the payment corresponds with the commodity price. So, in a manner there is no certainty as to the methods of customs payments calculation.

Another practical issue arising in the sphere is the impact of such additional customs payments on the resulting price that will be offered to public. It is not just about customs payments — some license fees, royalties are said to be additional charges that may raise the final price.

According to the EAEU Customs Code, license fees apply to imported goods, payment of license fees is a condition for the sale of imported goods, which is a very general and vague stipulation not specifically connected with the IP laws.

In the IP sphere there are two categories distinguished: royalties (subsequent deductions from profit and income) and lump sum (fixed sum) payments. The easiest way to calculate license fees to be included in customs value is when they represent a fixed, pre-agreed amount paid at certain intervals or a certain percentage of a known amount, e.g., the value of goods specified in a foreign trade contract. The connection of customs payments with potential revenue that will be probably received by the importer is much more challenging.

At this stage of the article, we should also mention another function of the Customs authorities in the IP enforcement sphere. For example, Customs service shall forward the statistics on cross-border trade of electronic gadgets and data carriers, that are used for private copying. Private copy is an exception to copyright which means that there is no need to ask for permission of the author to exercise copying of works for private noncommercial use. Such an exception exists on a compensational basis — collective societies collect funds to be distributed among authors. Such funds constitute a flat-rate calculated from the price of an imported item (in Russia there is a flat rate of 1%)[31]. As the compensation system for such an exception is set not only for the manufacturers of electronic devices, but also for the importers of such devices. So, the Customs Service is an important link between the importers and the authorized collective society which provides for more transparency and basic data for payments control and collection.

VI. Conclusion

Intellectual property rights protection is an important and difficult goal. That is why it is necessary to cooperate on the international level. In this context we may appreciate the developing EAEU integration in the sphere. The EAEU, being an integration of

exports, transfer, brokering and transit of dual-use items. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1527179601283&uri=CELEX:02009R0428-20171216

[31] Regulation of the Government of the Russian Federation of 14 October 2010 N 829 'On remuneration for private copy of sound recordings and audio-visual works'. URL: http://www.consultant.ru/document/cons_doc_LAW_105883/

several countries, tries not only setting substantive regulation in the IP sphere, but also preventing IP infringement at the external borders of the EAEU.

The whole concept of IP regulation is in the process of development: customs IP control only concerns trademarks, copyright, related rights and appellations of origin of goods, which is a shorter list that in major other jurisdictions. Russia has followed the register-based system of customs IP control, however, the two-level register-system is yet not functioning (the status of the EAEU IP Customs Register is yet undecided).

It is significant that the Customs activities are becoming more and more connected with technologies: register of IP rights, cooperation, applications and declarations are held in electronic form. This trend is undoubtedly favorable for the whole IP enforcement procedure as it is possible to reach transparency and quickness of reaction.

As for the role of the Customs Service in the Internet trade sphere, trade of genuinely digital goods are out of the scope of powers of Customs Service, whereas all the goods sold in the web but transferred offline by traditional means of transportation are subject to Customs Control even when sent in individual mail parcels. Such difference arises from the very technological nature of the Internet and all the countries develop other forms of control in the digital sphere. In Russia such form of control is entrusted with Roskomnadzor that is able to block specific web pages upon a court decision of the kind.

Finally, Customs IP enforcement proceedings shall exist as long as there are separate countries or regions which are eager to protect IP rights. So, let us hope that this sphere will become more and more effective and at the same time balanced.

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Trade Secrets Protection on Telecommunication Service Industries in Indonesian Law and Intellectual Property Perspective

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Abstract

In the current rapid business competition along with a digital economy disruption, there is an undisputable urgency that trade secrets should be protected. The rapid changes across the globe based on information technology advances increase trade competition. A trade secret has come into attention as it is a part of intellectual property with high economic value in business activities. Telecommunications service industry has a huge responsibility in the digital world as the rapid development of digital technology has created types of telecommunications services that play an important role in driving the digital economy. Considering the importance of telecommunications service industry, quick and precise anticipation is necessary to take advantage of all momentum by

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providing protection for the telecommunications service industry in order to create a harmonious atmosphere in the current digital economy spectrum. This research applies a normative juridical method through online data collection technique. Result of this research is in the form of an analysis of trade secret protection in a telecommunications service industry. Thus, this research can provide useful information and answers to the community and related parties.

Keywords: Digital Economy, Telecommunication Service Industry, Trade Secret, Technology.

1. Introduction

Information technology that increasingly shows its existence has influenced various sectors in human life. Various information technology innovation also support the digital transformation process in the industrial sector both at a medium and large scale. As it is known, there is always an intellectual property inherent in innovation since it comes from human's reasoning. Therefore, Intellectual Property Right (or what will be called IPR) is inherent even in the modern era.[1]

In IPR, there is a concept of ownership of intangible objects that become material objects in the civil system.[2] This means that if someone has put the efforts and his/her thinking ability to create innovation, there has to be a right to own and exercise control over his/her creation, that is the main justification and a basis of an IPR.[3] IPR protection also covers a trade aspect, especially in the need to excel and compete fairly in a global market. We are currently entering into the global market. It is evident with the digitalization in almost every aspect of life. This digital era are also characterized with disruptions in the economy. Data is essential in supporting the digital economy era, especially the data on consumers and companies that have become business assets to obtain economic benefits. Thus, it can be concluded that data, as information, must be kept confidential in the context of trade secret.

Law Number 30 of 2000 on Trade Secrets is the umbrella law of trade secret both with regards to products and services whose development follows industrialization as well as competitive and individualistic culture.[4] In practice, there are advantages that trade secrets have compared to other intellectual property rights, such as the coverage in almost all types of commercialized products and services; trade secrets are also subject to protection in the form of information confidentiality.[5] Because trade secrets are an automatic intellectual property protection mechanism, companies can take internal action to protect their trade secrets without having to wait for government review.[6] Trade secret protection is flexible as the owner can submit a new application if there is a trade secret modification, meaning that protection is sufficient for the existing mechanism.[7]

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[6] Ibid.
[7] Ibid.

Trade secrets can be said as assets that should not be disclosed to anyone, especially to similar companies. If a trade secret has been disclosed, the owner of the trade secret will suffer losses, especially with regards to the continuity of his/her business. This also applies to companies engaged in telecommunications services. Companies engaged in information technology, including the telecommunications service industry, should carry out their business strategies based on data protection. These strategic steps start with the classification of company-owned data, creation of categories and types of information that are accessible by the employees, and the company also make a confidential agreement with the employees.[8]

Nowadays more companies are entering into a telecommunication service industry. In the current digital era, telecommunication has shifted from voice and SMS services to facilities that provide services more cheaply, effectively and efficiently. Provisions regarding telecommunications have been regulated in a special regulation, namely in Law Number 36 of 1999 on Telecommunications (which later became known as the Telecommunications Law). Telecommunication is an activity to transmit, send, and/or receive information in the form of signals, sound, pictures, writing and sound using wire, radio, optical, or other electromagnetic systems.[9]

In telecommunications, there are services in meeting public's telecommunications needs using existing networks.[10] Thus, it can be said that the telecommunications service industry is a telecommunications operation activity carried out by business actors.

The information and telecommunications sector consists of broadcasting and programming services, publishing, films, sound recordings, as well as consulting services in the fields of computers and information technology.[11] Until the second quarter of 2020, it was noted that the telecommunications sector, both information and communication, was a business field that experienced positive growth during the Covid-19 pandemic. Data from Statistics Indonesia (BPS) shows a growth of 10.88% in the said sector. In line with the widespread use of the telecommunications service industry, there is a growing concern with regards to data insecurity, especially related to trade secrets. In fact, Article 39 of the Telecommunications Law mandates that

[8] Wayne F. Cascio (et.al), 'How Technology Is Changing Work and Organizations' (2016) 3(1) *Annual Review of Organizational Psychology and Organizational Behavior* <https://www.researchgate.net/publication/299400943_How_Technology_Is_Changing_Work_and_Organizations> accessed 1 November 2020.

[9] Law Number 36 of 1999 on Telecommunications, Art. 1.

[10] Law Number 36 of 1999 on Telecommunications, Art. 1, Letter c.

[11] Puslitbang SDPPI Research Team, 'Analisis Industri Telekomunikasi Indonesia Untuk Mendukung Efisiensi' (PPI Badan Penelitian dan PSDM Kemkominfo R.I 2018).

telecommunications operators, including business actors, are responsible for securing and protecting all matters used for telecommunication operation.

Protection of trade secrets is a human right that is classified as IPR. In the constitution as stipulated in Article 28 F, the owner of the right to trade secret information has consequences for carrying out his obligations in keeping the secrets. The difference between data protection and trade secret approaches lies with the party who has the right to information. In trade secret protection, the right is attached to the owner of the trade secret who has the data as an asset, in this case, for the telecommunications services industry. Thus, the telecommunication service industry has at least 2 obligations, namely not to disclose secrets to other parties and maintain the confidentiality of possible data theft by other parties. Therefore, the problem arises about how to regulate trade secrets related to information in the technology sector in Indonesia and how the trade secret protection arrangements are implemented in telecommunications services in Indonesia.

The legal issues that will be discussed in this article are as follows:

1) How is the regulation of trade secrets related to information in the technology sector in Indonesia?
2) How are trade secret protection arrangements for telecommunications services in Indonesia?

Meanwhile, to clarify the basis for the discussion, this study uses several theories. The following are the theories.

1.1 Theory of Natural Law

Natural law theory is often used as a philosophical and moral foundation in protecting intellectual property. Philosophically, this theory is inseparable from the doctrine of natural law that centers on the human factor.[12] The moral foundation is based on a system in intellectual property rights that protects the moral rights owned by individuals as owners of intellectual property so that their moral rights are not violated by others. All actions that disregard the existence of moral rights in creation are dishonest and unfair because they ignore the existence of moral rights as an inherent right in a person's intellectual property.[13] The theory of natural law does not only cover the exclusive rights in intellectual property right but also includes human rights and requires protection as confirmed in Article 27 Paragraph (2) of the Universal

[12] Prasetyo Hadi (et.al) , Application of Natural law Theory to Protect The Intellectual Property Rights" (2017) 6(1) *Yustisia*. <https://jurnal.uns.ac.id/yustisia/article/view/11516 > accessed 3 November 2020.
[13] Ibid.

Declaration of Human Right (UDHR) that everyone has the right for protection of his/her scientific, literary, and artistic productions.

1.2 Labour Theory of Property

John Locke started his theory by posing a question on what basis can a human being claim something as his/her own, considering that God is the owner of everything that is on earth. In answering that question, Locke stipulated that every human being has access to the natural resources that God has created on earth so that everyone has a natural right to own it.[14] A person can claim something as his/her personal property if the individual puts his/her labour on something that was previously shared.[15] At the time someone is working, he/she will modify and work in a way that integrates with the object. The results, according to Locke, will belong to that person. A trade secret is the result of thinking in creating valuable information. Thus, before a person can claim ownership of an object, that person must first work in order to produce a new object and claim it as his/her own. That statement was reaffirmed by Locke that the resources that exist on earth are also intended for humankind but these resources cannot be used immediately because they must be obtained and processed beforehand; because, before being able to process the object, it must be obtained first. Locke analogized that when someone wants to eat an animal in the wild, that person must first catch the animal and then process it and then it can be owned by that person. This analogy is an evidence of the importance of giving respect to the "sacrifice" that has been made by someone who has discovered and cultivated something from nature to be processed in such a way that it belongs to that person.[16] As Locke argues, all the products of the labor of his body and hands belong to him.[17]

1.3 Theory of Personal Property

According to the theory of property rights, a trade secret is interpreted as a valuable asset because its discovery has been through a process and thought that takes time and requires hard work to become a creation. This theory asserts that protection is needed for the work to avoid other people from using the work commercially.[18] John Locke

[14] Karen I. V., 'John Locke and The Labor Theory of Value' (1978) 2(4) *Liberarian Studies Journal*. <https://mises.org/library/john-locke-and-labor-theory-value-0> accessed 3 November 2020.
[15] J. Janewa Oseitutu, 'Humanizing Intellectual Property: Moving Beyond the Natural Rights Property Focus' (2017) 20 *Vanderbilt Journal of Entertainment & Technology Law* 238.
[16] Prasetyo Hadi, Imanullah, *op cit,* 143-144.
[17] Peter S. Manell, *IP: General Theories*, (University of California, 1999) 157.
[18] Riandhani S. Chandrika, 'Perlindungan Hukum Perjanjian Lisensi RD di Indonesia' (2019) 2 *Jurnal Hukum Bisnis Bonum Commune* 19.

also states about individual rights on objects, in his view, the rights are inherent in an object so that an individual has rights over the object he/she owns. In guaranteeing legal certainty, it is necessary to determine the rights inherent in an object, whether material or immaterial. Regarding intellectual property, this theory guarantees that a person has rights to the work he/she creates and it is not only explicitly but also implicitly because he/she has other inherent rights. This is due to the fact that Trade Secrets are classified as property rights that have commercial value given that the nature of property rights is something that is permanent and indestructible unless transferred by lawful steps contained in the applicable positive law.[19] Trade secrets as a form of intellectual property have the same urgency and importance to protect the information confidentiality from others considering that Trade Secret information is information that is economical in nature so that it is prone to be misused by others if the protection is not optimal. Trade secrets are different from other Intellectual Property in that their protection does not have a certain range or time limit as long as the information is never leaked/disclosed. This is in line with the idea of natural law theory that intellectual property rights are inherent.

2. Research Method

This study applies a normative juridical approach with a qualitative method. The data are collected from online literature review in the Covid-19 pandemic conditions.

This research is based on secondary data with primary legal materials in the form of Law Number 30 of 2000 on Trade Secret (Trade Secret Law), Law Number 36 of 1999 on Telecommunications, Law Number 19 of 2016 on the Amendments to Law Number 11 of 2008 on Electronic Information and Transaction, Government Regulation Number 82 of 2012 on the Implementation of Electronic Systems and Transactions, Regulation of the Minister of Communication and Information Technology Number 12 of 2016 on Registration of Telecommunication Service Subscribers. Meanwhile, secondary legal materials are in the form of literature review related to tertiary research and legal material in the form of the Great Dictionary of Indonesian Language (KBBI), dictionaries and legal journals and other articles related to the discussion.

3. Discussion

[19] Indriyana Dwi, 'Perlindungan Hukum Rahasia Dagang Terhadap Masyarakat Ekonomi ASEAN' (2016) 16(1) *Jurnal Persfektif Hukum* <http://perspektif-hukum.hangtuah.ac.id/index.php/perspektif/article/view/1> accessed 3 November 2020.

3.1 Trade Secret Regulation on Information in Technology in Indonesia

Trade secret is a new form of intellectual property that is regulated in TRIPs. This provision is regulated in order to provide assurance of a good protection in the face of unhealthy competition. The regulation is in Article 10 bis Paris Convention (1967). Indonesia has ratified the TRIPs by a means of Law Number 7 of 1994 on Ratification of the Establishment of the World Trade Organization. A trade secret is characterized by information about technology, marketing, or other business information that has a competitive advantage in business. Previously, several countries provided protection in different ways, for example, the United States with a Legal Property, then Switzerland and Australia with a Contract Law to protect trade secrets under a contract.[20] In its protection, the term Confidentiality Agreement is known to regulate the confidentiality of trade secrets between the company and employees or with third parties.[21] In Indonesia, Trade Secret arrangement is specifically regulated by the Trade Secret Law.

The WIPO defines trade secrets as information that is basically unknown by the public and has economical value in nature. It is because the information contains economic benefits for its owner. Trade secrets are not only related to business or financial aspects because they also involve technological aspects of a business, especially technology that cannot be protected by patents or is not patented on purpose.[22] The categorization of information as a trade secret cannot be classified without considering whether the information meets the provisions of a trade secret information aspect or not. Considering that not all information in the technology sector is a trade secret, there are several types of information that can be classified as trade secrets including: the information related to formulas, patterns, tools, or compilations of information used for a long time in a business. In addition, this includes technical information used in the production process of goods. WIPO stated that trade secrets also relate to marketing, export or sales strategies, bookkeeping methods or business management routines or procedures including the software used for various business purposes.[23]

The protection of trade secrets differs from other intellectual property in which trade secret protection is not limited by time. As long as the owner of a trade secret is

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[20] John Revesz, '*Trade Related Aspects of Intellectual Property,* (Productivity Commission Staff Research Paper, AGPS Canberra, 1999) 114.

[21] Andry Setiawan, Sulistianingsih, 'Trade Secrets in Indonesia: How Can We Protect Them?' (2018) 192, *Advances in Social Science, Education and Humanities Research* 142.

[22] WIPO, 'Module 04 Trade Secrets*'.* (2008) World Intellectual Property Organization Module 10/2008, 14 <https://www.wipo.int/export/sites/www/sme/en/documents/pdf/ip_panorama_4_learning_points.pdf> accessed 1 November 2020.

[23] WIPO, *ibid*.

able to maintain confidentiality, his/her trade secret will be protected. It is in contrast to other intellectual property that has a time limit and is not confidential. Trade secrets are undoubtedly intellectual property that must be protected because they have an advantage for their owners if the information remains confidential. In protecting the trade secret, the owner is required to put efforts to protect his/her trade secret because it is highly competitive in business. As mentioned in Article 3 Paragraph (1) of the Trade Secret Law, trade secrets are protected if "... their confidentiality is kept through proper efforts."

The proliferation of technology and advancement of civilization are some of the reasons that compel maximum protection for trade secret that is unknown by the public. It is because other people will easily take various ways to obtain trade secret information as it is valuable and provides economic benefits if applied in their business or for other commercial purposes. Therefore, a trade secret can be interpreted as a personal information because it is also a personal right; their existence is protected by human rights.[24] As stated in the theory of property rights, trade secrets are valuable assets because producing the information requires a lot of time, effort and financial sacrifices. John Locke stated that the individual right of the owner attached on top of a trade secret. This theory answers the basic question on why and how ownership of a work is obtained into a private property from something that was previously a shared property.[25] In this understanding, the right is not limited to only tangible objects, but also intangible ones.[26]

As stated in the Labor Theory of Property, trade secrets are protected because they provide legal certainty to their owners by guaranteeing their rights. Ownership occurs because the owner has worked earnestly to produce the economically valuable information. Meanwhile, the Natural Law theory is believed to be the theory that underlies the philosophical and moral foundation of intellectual property. It is because provisions on human rights are also applied in this theory because personal rights in trade secrets are rights protected by human rights as referred to in Article 17 Paragraph (1) of the UDHR that everyone has the right to own their property. Then, the fundamental moral right of the owner is also mentioned in Article 27 Paragraph (2) of the UDHR that everyone has the right to moral and material interests that need to be protected. Regulation of Trade secrets related to information in the field of technology includes the methods used in the technology sector pertaining to processes for manufacturing, producing, selling, or other related information.

[24] Andry Setiawan, Sulistianingsih, *Op cit,* 141-142.
[25] J. Janewa Oseitutu, *Loc cit.*
[26] Stefano Zambon, *Intellectual Property Rights, Intangibles & Valuation: Visualising Information for Finance Access*, (WICI Europe, 2010) 2

In the business sectors, trade secrets on information in the technology sector play an important role because companies will use this information to alleviate their products and prevent tight competition. The owner of a trade secret, as stated in Article 4 of the UURD, has the authority to use his/her trade secret. This right also allows the owner to authorize or prohibit other parties from using or disclosing the trade secrets for the purpose of seeking profit. The granting of a license of a trade secret is carried out by giving a license, namely, the owner of the trade secret gives rights (not transferring his/her rights) to another party so that the party can benefit economically from the trade secret. This type of protection is within a certain period of time and conditions. This is what distinguishes information in trade secrets from general information. A secret is considered confidential if it is only known by a certain number of non-public people.

Information in the technology sector is widely used in various businesses, especially in the telecommunication sector that continues to grow with intense competition. This is also to support healthy business competition among telecommunications sector operators because trade secret information must be in line with Indonesian norms, religion, morality and positive law. Given, this information has economic benefits, it can increase profits. The transfer of rights and licenses of trade secrets is regulated in Article 5 Paragraph (1) of the UURD. This provision requires that the documents relating to the transfer of rights to be recorded at the Director-General of Intellectual Property that will later be announced in the official trade secret news. An act is considered to violate a trade secret if someone tries to obtain information that contradicts the applicable laws and regulations.

The case of obtaining trade secrets can be excluded as regulated in Article 15 of UURD stipulating that it is not considered a violation if the reason is in the interests of defence and security, health, or for the safety of the community. In addition, it can also take the form a product re-engineering of other people's trade secrets for the benefit of further development of a product. In the technology sector, trade secrets can be stored and take many forms and it is not only tangible but also intangible objects. This information can be imaged as a printed document, in the form of a DVD or CD, stored in computer file storage, on USB drives, even only remembered in human mind. In general, trade secret information is not always safe. Therefore, to provide maximum protection, it can be done by using a physical, technical or contractual barriers, or the combination of them.[27]

The *physical barriers* include protection carried out by marking "Confidential" for sensitive confidential documents and locking the access to information as soon as

[27] South-East Asia IPR SME Helpdesk, 'Protecting Your Trade Secret in South-East Asia', (South-East Asia Intellectual Property Rights SME Helpdesk, 2016) 3

possible after it is not used. Access to trade secrets should also be given to certain people who are trusted in a prescribed manner.

In the technology sector, the visitors must first be logged in and sign an agreement before they can access the content. Then, there should be *technical barriers* related to security protection. The barriers are based on information technology in protecting trade secrets that are stored electronically on computers or data servers. Companies having trade secrets in the information and technology sector are inevitably mandatory to also use information technology-based security since the more valuable the information is, the more complicated its security should be, and it is proportional to the financial capital needed to protect the information. To take a case in point, there are limitations of access for employees of a telecommunication company since there are sensitive and private contents as well as documents. The access is made limited by making a security design,[28] thus, even the employees of the provider cannot access and forward any sensitive information. Then there is *contractual barrier*, if *physical* and *technical* efforts have been made, the next effort is through contracts. All employees and third parties who will be given access to trade secrets must be carried out under a contract or confidentiality agreement in order to ensure the safety of the trade secret because it will be a preventive measure against the illegal disclosure of trade secrets.[29]

Trade secrets cover information kept by companies because of their inherent economic value. The economic value is independent as an element of a trade secret, meaning that it can be an intrinsic value that highly related to profitability, so that trade secrets are valuable capital goods. Trade secrets can result in an end-product or service that the customer buys, which in turn, can reduce production costs.[30] In addition to the intrinsic values, trade secrets give their holders a competitive advantage in a strong position over competitors who are unaware of the information.[31] The advantage owned by the holder of a trade secret is that the product or service produced is unique and has advantages in the eyes of the customer.

From a social point of view, trade secrets can also be considered "innovation-friendly." It can be shared with employees and commercial partners as long as protected with contracts or other reasonable measures.[32] Hence, it is important to protect confidentiality to minimize unlawful uses of trade secrets by others. This means that any action that seeks to illegally obtain information is tantamount to violating the rights

[28] South-East Asia IPR SME Helpdesk, *ibid.*
[29] South-East Asia IPR SME Helpdesk, *ibid.*
[30] Ahmad M. Ramli (et.al), "Pelindungan Rahasia Dagang dalam Industri Jasa Telekomunikasi", *Jurnal Ilmiah Kebijakan Hukum*, Vol. 15, No. 2, 2021, pg. 222.
[31] *Ibid*.
[32] Katherine Clinton, "The Importance of Trade Secrets: New Directions in International Trade Policy Making and Empirical Research, *United States International Trade Commission: Journal of International Commerce and Economics*, 2016, pg. 2.

of others and is categorized as a disgraceful act. For this reason, the law exists to protect the information confidentiality.[33]

Business information categorized as trade secrets is information in the form of intangible objects that are protected by the intellectual property regime. Trade secrets protect valuable information of a company so that its holders are obliged to maintain confidentiality which includes technical and business information. To take a case in point, business information includes customer lists, marketing plans and pricing data.[34] The type of trade secret that includes business information is closely related to data in the telecommunications services industry.

3.2 Trade Secret Regulation in Telecommunication Service in Indonesia

Trade secrets are information that requires protection. Trade secrets contain the following elements: [35] First, trade secrets consist of unlimited information that generally refers to technical and business information. Second, it has economic value and should be kept from business competitors. Third, the information cannot be known generally by other individuals or entities in the industry who can disclose the secrets for financial purposes. Fourth, the information must be treated as confidential and subject to the law in order to safeguard and maintain the trade secrets. In other words, the owner must make necessary efforts to maintain confidentiality. In this context, what is meant by "necessary effort" is an intensive investigation of facts that depends on various circumstances and continues to be a developing field of law.

3.2.1 Availability of Trade Secret Legislation and Regulations in Indonesian Positive Law associated with the Telecommunication Service Industry

The protection of trade secrets in the telecommunications service industry in Indonesia has actually been mandated in Article 42 of the Telecommunications Law regulating that information sent and/or received by subscribers via telecommunications networks must be kept confidential. Unless the information is necessary for the investigation process in court as regulated in Article 42 Paragraph (2) and for the purpose of criminal justice process as provided in Article 43.

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[33] Ahmad M. Ramli, H*ak Kekayaan Intelektual: Teori Dasar Pelindungan Rahasia Dagang*, Bandung: Mandar Maju, 2000.

[34] Deepa Varadarajan, "The Trade Secret-Contract Interface", *Lowa Law Review*, Vol. 103, No. 4, 2018, pg. 225.

[35] Daniel J. Melman, 'Protecting Trade Secrets During a Pandemic' (2020), Pearl Cohen 3/2020 18 <https://www.pearlcohen.com/protecting-trade-secrets-during-a-pandemic/> accessed 3 November 2020.

With regards to the number of users of telecommunication service industry, there is an increase of 140% in 2017.[36] A shift of trend from voice and SMS to data usage precipitate a decrease in revenue for cellular operators. The telecommunications market has become a competition for cellular operators, such as XL Axiata (XL), Telekomunikasi Seluler (Telkomsel), Indosat, Hutchison 3 Indonesia (Tri), Sampoerna Telekomunikasi Indonesia (Ceria), bwa Internux (Bolt), and PT Smartfren.[37]

Besides regulated in the Telecommunication Law, obligation to maintain data privacy and confidentiality is also mandated in Article 17 Paragraph (3) of the Regulation of the Minister of Information and Communication Technology Number 12 of 2016 stating that data and/or identity of the customer must be kept confidential by the Telecommunication Service Provider. The obligation to keep data confidential by telecommunication service providers is because data is the most important aspect of the digital era.[38] In the telecommunications services industry, data can be referred to as trade secrets.

Trade secrets protect valuable information in a company so that the owners of the company are responsible for maintaining confidentiality that includes technical and business information. Technical information can be information of a production process, for example, formula for making medicine or a recipe for the manufacture of a food product. Meanwhile, business information includes customer lists, marketing plans and pricing data.[39] In the telecommunications service industry, business information is closely related to trade secrets.

In theory, violations and illegal access to trade secret include actions in forms of default, wiretapping, theft, or all other acts such as coercion and bribery to obtain the trade secrets. Meanwhile, to avoid a lawsuit on trade secrets, business competitors usually conduct re-engineering to reduce the parts of the product since it is considered legal action. In this action, the business competitors analyze the product to find the composition, manufacture or production method.[40]

Entering the era of "data as a new oil" or an era where data is a very valuable trade secret asset in telecommunications service industries, all telecommunications service providers should oblige to keep data confidential. Data should be considered a trade secret, hence, telecommunications service industries apply the principles of trade secret protection. There is a rise in demands of telecommunication facilities and information using telecommunication networks by the community in general. In fulfilling telecommunications services,

[36] Puslitbang SDPPI Research Team, op cit., 2.
[37] Puslitbang SDPPI Research Team, ibid.
[38] Rajeev Ronanki (et al), 'Industrialisedanalytics Data is the new oil. Where are the refineries?', (2016), *Tech. Trends Innovating in the Digital Era*, 97.
[39] Deepa Varadarajan, 'The Trade Secret-Contract Interface' (2018) 103 *Iowa Law Review* 1543
[40] Millytia Fabiola, 'Perlindungan Hukum Terhadap Rahasia Perusahaan Dalam Menghadapi Persaingan Bisnis Di Indonesia' (2019) 7 (4) *Lex Privatum*, 89. <https://ejournal.unsrat.ac.id/index.php/lexprivatum/article/view/26868 > accessed 3 November 2020

telecommunication operators distribute their service products to business actors. There is a potential for data leakage in this process. [41]

A practice of leaking or disclosing a Trade Secret in the use of telecommunications is categorized as a crime in the form of unfair competition in business activities, thus violating the provisions contained in the Telecommunications Law. Data security regulations on telecommunications service industry in Indonesia refer to:

1. Law on Telecommunication;
2. Law on Electronic Information and Transaction; and
3. Government Regulation on System and Electronic Transaction Implementation.

There is no particular regulation regarding data security and protection in Indonesia. Regulations related to data protection security are only discussed in general and are also separated in several applicable regulations. This is unfortunate since efforts to strengthen the role of telecommunications in people's lives is not parallel with strong legal instruments to protect people who are the customers of the telecommunications service industry.

Law on Telecommunication actually recognizes the principles that can guarantee fair competition in the telecommunication service industry, as Article 2 of the law provides the principles of legal certainty, benefits, security, ethics, self-reliance and fairness as well as equality.

Trade secrets as part of IPR are always protected by nature. If there is a violation, there will be sanctions stipulated in articles 13, 14 and 15 of the UURD. The disputes can be resolved in 3 following method:

1. In civil domain, a civil action for damages can be filed for a trade secret violation.
2. In criminal domain, a report can be filed on a criminal act committed against the right holder or license recipient;
3. Arbitration can be used if there is a dispute in the implementation of an agreement related to Trade Secret.

In trade secret disputes, the dispute settlement is regulated in Chapter VI, Article 11 to Article 12. There are 2 dispute resolutions.[42]

1. Settlement of dispute through litigation. The disputing parties are given the opportunity to resolve the dispute by filing a lawsuit in a district court.
2. Non-litigation settlement of disputes through arbitration or other dispute resolution alternatives. A trade secret dispute resolution requires an effective and private solution in which the decision is only informed to the parties.

[41] Zawil Fadhli, 'Perlindungan Hukum Terhadap Pelanggan Jasa Telekomunikasi Dalam Registrasi Kartu Seluler Prabayar Melalui Gerai', (2018) 2(4) *Jurnal Ilmiah Mahasiswa*, 744<http://jim.unsyiah.ac.id/perdata/article/view/13778> accessed 3 November 2020.

[42] Taufik Effendy, op cit, 53-56.

It is undeniable that in line with the advancement of information technology that has changed over time, more operators have entered and been involved in the telecommunications market. This situation results in inequality between business actors and consumers who become the most profitable objects, especially with an economic principle to gain maximum profit with minimal capital by business actors.[43] Regardless, the law should be able to provide protection for every party since everyone is equal before the law. The law enforcement officers also have an obligation to uphold the law and ensure the rules function in real life. Thus, the law will always provide protection for every legal interaction that occurs in people's lives.

Digital transformation has triggered the need for proactive and responsive laws. Data protection arrangements are a necessity for all economic and business problems related to information. Modern business practices often manipulate data such as mapping data, adding or retrieving data, as well as consolidating global data processing, and so on. Therefore, data protection arrangements must be considered as a priority, especially in Indonesia. Provisions on data protection system have regulated in several applicable regulations in positive law in the form of application of civil and criminal sanctions. Increase in demands of telecommunications in people's lives seems to require alignment with strong legal instruments in order to protect people who are customers of the telecommunication industry.[44]

3.2.2 Review of Cases of Digital Identity Related to Trade Secrets in the Telecommunication Service Industry and Recommendations

A. Enhancing Company's Authority on Information Systems and Data Security

The high level of risk and threat of information and communication technology misuse have become more complex, thus, requiring an understanding that the higher the security standards provided in a system, the higher the protection needed for personal confidentiality for information. Protection of information systems, especially related to privacy, is one of the considering factors in implementing company information systems. Security in an information system includes several aspects that should be met, such as:

1. Authentication – the information recipient must be able to check the authenticity of the information he/she receives that the information comes from the person requested for information.

[43] Rahayu Hartini, *Hukum Kepailitan* (UMM Press, Malang, 2005), 199.
[44] Sinta Dewi, 'Konsep Perlindungan Hukum Atas Privasi Dan Data Pribadi Dikaitkan Dengan Penggunaan Cloud Computing Di Indonesia' (2016) 5(1) *Jurnal Yustisia* < https://jurnal.uns.ac.id/yustisia/article/view/8712/7802> acessed 4 November 2020.

2. Integrity – it is necessary to ensure that the delivered information is not modified by unauthorized persons/parties.
3. Non-repudiation – at this stage, the information sender cannot deny that he/she is the one sending the information.
4. Authority – information residing on the network system cannot be modified by parties who do not have the right to access.
5. Confidentiality – this is to safeguard information from persons/parties who are not entitled to access. In this case, it usually relates to information provided to other parties.
6. Privacy – personal data processing in order to be able to have proper protection by parties who have access rights.
7. Availability – this aspect relates to the availability of information when needed. It is important for companies to be able to protect all information from cyber-attacks or information breaches that can inhibit or eliminate access to information.
8. Access Control – this aspect relates to how to control access to information related to authentication and privacy. Access control is often implemented using a combination of user id and password or by other mechanisms.

With regards to the protection of company private data as a form of trade secret, the "sensitive information" category requires special protection. It is important for companies to have data policy codes that can decipher the types of data considered sensitive and establish rigorous processes for identifying, handling, and securing different types of data. Furthermore, it is necessary to implement additional security measures for each level of data that can be divided into three levels, namely:

1. The first level is highly-sensitive data that requires the highest level of security. Access is only allowed on the basis of special needs.
2. The second level is sensitive data that requires moderate security controls and internal access rights.
3. The third level is non-sensitive data that does not pose a risk to the organization and requires little or no access restriction.

By identifying measures on data protection from the aforementioned three levels, it will be easier for the company to determine data protection policies from each level such as implementing policies on system maintenance; risk management; access rights and human resources regulation; information assets security and control; as well as server security policies. Well-identified stages and carefully-implemented policies carried out with regards to the protection of company private data can minimize the possibility of unauthorized use or disclosure of vulnerable company trade secrets by internal employees or external parties. Hence, the implementation of information

system security policies is expected to control organization or company behavior with regards to information systems

B. Cases on Digital Identity Related to Trade Secret

The advent of technology does not only produces a variety of new devices and sophisticated features but also impacts on the need to image an analog into a digital form. To take a case in point, human identity was previously only documented in the form of a physical document but is currently being imaged into a digital identity. Conceptually, identity and the right to privacy are interrelated because identity is critical to be protected and included as privacy that has the potentials to be violated in various ways. Digital identity is utilized by the Government and companies to provide services or implement various programs that require identification. This means the use of digital identities will be widely used in various sectors, even related to trade secrets.

In Indonesia, there is a case that can show the relevance of digital identity and privacy. It is the case of Ilham Bintang (the victim) who experienced an account theft using the SWAP SIM mode. The case began when the victim was on vacation in Australia from 30 December 2019–14 January 2020. At the time he was unable to use his SIM card, it was exploited by the criminal. Initially, after obtaining the victim's identity from unscrupulous bank staff, the perpetrator made a fake identity card of the victim to make a SIM card under the same name and number. It definitely provides access to the victim's important information to open the victim's email and m-banking data.

This case reflects the importance of identity, regardless of the role of the companies in the banking or telecommunications sector that store their consumers' personal data as parts of company property. Given that, referring to the provision of Article 17 Paragraph (1) of Law Number 11 of 2008 on Electronic Information and Transactions (ITE Law), the utilization of information technology by business entities, namely companies, must be conducted responsibly, wisely, and well to obtain optimal benefits. This provision mandates that the company, in this case, the bank, where the unscrupulous staff disclosed the identity of the victim. In addition, the telecommunications services company that assisted the SIM card-making process should have shown more responsibility or wisdom because the consumers' personal data can be easily exposed and the identity can be swapped to unauthorized people. Furthermore, to ensure the consumers' personal data protection, the data utilization process must be carried out by observing the principle of legal certainty and prudence. Even though a consumers' digital identity is not included as a company trade secret, digital identity is a supporting property that is critical and necessary as it is side by side

with a company's trade secret. Even in some countries, the concept of providing trade secret protection includes a list of consumers that automatically contains the identity of the consumer.

That action is certainly prohibited, in fact, it is regulated in Article 32 Paragraph (2) in Conjunction to Article 48 Paragraph (2) of the ITE Law that it is against the law to intentionally and without rights through various means of transferring electronic information to unauthorized persons. The consequences of this act are punishable by a maximum of 9 years in prison and/or a maximum fine of 3 billion Rupiah. In addition, referring to Article 30 Paragraph (2) of the ITE Law, if a person accesses a computer and/electronic system to obtain information and/or electronic documents by illegal means, namely intentionally and without rights or against the law, then based on Article 46 Paragraph (2) of the ITE Law, any person who meets these elements can be sentenced to a maximum of 7 years in prison and/or a fine of 700 million Rupiah. Therefore, the protection of consumers' data, especially personal data, must be managed properly by observing applicable regulations, especially containing consumer's digital identity

C. Recommendations for Draft of Law on Personal Data Protection as a Solutive-Futuristic Measure in Overcoming Trade Secret Cases in the Telecommunication Service Industry

Customers' data can be seen from two points of view, namely from the side of the customer and the telecommunication service provider/company. Data, from the customer's perspective, can be interpreted as the owner of personal data. However, from the company's perspective, protecting customer data is also a trade secret. Thus, customer data that contains a digital identity, from the perspective of a telecommunications service company as a controller and data store, can be categorized as a trade secret belonging to the company and should not be disclosed to other parties. This is related to the many cases of trade secret abuse such as on research process, food recipes, or even customer lists.

Law on Trade Secret in Indonesia has actually regulated the scope of trade secrets, one of which is non-technical aspects regarding customer data, financial administration data, analytical data, and others. This means that the protection of trade secrets on customer data, to take a case in point, in the case of Ilham Bintang, can be accommodated by the Trade Secret Law. However, the regulations of the Law have not yet reached the ideal form. Therefore, this study recommends that there needs to be a regulation related to privacy to accommodate customer data material i.e, personal property/identity.

There are numerous cases of data breaches in Indonesia, but there is only one accomodating regulation i.e, the Draft of Law on Personal Data Protection as a legitimate realization of Articles 27 and 30 stating that each Personal Data Controller must guarantee the protection of data processing for Personal Data Owners by using a personal data security system using an electronic system reliably, securely and responsibly. Hence, every company that deals with customers is obliged to protect customers' data in accordance with the legal provisions. In accordance with Government Regulation Number 71 of 2019 on the Implementation of Electronic Systems and Transactions, companies are required to inform their security level qualification of the data they store. This shows that companies must also provide protection for personal data. At the time there is a violation of Articles 27 and 30, the company will be subject to administrative sanctions as regulated in Article 20 paragraph (2) i.e, if this is not carried out and there is a violation of Article 27 and 30 paragraph 1, the Company may be subject to administrative sanctions as provided for in Article 50 paragraph 2.

In a different case, in the event of a data breach or misuse of customers' data in the forms of personal data obtained and collected for self-benefit, illegal disclosure and use of personal data, or even selling and buying of personal data, will be subject to criminal sanctions. If the data controller is a company, then the punishment is imposed on the management, person in charge, control/access holder, and corporation and/or beneficiaries with a maximum fine of 3 (three) times the maximum penalty imposed.

4. Summary

Rapid changes in the world driven by advances in information technology have led to intense trade competition. The emergence of information and technology has digitalized almost all walks of life and made consumer and corporate data two important aspects to protect as trade secret in the telecommunications sector. In this regard, the telecommunications service industry has a great responsibility in the digital world because it has created the types of telecommunications services that drive the digital economy. In responding to the digital economy, protection of trade secrets in the telecommunications industry becomes vital because of the threat of unfair business competition that can pollute the business climate as a whole. In Indonesia, in particular, trade secret regulations can refer to Law Number 30 of 2000 on Trade Secrets, then, with regards to its relevance to the telecommunications industry, the protection of trade secrets is accommodated in Law Number 36 of 1999 on Telecommunications that includes elements of law enforcement in the event of a violation of the relevant regulations. In addition, it is also regulated in the Regulation of the Minister of

Communication and Information Number 12 of 2016 that regulates the protection of trade secrets by telecommunications service providers. Including data as an important commodity of the digital economy classified as a trade secret in the telecommunications service industry. The essence of trade secrets is to protect valuable information belonging to the company, thus the telecommunication industry has the responsibility to maintain confidentiality, including technical and business information.

5. Recommendation

In optimizing the protection of trade secrets in the telecommunications service industry, more detailed arrangements are needed both from a technical perspective and the main substance related to privacy in accommodating consumer data information as part of trade secrets. Provided that in the telecommunications services industry, confidential information with high economic value has no time limit in terms of protection in their business activities, the protection of trade secrets for the telecommunications service industry requires more attention because apart from dealing with commercial company issues, it also includes consumer data as the new oil in the era of digital transformation. Thus, to provide optimal protection guarantees in trade or business activities, it requires adaptive trade secrets regulations. Then, even though there are related laws and regulations that accommodate the protection of trade secrets in the telecommunications service industry, a law reform is still needed so that they can provide optimal protection and have a futuristic nature as an effort to protect trade secrets in the telecommunications service industry in the future.

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Patent Term Extension (PTE) Regime in Australia: Amendments and Analysis of Granted, Pending, and Refused PTE Applications

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Abstract

Patents are governed by the Patent Act 1990 in Australia. The adoption of Trade-Related Aspect of Intellectual Property Rights (TRIPS) agreement in 1995, raised the standard patent term from 16 to 20 years in Australia. For pharmaceutical innovators, 20-year term may found to be insufficient to recoup the investment in research and development (R&D), because a substantial time is required for regulatory review process before approval of the pharmaceutical product and thus, start of its actual marketing. To address this concern, the possibility of extension of the patent term beyond 20 years was introduced in Australia in 1998 by amending the Patent Act 1990. This patent term extension provision came into effect on 27 January 1999. No separate or sui generis right came into existence; rather, the duration of the patent was increased by a particular period of time, referred to as 'Patent Term Extension(s)' (PTE) in Australia and United States of America (USA), 'Certificate of Supplementary

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Protection' (CSP) in Canada, and 'Supplementary Protection Certificate' (SPC) in Europe. Since the implementation of PTE regime in Australia, a few changes took effect. This article provides an in-depth evaluation of PTE in Australia and other relevant changes. It also covers comparative analysis of number of PTE applications granted, pending, refused, and withdrawn in Australia. It was found that during these years, about 92% applications were awarded PTEs, 4% were refused and the remaining applications are awaiting decision. About 70% PTE applications cited product patents, while about 31% applications cited combination/composition patents and remaining 8% applications cited method of use patents. About 57% of granted PTEs received an extension of more than 4 years to 5 years. This article also provides analysis of type of patents referred in the PTE applications, the applicants and term of granted PTEs. Comprehensive summary of Federal Court of Australia and Full Federal Court of Australia cases is provided. These cases are related to challenges filed by PTE applicants over refusal of their applications, revocation of granted patents and challenges to the validity of granted PTE by the Commissioner of Patents, Intellectual Property Office, IP Australia, and these cases are providing directions to the Commissioner of Patents and has potential to act as precedence for future decisions on PTE. Basis analysis of available PTE data in Australia, this article also provides some valuable suggestions to the PTE applicants.

Keywords: Australian Register of Therapeutic Goods, Federal Court of Australia, Patent Term Extension, Pharmaceutical Substance, Therapeutic Goods Administration.

I. Introduction:

Innovator pharmaceutical companies are required to conduct clinical trials for getting their pharmaceutical products approved from regulatory authorities. This process requires huge amount of investment of time and money. Intellectual Properties are awarded to such innovators or innovator pharmaceutical companies such as Patents, Copyrights, and Trademark. Under the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, patent term is for a maximum of 20 years from the date of filing the application.[1] This term of patent does not reflect the effective term of protection since substantial time may get lost in getting regulatory approval and thus may not be sufficient. To recover these investments, pharmaceutical companies are awarded with the possibility of extending the patent term covering such products and are awarded with the possibility of obtaining protection for the data generated i.e. Exclusivities.[2] Although, the issue of patent term extension to compensate for regulatory delays in the marketing of new pharmaceutical products was raised in the Uruguay Round of negotiations, the TRIPS Agreement does not contain an obligation to introduce such a system. This extension of term of patent is known as 'Certificate of Supplementary Protection' (CSP) in Canada, 'Patent Term Extension(s)' (PTE) in United States of America (USA) and Australia, and 'Supplementary Protection Certificate' (SPC) in Europe.[3,4,5] The term of protection, eligibility criteria etc. differ from country to country. The complex nature of Acts and differences within Country to Country legal framework require detailed study of provisions along with case laws in the respective country.

II. Legislations relevant to Pharmaceuticals and PTE in Australia:

The primary legislation governing pharmaceuticals is the Therapeutic Goods Act 1989.[6,7] It provides the overall regulatory framework for the regulation, approval, and monitoring of therapeutic products. Australian Register of Therapeutic Goods (ARTG) is also maintained according to Therapeutic Goods Act 1989.[8] It is a register on which all medicines and medical devices must be registered. The Therapeutic Goods Administration (TGA) is the regulator in relation to all medicines and medical devices for human use. Publicly accessible version of the Australian Register of Therapeutic Goods (ARTG) is also available.[9] It provides information on therapeutic goods that can be supplied in Australia. The import and export of therapeutic goods are also regulated by TGA under the TG Act. ARTG registration date of the pharmaceutical substance is the date of commencement of the first inclusion in the ARTG of goods that contain, or consist of, the substance. There are different categories of medicines in Australia - i)

'Listed Medicines' are those made only with low-risk, pre-approved ingredients and which make limited therapeutic claims.[6] All these products must be approved by the TGA and registered on the ARTG. Therapeutic goods are not allowed to be imported unless they have been approved by the TGA and entered on the ARTG.

Patents are governed by the Patent Act 1990 in Australia. Patentability criteria includes i) Satisfies the manner of manufacture test; ii) is novel; iii) involves an inventive step; and is useful.[6,10] The adoption of TRIPS agreement in 1995, raised the standard patent term from 16 to 20 years in Australia.[6] The possibility of extension of the patent term beyond 20 years for pharmaceutical innovators, was introduced in 1998 by amending the Patent Act 1990. This patent term extension provision came into effect on 27 January 1999.[10] No separate or sui generis right comes into existence; rather, the duration of the patent is increased by a particular period of time.[11] The PTE provisions apply to: a) all standard patents granted on or after 27 January 1999; and b) standard patents granted before 27 January 1999, other than a standard patent granted for a term of 16 years and whose term at the time of the grant was due to end before 1 July 1995.[10] PTE application is granted by the Commissioner of Patents, Intellectual Property Office, IP Australia.[10] Renewal fees are payable during the extended term (the yearly renewal fee is equal to the 19th year renewal fee). A PTE is only available for standard patents and not for innovation patents.[11] Phasing out of innovation patents system will begin from 26 August 2021.[6,7] No new innovation patent applications can be filed, other than divisional applications based on applications filed on or before 25 August 2021. This provision for an extension to the term of a patent is relating to Pharmaceutical substances per se. PTE provision is not applicable to patents of methods or processes involving pharmaceutical substances.[6,7] The Intellectual Property Legislation Amendment (TRIPS Protocol and Other Measures) Regulation 2015, which was enacted on June 17, 2015, amends the Patents Regulations 1991 in order to complete the compulsory licensing for the manufacture of patented pharmaceuticals for export to countries experiencing public health crises.[12]

An application for an extension of term must be made within the term of the patent, and within six months after the latest of i) the date the patent was granted; ii) the date of first inclusion on the ARTG of goods containing or consisting of any of the pharmaceutical substances relied on to meet the pharmaceutical substance requirement; and iii) 27 July 1999 (the date of commencement of the PTE provisions).[10] As per the Patents Amendment Regulations 2005, if the Commissioner becomes aware that the first regulatory approval date in relation to the pharmaceutical substance is earlier than that supplied with the application for extension (with effect on both new and existing entries on the Patent Register), then the commissioner must amend the Register to insert the correct extension of the term of the patent.[13] Only the patentee is eligible to apply

for PTE (even without the consent of ARTG registration holder), and not the ARTG registration holder.[10] PTE term up to 5 years is allowed by the Australian Patents Act 1990.[10]

Term of the PTE = [First Australian Register of Therapeutic Goods (ARTG) Registration Date – Standard Patent Filing Date] – 5 Years

Standard patent is the patent in which i) one or more 'pharmaceutical substances' per se in substance that must be disclosed in the complete specification and in substance fall within the scope of the claim or claims of that specification or ii) one or more pharmaceutical substances when produced by a process that involves the use of recombinant DNA technology, substance must be disclosed in the complete specification of the patent and substance fall within the scope of the claim or claims of that specification. The patent can only be extended once. Multiple PTEs are possible for a product if the timeline requirements are met. [11]

An interim PTE is not granted in Australia.[11] The acceptance of PTE application is made public so that third parties have three months from the date of publication of the notice of acceptance in the Official Journal to oppose the extension on the basis that the requirements are not satisfied. Any person may oppose the grant of PTE (within three months from such publication) if the substantive requirements of relevant section 70 and/or the procedural requirements of section 71 have not been met.[6,7] The parties in the opposition proceedings may appeal to the Federal Court against the decision of the Commissioner. Since, PTE extends the term of entire patent, it also extends the scope of entire patent.[10] Although, the exclusive rights of the patentee under a patent that is the subject of PTE are significantly limited during the period of the extension. During the PTE period, the patentee's rights are not infringed by a person who makes, uses, sells the pharmaceutical substance for non-therapeutic uses (as against to therapeutic uses); or any form of the invention that is not the pharmaceutical substance.[10] According to section 13 of the Patents Act 1990, a person is given an exclusive right, during the term of the patent, to exploit the invention, and to authorize another person to exploit the invention. The patentee and the exclusive licensee can bring proceedings for infringement. Exploit includes: i) Where the invention is a product, make, hire, sell, or otherwise dispose of the product, offer to make, sell, hire or otherwise dispose of it, use or import it, or keep it for the purpose of doing any of those things; or ii) Where the invention is a method or process, use the method or process or do any act mentioned in the first point in respect of a product resulting from such use. A person can infringe a patent by supply of product for use in a method – supply of a drug which will be used in a method of treatment. Since there is no patent linkage with regulatory authorization, clearing the way is not a requirement for generic market entry. However, a potential generic entrant may seek to revoke a patent (either

in a court proceeding or through a request for re-examination). If the patentee refuses or fails to make the written admission of non-infringement in case if it is sought by any person, then the person can seek a declaration of non-infringement from the Federal Court of Australia. The Federal Court of Australia (Federal Court) and the state and territory Supreme Courts have jurisdiction to hear infringement matters.[6,7] The Federal Court has numerous judges with extensive patent expertise. A party can appeal judgment of a single judge of the Federal Court to the Full Federal Court of Australia. There are certain exemptions from infringement like i) Bolar exemption (i.e. experimental purpose, regulatory submissions), ii) Manufacturing waiver granted by Federal Court for export to an eligible importing country (as per the list of least-developed countries maintained by the United Nations), iii) for a purpose other than therapeutic use.[11] According to section 119A of the Patents Act, applying for marketing authorization does not infringe a patent. Also, application for Pharmaceutical Benefits Scheme (PBS) listing is not an exploitation of an invention of a patent.[10] In case of infringement proceedings, the defendant can assert that it has not infringed the patent because the patent is invalid and should be revoked.[10]

III) Analysis of PTE Applications after PTE Implementation in Australia [09, 14, 15]

a) Analysis of current status of PTE applications

The PTE regulation in the Australian Patent Act were introduced in 1998 by amending the existing Patent Act. It came into effect on 27 January 1999. Data regarding PTE applications available on Australian patent office website (AusPat website), ARTG website, Ark Patent Intelligence Database, Court website and other relevant open sources like weblogs, journals, and books for the period between 27 January 1999 and 30 April 2021 was collected and analyzed. Results are discussed in below sections in detail.

As depicted in Figure 1 below, it was observed that about 92% applications (1044 applications) have culminated into granted PTEs, About 4% applications (49 applications) are still under review, and about 4% applications (48 applications) could not satisfy the requirements for PTE. [09, 14, 15]

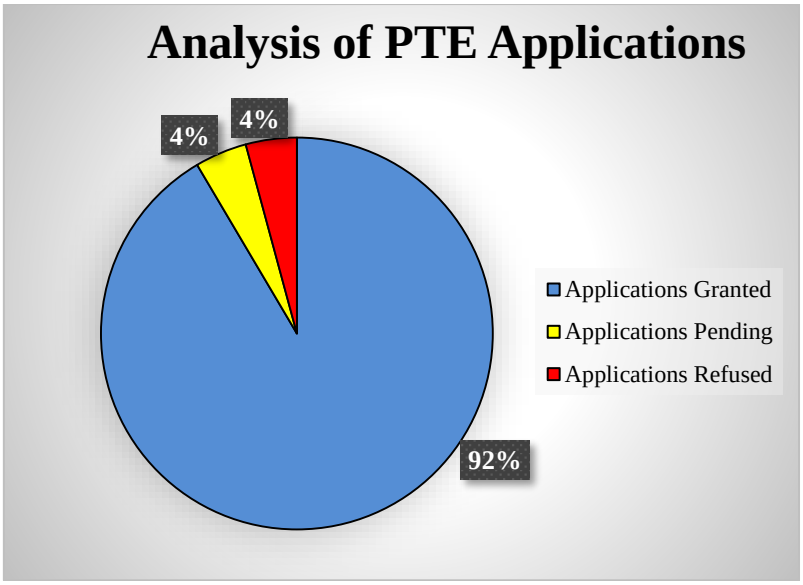

Figure 1: Analysis of PTE Applications

b) Analysis of types of patents covered in CSP applications

Patents which are cited in PTE applications were studied to understand the type of invention these patents claim. The analysis as depicted in figure 2 below provided the conclusion that out of the total 1141 PTE applications, in 729 PTE applications (about 70%) product patent was cited, in 324 PTE applications (about 31%) composition/combination patent was cited, and in 88 PTE applications (about 8%) method of use (MoU) patent was cited. [09, 14, 15]

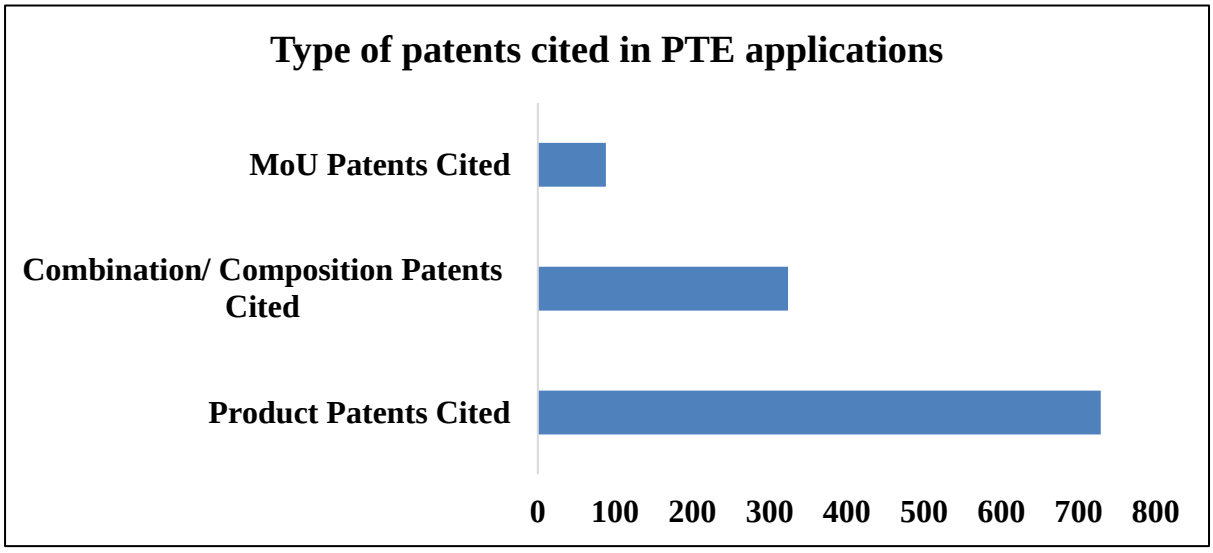

Figure 2: Analysis of types of patents covered in CSP applications

c) Analysis of term of granted PTEs

Through the analysis of terms of granted PTEs as depicted in figure 3 below, it was observed that 599 PTEs (about 57%) were granted the extension of more than 4 years to 5 years, 130 PTEs (about 12%) were granted the extension of more than 3 years to 4 years, 116 PTEs (about 11%) were granted the extension of more than 2 years to 3 years, 125 PTEs (about 12%) were granted the extension of more than 1 years to2 years, and 74 PTEs (about 7%) were granted the extension of less than a year. [09, 14, 15]

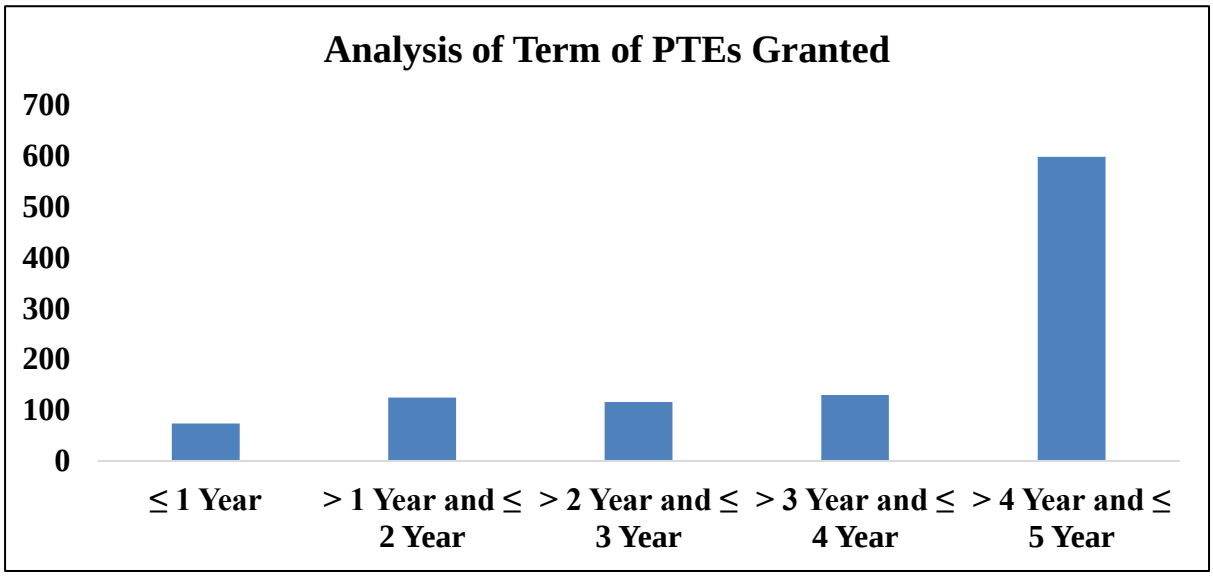

Figure 1: Analysis of Terms of PTEs Granted

III) Australian Case Law/Case Study regarding PTE

Below case laws/case studies were found relevant to the PTE in Australia. All these case laws/case studies were analyzed and observations are described below.

A) Boehringer Ingelheim International GmbH v Commissioner of Patents [2001] FCA 647[16]

The questions to be resolved in the present case were whether or not the claimed container constitutes a 'pharmaceutical substance per se', as required by section 70(2)(a). AU Patent 531074 [Patentee: Boehringer Ingelheim International GmbH, covering 'a container comprising an aerosol or spray composition for nasal administration which composition comprises as active ingredient a quaternary tropane alkaloid derivative with atropine-like activity, the container being provided with a nozzle adapted for nasal administration of the composition] is involved in this case. Boehringer cited 'Atrovent Nasal Ipratropium bromide 22 microgram/actuation spray

solution, aerosol pump actuated metered dose' as a product registered on ARTG. Extension of terms was refused by Australian Patent Office (APO) stating that the requirements of Section 70(2)(2) are not met. In oral hearing, it was found "that none of the claims of patent AU 530174 define a pharmaceutical substance per se". Full Court of Australia found that the relevance of the expression 'per se' becomes clear in light of the intention of policy while implementing 'per se' i.e Section 70(2)(a) is only to make extension rights available when the claim is for a pharmaceutical substance as such, as opposed to a substance forming part of a method or process. Here, since the claims relate to a container and not to pharmaceutical substance as such (i.e. Ipratropium), the decision of rejecting the extension of term was affirmed.

B) Prejay Holdings Ltd v Commissioner of Patents [2003] FCAFC 77[17]

The questions to be resolved in the present case was whether the relevant patent (covering method claims) was one in which a pharmaceutical substance per se in substance fell within the scope of the claims of the patent specification, as required by section 70(2)(a). AU Patent 582540 [Patentee: PreJay Holdings Limited and Woco Investments Ltd, covering 'a method of hormonally treating menopausal or post-menopausal disorders in a woman, comprising administering to said woman continuously and uninterruptedly both progestogen and estrogen in daily dosage units of progestogen equivalent to Laevo-norgestrel dosages of from about 0.025 mg to 0.05 mg and of estrogen equivalent to estradiol dosages of about 0.5 mg to 1.0 mg] is involved in this case. This case discussed that the substance here did not "in substance fall within the scope of the claim or claims of that specification. Specifically, section 70(2)(a) is only available to extend the term of a patent when there is at least one claim to a pharmaceutical substance by itself, which is unqualified by process or method components was discussed. The intent of the legislation is that such an extension is not available in relation to method claims. All 24 claims of were related to methods of use, there was no dispute on this between parties. Thus, the decision to reject extension of patent term was affirmed by Federal Court of Australia.

C) Merck & Co Inc v Arrow Pharmaceuticals Ltd [2003] FCA 1344[18,19]

The questions to be resolved in the present case was whether the Patent for metabolite of prodrug – Prodrug had previously been the subject of a patent, now expired – Whether the applicant is entitled to an extension of its patent over the metabolite on the basis that the prodrug is listed on the Australian Register of Therapeutic Goods ('ARTG') and production of the metabolite is the only known

therapeutic use of that prodrug, as required by section 70(2) & 70(3)(a). AU Patent 535944 [Patentee: Merck & Co., Inc.,] covering 'process of producing the compounds of general formulae comprising fermenting a nutrient medium with a microorganism of the genus Aspergillus terreus, wherein Compound I corresponds to Lovastatin (deleted from claim 8 during prosecution in view of Sankyo patent) and compound III is the β-hydroxy metabolite of Lovastatin (claim 9, 'LHA' which has potent cholesterol-lowering activity; lovastatin has not) generated at the same time by the micro-organism, and are separated. The patent 532626 (Patentee: Sankyo; expired on 19 Feb 2000) claims a compound of a particular formula called Monacolin K (generally referred to as Lovastatin). It does not disclose the ß-hydroxy metabolite of Lovastatin & no extension of term has been sought for this patent. After the expiration of the Sankyo patent, Merck applied to the Therapeutic Goods Administration ('TGA') for listing on the ARTG of a product called 'Mevacor'(Lovastatin, but analysis showing presence of 0.2% metabolite) & after the listing applied for an extension of the term of the patent which was opposed by Arrow. The delegate conducted a hearing, concluded that 1) use of Lovastatin might constitute an infringement of the claims to the ß-hydroxy metabolite, Lovastatin per se does not in substance fall within the scope of the claims to the metabolite and 2) the ß-hydroxy metabolite is present on the ARTG, but only as an impurity, and refused the application which was appealed by Merck wherein it argued that "MEVACOR tablets contain LHA (albeit as a relatively minor component) are included in the Australian Register of Therapeutic which is sufficient to satisfy the test" & "Delegate erred in considering not whether MEVACOR tablets contain LHA, but whether LHA is on the ARTG". Second argument was accepted by Federal Court and the extension allowed considering listing on the ARTG of lovastatin.

D) Pfizer Inc v Commissioner of Patents [2005] FCA 137[20]

The questions to be resolved in the present case were whether there is "real and reasonably clear disclosure" of the compound within that generic formula that is "must in substance be disclosed" as required by section 70(2)(a). AU Patent 602638 ('the parent patent') [Patentee: Pfizer] covering 'novel class of compounds as Formula I with substitutions in the generic structure and has anti-fungal activity'. The 'pharmaceutical substance per se' in question is Voriconazole, not expressly disclosed in the specification (including example), either in the body of the specification or in the claims. Another patent AU 625188 ('the selection patent') [Patentee: Pfizer] covering specifically Voriconazole and in specification mentioned that compounds have high level of antifungal activity, unexpectedly good pharmacokinetic properties and none of them are specifically described or exemplified in parent patent. Pfizer applied an

extension of term of each of the parent patent and the selection patent. Deputy Commissioner of Patents concluded that Voriconazole cannot have been in substance disclosed in the parent patent considering selection patent as evidence and refused the application which was appealed by Pfizer. On appeal, the Court said absence of exemplification does not mean absence of fair basis, each single compound be specifically claimed is not required, and this is a "real and reasonably clear disclosure" and an "in substance disclosure" of each of the substituted compounds so described and Voriconazole is also included within the substitutions. Court allowed extension.

E) Pfizer Corp v Commissioner of Patents (No 2) [2006] FCA 1176[21]

The questions to be resolved in the present case is what is date for calculation of extension of term of patents relating to pharmaceutical substances. Pfizer [patents related to Amlodipine (Norvasc: first included in the ARTG as "listed goods" for export only and later included in the ARTG as "registered goods") and Eletriptan hydrobromide (Replax)] had applied for the patent term extension for its patents, wherein it gave later registration date as the date of first inclusion in the ARTG and had their term extended by the commissioner of patents on basis of first registrations in ARTG. However, Commissioner became aware of earlier "Export Only" listings in ARTG and directed amendments to the Register of Patents to shorten the terms of the patents thereby shortened the term by about 10 and 13 months, and in the case of one patent, to an extension of "zero". Pfizer appealed to the Federal Court and raised two issues 1) validity of reg 10.7(7) of the Patents Regulations & 2) date from which an extension of term of a pharmaceutical patent is calculated. Federal court held that reg 10.7(7) is valid wherein Commissioner amended the Patents Register to insert the correct extension of term of a patent and an inclusion in the ARTG, including an export only listing as Listed Goods, is an inclusion in the ARTG for the purposes of s 70 of the Act that is the correct start date for calculation of a patent term extension is the date of the first approval of the drug, whether the approval was for export or for marketing within Australia. Pfizer appealed to the Full Federal Court, wherein appeal dismissed on basis that export listing is relevant ARTG inclusion for calculating term of extension. Similarly, extended terms of AU 540769, AU 573123, AU 651637, and AU 691005 were also amended by the Commissioner.

F) Pharmacia Italia SpA v Mayne Pharma Pty Ltd [2006] FCA 305[22, 23]

AU patent 598197 [patentee: Pharmacia Italia SpA's, covering injectable ready-to-use solutions containing an antitumor anthracycline glycoside (Epirubicin HCl)].

PTE was granted by APO. Myne contended that the relevant claims were not claims to a "pharmaceutical substance per se" within the meaning of s 78(1)(b), rather these are "product by process" claim, because of the various process elements that were included in the claim. It was decided in this case that claims were related to a new and inventive substance, and not to a novel process or methods. Process elements were added to overcome prior art but the intention was always to protect Pharmaceutical Substance per se and not the process or method. Hence, PTE was affirmed.

G) Sanofi-Aventis [2007] APO 35[24]

AU patent 771902 [patentee: Sanofi-Aventis, covering controlled-release dosage forms comprising Zolpidem or a Salt Thereof] is involved in this case. The bi-layered Zolpidem tartrate tablet Stilnox CR is a compound of pharmaceutical substances. Each of the layers consists of a mixture of a therapeutically active substance and non-therapeutic pharmaceutical excipients that fall within the everyday understanding of the term "pharmaceutical substances". Bi-layer tablet brought two mixtures into a form suitable for administration and was considered to result in a "compound of pharmaceutical substances" and thus satisfy the requirements of section 70(2).

H) Pfizer Italia S.r.l. [2007] APO 2[25,26]

AU patent 598197 [patentee: Pfizer Italia S.r.l., covering Injectable ready to use solutions containing an antitumor anthracycline glycoside] is involved in this case. Pfizer was granted PTE citing Zavedos (Idarubicin hydrochloride). Later, solicitors for Pfizer Italia advised the commissioner of patents that Pfizer marketed a number of products, containing active ingredients other than Idarubicin, which fell within the scope of the claims of the patent and each having an earlier first regulatory approval date. Pfizer contested that "the earliest first inclusion" in the ARTG must be read as a reference to the first entry in the ARTG in respect of any presentation of a therapeutic good that contains the pharmaceutical substance Idarubicin specifically. Delegate of the commissioner rejected this attempt of Pfizer and stated that in this case earliest first regulatory approval date is 13 November 1989 (the first regulatory approval date for Adriamycin) giving an extension of term equal to zero, and thus amended the Register.

I) Re: G.D.Searle LLC [2008] APO 31; 80 IPR 210[27, 28]

AU patent 680635 [patentee: G.D Searle LLC, covering Darunavir] is involved in this case. G.D Searle LLC applied for a PTE citing inclusion of goods containing

Darunavir (PREZISTA) in the ARTG. A delegate of the Commissioner of Patents rejected an application on the basis that the application was not made within 6 months of the earliest inclusion in the ARTG of a relevant pharmaceutical substance. It was noted that Amprenavir (also covered in the same patent) had an earlier inclusion in the ARTG. Hence it was held that PTE application had not been made within the statutory six months from the first inclusion in the ARTG of goods that contain the substance and failed to satisfy 71(2)(b). This decision serves as a reminder to patentees to remain alert to activities undertaken by a licensee to register or list a licensed pharmaceutical substance in the ARTG. If it is anticipated that a patent may encompass more than one pharmaceutical substance eligible for inclusion into the ARTG, then consideration should be given to filing one or more divisional applications prior to grant so that PTE could be obtained in respect of each first inclusion of a pharmaceutical substance.

J) N.V. Organon [2009] APO 8[29, 30]

The question here was whether Nuvaring was a substance (including a mixture or compound of substances)". AU Patent 726934 [Patentee: N.V Organon covering a drug delivery system adapted to the slow release of particular steroidal mixtures, such as for use in contraception or hormone replacement therapy, in which the steroidal mixture is contained in a thermoplastic polymer core overlaid with permeable thermoplastic skin] is involved in this case. The PTE application was refused by the APO on the basis that the drug delivery system was not a "pharmaceutical substance" for the purpose of section 70(2)(a). The patentee subsequently requested a hearing. On appeal it was noted that thermoplastic materials in NUVARING® have a physical purpose to position, contain and provide for the controlled release of the steroidal components, and as such, the product as a whole was considered to exhibit a level of integration or interaction between the component parts that is more characteristic of a pharmaceutical substance in itself rather than a substance combined with another element or thing. Accordingly, PTE was granted for Nuvaring.

K) LTS Lohmann Therapie-Systeme AG and Schwarz Pharma Limited [2010] AATA 809[31, 32]

This decision1 reminds us that if you want to extend an Australian pharmaceutical patent, you must first make sure that your claims are in good order. Specifically, you must be certain that the claim on which your extension is to be based is one that is directed to a 'pharmaceutical substance per se'. The PTE was refused for a transdermal therapeutic system (transdermal patch) to deliver Rotigotine for treating Parkinson's

syndrome (Neupro®). AU 746856 [Patentee: LTS Lohmann Therapie-Systeme AG and Schwarz Pharma Limited covering a transdermal therapeutic system (transdermal patch) to deliver the D2 receptor agonist (-)-5,6,7,8,tetrahydro-6-[propyl[2-(2-thienyl)-ethyl]amino]-1-naphthol (Rotigotine) for the purpose of treating Parkinson's syndrome] is involved in this case. It was considered in the case of Neupro® that the protective layer, which is removed before use, does not integrate or interact in any way with the other parts of the transdermal patch and the "presence of this layer at least", was held to render the transdermal patch a pharmaceutical substance in combination with a separate integer. Accordingly, the PTE was refused.

L) Alphapharm Pty Ltd v H Lundbeck A/S [2008] 76 IPR 618, H Lundbeck A/S v Alphapharm Pty Ltd [2009] 177 FCR 151, Sandoz Pty Ltd v H Lundbeck A/S [2020] FCAFC 133, H. Lundbeck A-S & Anor v Sandoz Pty Ltd, CNS Pharma Pty Ltd v Sandoz Pty Ltd [2021] HCATrans 1331[33, 34, 35,36]

Lundbeck has involved in multiple litigations over it Lexapro product. In Alphapharm Pty Ltd v H Lundbeck A/S [2008] 76 IPR and H Lundbeck A/S v Alphapharm Pty Ltd [2009] 177 FCR, the questions to be resolved in the present case were whether the pharmaceutical substance per se includes (+)-enantiomer disclosed in patent which is contained in racemate included in Australian Register of Therapeutic Goods. AU patent 623144 [Patentee: Lundbeck, covering Escitalopram is therapeutically more active than Citalopram] was involved in this case. The decision affirmed that, for the purposes of obtaining an extension of patent term, the first inclusion on the ARTG of goods that "contain" the (+)-enantiomer Escitalopram, was the earlier registration of its racemate, Citalopram. This decision reiterates the need for patentees to be vigilant to ensure that the relevant deadline for filing an application for PTE is recorded and acted on, and that any other substances, whether intended to be present or not in Registered goods, do not also give rise to deadlines for making an application for extension of patent term.

This decision was upheld on appeal as well. Since the PTE based on Escitalopram products was removed citing that (+) Escitalopram was present in Citalopram (racemic mixture), Lundbeck applied for an extension basis the approval of Citalopram. The time limit for submitting PTE application expired in mid-1998 (about 10 years extension of time was sought). That extension was granted, on the basis that the applicable time limit had been unclear until determined by the Federal Court in June 2009 in above mentioned cases. This decision was also challenged but ultimately was upheld on appeal as well. This way Lexapro patent was granted PTE. But by this time generic

companies had launched generic version of Lexapro and thus Lundbeck sought damages from generic players.

Sandoz Pty Ltd v H Lundbeck A/S [2020] FCAFC 133 (4 August 2020) in this case, Sandoz initiated lawsuit stating that it is not liable to pay any damages since it has launched as per the agreement between Lundbeck and Sandoz. However, the first instance court directed Sandoz to pay AUD 16mn damages basis the damages during the newly extended term of the Lexapro patent. The Full Court held that, objectively ascertained, it was the parties' intention to stipulate a start date for the licence, but not an end-date. In Feb. 2021, Lundbeck was recently granted special leave to appeal to the High Court of Australia (H. Lundbeck A-S & Anor v Sandoz Pty Ltd; CNS Pharma Pty Ltd v Sandoz Pty Ltd [2021] HCATrans 13 (11 February 2021).

M) The Children's Medical Center Corporation [2011] APO 80[37, 38]

The questions to be resolved in the present case were whether or not the claimed combination constitutes a 'pharmaceutical substance per se', as required by section 70(2)(a). AU Patent 2005202596 [Patentee: The Children's Medical Center Corporation, covering combinations comprising anti-angiogenic compounds (Thalidomide) with anti-inflammatory compounds (including steroids)] is involved in this case. On ARTG register, the product was registered for indication stating the use of Thalidomide in combination with various steroids for treatment of Multiple Myeloma. The patentee identified the relevant 'pharmaceutical substance' as a combination of Thalidomide and at least one steroid, presented as separate oral dosage forms of the individual drugs basis the indications. However, the registered product THALOMID consisted only of Thalidomide and not the combination product. According to Schedule 1 of the Patents *Act 1990*, 'pharmaceutical substance' a substance (including a mixture or compound of substances) for therapeutic use whose application (or one of whose applications) involves: (a) a chemical interaction, or physico-chemical interaction, with a human physiological system; or (b) action on an infectious agent, or on a toxin or other poison, in a human body; but does not include a substance that is solely for use in in vitro diagnosis or in vitro testing". In this case, basis the claims of the patent and product registered on ARTG, it was concluded by the Australia Patent Office that the term "pharmaceutical substance per se" is intended to be a pharmaceutical that is presented as a single entity, and not in the form of a kit or as separate dosage forms' for the purpose of extension of the patent term, thus failed to satisfy requirements of section 70(2)(a).

N) Spirit Pharmaceuticals Pty Ltd v Mundipharma Pty Ltd [2013] FCA 658[39, 40, 41]

The questions to be resolved in the present case was whether or not the claimed controlled release formulation containing one active pharmaceutical ingredient constitutes a 'pharmaceutical substance per se', as required by section 70(2)(a). AU Patent 657027 [Patentee: Mundipharma Pty Limited, covering controlled release formulation] is involved in this case. PTE was granted citing Oxycontin (Oxycodine Controlled Release Formulation) to Mundipharma Pty Ltd. (Mundipharma). Since, Spirit Pharmaceuticals Pty Ltd (Spirit) was preparing to market a generic product of OxyContin, Spirit sought the rectification of the Register noting that the PTE should not have been granted because the formulation of OxyContin is not "a pharmaceutical substance per se" within the meaning of s 70(2)(a) of the Act. Spirit contended that Oxycodone is the only "pharmaceutical substance per se" and that, accordingly, the extension of the patent was invalid. It was found that "pharmaceutical substance per se" can be a mixture of substances and is not limited to individual active agents. Rectification request was dismissed. Based on this decision, it appears that the formulation resulting in a new chemical interaction, or physicochemical interaction, with the patient resulting in a difference compared to known formulations of the drug to be considered a "pharmaceutical substance per se".

O) Commissioner of Patents v AbbVie Biotechnology Ltd [2017] FCAFC 129[42, 43]

A loophole allowing PTE for certain Swiss-style claims has been closed by this decision. The Australian Administrative Appeals Tribunal had opened the door for PTE based on a Swiss-form claim in Adalimumab case. In 2017, the Full Federal Court has reversed that decision.

Patents involved are AU 2012261708, AU 2013203420 and AU 2013257402 [Patentee: Abbvie Biotechnology Ltd and covering all claims of Swiss type method claims].

One of the requirements for PTE in Australia is that either a) one or more pharmaceutical substances per se must in substance be disclosed in the complete specification of the patent and in substance fall within the scope of the claim or claims of that specification; (b) one or more pharmaceutical substances when produced by a process that involves the use of recombinant DNA technology, must in substance be disclosed in the complete specification of the patent and in substance fall within the scope of the claim or claims of that specification. This case is related to requirement (b). Patent office had rejected PTE citing that Swiss-form claims were characterized by a therapeutic use. Administrative Appeals Tribunal (AAT) reversed this decision. This decision was overturned by Administrative Appeals Tribunal (AAT), where it was

reasoned that the removal of the phrase "per se" from option (b) above meant that the option was not limited to product claims alone. This AAT's decision was appealed by Commissioner of Patents. Federal Court of Australia commented that the policy adopted in section 70 was to confine extensions to patents that claim invention of the substance itself. The only exception is where a process involves recombinant DNA technology but that exception is limited to claims for the pharmaceutical substance so produced and not extended to other methods or processes involving the substance. The Court considered that the Swiss-form claims were not directed to Adalimumab produced by recombinant DNA technology but were directed to the therapeutic use of Adalimumab.

P) Wyeth LLC - [2019] APO 1[44, 45]

In this case, the composition defined in part by maximum sodium content relative to Ibuprofen was identified as pharmaceutical substance per se and hence PTE was granted for Advil Rapid Release. AU 2015264861 [Patentee: Wyeth LLC, covering a pharmaceutical composition containing Sodium Ibuprofen Dihydrate, particular excipients and having an upper limit on the amount of sodium present in the composition relative to the amount of free Ibuprofen] is involved in this case study. A delegate of the commissioner earlier refused the PTE application noting that the sodium content does not alter the way the active pharmaceutical ingredient (Ibuprofen) works, or provide any new pharmacokinetic profile. However, the commissioner found that the claims are directed towards the composition and not to method of preparation of the composition, and ratio of sodium was required to stabilize the composition. The application for extension of term was accepted.

Q) Ono Pharmaceutical Co., Ltd. et al [2020] APO 43 FCA[46, 47]

Through this case, the APO has confirmed that a request for a PTE must be based on the earliest first product to gain regulatory approval that falls within the scope of the claims, regardless of whether that product is sponsored or owned or developed by the patentee or a competitor. AU Patent 2011203119 [Patentee: The Children's Medical Center Corporation, covering monoclonal antibodies that inhibit PD-1, supressing tumour growth] is involved in this case.

The claims were relevant for two cancer immunotherapy drugs i) Pembrolizumab/Keytruda (Merck Sharp & Dohme's) and ii) Nivolumab/Opdivo (Ono Pharmaceutical Co. Ltd). These product were approved at different dates. PTE based on Opdivo was rejected citing that Keytruda should be considered as first included

goods on the ARTG for PTE purpose since it was approved and was registered in ARTG register earlier than Opdivo, regardless of the fact that it was registered by Merck and not Ono. Patentee has elected to challenge this APO decision and pursue a judicial review in the Federal Court.

R) Zentaris Aktiengesellschaft[48]

The extension of patent term was granted basis the claim which was directed to example of particular concentration of acetic acid was required to get morphological form of registered product of Cetrorelix. Registered product contained lyophilisate of Cetrorelix, characterised by general process steps, including dissolving in acetic acid and lyophilizing. The specification was sufficiently describing the particular morphological form of Cetrorelix.

S) Euro-Celtique, SA[49, 50]

This case was related to a patent (AU774779) which claimed a transdermal delivery system containing Buprenorphine (Norspan®). In this case it was concluded that the presence of backing layer in transdermal delivery system represented a "separate physical integer unrelated to the mixture of chemical entities". The Australian Patent Office (APO) has also clarified that for claims defining a pharmaceutical substance in combination with other integers (e.g. a controlled-release dosage form or transdermal drug delivery patch) there must be a sufficient level of interaction or integration between the pharmaceutical substance and the other integers relevant to the therapeutic effect for PTE eligibility.

T) Merck Sharp & Dohme Corp. [2012] APO 25[51]

The patent AU 670300 claims Efavirenz (active ingredient in a pharmaceutical product known as Stocrin) which in various forms is included in the ARTG. The extension application was filed by Merck in 2010 citing Atripla ARTG entry. However, it was rejected because the first inclusion is for the goods Stocrin not Atripla, also combination in Atripla, was not in substance disclosed in the patent specification. Merck tried to refer to Stocrin ARTG entry but since the timelines were already passed, it was not possible. So Merck tried to get an extension of PTE application filing timelines. Commissioner found that there have been no satisfactory explanations as to why, during that period, an earlier application for extension of time was not made, deliberate commercial decision was taken by Merck in 1999 not to file an application,

failure after 1999 was due to tactical commercial strategy, grant an extension of time would be clearly contrary to the balance of interests and indeed inconsistent with the purpose of section 223 and the intended operation of the extension of term scheme. Consequently Commissioner refused the application on 21 February 2012 under section 223 of the Patents Act 1990. Merck appealed this decision but Administrative Appeals Tribunal of Australia also affirmed the same.

U) Idenix Pharmaceuticals, Inc. [2012] APO[14,15]

It was to be decided here whether AU 2007216721 [Applicant: Idenix, claiming oral pharmaceutical unit dosage form of β-L-thymidine (Telbivudine) when used in the treatment of HBV infection] disclosed pharmaceutical substance per se in substance. The patent office found that "for a substance to fall within section 70(2)(a), it must itself be the subject of a claim in the relevant patent. It is not enough that the substance appears in a claim in combination with other integers or as part of the description of a method (or process) that is the subject of a claim." This decision was affirmed in the hearing as well and the PTE application was refused.

V) Celgene Corporation [2011] APO 37[52]

The question here was whether patent (AU 2003228508 and AU 2004270211) for a subsequent medical use of a known compound can be extended, whether registered product contains a compound within the scope of patent claims, and whether date of amendment of ARTG registration can be used as the basis for extension application. Lenalidomide was originally developed as a treatment for multiple myeloma and then was shown to be effective in treating the myelodysplastic syndromes (MDS). Celgene's PTE application was based specifically on the use of Lenalidomide in the treatment of MDS indication which was approved in 2010, although the product itself had been registered since 2007. Patent office found that patents for subsequent medical uses of drugs cannot be extended and an application for an extension of patent term must be based upon the original registration of a product, and not upon a subsequent registration or amendment by which an additional indication is included on the ARTG. Celgene filed appeal to the Administrative Appeals Tribunal of Australia but there also the decision of Commissioner was affirmed.

IV. Conclusion

Total 1141 applications for PTE in Australia could be located, out of which 1044 applications were granted, 49 applications are pending, and 48 applications got rejected. About 91% PTE applications out of the total PTE applications were granted, about 4% were refused and the remaining applications are awaiting decision. 729 PTE applications (about 70%) cited product patents, 324 PTE applications (about 31%) cited combination/composition patents while remaining 88 PTE applications (about 8%) cited method of use patents. 599 PTEs (about 57%) were granted the extension of more than 4 years to 5 years, 130 PTEs (about 12%) were granted the extension of more than 3 years to 4 years, 116 PTEs (about 11%) were granted the extension of more than 2 years to 3 years, 125 PTEs (about 12%) were granted the extension of more than 1 years to2 years, and 74 PTEs (about 7%) were granted the extension of less than a year.

Some important differences are observed in the PTE legislation of Australia when compared with PTE/SPC/CSP legislations of United States of America (USA), European Union (EU), and Canada. The term of extension is up to 5 years in AU, USA, and EU whereas it is only up to 2 years in Canada. Unlike in USA and EU, further pediatric extension of the extended term of the patent is not possible in Australia. Interim extensions of patent term are allowed in USA, whereas it is not allowed in Australia. Unlike in Canada and EU, Australia does not allow manufacturing waiver during the term when PTE is in effect.

Basis the detailed analysis of case laws and case studies regarding PTEs in Australia, it was observed that these cases were revolving around terms in the legislation like i) 'pharmaceutical substance', ii) 'pharmaceutical substance per se', iii) 'compound of pharmaceutical substances', iv) 'in substance disclosed', v) 'mixture of pharmaceutical substance, vi) 'inclusion on the ARTG register', vii) 'the earliest first inclusion in the ARTG', viii) 'extension of deadline for PTE application', ix) 'PTE for swiss-style claims', x) 'product by process claims', and xi) 'PTE for Patents involving DNA technology. All these cases were mainly related to section 70(2) & 70(3)(a). Although every case could be different, but these case laws or case studies do provide guidance to patentee and for the party who wishes to challenge the eligibility of a product or patent for PTE grant viz i) claims covering containers shall not constitutes a 'pharmaceutical substance per se', ii) Pharmaceutical substance shall not in substance fall in method of use claims, iii) absence of exemplification shall not mean absence of fair basis, each single compound be specifically claimed is not required, iv) export only registration can be considered as 'inclusion in the ARTG register', v) 'product by process' claims may constitute 'pharmaceutical substance' claims, vi) bi-layered formulation may satisfy the requirement of 'compound of pharmaceutical substances', vii) Earliest first inclusion of any pharmaceutical substance covered by scope of claims shall be considered as first inclusion irrespective whether PTE is sought or not for such

first product include in ARTG register, viii) If it is anticipated that a patent may encompass more than one pharmaceutical substance eligible for inclusion into the ARTG, then consideration should be given to filing one or more divisional applications prior to grant so that PTE could be obtained in respect of each first inclusion of a pharmaceutical substance, ix) drug delivery system (rings) can be considered as a 'pharmaceutical substance', x) drug delivery system (patch) may not constitute a "pharmaceutical substance", xi) racemic mixture registered on ARTG earlier than the specific enantiomer, then racemic mixture could be considered as 'earliest first inclusion on ARTG' even for that enantiomer, xii) if claim related to combining two products before administration but the product registered on ARTG is a single drug containing product, then this product may not constitute 'pharmaceutical substance per se', xiii) formulations resulting in a new chemical interaction, or physicochemical interaction, with the patient resulting in a difference compared to known formulations of the drug to be considered a "pharmaceutical substance per se", xiv) Swiss-style claims may not satisfy requirements of Section 70, xv) broader scope of the claim may hamper chances of PTE getting granted for subsequent product if any product falling under the scope is already included on ARTG, xvi) for claims defining a pharmaceutical substance in combination with other integers (e.g. a controlled-release dosage form or transdermal drug delivery patch) there must be a sufficient level of interaction or integration between the pharmaceutical substance and the other integers relevant to the therapeutic effect for PTE eligibility.

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The Problem of Copyright Protection for Machine Learning Databases: A Comparative Study

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Abstract

This paper examines the applications of copyright protection standards to the creation and utilisation of databases for machine learning purposes and compares the law from Malaysia, Taiwan and the European Union. The current international regime for copyright protection of databases requires that compilations of data be protected "by reason of the selection or arrangement of their contents [which] constitute intellectual creations". However, Malaysia continues to follow the sweat of the brow approach to copyright protection of tables or compilations although a provision similar to TRIPS separately exists. On the other hand, Taiwan adopts a similar, but not identical approach to the TRIPS. The key differences are that Taiwan's formulation uses the word "creativity" instead of "creation" *sans* "intellectual" and uses the conjunction "and" instead of "or" between selection and arrangement.

The ECJ's decision in *Football Dataco Ltd v Yahoo! UK Ltd* in interpreting the European Database Directive emphasised that copyright protection for databases must be determined solely on the basis of the selection or arrangement but not on the creation of content. Likewise, the *Fixture Marketing* cases decided by the ECJ held that only the obtaining, verification or presentation of "existing independent material" matters to the *sui generis* database rights but not that of newly created data.

It would appear that most, if not all, machine learning datasets will not satisfy the "intellectual creations" requirement and thus fail to qualify for copyright protection. Enacting a universal *sui generis* database protection may not be an easy solution. Perhaps, it is time for the international community to get down from the philosophical high horse and to accept that databases should be protected in copyright simply on

account of the effort in their compilation, without the necessity to judge whether there is any intellectual input in the selection or arrangement of their content.

Keywords: Copyright Protection of Databases, Machine Learning Datasets, Malaysia, Taiwan, European Database Directive.

I. Introduction

With the advent of modern electronic computers, databases have been one of the key components of this digital revolution. Computers are used to store, process and retrieve data in databases. In addition, data stored in databases are used for analysis and business intelligence. More recently, with the increase in machine learning applications, data in databases are used for developing new artificial intelligence software. Therefore, it is important to examine the status of the legal protection of databases in the context of machine learning.

Traditionally, databases are protected under copyright law, confidential information (or undisclosed information) law, and more recently a *sui generis* database right. In this paper, the suitability of copyright protection for databases will be assessed in relation to machine learning datasets. As a comparison, the relevant laws under the TRIPS Agreement,[1] Malaysian copyright law, Taiwanese copyright law, and European Union Database Directive[2] will be examined.

Three different standards for the protection are discussed in this paper: the 'sweat of the brow' standard in copyright law in English common law countries, intellectual creation standard as required in international copyright or intellectual property law treaties such as the TRIPS Agreement, and *sui generis* database right in the European Union Database Directive.

Finally, the applicability of contemporary database protection standards to the creation and utilisation of databases for machine learning purposes will be examined and the problem thereof addressed. An investigation of the European Court of Justice's decision in *Football Dataco Ltd. & Ors. v. Yahoo! UK Ltd. & Ors.* reveals that the process of creating or transcribing data into a database does not count as "selection or arrangement" of a database's content.[3] We conclude that a new approach to rethinking the copyright protection for databases is needed.

II. Machine Learning Datasets

The current advancement in artificial intelligence is built upon a probabilistic model of cognition. Unlike the previous generation of artificial intelligence technology which uses deterministic rules, the current generation of artificial intelligence technology uses machine learning and deep learning techniques employing statistical

[1] TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

[2] Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases, 1996 O.J. (L. 77) 20–28.

[3] ECLI:EU:C:2012:115 (Case C-604/10, 1 March 2012).

and statistical-like algorithms to make decisions. For example, logistic regression is one of the common methods for 'predicting' whether an observation falls within a particular category or otherwise.[4]

In order to implement machine learning and deep learning techniques, data is needed to train the algorithm to produce a model which can be used to make predictions or assessments. Typically, the more data is available for training, the better the quality is the model, which is the 'brain' of the artificial intelligence system. The practice of collecting a massive amount of users' interaction data in recent years has led to an emergence of a 'Big Data' phenomenon. In a way, the growth of machine learning applications occurred hand-in-hand with the explosion of Big Data.

As models of machine learning are statistical in nature, data must be formatted in a structured manner before they can be analysed and used in machine learning applications. Data used in machine learning are commonly structured in a two-dimensional format called a data frame. A collection of such data is called a dataset. Datasets are structured in rows and columns with individual rows representing different observations such as individuals, and columns representing different components or characteristics of a single observation. In machine learning terminology, columns are also known as features or inputs, while at least one special column is reserved as the target or output variable. The target variable may be a binary value ('yes' or 'no'), numerical value or a classification ('duck', 'cat' or 'dog').

For example, in a famous Iris flower dataset compiled and subsequently published by botanist E. S. Anderson in 1935[5] and made famous by statistician R. A. Fisher in another article of his,[6] four measurements for fifty samples of three species of the Iris flower were each taken. The Iris flower dataset that is downloadable from the Internet typically consists of 150 rows with five columns. Rows 1 to 50 are for the flower Iris Setosa, rows 51 to 100 for Iris Versicolor and rows 101 to 150 for Iris Virginica. Column 1 provides the value for sepal length, column 2 for sepal width, column 3 for petal length and column 4 for petal width. Column 5 contains the target variable which is the label for the relevant species, i.e. Setosa, Versicolor or Virginica. Note that columns 1 to 4 are measurements while column 5 is a label first created by Anderson.

Thus, values in datasets are typically compiled from existing sources, generated from measurements or computational transactions such as Internet traffic or user

[4] E. Salib, *Predictors of Coroner's Verdict: A Logistic Regression Model*, 36 MEDICINE, SCIENCE AND THE LAW 237–241 (1996); Kevin D. Ashley & Stefanie Bruninghaus, *Computer Models for Legal Prediction*, 46 JURIMETRICS 309–352 (2006); Tammy W. Cowart, Roger Lirely & Sherry Avery, *Two Methodologies for Predicting Patent Litigation Outcomes: Logistic Regression Versus Classification Trees*, 51 AMERICAN BUSINESS LAW JOURNAL 843–878 (2014).

[5] Anderson, *The Irises of the Gaspe Peninsula*, 59 BULLETIN OF THE AMERICAN IRIS SOCIETY 2–5 (1935).

[6] R A Fisher, *The Use of Multiple Measurements in Taxonomic Problems*, 7 ANNALS OF EUGENICS 179–188 (1936).

interactions, or explicitly created by a human being. Sometimes, human efforts are needed to provide the values of the target variable, such as classifying an image captured in the inputs. Apart from collecting the data and structuring values into a dataset, human efforts are typically needed to clean up the data including weeding out duplicate items and incomplete data.

III. Comparative Study of Copyright in Databases

A comparative study of the copyright regime for databases under the TRIPS Agreement, Malaysian copyright law, Taiwanese copyright law, and European Database Directive may yield useful insights into the question of the extent copyright law protects datasets used in machine learning. Malaysia may be seen as an example of an English common law jurisdiction, while Taiwan as an example of a Civil Law jurisdiction.

A. International Database Regime

Article 10.2 of the Agreement on Trade-Related Aspects of Intellectual Property Rights states:[7]

"Compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyright subsisting in the data or material itself."

Similarly, Article 5 of the WIPO Copyright Treaty provides that:[8]

"Compilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are protected as such. This protection does not extend to the data or the material itself and is without prejudice to any copyright subsisting in the data or material contained in the compilation."

The operative phrase "by reason of the selection or arrangement of their contents constitute intellectual creations" first appeared in an international treaty in Article 2(3) of the Brussels Act of 1948 of the Berne Convention for the Protection of Literary and Artistic Works. In the 1948 treaty, it applied to "[c]ollections of literary or artistic works

[7] TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994).

[8] WIPO Copyright Treaty, Dec. 20, 1996, S. Treaty Doc. No. 105-17 (1997); 2186 U.N.T.S. 121; 36 I.L.M. 65 (1997).

such as encyclopaedias and anthologies". The examples of "encyclopaedias and anthologies" are indicative of the original purpose of the phrase It was meant to create a separate right for compilers of anthologies and editors of encyclopedias, to reward them for their intellectual input in selecting articles, either in the whole or in part, and in arranging the content to make a sensible or logical compilation for the benefit of readers. Naturally, an alphabetical listing based on the titles of essays would not be sufficient to satisfy the requirement of "arrangement of their contents [as] … intellectual creations".

The expansion of the Brussels Act of 1948 criterion to "[c]ompilations of data or other materials", although appearing to be simplistic, is not unproblematic. Compiling data is a very different exercise from compiling an anthology. Unlike in the case of an anthology of essays where the compiler has to assess the suitability of inclusion, the positioning of the essays into a linear sequence and the need to redact a long essay, the compilation of data does not require such an intellectual exercise. Instead, what needs to be done is to identify whether the data item is to be included, whether the values for the data item is correct, and whether any values need to be corrected, transformed or created. Generally, in the case of machine learning datasets, there is no need to arrange the data items in any particular order, although if the compilation of data is for visual presentation, then the arrangement does in fact matter.

It is understood, since the early days of the European Database Directive proposal, that the requirement of "intellectual creations" is a more demanding standard than the "sweat of the brow" standard in English copyright law.[9] Thus, "intellectual creations" as a standard for originality in copyright is somewhere between the lower threshold of "sweat of the brow", and the higher threshold of novelty in patent law.

B. Malaysian Database Law

Copyright law in Malaysia is governed by the Copyright Act 1987.[10] Since Malaysia is a common law country, English copyright case law heavily influenced and supplemented the copyright law in Malaysia. Under the definition for "literary works" in section 3 of the Malaysian Copyright Act, literary works are defined to include:

"(g) tables or compilations, whether or not expressed in words, figures or symbols and whether or not in a visible form".

The copyright protection for tables or compilations have a long history in English copyright law, and predates the Berne Convention[11] and the TRIPS Agreement.

[9] Michael Pattison, *The European Commission's Proposal on the Protection of Computer Databases*, 14 EUROPEAN INTELLECTUAL PROPERTY REVIEW 113–120 (1992).
[10] Copyright Act 1987 (Act 332).
[11] Berne Convention for the Protection of Literary and Artistic Works of September 9, 1886, completed

Peterson J. in *University of London Press Ltd. v. University Tutorial Press Ltd.*[12] noted that:

"[u]nder the Act of 1842, which protected 'books,' many things which had no pretensions to literary style acquired copyright; for example, a list of registered bills of sale, a list of foxhounds and hunting days, and trade catalogues …"

Indeed, examples of early English court decisions recognising copyright protection for tables or compilations can be found in *Butterworth v. Robinson* for a book of law reports,[13] *Cary v. Kearsley* for a "Book of Roads" containing names of places and surveys of distances,[14] *Barfield v. Nicholson* for an architectural dictionary,[15] *Mawman v. Tegg* for an encyclopedia,[16] *Lewis v. Fullarton* for a Topographical Dictionary of England,[17] and *Ager v. Peninsular and Oriental Steam Navigation Co.*[18] and *Ager v. Collingridge*[19] for a compilation of telegram codes.

The standard for originality in England law is not high. In *University of London Press Ltd. v. University Tutorial Press Ltd.*, Peterson J. held that by original, the Act means that "the work must not be copied from another work—that it should originate from the author". More specifically in relation to tables or compilations, the Lord Atkinson's opinion in the Privy Council case of *Macmillan & Co. Ltd. v. Cooper* is most instructive:[20]

"... it may very well be that in selecting and combining for the use of schools or universities passages of scientific works in which the lines of reasoning are so closely knit and proceed with such unbroken continuity that each later proposition depends in a great degree for its proof or possible appreciation upon what has been laid down or established much earlier in the book, *labour, accurate scientific knowledge, sound judgment* touching the purpose for which the selection is made, and literary skill would all be needed to effect the object in view. In such a case copyright might well be acquired for the print of the selected passages."

In *Football League, Ltd. v. Littlewoods Pools, Ltd.*, a chronological list of football matches prepared by the plaintiff was found to be protected by copyright.[21] While recognising that labour is sufficient, Upjohn J. held that "in such a compilation there is

at Paris on May 4, 1896, revised at Berlin on November 13, 1908, completed at Berne on March 20, 1914, revised at Rome on June 2, 1928, revised at Brussels on June 26, 1948, and revised at Stockholm on July 14, 1967, 828 U.N.T.S. 221 (1967).

12 [1916] 2 Ch. 601.
13 (1801) 5 Ves. Jun. 709; 31 E.R. 817.
14 (1802) 4 Esp. 168; 170 E.R. 679.
15 (1824) 2 Sim. & Stu. 1; 57 E.R. 245.
16 (1826) 2 Russ. 385; 38 E.R. 380.
17 (1839) 2 Beav. 6; 48 E.R. 1080.
18 (1884) 26 Ch. D. 637.
19 (1886) 2 T.L.R. 291.
20 (1924) 18 I.P.R. 204.
21 [1959] Ch. 637.

no element of skill, of selection, of taste, of judgment or of ingenuity … but … it involved a great deal of painstaking hard work with complete accuracy as the keynote. That was all that was required."

This "sweat of the brow" standard has been accepted in Malaysia. In *Kiwi Brands (M) Sdn. Bhd. v. Multiview Enterprises Sdn. Bhd.*,[22] the High Court cited with approval the *Football League*'s case:

"*Football League Ltd* merely reiterates the now entrenched principle that copyright protects compilations which may need no skill and ingenuity so long as there is effort in producing the copyrighted work. This principle appears to manifest itself in s 7(3) of the Copyright Act 1987 which merely requires that 'sufficient effort has been expended to make the work original in character'. Effort and hard work work hand in hand to make the copyrighted works protectable."

However, this approach was rejected in an obiter dictum in *Hardial Singh Hari Singh v Daim Zainudin* concerning the copyrightability of an alphabetical list of government statutes:[23]

"His failure to show that his compilations were original lay in his incapacity to demonstrate that he had imposed some sort of unique pattern or order on the material he had copied which was not to be found in the Government publications. Mere listing of facts is not enough to make something a literary work, however laborious the undertaking."

Curiously, in compliance with international treaty obligations, the Malaysian Copyright Act separately contains a provision similar, but not exactly the same, to Article 10.2 of the TRIPS Agreement. Section 8(1)(b) reads:

"The following derivative works are protected as original works:

....

(b) collections of works eligible for copyright, or compilation of mere data whether in machine readable or other form, which constitute intellectual creation by reason of the selection and arrangement of their contents."

The phrase "collections of mere data, whether in machine readable or other form" first made its appearance in section 8(1)(b) after an amendment in 2000.[24] Unfortunately, to date, no reported decision on section 8(1)(b) can be found, and so there is no judicial guidance on how to reconcile section 8(1)(b) with the English standard of sweat of the brow for the copyright protection of tables or compilations.

As both *Kiwi Brands* and *Hardial Singh* were decided prior to year 2000, there is every possibility that the sweat of the brow standard will be rejected under the current

[22] [1998] 6 M.L.J. 38.
[23] [1991] 1 C.L.J. 116.
[24] Copyright (Amendment) Act 2000 (Act A1082).

interpretation, but then again, if that was the intention of the Malaysian Parliament, the phrase "tables or compilations" should have been removed in section 3. The only case which mentioned "tables or compilations" in passing after year 2000 is *Public Performance Malaysia Sdn Bhd & Anor v Prism Bhd*,[25] but this case has also failed to give an acknowledgement to the existence of section 8(1)(b).

It is possible that courts will continue to recognise the sweat of the brow standard for tables or compilations separately from a compilation of mere data as an intellectual creation. As a comparison, when the United Kingdom transposed the European Database Directive into national law via the Copyright and Rights in Databases Regulations 1997,[26] the phrase "table or compilation" in section 3(1)(a) of the Copyright, Designs and Patents Act 1988 was amended and appended with the qualifier "other than a database". This has the effect of restricting the scope of "a table or compilation" post-amendment to one which is not a database. Even though the United Kingdom has left the European Union, the Copyright and Rights in Databases Regulations 1997 is still in force. That may change in the future if the British Parliament chooses to revert the law on databases protection to its pre-Directive position.

C. Taiwanese Database Law

Copyright law in Taiwan is found in the Taiwanese Copyright Act. A translation of Article 7 reads:

"A compilation work is a work formed by the creative selection and arrangement of materials, and shall be protected as an independent work. Protection of a compilation work shall not affect the copyright in the work from which the material was selected and arranged."[27]

It has been reported in a summary judgment of the Taiwan Supreme Court that in order for copyright protection to subsist in a compilation, some element of creativity in the selection and arrangement of the content must be present. Considerable investment in time and expense is insufficient.[28]

In another decision, the Intellectual Property Court further pointed out that a protected database must be a collection of works, data or other independent materials which are selected from a larger collection of data, and should be arranged in a way

[25] [2016] 1 C.L.J. 687.

[26] Copyright and Rights in Databases Regulations 1997 (SI 1997 No. 3032).

[27] Original Chinese text reads: "就資料之選擇及編排具有創作性者為編輯著作，以獨立之著作保護之。編輯著作之保護,對其所收編著作之著作權不生影響。"

[28] Taiwan Supreme Court No. 940 (2002), cited from Qing Hui Chang, *A Comparative Study of Electronic Database and Copyright Protection*, 6 NTUT JOURNAL OF INTELLECTUAL PROPERTY LAW & MANAGEMENT 30–45 (2017).

that the data can be retrieved efficiently using electronic or other means.[29] In addition, the collected material as a protected subject matter is different from the database itself. Regardless of whether the original collected materials are protected by copyright, as long as the selection and arrangement of the collected materials are creative and have the basic elements of the aforementioned "work", they shall be protected by the relevant provisions of the Taiwanese Copyright Act as a compilation. The Taiwan Intellectual Property Office of the Ministry of Economic Affairs also agreed to this view in its Declaration No. 940415 of 2005.[30]

Furthermore, since compilations are creative works, they need to demonstrate the involvement of "human spirit" in the process of its creation. This spiritual connotation, which is expressed in the selection and arrangement of the content of the compilations must be original and creative, and must sufficiently be connected to the personality or uniqueness of the author.[31]

Conversely, diligent collection of facts without creativity in the selection and arrangement of material, despite considerable investment in time and expense, will not be sufficient to confer copyright protection upon compilations under Taiwanese law. Thus, the sweat of the brow doctrine does not apply. Also, unlike the TRIPS Agreement, the Taiwanese law uses the conjunction "and", which means that both the selection *and* arrangement must be original and creative.[32] This position is different from other countries such as Japan where if either of the "selection" or "arrangement" is creative, the requirement is satisfied to attract copyright protection.

In conclusion, in order to fulfil the creativity requirement, there must be an involvement of human subjective judgment, such as having a conscious decision on the selection of data and demonstrably specific standards, methods or principles in the arrangement.[33] On the other hand, if the selection is inclusive of all material or the arrangement is mechanical in alphabetical, numeric or chronological order, then

[29] Intellectual Property Court Judgment No. 41 (2008), 智慧財產法院 97 年刑智上訴字第 41 號刑事判決。

[30] Declaration No. 940415 (2005), 經濟部智慧財產局 94 年 4 月 15 日 940415 號函。

[31] Taiwan Intellectual Property Court No. 33 Retrial Judgment (2010), 即智慧財產法院 99 年度刑智上更(一)字第 33 號判決。

[32] 李治安，論著作權法中編輯著作對資料庫之保護範圍，月旦法學雜誌，第 188 期，2010 年 12 月，頁 40-41。

[33] 黃銘傑，資料庫著作原創性之所在及其侵權疑義-與一般編輯著作之比較，法學新論，第 24 期，2010 年，頁 44。

creativity is deemed not to be found and the database is not protectable under Taiwanese copyright law.

D. European Database Law

Unlike English law which relies on a Lockean basis for copyright protection, the European approach is more Hegelian in nature.[34] That means labour itself is insufficient to confer copyright protection upon compilations of data. What is needed is some intellectual input from the author. Nevertheless, European countries do recognise the value of databases even when intellectual input in the selection or arrangement of content is absent. Thus, the European Database Directive creates a two-tiered protection for databases.[35]

Similar to the TRIPS Agreement, Article 3(1) of the European Database Directive states that:

"Databases which, by reason of the selection or arrangement of their contents, constitute the author's own intellectual creation shall be protected as such by copyright. No other criteria shall be applied to determine their eligibility for that protection."

In addition to copyright protection, Article 7(1) creates a separate *sui generis* database right:

"Members States shall provide for a right for the maker of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or re-utilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database."

"Database" is defined in Article 1(2) as "a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means".

Several cases involving the interpretation of the European Database Directive have been referred to the European Court of Justice (ECJ). Thus, opinions of the ECJ become important references in interpreting both Article 10.2 of the TRIPS agreement and the *sui generis* database right.

One important question that has been raised is whether a database whose content is created by the author can be protected under copyright. Note that under the old English sweat of the brow theory, the distinction between a database containing created

[34] John Locke, *Chapter V: Of Property*, *in* Second Treatise on Government (1689); Georg Wilhelm Friedrich Hegel, Grundlinien Der Philosophie Des Rechts (1821); Muhamad Helmi Muhamad Khair & Haswira Nor Mohamad Hashim, *Justifications of Intellectual Property Rights:Discussion on Locke and Hegel's Theories*, 11 JURNAL HUKUM NOVELTY 114–123 (2020).

[35] Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases, 1996 O.J. (L. 77) 20–28.

content versus compiled content is of no consequence. However, the legislative history of the transformation from a compilation of literary works into a compilation of data may give rise to a problem in interpreting the scope of database copyright. More specifically, the question is whether only databases containing non-original content will satisfy the phrase "by reason of the selection or arrangement of their contents, constitute the author's own intellectual creation".

In *Football Dataco Ltd. & Ors. v. Yahoo! UK Ltd. & Ors.*,[36] the European Court of Justice had the opportunity to consider whether a database consisting of a fixture list of football matches of the English and Scottish football leagues created by the applicant can be protected under copyright law. As the whole of the database content was created by the football associations, there is no visible selection or arrangement of pre-existing content.

In respect to this question, the ECJ made the following observations, that "copyright protection provided for by that directive concerns the 'structure' of the database, and not its 'content' nor, therefore, the elements constituting its contents";[37] and "the concept of 'selection' and 'arrangement' within the meaning of Article 3(1) of Directive 96/9 refer respectively to the selection and arrangement of data, through which the author of the database gives the database its structure. By contrast, those concepts do not extend to the creation of the data contained in that database".[38]

On the points of what counts as an 'intellectual creation', the ECJ also noted that "the criterion of originality is satisfied when, through the selection or arrangement of the data which it contains, its author expresses his creative ability in an original manner by making free and creative choices … and thus stamps his 'personal touch'",[39] but "that criterion is not satisfied when the setting up of the database is dictated by technical considerations, rules or constraints which leave no room for creative freedom".[40] The result of *Football Dataco v. Yahoo! UK* drew a devastating blow to the database industry. It reaffirms the position that creating data plays no role in database copyright. Similarly, transcribing observations into values is also irrelevant to the question of selection or arrangement of content.

The decision of *Football Dataco v Yahoo! UK* exposes a fundamental flaw in the compilation of data as an intellectual creation on the basis of the selection of its content. Unlike in the case of a compilation of other copyright material where the individual

[36] ECLI:EU:C:2012:115 (Case C-604/10, 1 March 2012).
[37] *Football Dataco v. Yahoo! UK*, para. 30.
[38] *Football Dataco v. Yahoo! UK*, para. 32.
[39] *Football Dataco v. Yahoo! UK*, para. 38.
[40] *Football Dataco v. Yahoo! UK*, para. 39.

items would presumably be protected under copyright as works, individual data units are not works, but they still have to be created by someone.

One absurd interpretation of *Football Dataco v Yahoo! UK* is that the creator of data items would not be eligible to obtain copyright protection for his efforts in creation, but a second compiler who subsequently selects those already-created data items into another database would obtain copyright protection for his selection. It makes no sense for the law to penalise creators of data items but reward subsequent compilers. It also begs the question of whether corporations can overcome this difficulty by having one person creating the data items and another person selecting or arranging those data items into a compilation. After all, the subsistence of copyright is based on human authorship, and not on employment or ownership.

In actual fact, the flaw in this logic does not lie with *Football Dataco v. Yahoo! UK*, but in the whole enterprise of insisting that a database is protected solely on the intellectual creation aspect of the selection or arrangement of pre-existing data items. *Football Dataco v. Yahoo! UK* also leads to the conclusion that the act of generating values from observations, either through human efforts or through automation, is irrelevant to the question of selection or arrangement of the data.

As a side note, the EU's additional *sui generis* database right also offers no avail. *Fixtures Marketing Ltd. v. Oy Veikkaus Ab, Fixtures Marketing Ltd. v. Svenska Spel AB*, and *Fixtures Marketing Ltd. v. Organismos prognostikon agonon podosfairou AE (OPAP)*[41] discussed the question of whether football fixture lists are capable of being protected under the European *sui generis* database right by satisfying the requirement of "a substantial investment in either the obtaining, verification or presentation of the contents". In all three cases, the ECJ answered the question in the negative:

"... the expression 'investment in … the obtaining … of the contents' of a database as defined in Article 7(1) of the directive must be understood to refer to the resources used to seek out existing independent materials and collect them in the database. It does not cover the resources used for the creation of materials which make up the contents of a database. In the context of drawing up a fixture list for the purpose of organising football league fixtures, therefore, it does not cover the resources used to establish the dates, times and the team pairings for the various matches in the league."

Note the operative phrase in the judgments: "existing independent material". Taking a literal interpretation, it means that the material must already be in the form of data, and the investment must be used for the purpose of "obtaining, verification or

[41] [2004] ECR I-10365 (Case C-46/02, 9 November 2004); [2004] ECR I-10497 (Case C-338/02, 9 November 2004); [2004] ECR I-10549 (Case C-444/02, 9 November 2004).

presentation" of that existing data. It would appear that capturing data using sensors may also not be sufficient to satisfy this requirement.

E. Conclusion of Comparative Study

Although decisions of the European Court of Justice concerning database copyright are not binding on jurisdictions outside of the European Union, they are still of highly persuasive value to countries adopting the TRIPS Agreement and the WIPO Copyright Treaty, which at the least, are all World Trade Organization members.

The *Football Dataco v. Yahoo! UK*'s decision correctly clarifies that the act of creating data through whatever process is irrelevant in satisfying the "the selection or arrangement of ... contents" requirement. Furthermore, *Football Dataco v. Yahoo! UK* also suggests that selecting or arranging content based on "technical considerations, rules or constraints which leave no room for creative freedom" would also fail this "intellectual creations" requirement.

Since in an Internet-centric world, data are created from users interactions into a database owned by its purported owner, the provision of the Directive and its interpretation by the ECJ do not seem to accord well with the actual practice of database creation.

IV. Applying the Intellectual Creation Criteria to Machine Learning Datasets

An effective machine learning application requires a well-developed model. Apart from employing an appropriate algorithm, a well-developed model requires a large amount of training data, which means that there must be a Big Data practice. Hence, judicious selection of data items runs counter to good machine learning practices. *Football Dataco v. Yahoo! UK*'s suggestion that selection based on "technical considerations, rules or constraints which leave no room for creative freedom" may fail the "intellectual creations" requirement of Article 10.2 of the TRIPS Agreement is problematic.

Rarely are machine learning datasets consist of only pre-existing data. Human efforts are needed to create new data values, such as labelling observations, transforming existing values, or cleaning data entries with erroneous values. As *Football Dataco v. Yahoo! UK* also shows, creating data, transcribing data from observations such as labelling, and transforming values are all irrelevant to the selection or arrangement process.

In practice, entries in machine learning datasets do not need to be arranged in any particular order. An alphabetical order or a random order will equally give us the same

model, as each data item will be evaluated in turn by the adopted algorithm. It is unlikely that a random order can be considered as an intellectual input. The legislative history of the idea of arranging items in an anthology suggests that the purpose of the arrangement is to ease the readers' usage of the anthology by some criteria such as thematical or by difficulty level. Neither of these criteria applies to machine learning datasets.

An advanced machine learning technique known as reinforcement learning allows an algorithm to iteratively generate new values in order to test its own ability to maximise a reward function.[42] In this way, the computer program will generate new values in order to find new strategies which will maximise the expected value of a trained model. In the reinforcement learning method, the dataset is created by the computer system itself instead of selected or arranged by a human compiler. Such datasets seem not to qualify for copyright protection under the *Football Dataco v. Yahoo! UK*'s interpretation.

It would appear that both the "intellectual creation" requirement and the *sui generis* database rights are premised on a simplistic and unrealistic idea of how a useful database is actually created. Databases for machine learning typically are cleaned, labelled, transformed and merged or linked with other databases in order to be really useful. Real-world applications may also require that databases be continuously being updated with new data. In essence, a new approach to rethinking the copyright protection for databases is needed so that modern databases are adequately protected under contemporary copyright law.

V. Conclusion

In conclusion, it would appear that most, if not all, machine learning datasets will not satisfy the "the selection or arrangement of their contents constitute intellectual creations" requirement and thus fail to qualify for copyright protection. Surprisingly, common law countries such as Malaysia which still recognise the sweat of the brow standard for protecting "tables or compilations" may be in luck. On the other hand, Civil Law countries employing a personality theory to copyright protection, and therefore requiring creativity in the selection or arrangement of the database content,

[42] Richard S Sutton & Andrew G Barto, Reinforcement Learning: An Introduction (2nd ed. 2018); Cody Weyhofen, *Scaling the Meta-Mountain: Deep Reinforcement Learning Algorithms and the Computer-Authorship Debate*, 87 UMKC LAW REVIEW 979–996 (2019).

may face the problem of under-protection of machine learning datasets for the above reason.

As the world rushes into an artificial intelligence era, under-protection of datasets may be problematic. Data is the new oil.[43] The cost of collecting data, creating data and developing good datasets is not insignificant. By not providing adequate legal protection, a market failure in incentivizing optimal investment in creating and maintaining machine learning datasets, and consequently developing more commercially useful artificial intelligence applications, may occur.[44]

On the other hand, enacting a universal *sui generis* database protection may not be an easy solution. The failure of the European Database Directive to take into account the legal protection for databases containing created data items demonstrates the risk of such an endeavor. Perhaps, it is time for the international community to get down from its philosophical high horse and accept that databases should be protected in copyright simply on account of the effort or investment in their their compilation, without the necessity to judge whether there is any intellectual input in the selection or arrangement of their content. After all, as shown in the legislative history, extending the selection or arrangement criterion from anthologies to databases turned out to an ill-considered shortcut.

It would appear that the flaw of the "intellectual creation" standard for database copyright lies in relying on the image of a studious compiler copying information from multiple printed sources into an address book or trade directory. Modern practices of creating new Big Data from a multiplicity of data sources run counter to the intention of the framers of contemporary database protection laws in granting protection to databases. A new approach to rethinking the copyright protection for databases is urgently needed.

Acknowledgement

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[43] Kiran Bhageshpur, *Data is the New Oil—And That's a Good Thing*, Forbes, 2019, https://www.forbes.com/sites/forbestechcouncil/2019/11/15/data-is-the-new-oil-and-thats-a-good-thing/.

[44] Dennis W. K. Khong, *Intellectual Property: Economic Justification*, *in* Encyclopedia of Law and Economics 1178–1185 (Alain Marciano & Giovanni Battista Ramello eds., 2019), https://doi.org/10.1007/978-1-4614-7753-2_697.

How to Maximize the Patent Value: Base on the Patent Trust in Taiwan

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Abstract

As knowledge-based economy is developing in the global environment, knowledge innovation changes quickly and dramatically. Related technology, management and legal protection mechanism based on intellectual property becomes the core competence of the company. The mechanism of maximizing patent value is not only effective for patentee to raise fund to fulfill the strong funding demand used in research and development (R&D) , but also motivates the R&D worker and improve the patent quality, which drives the industry development and increases core competence of nation. It is pity that the majority of patentees are R&D workers who specializes in developing new technology, but have rare understanding about patent maintenance and how to exercise patent right, not to mention how to maximize the patent value, including transference of patent right, patent licensing, patent financing and other options about patent entitlement. Most of local high-tech companies in Taiwan are original equipment manufacturers (OEM) or original design manufacturers (ODM), therefore, they are not available to drive continuous innovative research and development for patent with large capital to obtain competitive advantage by patent right and seize the opportunity to maximize the patent value, which is the method international original brand manufacturers (OBM) adopted. In the framework of trust of Patent Act, this study adopts comparative research methodology to analyze trust of

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patent becomes the dilemma and potential opportunity when maximizing the patent value. Eventually, the study have some findings:

1. Patent term for pharmaceuticals is longer than that for other inventions, and that's why the competitiveness of trust of patent for pharmaceuticals is better than the trust of other inventions' patent.
2. The objective way to measure the value of patent right might depends on the evaluation purpose. After calculating individual patent value, then transforming the different types of intellectual properties into the various trust equities categorized by the patent evaluation purposes, and trust equities might be an option when making decision for investors. Briefly speaking, taking advantage of the characteristic of patent and working with financial system to make trust of patent have much more market-based incentives would make the trust of patent as an opportunity rather than a dilemma for maximizing the patent value.

Keywords: Patent Licensing, Patent Financing, Trust of Patent, Invention Patent.

I. Introduction

As the rise of knowledge economy and globalized industry competitive era, related technology, management and legal protection mechanism based on intellectual property becomes the core competence for the company. Patent is a system to provide the exclusivity with specific term for inventors. With this system, patentee is able to exercise patent right to acquire economic benefits, and also attracts more people to devote into R&D. In terms of the economic incentive, besides the effective way to obtain and take advantage of patent right, the patentee cares how to maximize the technical benefits by commercializing the new developed technology within the short product life cycle and gaining the entitlement for the commercialized technology. Because of the patent system, company could gain the competitive advantage and leading power in the market and stronger its core competence in global market. Therefore, except the patentee record and get patent right, he/she also assign, entrust, license or establish a pledge on the patent right, which is helpful for maximizing the patent value.

Contrary to European or American OBM, most of local high-tech companies in Taiwan are OEM or ODM, therefore, they cannot devote into critical technology innovation. Thus, those Taiwanese high-tech companies often have to deal with the payment of unreasonable royalties that OBM propose by means of patent assigning, licensing, and lawsuit, etc. In long run, besides of endless demand from those OBM, they have difficulty transforming from OEM or ODM to OBM. The main problem for the difficulty in high tech industry lies in the strong demand of large fund and the acquisition of critical technology. However, there are two sides of the story, from the perspective of economics; there is a replacement relationship between financing demand and acquisition of critical technology. The main reason for demanding funds is for getting patent of critical technology, which could make more wealth and reinvest for technology improvement. Therefore, financing is quite important for technology.

The management of patented product is different from those products without patent. Besides the technology has the characteristic of high specialty and confidentiality, considering short product life cycle, it is necessary to commercialize the products on time[1]. Moreover, because the scope of patent is not defined clearly, the uncertainty of the effect of patent right is high as well[2]. It would take a lot of effort but get bad result if no professionals' involvement in the process of patent licensing, patent financing; due to the interdisciplinary and the characteristic of patent, it must rely on

[1] Chin-Lung Lin, The Current Situation of the Predicaments of Taiwan High-Tech Industries for Patent Dispute Resolution, NTUT Journal of Intellectual Property Law and Management, Volume.6 Issue 1, 1-27, July 2017.

[2] Chin-Lung Lin, supra note 1, at 1-27.

the professionals. Obviously, comparing with patent licensing and financing, patent entrusting by leveraging the professional management is the good way to maximize the patent value, patentee can pay attention on R&D and save more efforts to maintain the patent right. The study takes Trust Law as basis to discuss whether the patent entrusting could create much more value by banking transaction platform, apart from providing a financing channel.

II. Meaning, Requirements and Model of Trust of patent

1. Meaning of Trust of patent

"Trust" is a legal system to take care of the assets for the benefit of a beneficiary. "Trust" is based on the settlor's trust to the trustee, settlors transfer legal right or specific asset to trustees, and trustees manage, invest, or dispose of them for settlors and beneficiaries. The management scope is defined in the contract, and trustees need to separate the settlors' asset from theirs.[3] Based on Trust Law, trust could make financial market more diversified; therefore, trust is one of important part as bank, insurance, and security in financial markets.[4] According to Trust Law, Article 1, "For the purposes of this Law, the term "trust" refers to the legal relationship in which the settlor transfers or disposes of a right of property and causes the trustee to administer or dispose of the trust property according to the stated purposes of the trust for the benefit of a beneficiary or for a specified purpose.", which clearly defines that "Trust" is an asset management method[5]. Although it is not specially defined whether "disposal of trust property" is "guarantee trust" or not, while the court confirms that "disposal of trust property" satisfies the facts of guarantee trust[6].

According to Trust Enterprise Act, Article 16, "A Trust Enterprise may engage in the following activities: 1 trust of money; 2 trust of loans and related security interests; 3 trust of securities; 4 trust of movable property; 5 trust of real estate; 6 trust of leases; 7 trust of superficies; 8 trust of patents; 9 trust of copyrights; and 10 trust of other property rights. What' more, in accordance with the interpretation by Intellectual Property Office", the term "Trust" means settlors transfer legal right or specific asset to trustees, and trustees manage, invest, or dispose of them for beneficiaries or specific purpose. The relationship of trust should be limited to specific property right. Property

[3] Steven L., Schwarcz, Commercial Trusts as Business Organizations: Unraveling the Mystery, The Business Lawyer; Volume 58, 559-585, February 2003.
[4] Steven L., Schwarcz, supra note 3, at 559-585.
[5] Chi-Cheng Wang, Trust Law, Wu-Nan Publishing Company, 3rd version, Page 43, Oct., 2006.
[6] Tsung-Fu Chen, Patent Contract, Intellectual Property Office publishing, edited and printed by Graduate Institute of Interdisciplinary Legal Studies, College of Law, National Taiwan University, Page 7, 65-71, Feb, 2017.

right is not a right of identity but a right which can be measured by monetary value, including money, stocks, bonds, real estates, and other tangible or intangible assets, such as: fishing right, mining right, patent right, trademark right, and copyright. Therefore, we can understand the eligibility of trust of patent from the Acts.

Consequently, patent trust represents that the patentee appoint trustee with eligible patent right for gaining more benefits, and trustee manages, disposes of the patent right by the contract of patent trust[7]. According to Trust Law, Article 4 (1), "No trust in respect of a property right that requires trust registration shall be valid against third parties unless trust registration of the right has been duly completed.", patent right is listed as one of property right. According to Patent Act, Article 62(1), "The assigning, entrusting, licensing, or establishing of a pledge on a patent right by the patentee shall have no locus standi against any third party unless it is recorded with the Specific Patent Agency[8]." Thus, even the contract of trust of patent is valid, based on debt's principle of relativity, the patentee shall have no locus standi against any third party unless it is recorded[9].

2. Actus Reus of Trust of Patent

(1)Have patent certificate, and disposal of jointly-owned patent right with the consent of all the joint owner(s).

Aside from eligible patent certificate, if a patent right is jointly owned, except for exploitation by each of the joint owners, it shall not be assigned, entrusted, licensed, pledged, or abandoned without the consent of all the joint owner(s)[10].

(2) Patent should be valid within the statutory time period

The term of an invention patent shall expire after a period of twenty (20) years from the filing date of the application, the term of a utility model patent shall expire after a period of ten (10) years starting from the filing date, and the term of a design patent shall expire after a period of fifteen (15) years from the filing date of the application. Therefore, the exercise of trust of patent should be in the statuary time period[11].

(3) Entrusted patent property right should not be any liability or be involved in any default summon.

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[7] Bing-Yao Chan, Patent Appraisal, Intellectual Property Office publishing, edited and printed by Graduate Institute of Interdisciplinary Legal Studies, College of Law, National Taiwan University, Page 10, Feb, 2017.

[8] The term of utility model patent apply mutatis mutandis to Patent Act, Article 62(1) (Patent Act, Article 120). The term of design patent apply mutatis mutandis to Patent Act, Article 62(1) (Patent Act, Article 142).

[9] Tsung-Fu Chen, supra note 6, at 7, 65-71.

[10] Article 64, Patent Act, Taiwan

[11] Article 52 (3), Article 114, Article 135, Patent Act, Taiwan

The legal relations of entrusted patent property right should be pure; it cannot be mortgaged or involved in any default summon.

(4) Trust of patent act cannot be against the mandatory or prohibitive regulations or contrary to the public order or good morals.

Trust of patent act shall be null and void if the trust is established for any purpose against the mandatory or prohibitive regulations; the trust is established for any purpose contrary to the public order or good morals; the trust is established mainly for serving administrative appeal or litigation purposes; or the trust designates a beneficiary prohibited by law from holding any specific property rights[12].

(5) The altering of patent right is valid after recordation

Recordation to have locus standi against a third party: transference of patent right, the assigning, entrusting, licensing, or establishing of a pledge on a patent right by the patentee shall have no locus standi against any third party unless it is recorded with the Specific Patent Agency[13].

3. Models of Patent Trust

Models of patent trust can be categorized by trust act, one is "Patent Management Trust", which is aimed for managing properties, and another is "Patent Guarantee Trust", which is mainly for guaranteeing credit[14]. Patent Management Trust means that settlors (patentees) transfer their patent right to the trustees, the trustees can exercise the patent right, deal with the contracts for the settlors' benefits, and manage the patent right on behalf of settlors[15]. Moreover, Patent Guarantee Trust means that patentees get funds from creditors, for guaranteeing the credit, patentee transfer patent right to creditors. As long as the patentee cannot pay off the debt, creditors can sell the patent right for clearing the debt. The purpose of the patent transferring is for guaranteeing the credit, unless there is another agreement, creditors cannot exercise the patent right[16].

1. Patent Management Trust

The effective way to maximize the patent value is to make the patented technology commercialized. Most of patentees are lack of knowledge about legal protection and management of patent right, so patent value cannot be sufficiently maximized[17]. For example, the patentee can get the royalty by patent licensing, because they do not have

[12] Article 5, Trust Law, Taiwan
[13] Article 62, 63(1), Trust Law, Taiwan; Article 4(1), Patent Act, Taiwan
[14] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[15] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[16] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[17] Tsung-Fu Chen, supra note 6, at 7, 65-71.

sufficient knowledge about patent management, they can get much more benefits by appointing an agent, who is familiar with patent maintenance, patent licensing, negotiation, royalty, and so on[18].

Legal relationship between two parties of patent management trust: Patentee, who is the trust settlor and beneficiary at the same time, establishes a trust contract with trustee for patent management. Meanwhile, according to Patent Act, Article 62(1), "the assigning, entrusting, licensing, or establishing of a pledge on a patent right by the patentee shall have no locus standi against any third party unless it is recorded with the Specific Patent Agency"[19]. Once the patent trust contract being set and validated, trustee get the beneficial interest and patent right, but trustee should pay annual fee and other administrative fees to professional institute[20]. In the duration of valid patent trust relationships, trustee can legally license the patent right (trust property) to others, and receive the royalty from licensee. Except for the reasonable return, trustee should submit the residual benefits to beneficiary (settlor). In the duration of valid patent trust relationships, the trustee is patent owner, so he/she is obliged to defend patent right by means of warning letters, and the rights to claim damages or removal of interference. Simultaneously, when someone questions the validation of patent right, proposes removal of patent or annulment suit, the trustee is also obliged to defend it. When the relationship ends up, trustee should return patent right (trust property) to the settlor,[21] and make a cancellation and register for patent right transferring.

Undoubtedly, besides of patent management, patent management trust focuses on financing, transaction of beneficial interest of patent trust is a way to get the funds[22]. Speaking of the transaction of beneficial interest of patent trust, the settlor gets the beneficial interests of trust based on the contract, then the" sales agent" takes care of the transaction of the interests and get the equivalent value of money from the investor. What's more, the "sales agent" should give that money to the settlor, and settlor licenses the patent to others, then the settlor is not available for getting royalty, total royalty deducts the management fee (return of the trust management), and then the investors can get the proportional return from the residual revenue. This method is securitizing the beneficial interest of patent trust, which becomes one of the ways for financing to maximize the patent utility[23].

2. Patent Guarantee Trust

[18] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[19] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[20] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[21] Article 65, Trust Law, Taiwan
[22] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[23] Tsung-Fu Chen, supra note 6, at 7, 65-71.

When it comes to maximizing the patent value, besides of the two methods above, patent management trust and transaction of beneficial interests of patent trust, patentee can get a loan with the patent guarantee trust as a collateral from the bank. The bank would evaluate the value of patent right (collateral), and decides the amount of loan. Without a doubt, patent value is difficult to identify, that's the key reason that banks have many concerns about making a loan if the collateral is patent guarantee trust.

Legal relationship between two parties of patent guarantee trust: The patentee is borrower and trust settlor, who build lending relationship with bank. In terms of their relationship, patentee takes patent right as collateral and transfers to the bank. Once the debt cannot be fully paid off, the bank is able to sell the patent as a repay. For the relationship of patent trust, maximizing economic benefits is critical. Thus, for maximizing the economic value, the trustee (bank) should license the patent right to the patentee or others to exercise. The two parties could make an agreement that the royalty revenue can be treated as a repayment for secured loan, which is a better way for both two parties[24].

III. The Function of Patent Trust

Frankly speaking, "Trust" is a legal system to take care of the assets for the benefit of a beneficiary. "Trust" is based on the settlor's trust to the trustee, settlors transfer legal right or specific asset to trustees, and trustees manage, invest, or dispose of them for settlors and beneficiaries. The management scope is defined in the contract, and trustees need to separate the settlors' asset from theirs[25]. Nowadays, Trust could make financial market more diversified; therefore, Trust is one of important part as bank, insurance, and security in financial markets[26]. According to Trust Law, Article 1, "For the purposes of this Law, the term "trust" refers to the legal relationship in which the settlor transfers or disposes of a right of property and causes the trustee to administer or dispose of the trust property according to the stated purposes of the trust for the benefit of a beneficiary or for a specified purpose.", which clearly defines that "trust" is an property management method[27]. As Trust Enterprise Act, Article 16, "A Trust Enterprise may engage in the following activities: 1 trust of money; 2 trust of loans and related security interests; 3 trust of securities; 4 trust of movable property; 5 trust of real estate; 6 trust of leases; 7 trust of superficies; 8 trust of patents; 9 trust of copyrights; and 10 trust of other property rights." What's more, in accordance with the interpretation by Intellectual Property Office, the term "trust" means settlors transfer

[24] Tsung-Fu Chen, supra note 6, at 7, 65-71.
[25] Steven L., Schwarcz, supra note 3, at 559-585.
[26] Ibid.
[27] Chi-Cheng Wang, supra note 5, at 43.

legal right or specific asset to trustees, and trustees manage, invest, or dispose of them for beneficiaries or specific purpose. The relationship of trust should be limited to specific property right. Property right is not a right of identity but a right which can be measured by monetary value, including money, stocks, bonds, real estates, and other tangible or intangible assets, such as: fishing right, mining right, patent right, trademark right, and copyright. Therefore, we can understand the eligibility of trust of patent from the Acts. Consequently, based on pass through structure of trust for special purpose, patent trust has those functions:

1. Function of Property Management

According to Trust Law, Article 1, "For the purposes of this Law, the term "trust" refers to the legal relationship in which the settlor transfers or disposes of a right of property and causes the trustee to administer or dispose of the trust property according to the stated purposes of the trust for the benefit of a beneficiary or for a specified purpose." Speaking of the definition of Trust Law, trust can be used to keep the asset value or even make the value added, that is the function of property management.[28] In another word, transforming various types of properties into trust beneficial interests, and then transferring those beneficial interests to other people. Therefore, trust management (let patent property and financial market on the same transaction platform) might be a way to maximize the value of patent property. In the structure of Special Purpose Vehicle (SPV), start-ups declare trust in all of patent properties, and assign the fiduciary to manage and dispose of trust assets. The fiduciary (the trustee) can get the fund by means of issuing beneficial certificates or creating pledge. Start-ups not only can avoid the burden of patent property management and get the funds for urgent cases, but also have the beneficial interests of trust. For fiduciaries, they are available for transforming properties in different types into beneficiary's right of trust by means of property trust management, then sell the beneficiary's right of trusts to public. The management way also develops as Technology Escrow Service,[29] and the fiduciaries are not only in charge of managing property, but also play the role of technology management. It is indeed a potential management incentives and business opportunity for fiduciaries, and it also provides investors an option for choosing and makes the financial market much more diversified.

[28] Chi-Cheng Wang, supra note 5, at 43.

[29] To increase the willingness of financing, Technology Escrow Service Company offers Technology Collateral Escrow Agreement to the company apply for loan with patent property as a guarantee. Based on the agreement, Technology Escrow Service Company has right for investigating patents, confidential business information, accounting and other programs. Moreover, Technology Escrow Service Company has rights to validate and administer the physical embodiments. Please refer to Fong-Fu Chen, Affiliated Enterprises and Stock Exchange, Wu-Nan Publishing, page 287-305, May, 2005.

2. Avoiding of Double Taxation

Law involves in this new business model and plays a role of trading off between the actual protections of transaction and asset efficiency.[30] Therefore, when a new business model is being established, a fair and efficient taxation system of trust is also highly expected. Speaking of the basic theory about planning trust taxation, there are Trust Conduit Theory and Trust Entity Theory. The former advocates fair Substance over Form Principle and Ability to Pay Principle, and based on this theory, trust property is only a conduit for trust, and the subject of taxation should be beneficiary, rather than trust property, and beneficiary pays the tax directly. By contrast, the latter cares about convenience doctrine and economic principle, and proposes that trust property can be a subject of taxation; it should take the obligation of paying tax. Nowadays, one of the main reasons why most of corporations incline to commercial trust is that they can avoid income tax if the company is organized in commercial trust within the limited scope regulated by Federal Tax Law of U.S.A. Thus, commercial trust is adopted by lots of companies. In terms of corporate taxation, generally speaking, corporations shall pay income tax, while trust has no juristic personality, so it cannot be the subject of taxation of income tax. Therefore, taking trust as Special Purpose Vehicles (SPV) could distribute the revenues to beneficiary to avoid double taxation.[31]

3. Function of Financing

Generally speaking, start-ups demand large amount of funds and high level R&D engineers for patent development in early stage, while those patent value is too difficult to evaluate, and that is also the main concern from banks. Not to mention in the situation without any collateral, banks need to adopt conservative strategy when making loan decision. In that kind of dilemma, it not only cracks down the start-ups, but also not good for improving competitiveness in technology industry and national development. Accordingly, taking patent right as a media in financial market, it becomes one of solutions to solve the fund raising problem. Based on Special Purpose Vehicle (SPV) architecture, start-ups consign the patent right to the fiduciary to manage and dispose of the trust assets. Then, fiduciary forecasts royalty revenue patent licensing, and securitizes it by issuing beneficiary's right. Thus, start-ups get the fund in need, and only need to return the cash flow to investors by making good use of the trust assets. For investors, they can get the return due to patent licensing, while they just take limited

[30] Jer-Sheng Hsieh,Trust Law, Yuan Chao Publishing, page 317-320, July, 2016.
[31] Steven L., Schwarcz, supra note 26, at 559-585. Jer-Sheng Hsieh, supra note30,at.254-255

responsibility depending on the investment proportion.[32] Additionally, by the mechanism of trust, it is helpful for preventing the trustee from bankruptcy; meanwhile it is also a protection for investors, which increases the willingness to invest more.

4. Function of preventing from bankruptcy

The trust system is originated from the commercial purpose of liquidation and tax avoidance,[33] however, it can play a role of firewall and work positively through effective management of trust properties by trustee in accordance with the purpose of trust, for example: function of preventing from bankruptcy. Theoretically and practically speaking, the main reason why trust can prevent from bankruptcy is that trust property is featured by independence and subjectivity, therefore, from the perspective of private law, the subject of rights and obligations derived from the trust acts are trustees; however, trust property actually takes the risk, it has nothing to do with the trustees' personal assets. When the trustee faces bankruptcy, the trust property would not be listed in the bankruptcy properties, so the creditors cannot ask for the compulsory execution of the trust properties. At the same time, the contract of trust would be stopped; the trust property would not be listed in the bankruptcy properties. Briefly speaking, when the settlor, trustee or beneficiary face bankruptcy, any third party (the creditor of the settlor, trustee or beneficiary) cannot advocate to execute the trust property compulsorily, which can be exempted from the bankruptcy list, and avoid disposal in bankruptcy procedures.[34]

5. Function of Conduit

The function of conduit plays a key role when company raises funds with patent, but owing to the difficulty in valuation, not to mention the bank considers benefits, would incline to be conservative if the loan has no any collateral. It is definitely a big challenge for start-ups to raise funds, so most of start-ups turn to Venture Capital for help. However, for ensuring the investment performance, Venture Capital would involve in business management,[35]which make start-ups hesitates to raise funds from Venture Capital. Therefore, the trust of Special Purpose Vehicle (SPV) takes patent property right as a media in financial market to raise large amount of funds for research & development. Based on the structure of Special Purpose Vehicle, by signing the trust contract, the settlor can get the fund and transfer the beneficial interests by trust.

[32] Steven L., Schwarcz, supra note 26, at 559-585.
[33] John H. Langbein, supra note 2, at 8.
[34] Article 12, Trust Law, Taiwan
[35] Venture Capital Business Management Rules, Article 11(3) (Abandoned on 04, June, 2001)

Meanwhile, the settlor can split the beneficial interests and release to public in the form of beneficial securities or beneficiary's right to realize securitization. When it comes to the asset liquidity, investors are subject to invest in the execution of patent property, rather than the patent asset directly. Thus, it is feasible to issue trust beneficiary's right as an option for investment.[36]

IV. The Dilemma of Patent Trust

1. The uncertainty of patent right[37]

Patent right is one of intangible property right, so the scope of rights is usually uncertain, especially in the infringement cases, practically speaking, there are two definitions about claim construction, inclusive of Central Definition and Peripheral Definition, therefore, it causes the loss because of uncertainty and incomprehensiveness. Therefore, Eclectic Principle is adopted, and it makes the scope clearer, as Patent Act, Article 56(3) states "The scope of a patent, of which a term extension has been granted, shall be limited to only the effective ingredients and use stated in the regulatory approval concerned."[38] However, practically speaking, even professionals cannot define the scope stated on the user manual clearly, so it is prone to have different valuation results for one technology from person to person. For the judgement of patent infringement cases, discrepant result also occurs usually. Therefore, execution of patent right is full of high uncertainty.[39]

In addition to the uncertainty of the scope of patent rights, the effects of patent rights are also highly uncertain. Patent right is an exclusive right with prescription granted by authorities. Once the invention or creation meets three criteria of novelty, inventive step or non-obviousness, and industrial applicability/usefulness, the authority would grant it an exclusive patent right with prescription. To avoid the abuse of the patent authorization and ensure the patent granting is correct, besides of the substantive review as the first checkpoint; there is also another mechanism of objection or reporting established by Patent Act.[40]

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[36] Chi-Cheng Wang, supra note 5, at 47

[37] Chin-Lung Lin, supra note 1, at 1-27.

[38] ROC (Taiwan) Patent Act, Article 56 (3): The scope of an invention patent right shall be determined based on the claim(s) set forth in the specification of the invention. The descriptions and drawings of the invention may be used as reference when interpreting the scope of the claims in the patent application.

[39] Chin-Lung Lin, supra note 1, at 1-27.

[40] According to Patent Act, Article 41 stated that during the application is published; anyone who finds the inappropriateness can file an invalidation action to the authorities. Then, the authorities would review the said patent again, if the result points out that it is definitely inappropriate, and should not grant the patent, the authorities would revoke, and the inventor cannot get the patent right. What's more, according to Patent Act, Article 71 and 72, once the authorities finish substantive review, and publish the patent. As long as the reasons exists as those stated as Article 71, the authorities could review the validation of the

To ensure the security of business environment and transaction, the most important thing for the patentee is to commercialize the patented technology within the finite product life cycle. Thus, either producing and selling by it, or licensing to other people. However, according to Patent Act, Article 67 and 68, when the patent was validated, the patent right might be revoked. Once the patent is published, it is still full of instability. When executing the patent right, apart from third party's invasion, there is also a risk of revoking the patent. Additionally, according to Patent Act of R.O.C., Article 73(2) stated, once the revoke is confirmed, the patent right would be extinguished and would not exist retrospectively. Thus, that would cause legal uncertainty of patent licensing, and decrease the confidence level of law, and put the business environment and transaction in danger.[41]

Besides of high uncertainty of the scope and effectiveness of patent right, commercialization of patent right is also highly uncertain. Even though the patented technology highlights the feature such as highest speed, largest capacity or best industrial design, if the technology does not meet the market demand that would just fall into the R&D myth of engineer. What's more, success of patent commercialization relies on market environment transition, competitors' actions and other dynamic factors. Therefore, it is hard to evaluate the market demand and reaction in advance. Undoubtedly, owing to the highly uncertain factors, investors are difficult to make decisions rationally.

2. Lack of Objective Valuation Mechanism of Patent in Law[42]

According to Company Act, Article 156 (5), Equity capital to be contributed other than cash by shareholders may be in the form of monetary credit extended to the company, or the property or technical know-how required by the company, provided. It means that technological shareholders contribute technical know-how. However, in terms of transferring the whole or any essential part of its business or assets, there is still no valuation criteria about "contribution of technical know-how by technological shareholders" adopted by most of shareholders in the shareholders' meeting.[43]Merger & acquisition of financial institutions is also in similar situation. For example: When approving

application due to authority or the invalidation action within the valid time period. Even the interested party possesses recoverable legal interests due to the revocation of a patent; such interested party may file an invalidation action after the said patent has become extinguished ipso facto. If the authorities find that they should not grant the patent, and would revoke it. Moreover, as Patent Act, Article 82(2) stated, "Where an invention patent is revoked finally and bindingly, the effect of patent right shall be deemed not to have existed."

41 Chin-Lung Lin, supra note 1, at 1-27.

42 Fong-Fu Chen, supra note 29, at 287-305

43 Article 185, Company Act, Taiwan

a merger, the Competent Authority shall take their financial status into account,[44] and the board of directors shall review the financial report and approve it.[45] When an asset management company that aims for acquisition of non-performing loans of Financial Institutions, it should review the asset of the target company.[46] No matter general consumption, general transferring, partially transferring or transferring major part of business, asset and liabilities, all relates to tangible and intangible assets valuation. Coincidently, corporation merger and acquisition or spinning off, also have something to do with tangible and intangible assets valuation.[47]

Regretfully speaking, when it comes to the law about intellectual property valuation, only Patent Act, Article 89(1-3) stated "When patent right is invaded, the specialized institutions or experts requested by the court would estimate the value of damage. There is lack of concrete operational specifications. However, large business opportunity relates to the intellectual property valuation, therefore, many valuation institutions set up, but those institutions with different quality decrease the credibility. Intellectual property valuation covers different fields, including technology, business, and law, it is highly professional, and therefore valuation institution with high credibility is rare. Owing to the market demand, Industrial Development Bureau, Ministry of Economic Affairs established Taiwan Technology Marketplace (TWTM) and invited business partners, venture capitals, research institutes, academic institutes and other stakeholders about technology demand and supply to become a member. TWTM facilitates the communication and cooperation. However, the knowledge about intellectual property right valuation covers wide range, inclusive of technology, business, law, and others. It is also relevant to the influence of dynamic environment, especially abrupt news, political events, or the judgements, so it is hard to value the property objectively.

As everyone knows, high tech companies need to have large fund to support patent research and development, therefore they can acquire much more resources to invest in research and development. However, owing to the difficulty of valuation of patent technology, and that is one of the reasons why the banks always concern about the objective criteria of patent valuation.[48] That is why the high tech start-ups rely on venture capitals to invest in, because they have no access to the loan from the bank. Although "Guidelines of Loan for Private Labeled Business", revised in 01, August, 2008, allows to transfer patent right into goods available for sale, and license the bank to run the loan business to deal with the corporation for the financial gap for brand marketing. However, "Guidelines of Loan for Private Labeled Business" doesn't meet the high technology companies' financial demand for research and development,

[44] Article 6(1-3) ,The Financial Institutions Merger Act,Taiwan
[45] Article 8,The Financial Institutions Merger Act, Taiwan
[46] Article 15,The Financial Institutions Merger Act, Taiwan
[47] Article 10, 27, 33 Business Merger and Acquisition Act, Taiwan
[48] Fong-Fu Chen, supra note 29, at 287-305.

because the guidelines regulate the purposes of loan, such as, marketing promotion, advertisements, packaging, marketing outsourcing, investment of devices, and others. Actually, it doesn't list all of the intangible assets into the collaterals of loan. Moreover, credit line is just NTD 500 million, and loan term is 5 years at most.

V. The Opportunity of Patent Trust

1. The competitiveness of patent trust of pharmaceuticals is better than that of other inventions'

In the duration of trust, there is a controversial issue about whether Embargo Principle is applicable in common law;[49] while patent trust is based on the regulations of Patent Act, the patentee owns the patent right within specified duration. According to Trust Law, Article 62, "A trust relation shall be terminated upon the occurrence of an event provided in the trust act or upon the completion or impossible completion of the purposes for which the trust is established." Thus, whether Embargo Principle is applicable is not a controversial issue for patent trust. However, whether Embargo Principle is applicable becomes a controversial issue for Trust Law Principle is because the trust system provides the economic incentives like tax avoidance, wealth accumulation, etc.[50] In that case, it is obvious to prove that duration of trust is relevant to the beneficial interest of trust property, so that is why the longer the duration of trust, more helpful for the settlors' and beneficiaries' beneficial interests. Even though the trustees just play the role that are in good faith to trust properties, the longer the duration of trust, the more beneficial for trustee to manage, dispose of the trust properties and forecast the patent royalty, then issue beneficial certificates or securitize.

Generally speaking, once the patent term expires, patentee cannot to get the royalty revenue. Therefore, there is an expiry date of patent term, it also means that the ownership of "Special Purpose Vehicle" to the trust of patent property and the source of revenue would be invalid at the same time. This also represents that when Special Purpose Vehicle manages, disposes of trust properties, it should consider how the expiry of patent term influences on patent royalties, the issued beneficial certificates and the securitization benefits. In general cases, the invention patent can directly be commercialized, so it is allowed to have 20-year patent term, stated in Patent Act.[51] However, pharmaceutical invention patent is relevant to national health, so its reviewing procedure is different from general invention patents'. Even though

[49] Jer-Sheng Hsieh, supra note 30, page 127-140.
[50] Jer-Sheng Hsieh, supra note 30, page 127-140.
[51] Article 52, Patent Act, Taiwan

pharmaceutical research and development production needs to have the specific evidence to prove its pathological effect, it should take long time conducting clinical trials to prove its safety and medical effects. Simultaneously, the pharmaceutical authorities have to execute the serious reviewing procedure and confirm the legal criteria, then approve it to launch.

Obviously, the complicated pharmaceutical invention patent application process limits the right for the patentee of pharmaceutical patent to execute invention patent invisibly. Thus, in Patent Act, it allows the patentee may apply for one and only one extension of the patent term of pharmaceutical invention patent based on the first regulatory approval, and the granted patent term extension shall be five (5) years.[52] However, the patent term of medical supplies research and development is same as that of general invention patent, which is different from that of pharmaceutical invention patent. From above, we could understand the patent term of pharmaceutical invention patent is much longer than that of general invention patent; in that case, it is helpful for trustee to manage, dispose of trust property or related revenue, and influence the patent royalty, issue beneficiary certificates or securitize it. Simultaneously, besides the benefits to beneficiary, it is also easier for the settlor to raise the fund for research and development. Therefore, in comparison, the competitiveness of trust of patent for pharmaceuticals is better than the trust of other inventions' patent. Speaking of fund raising in medical industry, pharmaceutical patent trust seems to be popular in financial market.

2. The Presentation of Objective Patent Value Under The Competitive Circumstance

In the trend of globalization, due to the popularity of internet and rapid development of IT information and other high tech industry, political, economic, social, and cultural environment change. Meanwhile, it accelerates the delivery and integration of information, money, goods, and labor, which makes the traditional nation boundary vanish, and become a global village gradually. In the trend of globalization and knowledge economy, knowledge economy operates in the globalization mechanism, and triggers the rapid change of knowledge innovation. Intellectual property-based technology, management and legal protection mechanism become the core competence of corporation. Accordingly, high tech companies exercise intellectual property right through legal strategy, which is not only an aggressive weapon to exclude the invasion, and retrieve the royalties from unlicensed firms as return of research & development investment, but also be served as a passive weapon, a chip for negotiation of licensing.

[52] Article 53(2), Patent Act, Taiwan

What's more, exercising intellectual property right on market strategy not only increases the entry barrier to prevent competitors from joining in and gets the leadership in the market, but also increases market share. Moreover, sound company exercises intellectual property right on capital strategy, not only can be listed in the asset category shown on statement of financial status through contribution of technical know-how by technological shareholders, but also be a collateral to raise fund for research and development from financial institutions. Nowadays, speaking of exercising intellectual property right, in the effect of knowledge economy, high tech company has adopted active market strategy, instead of passive defense action, such as filing lawsuits.

Indeed, there are factors from multiple facets influencing the patent value, inclusive of patent importance, integrity, competitiveness, maturity, potentiality, the possibility of being replaced, life cycle of technology, and others from technology side. Besides, it is including patent validity, protection effect, and possibility of infringement, implementation limitation, and licensing limitation, collateral for claim for compensation, patent belonging and exercising from legal facet. There are also some factors from business management facet, like market positioning and trend, the co-competition relationships of relative firms, demand of commercialization, and product life cycle. In fact, all the facets mentioned above are all related to rapid and dynamic change in the global environment. Thus, owing to those different facets of influential factors, and rapid and dynamic change, it is too difficult to evaluate patent value objectively. This is like the theory in physics, the individual unit composed by atoms and molecules is not the most important, but the interaction resulted from the array of the atoms and molecules. Taking diamond for example, diamond is composed by many carbon atoms, but carbon atom cannot shine, the reason why the diamond shines is because of the special array of carbon atoms.[53] Briefly speaking, besides of the interaction of technology, management and legal facets, time is also an important variable interacts with those facets.

Nowadays, based on Trust Law, through "Property Trust Management", different types of trust properties can be transformed into trust beneficial certificates, and be issued to public. The sale of beneficial interests of patent trust reflects the responsive market value of patent in the dynamic environment. In brief, the objective market value, beneficial interests of patent trust in affected by technology, law, business management, price and time. For fiduciary, it is a potential management incentive and business opportunity. Similarly, for investors, besides of multiple investment options in financial market, fiduciary can play the functions of property management and technology management with the value of beneficial interests of patent trust. That makes the patent

[53] Mark Buchanan, The Social Atom: why the Rich Get Richer, Cheaters Get Caught, and Your Nighbor usually Looks like You, Bloomsbury: New York, USA, 2007.

technology increase market share, and the market value can be objectively and completely presented. Therefore, it creates multi-wins for settlors (start-ups), trustees (trust institution), and investors. Moreover, judgement of patent value could be an evidence for patent licensing and compensation for damages.

3. The Trustee combines the Function of Conduit with the Synergy of Property Trust Management and Technology Trust Management

Because it is difficult to get the loan with intangible collaterals, in U.S.A., Technology Escrow Contract is developed. It means that when the company would like to take intangible assets as collaterals to raise fund from banks or venture capitals, then the creditors would transfer the intangible assets to the escrow company, and sign the escrow contract, then the escrow company would identify, recognize and manage the intangible assets. The debtor is beneficiary, only when the conditions are met, the intangible assets would be returned to the beneficiary. The mechanism of technology escrow contract is not only makes the intangible asset more concrete, but also provides much more protection to the transaction counterpart and lenders.[54] Briefly speaking, the subject of Technology Escrow Contract includes Technology Escrow Service Company, depositor, and beneficiary. Depositors mean the owner of technology or intangible assets. Beneficiary means financiers, banks, lenders or venture capitals. The main purpose of Escrow Contract is to let the escrow company manage the technology patent through the relationship of the Escrow Company and depositor, and under certain circumstances, the Escrow Company could own the patent. Meanwhile, besides of the escrow contract, it is necessary for the depositor and beneficiary to establish collateral agreement, development agreement, or other agreements related to the ownership of tangible and intangible assets. What's more, only reaching the conditions, the beneficiary could get the technology ownership based on the escrow contract.[55]

Interestingly, is Technology Escrow Contract is an appropriate way to solve the problem of fund raising for startups? According to Trust Law, Article 9(1), "The property rights acquired by a trustee by virtue of a trust act shall be deemed to be a trust property." Trust property is only the "property right". Property right is a kind of right which can be measured by monetary value, including money, stocks, bonds, real estates, and other valuable assets. Thus, it is obvious that the trust property mentioned in Trust Law includes quasi-real right such as mining right, fishing right, and intangible property rights, like copyright, patent right, trademark or service labels.[56] Moreover, According

[54] Fong-Fu Chen, supra note 29, at 287-305.
[55] Fong-Fu Chen, supra note 29, at 287-305.
[56] Yuan-He Lai, Chi-Cheng Wang, Contemporary Theory of Trust Law, Wu-Nan Publishing, page 65-67, Sep, 2001; Fong-Fu Chen, supra note 29, at 307-317.

to Trust Law, Article 5, trust act shall be null and void if（1） the trust is established for any purpose against the mandatory or prohibitive regulations;（2）the trust is established for any purpose contrary to the public order or good morals;（3） the trust is established mainly for serving administrative appeal or litigation purposes; or（4） the trust designates a beneficiary prohibited by law from holding any specific property rights. Accordingly, if not contrary to the public or good morals, it is reasonable to establish the trust with technology right.[57] In accordance with Financial Asset Securitization Act, Article 35, the Trustee may appoint a servicer to manage and dispose of the trust property, no need to take care of it completely. However, due to tradeoff between practical transaction security and asset efficiency, law needs to involve in the new type of business model.[58] It is obvious that the three parties of Technology Escrow Contract is much more advantageous than the four licensed parties in the mechanism of Special Purpose Vehicle.

Actually, the reason why it is hard to objectively evaluate the patent value is that the patent value might vary from the various valuation purposes. Briefly speaking, the purpose of valuation includes royalty, loan, lawsuit, and commercialization or patent value maximization. If we evaluate them on the same valuation basis, just like the dependent variable will be changed owing to the different independent variables. Even if objective valuation of patent is difficult to implement, the dilemma might be an opportunity as well. If the trustee of technology escrow evaluates technology patent depends on different purposes, then transfer those various patent properties into beneficial certificates of different valuation purpose, and issue to financial market as an investment option. In that case, from the perspective of the function of conduit, the trustee plays a role in both property trust management and technology escrow, and it is like combining the valuation system with financial system. For fiduciary, the market is full of incentives.

VI. Conclusion

Without a doubt, since the implementation of Patent Trust Law, the effect is not good as expected. Besides of the dilemma mentioned above, diversified financial products has no incentive in competitive market is one of reasons. That is the concept “Where the profits to be gained, where the trend it is”. Due to lack of incentive, not only gain no favor from technology start-ups and fiduciaries, but also cannot get any identification from investors. In other words, the trend is where the profits to be gained, so when the conditions are ripe, success is assured. Therefore, some scholars propose

[57] Fong-Fu Chen, supra note 29, at 307-317.
[58] Jer-Sheng Hsieh, supra note 30, at 317-320.

that design the guidelines of the business model of Patent Investment Trust (PIT) with reference to the model of Real Estate Investment Trusts (REITs).[59] As a matter of fact, in order to tradeoff between practical protection of transaction security and asset efficiency, law involves in this new type of business model.[60] Similarly, no matter any new type of business model, it is a must to strike a balance between practical protection of transaction security and asset efficiency. Thus, for the subject of trust, the function of trust property management, and beneficial interests of trustee and beneficiaries, Technology Escrow Contract is obviously better than the business model of Patent Investment Trust (PIT).

Opportunity might come with dilemma, which can be applied for both pharmaceutical patents and the valuation of patent right. To get the pharmaceutical patent, it needs to go through a series of complex application process, which limits the pharmaceutical patentee to exercise patent right. Simultaneously, in Patent Act, it allows the patentee may apply for one and only one extension of the patent term of pharmaceutical invention patent based on the first regulatory approval, and the granted patent term extension shall be five (5) years; thus, the competitiveness of patent trust of pharmaceuticals is comparatively better than that of other inventions'.

Regarding to the objective valuation of patent right, it might be a start to transfer dilemma into opportunity. Thus, it might as well evaluate technology patent depends on different purposes, then transfer those various patent properties into beneficial certificates of different valuation purpose, and issue to financial market as an investment option. In that case, from the perspective of the function of conduit, the trustee plays a role in both property trust management and technology escrow, and it is like combining the valuation system with financial system. For fiduciary, the market is full of incentives.

Above all, the research shows that in competitive market, any financial product needs to have inducements of investment to get the favor from investors. Therefore, 1 Patent term for pharmaceuticals is longer than that for other inventions, and that's why the competitiveness of trust of patent for pharmaceuticals is better than the trust of other inventions' patent. 2. It might as well to evaluate technology patent depends on different purposes, then transfer those various patent properties into beneficial certificates of different valuation purpose, and issue to financial market as an investment option. Briefly speaking, taking advantage of the characteristic of patent and working with financial system to make trust of patent have much more market-based incentives would make trust of patent as an opportunity rather than a dilemma for maximizing the

[59] Hueih-Lih Chiou, A Study on The Intellectual Property Right Trust, Intellectual Property Journal, Volume. 108, page 43-63, Dec, 2007.
[60] Jer-Sheng Hsieh, supra note 30, at 317-320.

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INTERNET INTERMEDIARIES' SAFE HARBOUR FOR THIRD-PARTY COPYRIGHT INFRINGEMENTS FROM THE COMPARATIVE VIEWS

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Abstract

Since the 1990s, the digital age has put people under immense challenges in which every aspect of the legal systems, including copyright, is forced to reform to catch up with changes. The effect of technology on copyright can be described in many aspects. Copyright is not stand-alone; it must be in the relationship of the whole legal system, of which one primary matter is the liability of Internet service intermediary (ISI). Internet intermediaries provide connections for users and facilitate the transmission of content over the Internet through their server. Various copyright infringement might occur during the transmission of content on online sites or servers; therefore, it is debated that to what extent the intermediaries' accountability can be held for online piracy. When it comes to that matter, although there is a consensus on the immunity regime (also-called 'Safe Harbour') for intermediaries due to the free flow of information, the issues are far more complicated. The modern ones these days include many other platforms such as Google, Youtube, Amazon (hosting server) or Facebook, Twitter, Instagram (social network). The most substantial difference here is the raised platforms have high power over controlling users and contents, not simply be a mere conduit of information as Internet providers. A notice-takedown system has been developed for the benefit of copyright owners; however, it has raised a concern about ignoring the fair use doctrine and public interest. Therefore, the article also suggests a new international copyright treaty to cover the Safe Harbour, a more effective counter-notice system, and another mechanism for users to claim fair use for their uploaded contents.

Keywords: Internet Service Intermediaries, Safe Harbour, Copyright.

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1. What to know about ISI?

1.1. Classification of Internet service intermediaries

Internet service intermediaries, hereinafter referred to as ISIs or Internet intermediaries, facilitate communication and transactions among users on the Internet platforms. Their main functions vary but mostly involving collecting and organizing information, enabling social communication, information exchange and market processes, and aggregating supply and demand.[1] As the meaning of 'Intermediary,' an ISI does not begin transmitting information, but it "brings together or facilitates transactions between third parties on the Internet[2] To be detailed, ISIs conduct their functions by giving access to, hosting, and transmitting the content or providing Internet-based services to third parties. Although there is not a high consensus on the classification of ISIs, Susy Frankel and others introduce four basic types of intermediaries: [3]

(1) Access provider: A company that provides individuals and organizations access to the Internet and the universe of the World Wide Web, more known as Internet Service Provider or ISP.[4] This kind of business should own such facilities as satellite, broadcasting towers, telecommunication lines, broadband fiber optic cables, or mobile communication stations. *Example: Verizon, AT&T, Lightwire.* Another alternative term that conforms to the above definition is "interactive computer service" introduced under Section 230(e)(2) of the Communication Decency Act 1996, United States of America.[5] In general, the role of ISPs on the Internet is likely to be "a virtual post office," which receives, caches, and conveys electronic messages on behalf of another individual/organization.[6]

(2) Search engines and portals: the former is a program that searches for resources varying from websites, files to information on the Internet, while the latter refers to a website that provides a broad range of content and services such as email or news feeds. A derivative platform of 'portal' is called 'vertical portal,' which focuses more on a

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[1] KARINE PERSET ET AL., THE ROLE OF INTERNET INTERMEDIARIES IN ADVANCING PUBLIC POLICY OBJECTIVES 11 (Paris : OECD 2011).
[2] *Id.* at 19.
[3] SUSY FRANKEL & DANIEL J. GERVAIS, THE EVOLUTION AND EQUILIBRIUM OF COPYRIGHT IN THE DIGITAL AGE (Cambridge University Press 2014).
[4] D. (DARREL) INCE, A DICTIONARY OF THE INTERNET (Oxford : Oxford University Press 4 ed.. ed. 2019).
[5] The Communication Decency § 230 (1996).
[6] Norazlina Abdul Aziz & Irini Ibrahim, *Child's Right to Free Flow Information via Internet: Liability and Responsibility of the Internet Service Provider*, 38 PROCEDIA - SOCIAL AND BEHAVIORAL SCIENCES 160, 162 (2012).

specific type of content.[7] *Example: Google, Bing, Baidu (Search engine), Gmail, Outlook, Google News, MSN, Yahoo News (Portal).* Besides, it is also essential to differentiate between portals as news feeds and online newspapers which produce contents and publish on their own websites; meanwhile, a news portal gathers and re-arranges contents from various sources, either manually or automatically and typically under agreements with sources. Despite the costly establishment of infrastructure, their services are mostly free of charges because their majority profit comes from advertising.

(3) Social media: "a website or an application that enables users to create and share content or to participate in social networking."[8] A common operational mechanism between social media and search engines or portals is that they mostly earn massive profit from advertising activities, not directly from their users. *Example: Facebook, Instagram, Twitter, Weibo.* The boundary between social media and other hosting facilities, which would be discussed below, is very unlikely. New social networks such as Facebook and Instagram can support as large and diverse content as any hosting facilities. Accordingly, a platform like Youtube could be considered as either a social network or a video hosting site because it enables users to interact with each other. However, the author classifies social media platforms following their extent of user interaction and communication.

(4) Hosting facility: "a third party that provides computer server equipment and related services for the purpose of making software available on the Internet for use by End Users."[9] This type of ISIs appears to be the most complicated, which may comprise video-storing and streaming services, application hosting, web hosting, domain name registrars, cloud computing platforms, and even e-commerce websites or online payment systems.[10] *Example: Youtube, Google Cloud, Oracle Cloud, Amazon Web Services.* It can be said that hosting facilities are fundamental infrastructure for all other Internet intermediaries involved in managing vast amounts of data transmissions. Despite the variety of hosting facilities, 'one-way' platforms, for instance, movie sites like Netflix, PrimeVideo, or payment systems like Paypal, Stripe, POLi, shall not be discussed in the scope of the article. The reason is that secondary copyright infringements cannot occur for these platforms do not allow content interaction from users on their sites.

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[7] INCE, *supra* note 4.
[8]." DANIEL CHANDLER & ROD MUNDAY, A DICTIONARY OF SOCIAL MEDIA (Oxford University Press 2016).
[9] ." *Hosting Facility | Legal Definition of Hosting Facility by Law Insider*, https://www.lawinsider.com/dictionary/hosting-facility (last visited May 28, 2020).
[10] PERSET ET AL., *supra* note 1, at 23.

1.2. Importance of Internet intermediaries

The Internet appears as a global network connecting electronic devices through the processors of content requests and responses from worldwide users. Materials requested to the server computer (website) will be broken into packets with the corresponding address before being sent across the Internet until all the packets gather at the initial computer.[11] In every part of the above process, "Internet intermediaries are central to how digital content is distributed," providing essential tools for the Internet to operate the information exchange.[12] Along with the expansion of the Internet to all aspects of society, the role of ISIs has become vital. At present, ISIs are contributing to the value-added chain with several roles as listed by Perset: access and storage providers, marketplace exchanges, auction brokers, virtual marketplaces, web aggregators, news syndicators.[13] Therefore, it can be said that without ISIs, the Internet would not be in the indispensable place today.

However, the importance of intermediaries goes together with challenges. Because the nature of the Internet operation is copying from a computer to another one, the exploitation of content involves the generation of potential infringement, particularly privacy and copyright. It is a complicated calculation for ISIs to maintain the openness and ease of use of the Internet while preventing online infringements.

2. What to know about Safe Harbour regime?

2.1. The Safe Harbour for Internet intermediaries

a. The United States

As referred above, the Internet will not be as significant as it is today without ISIs, which is due to the need for sufficient protection for ISIs from liability for users' illegal acts, particularly copyright infringement. The Digital Millennium Copyright Act 1998 (DMCA) in the United States is supposed to be the pioneer that introduced a safe harbor – an immunity regime – for ISIs from copyright liability and then influentially shaped copyright legislation in other parts of the world.[14] Before enacting Safe Harbour,' the

[11] SIMON STOKES, DIGITAL COPYRIGHT: LAW AND PRACTICE 13 (Hart Publishing Fifth edition.. ed. 2019).
[12] BETHANY KLEIN ET AL., UNDERSTANDING COPYRIGHT: INTELLECTUAL PROPERTY IN THE DIGITAL AGE 45 (May 2020).
[13] PERSET ET AL., *supra* note 1, at 27.
[14] Althaf Marsoof & Indranath Gupta, *Shielding Internet Intermediaries from Copyright Liability—A Comparative Discourse on Safe Harbours in Singapore and India*, 22 JOURNAL OF WORLD INTELLECTUAL PROPERTY 234, 238 (2019).

US courts conducted an "aggressive approach toward intermediaries" that adjudged their direct liability for copyright infringements.[15]

'Safe harbor' is a term used to indicate a mechanism aiming to protect ISIs from legal liability while equipping copyright owners with essential tools to reserve their legitimate interest. In terms of copyright, ISIs cannot be held liable for any copyright infringements generated by their users on intermediary platforms once they are qualified for safe harbors. There appear to be well-reasoned grounds to immunize ISIs against liability for third party's content due to the enormous quantity and "instant nature" of content transactions and communications on the Internet.[16] Therefore, it would be unfair for both ISIs and Internet users to require strict control of input contents because it takes the former excessive effort and financial potential while the latter suffers the limited freedom of information flow.

The precursor of safe harbor seems to be Section 230 of the Communication Decency Act (CDA) 1996. The initial purpose of the CDA 1996 was to restrict free speech on the Internet[17] when it aimed to prohibit online communications of indecent contents to minors along with criminal penalties.[18] After its enactment, the American Civil Liberties Union (ACLU) and other plaintiffs filed a lawsuit against the Department of Justice and Attorney General Janet Reno with the claims that there was no available technology to screen for the age of Internet users, leading to the risk of reducing all speech to a minor level – or in other words, limiting the freedom of expression.[19] The decision of the US Supreme Court eventually concluded that "portions of the CDA [were] unconstitutional"[20], nevertheless, Section 230 of the CDA remains in place, which has by far established a shield for Internet websites' operation, including intermediaries.[21] Section 230 regulates that "no provider of user of an interactive computer service shall be treated as the publisher of speaker of any information provided by another information content provider".[22] However, the Section has no effect on intellectual property law; therefore, it is necessary for another shield to protect ISIs in the field of copyright law.[23]

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[15] *Id.* at 235.
[16] Thilini Kahandawaarachchi, *Liability of Internet Service Providers for Third Party Online Copyright Infringement: A Study of the US and Indian Laws* 9, 555 (2007).
[17] *Section 230 of the Communications Decency Act*, ELECTRONIC FRONTIER FOUNDATION, https://www.eff.org/issues/cda230 (last visited Jun. 2, 2020).
[18] D. FRALEIGH, RENO V. ACLU 299 (2010).
[19] *Id.* at 300.
[20] *Reno v. American Civil Liberties Union, 521 U.S. 844 (1997)*, JUSTIA LAW ¶ 95, https://supreme.justia.com/cases/federal/us/521/844/ (last visited Jun. 3, 2020).
[21] *Section 230 of the Communications Decency Act*, *supra* note 17.
[22] *47 U.S. Code § 230 - Protection for Private Blocking and Screening of Offensive Material*, LII / LEGAL INFORMATION INSTITUTE ¶ (c)(1), https://www.law.cornell.edu/uscode/text/47/230 (last visited Jun. 2, 2020).
[23] *Id.* ¶ (e)(2).

Following Section 230 of the CDA, 'safe harbor' is first introduced in Section 512 of the DMCA 1998 as "Limitations on liability relating to material online," which has been maintained without any amendment since then.[24] First of all, there are two definitions of 'service provider' under Section 512 of the DMCA 1998, among which the second definition is broad enough to include the regular ISPs and new services in the future.[25] Accordingly, a service provider qualified to benefit from a safe harbor is defined as 'a provider of online services or network access, or the operator of facilities[26] Besides, the broad scope of this definition was strengthened by the Western District of Washington Court in *Corbis v Amazon* (2004), where Amazon was determined to fit within the definition totally.[27] It can be said that the above definition is familiar with the term 'Internet intermediaries' described in the former part of the research. From Section 512(a) to (d), the DMCA gives the protection for any ISIs whose functions are engaged in the below categories:

(1) Transitory digital network communications: "transmitting, routing, or providing connections for, material through a system or network controlled or operated by or for the service provider, or by reason of the intermediate and transient storage of that material in the course of such transmitting, routing, or providing connections".[28]

(2) System caching: "the intermediate and temporary storage of material on a system or network."[29]

(3) Information residing on systems or networks at direction of users (so-called as 'hosting')[30]: "the storage at the direction of a user of material that resides on a system or network."[31]

(4) Information location tools: "referring or linking users to an online location containing infringing material or […] activity."[32]

According to four above-referred categories under the DMCA 1998, there is a range of basic ISIs being exempt from copyright liability. For instance, the most basic ones, Internet access providers, as 'transitory digital network communications,' or search engines (Google, Bing, Baidu) are classified as 'information location tools.'

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[24] Kimberlee Weatherall *Internet Intermediaries and Copyright – A 2018 Update* (2018) at 12.
[25] Kahandawaarachchi, *supra* note 16, at 554.
[26].' The Digital Millennium Copyright Act 1998 § 512 para. k.
[27] Marsoof & Gupta, *supra* note 14, at 238.
[28] § 512 para. a.
[29]." *Id.* § 512 para. b.
[30] Marsoof & Gupta, *supra* note 14, at 238.
[31]." § 512 para. c.
[32] *Id.* § 512 d.

b. New Zealand

Safe harbors in the US are regulated under copyright legislation, which is considered as 'vertical' rules while some other safe harbors are found in 'horizontal' rules and protected under different laws.[33] It is New Zealand legislation to share the same approach with the US in terms of liability for third party online content. In New Zealand, there is no large difference in ISP interpretation as compared to the DMCA 1998. The New Zealand Copyright Act 1994 chooses to use the term 'Internet service provider' that is defined as a person either "offers the transmission, routing, or providing of connections for digital online communications," or "hosts material on websites or other electronic retrieval systems" for users.[34] In general, intermediaries (or 'Internet service provider' as used by the Copyright Act 1994) must not be considered as copyright infringers in case (1) users infringes the copyrighted contents by using their services,[35] or (2) intermediaries stores infringing material provided by their users,[36] or (3) caching infringing material.[37] As can be seen, although the Copyright Act does not directly mention 'caching' in the interpretation of 'Internet service provider', 'caching' is one of the online acts that is protected from third-party infringement.

New Zealand law further protects intermediaries from liability for third-party content under the safe harbor of the Harmful Digital Communications Act (HDCA). Nonetheless, the purpose of the HDCA is to mitigate individuals' emotional severe distress from cyberbullying or other online harassments. Thus, according to the HDCA, the safe harbor will not be analyzed in the research.

c. European Union

On the other hand, the European Union is typical for the 'horizontal' approach to copyright safe harbor. The safe harbor in the EU is set out by the Electronic Commerce Regulations, which not only covers the exclusion from liability for copyright but database right or other intellectual property infringement.[38] Accordingly, service providers benefit from the safe harbor when (1) acting as a mere conduit,[39] (2)

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[33] Weatherall, *supra* note 24, at 5.
[34] *Copyright Act 1994 No 143 (as at 04 January 2020), Public Act Contents – New Zealand Legislation* § 2, http://www.legislation.govt.nz/act/public/1994/0143/latest/DLM345634.html (last visited Jun. 1, 2020).
[35] *Id.* § 92B.
[36] *Id.* at 92C.
[37] *Id.* at 92E.
[38] SIMON STOKES, *supra* note 11, at 62.
[39] *The Electronic Commerce (EC Directive) Regulations 2002 No. 2013* § 17, http://www.legislation.gov.uk/uksi/2002/2013/made/data.xht?view=snippet&wrap=true (last visited Jun.

caching [40] and (3) hosting. [41] In all cases, there would be no general onus on intermediaries conducting those online acts to keep information or content under surveillance. Besides, the Information Society Directive protects Internet intermediaries against liability for temporary acts of reproduction which are transient (or incidental) and essential to a technological process without economic significance.[42]

One difference in the safe harbor between the US and the EU is that EU legislation does not expressly give protection for search engines. However, the Court of Justice of the EU has extended the interpretation of 'hosting' to apply to search engines provided that they fulfill the relevant conditions.[43]

2.2. Eligibility requirements of the safe harbor for Internet intermediaries

Internet intermediaries cannot be simply categorized as beneficiaries from the immunity regime, but it is required to meet a set of conditions that establish the notice-takedown system or otherwise leads ISIs to the secondary liability for copyright infringement. This part looks into the development and implementation of the notice-takedown system and secondary liability in the copyright infringements in the United States, New Zealand, and the European Union, respectively. In addition, some landmark cases are introduced, and comparisons are adopted when it is applicable.

a. The United States

Under Section 512 of the DMCA 1998, the ISIs' immunity is determined by their knowledge and involvement towards the copyright infringements. Firstly, as for network communications like Internet access providers who play the role of a mere conduit, the providers must not initiate the transmission of the material, and all the transmission must be an automatic technical process, without any acts of the providers in the modification of content, the selection of the recipients and the copy of the material other than what is reasonably necessary.[44]

Secondly, as for system caching and hosting (including search engines), in addition to similar conditions as described above, ISIs must not have actual knowledge and awareness of the infringing material or activity as well as no direct financial benefit

1, 2020).
[40] *Id.* § 18.
[41] *Id.* § 19.
[42] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, 32001L0029, EP, CONSIL 5 (2001).
[43] Weatherall, *supra* note 24, at 17.
[44] The Digital Millennium Copyright Act 1998 § 512 sec. 512(a)(1) to (5).

from the infringement.[45] More importantly, the DMCA requires ISIs to "respond expeditiously to remove or disable access to, the material that is claimed to be infringing" upon notification from the right holders.[46] This regulation is what we call 'the notice and takedown system, which places the burden of infringement detection on the copyright holders.[47] However, the notice and takedown system is not a mere expeditious removal of infringing material. The case *BMG Rights Management LLC v Cox Communications Inc* is a remarkable instance where the defendant Cox, regardless of its policy for removing infringing material by users, failed to qualify for the safe harbor because the policy was not applied to repeat infringements in a consistent measure.[48] Therefore, a repeat infringers policy is also required for ISIs to be eligible for a DMCA safe harbor.

As discussed above, an Internet intermediary might be disqualified from the safe harbor if failing to meet the DMCA conditions. This affirmation is strengthened by a high-profile case *A&M Records Inc et al v Napster Inc.* Napster was a music share software that allowed its users to share MP3 files using peer-to-peer (P2P) model. Through the P2P technique, users are able to exchange files on their computers with others; thus, the copyright infringements occurred, and Napster was accused of 'contributory and vicarious federal copyright infringement[49] The Court eventually concluded that although Napster provided its service free of charge in theory, it became so popular that it did profit from the infringements. Furthermore, Napster did record information about the users and their shared files; therefore, Napster was technically able to prevent those illegal activities. Consequently, it is adjudged by the Court that Napster was required to remove content when requested by the right owners.[50]

In essence, 'contributory and vicarious liability' claimed in the case of Napster are two different doctrines of secondary liability, which generally results from failing to meet the DMCA statutory requirements.[51] Another ISIs facing a lawsuit of secondary liability was Youtube in the case against Viacom. As familiar as the Napster case, Youtube was claimed to be liable under both doctrines of secondary liability by illegally facilitating users to upload and watch thousands of videos owned by Viacom. The plaintiff described Youtube as "a haven for massive infringement" that the defendant

[45] *Ibid* § 512 sec. 512(c)(1)(A) and (B).
[46] *Id.* § 512 sec. 512(c)(1)(C).
[47] Emerald Smith, *Lord of the Files: International Secondary Liability for Internet Service Providers*, 68 WASHINGTON AND LEE LAW REVIEW 1588, 1570 (2011).
[48] Weatherall, *supra* note 24, at 13.
[49].' SIMON STOKES, *supra* note 11, at 185.
[50] KLEIN ET AL., *supra* note 12, at 51.
[51] Miquel Peguera, *Secondary Liability for Copyright Infringement in the Web 2.0 Environment: Some Reflections on Viacom v. Youtube*, 6 JOURNAL OF INTERNATIONAL COMMERCIAL LAW AND TECHNOLOGY 21 (2011).

intentionally operated.[52] However, Youtube in its lawsuit successfully defended its safe harbor when the Court of appeals ruled that Youtube (a) had no actual knowledge of infringement (no "willful blindness")[53] and (b) did not have the right and ability to control the infringement under Section 512(c)(1)(B) of the DMCA 1998.[54]

Moreover, the DMCA does not restrict Internet intermediaries against implementing additional enforcement of copyrighted material, so-called 'DMCA plus' measure.[55] Youtube Content ID System appears to be among the most typical 'DMCA plus' measures when this system supports copyright owners in managing their content on Youtube. Accordingly, videos uploaded to Youtube are scanned through a database of files submitted by owners; and in case of infringing activities, copyright owners have the right to decide different actions on the material.[56]

b. New Zealand

It is evident that New Zealand law requires ISIs to fulfill the conditions of a safe harbor. The general principle is set as below:

(1) The ISI must not know or has reason to believe that the material infringes copyrighted work, and shall remove or prevent access to the material as soon as possible after becoming aware of the infringement.[57]

(2) In the case of caching, the ISI does not modify or interfere with the material and does comply with any conditions from the copyright owner as well as updates the material following reasonable industry practice. Moreover, the intermediary must delete the material as soon as possible after he became aware that the original source of material has been removed or prevented from accessing or as ordered by a court.[58]

Also, the New Zealand copyright legislation has developed a graduated response that only encompass "file sharing" under Section 122A of the Copyright Act 1994.[59] The 'file-sharing' defined in the Act is commonly known as peer-to-peer file sharing, for instance, Torrent download, which infringes the holder's exclusive rights such as

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[52] *Id.*

[53] Docket Alarm Inc, *Viacom International, Inc. et Al v. Youtube, Inc. et Al, 1:07-Cv-02103, No. 452 (S.D.N.Y. Apr. 18, 2013)*, DOCKET ALARM 10, https://www.docketalarm.com/cases/New_York_Southern_District_Court/1--07-cv-02103/Viacom_International_Inc._et_al_v._Youtube_Inc._et_al/452/ (last visited Jun. 2, 2020).

[54] *Id.* at 21.

[55] Weatherall, *supra* note 24, at 5.

[56] *How Content ID Works - YouTube Help*, https://support.google.com/youtube/answer/2797370?hl=en (last visited Jun. 2, 2020).

[57] *Copyright Act 1994 No 143 (as at 04 January 2020), Public Act Contents – New Zealand Legislation*, *supra* note 34, § 92C.

[58] *Id.* § 92E.

[59] Patricia Ieong, *The Copyright (Infringing File Sharing Amendment Act) 2011: A Fair and Effective Regime?(New Zealand)*, 17 AUCKLAND UNIVERSITY LAW REVIEW 320, 319 (2011).

the right to make reproductions for producers of phonograms or the right of distribution.[60] According to Sections 92B and 122A to 122U of the Act, a P2P file-sharing intermediary, to benefit from safe harbor, must have a system allowing users to inform suspected infringements. After three notices of detection, warning, and enforcement, respectively, the right holder can apply to the Copyright Tribunal for a certain sum. Another response of the suspension of Internet accounts might also be applied to repeat infringers according to the must-have policy of a service provider.[61]

c. The European Union

As described under Regulation 17 to 19 of the EU E-Commerce Directive, conditions for the safe harbor that an ISI has to fulfill are similar to those of the US and New Zealand copyright legislation. During the implementation of the Directive, the safe harbor qualification has been challenged in several lawsuits. One landmark case was The Pirate Bay – the world's largest 'BitTorrent' tracker (P2P network), which provided an organized directory of content for users to browse[62]. In 2017, the Court of Justice of the European Union (CJEU) developed further the right of communication to the public within the Information Society Directive and determined The Pirate Bay itself communicating copyright works to the public[63]. Therefore, the platform was disqualified from the safe harbor.

Another significant case was L'Oreal v eBay even though this case was not copyright infringement. L'Oreal brought proceedings against eBay for hosting the sale of trademark infringing and counterfeit products.[64] In the context that eBay assisted sellers in optimizing the presentation or even promoting the sale of the product, it then concluded by the CJEU to ineligible for the exemption from liability.[65] The case is an essential reflection on Regulation 19 of the E-Commerce Directive that where a hosting platform plays an active role toward content and cannot rely on the safe harbor.

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[60] Jeremy Johnson, *Peer-to-Peer File-Sharing: New Zealand and Overseas Approaches to Copyright*, NEW ZEALAND LAW JOURNAL 172, 172 (2013).

[61] *Copyright Act 1994 No 143 (as at 04 January 2020), Public Act Contents – New Zealand Legislation*, *supra* note 34, § 92A. Section 92A was repealed without coming into force by Section 4 of the Copyright (Infringing File Sharing) Amendment 2011, Public Act Contents – New Zealand Legislation" <www.legislation.govt.nz> at s 4.

[62] SIMON STOKES, *supra* note 11, at 192.

[63] Eleonora Rosati, *The CJEU Pirate Bay Judgment and Its Impact on the Liability of Online Platforms*, No. ID 3006591 (Jul. 2017).

[64] *L'Oréal v EBay: Good News for Brand Owners*, PRACTICAL LAW, http://uk.practicallaw.thomsonreuters.com/9-507-0026?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1 (last visited Jun. 3, 2020).

[65] *EUR-Lex - 62009CJ0324 Case C324/09 L'Oréal SA and Others v EBay International AG and Others* ¶ 116, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62009CJ0324 (last visited Jun. 3, 2020).

In 2019, the EU adopted the Directive on copyright and related rights in the Digital Single Market that provides a confirmation of safe harbour and a further explanation of ISI's eligibility requirements.[66] A service provider should effort to prevent their users from uploading unauthorized works onto platforms, provided that copyright owners give them all relevant and necessary information. At the same time, ISIs must also secure the availability of lawful materials, whether through a licensing agreement or acts of fair use. In case the right holders have provided ISIs with relevant and necessary information, ISIs shall be exempt from liability for third-party infringement only if they have fulfilled "high industry standards of professional diligence."[67] This term leaves many uncertainties, and it may refer more than a mere uploadfilter like Youtube Content ID. An evident interpretation of such term shall be available only when it comes to national laws of EU's Member States.[68]

3. Are copyright owners' interests far outweighing public interests under Safe Harbour?

It is undeniable that the immunity regime has played a vital role in the free flow of information on the Internet. However, the current systems are questioned about the balance between copyright owners' interests and public interests when the former seems to outweigh the latter through the notice-takedown process. Meanwhile, some researches indicate that digital piracy may be an incentive for creativity because it raises the more extensive exposure of copyrighted works to the public.[69] As analyzed in the previous parts, the procedure from a notice of suspect infringing material to the removal of claimed material must be expeditious, which places both intermediary and its subscriber in a passive position. Due to the simple process, there is evidence of "over-removal" by ISIs, eventually leading to the "restraint to speech."[70] In essence, laws akin to the DMCA 1998 did introduce such safeguard as counter-notification and misrepresentation under which subscribers can challenge a notice of a claimed infringement, and those who knowingly misrepresent in notices shall be liable for damages.[71] However, the practical systems leave very few rooms for Internet users to

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[66] Directive 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC https://eur-lex.europa.eu/eli/dir/2019/790/oj (last visited Jan.11, 2022).

[67] *Id*. §17

[68] Greilich, Konrad, The EU Directive on the Single Digital Market and its Influence on the Freedom of Expression (September 2019). Available at SSRN: https://ssrn.com/abstract=3789062 or http://dx.doi.org/10.2139/ssrn.3789062

[69] Giancarlo F. Frosio, *Digital Piracy Debunked: A Short Note on Digital Threats and Intermediary Liability*, 5 INTERNET POLICY REVIEW 8 (Mar. 2016).

[70]." *Id.* at 3.

[71] The Digital Millennium Copyright Act 1998 § 512 sec. 512(f) and (g).

reinstate their material along with legitimate benefits once work is removed and fall out of the Internet trending contents.

Misrepresentation of notice resulting from the lack of a due process also put 'fair use,' a fundamental principle of copyright law, at risk. The doctrine of fair use aims to promote the progress of human knowledge by allowing the public to utilize copyrighted works. However, the right to fair use of public on the Internet is strictly limited by the notice-takedown system because it is difficult for copyright owners, regardless of their good faith belief, to take account of fair use in their claimed notices. For example, in the US case of *Lenz v Universal Music,* where Lenz's short video was taken down by Youtube after the notification of infringement from Universal Music, 'fair use' was thence applied to object the defendant's allegation and the video was eventually restored.[72] Notwithstanding that the Ninth Circuit required the consideration of fair use before issuing a takedown notice, the term 'consideration' remains uncertain in the US.[73] Generally, an asymmetry between claimed notice and counter-notice can cost the public the effectiveness of copyright fair use. Furthermore, besides the fair use and free expression, other aspects such as the future of open shared wi-fi networks (in New Zealand for example) are also be threatened without a due process of the takedown systems. In detail, New Zealand's graduated response in the field of peer-to-peer sharing blames liability on ISIs even when an infringing activity occurs on an intermediary platform by hacking techniques.[74]

On the one hand, the current takedown system results in the over-removal; on the other hand, it turns out to be inadequate for large-scale online infringements. The notice system is only applicable for every single infringing activity that challenges the effort of the right owners to monitor the mass use of their work on the Internet. As for intermediaries, mostly multi-national corporations, they face various obstacles because of the inconsistent regulations and procedures in different parts of the world. For example, there is a gap in the definition of ISI, which does not fully cover such unique platforms as a search engine and a new social network among the US, the EU, and New Zealand. Also, while the US and New Zealand exercise a mandatory policy of repeat infringer for the safe harbor eligibility,[75] the EU legislation does not require one. These incompatible aspects may confuse ISIs in the course of their business.

It has now over two decades since the immunity regime was born under the DMCA 1998. There appear to be numerous deficiencies that deter copyright law from dealing with the incredible pace of technology development. This section seeks to represent

[72] SIMON STOKES, *supra* note 11, at 65.
[73] Amanda Reid, *Considering Fair Use: DMCA's Take Down & Repeat Infringers Policies*, 24 COMMUNICATION LAW AND POLICY 101, 118 (2019).
[74] Ieong, *supra* note 59, at 317.
[75] See at page 14 and 16 of the article.

two approaches for reforming the immunity regime of liability for Internet intermediaries.

Firstly, it is time for a new international copyright treaty to amend or replace the WIPO Copyright Treaty of 1996. The need for a new treaty is based on the inconsistent regulations and procedures among WIPO state members. In detail, a new treaty shall provide a comprehensive definition of Internet service intermediary as well as a necessary uniform procedure of actions by ISIs, right owners, and Internet subscribers. It must be a due process that allows the accused party to promptly and fairly conduct their counter-notification. Furthermore, there should be a common standard for today's ISIs to self-equip with an efficiency pro-active monitoring system that can manage mass infringements of copyright.

Secondly, it is necessary to include a mandatory fair use consideration in the notice process. As Amanda Reid recommended in her research,[76] there are several approaches that the author also find them feasible to protect the effect of fair use: (1) A takedown notice of claimed infringement shall be made under penalty of perjury, and; (2) A takedown notice must include a mandatory express consideration of fair use, and; (3) Clarifying and limiting the circumstances to suspend an account of repeat infringer to protect the legitimate interest of subscribers. In detail, a new generation of Safe Harbour must include a tool for users to mark their materials as fair use of copyrighted contents. In order to revoke such materials, the copyright owners must try harder to give the ISI stronger evidence or even challenge them in court. It is worth further consideration that may such another notice system restrain the free flow of information? Probably not. Fair-use notification is a non-compulsory step for those seeking more reliable protection of their materials. But no ISI is willing to proceed toward this way because it shall burden them with a double liability: one for third-party infringement and one for third-party fair use. Technologically, a tool designed for fair-use notification before uploading is simple. Morally, online platforms have earned enormous profits from their users, so it is fair enough for ISIs to repay something. ISIs shall be exempt from the immunity regime if they fail to prove their efforts in protecting the fair use and freedom of expression.

4. Conclusion

Internet service intermediaries are an indispensable facilitator of the free flow of information on the Internet, contributing to freedom of expression and speech. Many types of online platforms have been experienced in today's society, including access providers, caching systems, search engines, and portals, and hosting facilities. Due to

[76] Reid, *supra* note 70, at 129.

the importance of cyber intermediaries, the immunity regime, along with the notice-takedown system, are introduced to protect ISIs from liability for third-party copyright infringements. There are a set of conditions for ISIs to qualify for the protection of the safe harbor based on which the Court in the United States, the European Union, and New Zealand have disqualified many cases of ISIs that failed to fulfill any aspects of eligibility requirements. After two decades of implementation, the regime has exposed numerous problems with the regime's shortcomings and the inconsistency among WIPO state members. These problems place copyright law under the pressure of reforming to catch up with the change of modern technology. Therefore, the research analyzes two feasible approaches to innovate the current immunity regimes, including the need for a new international treaty and the necessity of fair use consideration in the notice and takedown process. Most ISIs nowadays have created a simple notice-takedown system for the copyright owners, why should a similarly simple system not be set up for the purpose of fair use. Users shall have a tool to claim fair use when uploading their materials to online platforms; and once a fair-use content is approved, it will be protected against the notice-takedown system. Such approach puts end users in a proactive stance, in which copyright owners, now in their turn, to chase after and take the fair-use claim down.

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