This paper was presented at the 19th International Conference on Sustainable Development, International Conference Center, Sorbonne University, Paris, France on August 26-27, 2024.

Indonesia Data Protection Policy of Intellectual Property And Its Effect on the Economy

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OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.
ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com
Also available at https://www.ssrn.com/index.cfm/en/oida-intl-journal-sustainable-dev/

Abstract: Intellectual property policy is a set of rules designed to protect a person's intellectual work from being misused by other parties. In a legal context, intellectual property policies include copyright and industrial property rights which include; patents, trademarks, industrial designs, trade secrets, integrated circuit layout designs, and plant varieties. This study aims to encourage innovation and creativity, as well as protect the rights of owners of intellectual works from misuse by other parties. Intellectual Property is a very valuable asset for the development of an organization, institution, or country. This research aims to analyze and examine: (i). Forms of Intellectual Property Data Protection in Indonesia; and (ii). To find out the benefits and role of Intellectual Property data in Indonesia's economic growth.

This research is a type of qualitative research using NVivo as a data analysis method. Data collection was carried out through Focus Group Discussions (FGD) and in-depth interviews with key informants.

The results of this research describe that: (i). Implementation of Intellectual Property data protection in Indonesia is generally carried out in the form of protected data before the Intellectual Property Rights are published and data becomes transparent after the Intellectual Property Rights are published; and (ii). Regarding the impact of Intellectual Property data protection on the economy, data protection can have an impact on potential output growth. This refers to the threat of database leaks that cause material harm. Based on the concept mapping that has been built previously, this form of data protection is one part of the Intellectual Property ecosystem that will later bring benefits to the economy. However, this certainly requires a role from the Government (DJKI) in bridging these two things, one of which is focusing on the Human Resources (HR) aspect which must be considered. HRs are needed who have extensive knowledge of Intellectual Property and the field of Information Technology.

Protection of Intellectual Property data by developing digital infrastructure and increasing Human Resources competency is one of the key factors supporting a more optimal digital ecosystem to minimize potential material losses.

Keywords: Intellectual Property Policy, Intellectual Property Protection, Intellectual Property Data, Data Protection, Qualitative Research

Introduction

Intellectual Property (IP) protection policy is a series of steps or rules created to protect legal rights to the intellectual creations of a person or an institution regarding copyright and industrial property rights which include; patents, Trademarks, industrial designs, trade secrets, integrated circuit layout designs and plant varieties. The concept of IP protection refers to legal rights that protect creations of the mind, such as inventions, literary and artistic works, designs, symbols, names, and images used in commerce which aim to encourage innovation and creativity by giving creators exclusive rights to their work.

These protections help prevent unauthorized use or reproduction of IP and enable creators to financially benefit from their creations. Apart from encouraging innovation, protecting IP also plays an important role in encouraging economic growth and development. IP policy in Indonesia refers to Law Number 13 of 2016 concerning Patents, Law Number 20 of 2016 concerning Trademarks, Law Number 28 of 2014 concerning Copyright, Law Number 31 of 2000 concerning Industrial Design, Law Number 30 of 2000 concerning Trade Secrets, Law Number 32 of 2000 concerning Integrated Circuit Layout Design. In Indonesia, the IP system is very important in protecting the rights of creators, brand owners, and innovators. Internationally, regulations in the field of IP first occurred in 1883 with the birth of the Paris Convention for patents, trademarks, and designs (see Suyanto, 2006). In 1886 there was a Berne Convention agreement on copyright issues. Both conventions discuss standardization, exchange of information, minimum protection, and procedures for obtaining Intellectual Property Rights (IPR). As a result of these two conventions, an administrative bureau was formed called The United International Bureau for the Protection of Intellectual Property, which later became known as the World Intellectual Property Organization (WIPO). WIPO is an international organization under the United Nations (UN) which specifically handles IP issues. IP is quite important, including: (i). As a tool for trade competition, especially for developed countries so that they can maintain their position of dominating the international market with their goods; (ii). Tools to encourage progress in science and technology with new innovations that can be industrialized; (iii). A tool for improving the economic welfare of the community, especially researchers who have industrialized findings, namely by receiving compensation in the form of royalties; (iv). It is also used as a business strategy tool to commercialize an invention and enable producers of intellectual works to exploit their discoveries economically; and (v). Enables rights owners to receive income and profits for the time, money, and effort they have spent in creating IP, so that rights owners are able to create subsequent and better IP (see Manaf, 2004 and Rizkia & Fardiansyah, 2022).

The strategic role of the Directorate General of Intellectual Property (DJKI) is to provide services to the public related to administering IP registration and carrying out outreach to the public and stakeholders regarding the importance of protecting IP and the use of original products as well as carrying out law enforcement for IP violations. In advancing the protection of IP in the face of economic globalization, one of which is the challenge of the industrial revolution 4.0, DJKI needs to reform the IP regulations and system to encourage the progress of the IP regime in Indonesia. IP services at the DJKI have contributed to non-tax state revenues (PNBP) which continue to increase from year to year. This can be seen in Table 1 below.

Table 1. Statistics on the Number of Intellectual Property Applications

Service Type	Year				
	2023	2022	2021	2020	2019
Trademark	134,730	122,266	106,171	95,741	90,001
Patent	10,552	9,968	9,200	8,538	10,018
Simple patent	4,471	4,085	3,249	2,308	2,564
Industrial Design	6,326	4,875	4,364	3,929	4,397
Copyright	141,944	117,079	83,069	58,076	42,764
Geographical Indication	22	26	28	25	32
DTLST	6	7	3	12	11
Trade Secret	7	-	-	-	-

Source: DJKI (2023)

In 2020, almost all countries in the world, including Indonesia, experienced a bad situation due to the spread of the Covid 19 virus. For this reason, the Indonesian government issued Presidential Regulation (PERPRES) Number 39 of 2019 concerning One Indonesian Data (SDI). SDI is the government's breakthrough in regulating data governance in order to support holistic development. The principle of one data that makes the data can be said to be accurate, up-to-date, and can be shared and can be used as input for making policies, includes data standards, standard of metadata, interoperability, and one reference code or master data. SDI is a government policy in managing government data. The aim is to realize integrated planning, implementation, evaluation, and control of development through the support of accurate data. Referring to the above, better protection of IP data is needed. The

use of information technology really supports improving the quality of digital-based IP public services. This is closely related to the influence of managing and protecting data entering DJKI. Utilization of data will add value to the IP data itself. Based on the description above, this research aims: (i). To analyze and study forms of Intellectual Property data protection in Indonesia; and (ii). To analyze and study the benefits and role of Intellectual Property data in economic growth in Indonesia.

Theoretical Background

Economic Growth Theory

Economic growth is an indicator of successful development in an economy. The progress of an economy is determined by the amount of growth indicated by changes in national output. The existence of changes in output in the economy is a short-term economic analysis. Rahardjo (2013) explained that economic growth is an effort to increase production capacity to achieve additional output, which is measured using Gross Domestic Product (GDP) and Gross Regional Domestic Product (GRDP) in a region. Amri (2007) mentions that economic growth is a very important indicator in assessing the performance of an economy, especially for analyzing the results of economic development that has been implemented in a country or region. An economy is said to experience growth if the production of goods and services increases from the previous year. Economic growth shows the extent to which economic activity can generate additional income or social welfare in a certain period. The economic growth of a country or region that continues to show improvement indicates that the economy of that country or region is developing well. Syahputra (2017) explained that economic growth is a long-term economic problem and economic growth is an important phenomenon experienced by the world recently.

Basically, economic growth is a process of long-term per capita economic growth. This means that in the long term, prosperity is reflected in an increase in per capita output which at the same time provides many alternatives for consuming goods and services, and is accompanied by an increasing purchasing power of the people. Economic growth is also related to the process of increasing the production of goods and services in society's economic activities. Economic growth concerns developments that have a single dimension and are measured by increasing production output and income. In this case, it means that there is an increase in national income as indicated by the value of GDP. Syahputra (2017) quotes from Sukirno (2016), that economic growth is an increase in the long-term capacity of the country concerned to provide various economic goods to its population.

Data

In general, data can be defined as facts or images in the form of numbers or the like and provide information that can be used to make tactical and strategic operational decisions and produce accurate conclusions (see Arhami & Nasir, 2020; Kristanto, 2018; Batini, et.al., 2009; and Austin et al., 2015). Research data is defined as digital data that is part or result of the research process. This process covers all stages of research starting from the formation of research data, empirical studies, results, till the publication of research results. Data quality is also a significant consideration for external data sources (Azeroual, et al., 2018). Data quality is a series of actions that determine whether data can be understood independently and can be reused. Reuse of data means that the original researchers or other researchers can use the data at a future time without specifying what specific uses it might be used for (Peer. et.al, 2014). Data quality requirements and categories are shown in the table below.

Table 2. Data Quality Requirements

Condition	Category
Accuracy	The extent to which the data value corresponds to the actual value or true value
Relevancy	The extent to which the data applies (is related) to the tasks of the data user
Representation	The extent to which data is presented in an unambiguous manner
Accessibility	The extent to which data is available

Source: Wang & Strong (1996)

Furthermore, the results of the data will become information. Information according to Romney & Steinbart (2012) is data that has been organized and processed to provide meaning and assist in the decision-making process. According to O'Brien & Marakas (2011) users need high-quality information, namely information that has characteristics, attributes, or properties of the information that are useful for them (see also Stair & Reynold, 2012; McLeod & Schell, 2007; and Romney & Steinbart, 2012). The quality of complete information can be interpreted as meaning that all the required information can be provided in the form of detailed information according to needs. Therefore, the following things must be done to ensure the accuracy of the data: (i). Data Valuation (data assessment). According to Gartner (2019), data characteristics are classified into two categories, namely economic characteristics and information characteristics. The data has great selection value. Due to the constant development of new technologies and data sets it is difficult to predict how the value of a particular data resource will change. Organizations may store data that predicts potential future value rather than current actual value; (ii). Data Value Drivers. Several factors influence the extent to which future financial benefits can be derived from the information; (iii). Data Management; and (iv). Data and Information Security. According to Whitman & Mattord (2010) information security is a form of protection of information and the important elements contained in it such as confidentiality, integrity and availability, including systems and hardware for storing and sending that information.

Intellectual Property Rights

Intellectual Property Rights (IPRs) are rights relating to property that arises or is born due to human intellectual abilities in the form of discoveries in the fields of technology, science, art, and literature. IPRs are exclusive rights granted by the state to creators, inventors or designers for their creations or findings which have commercial value either directly automatically or through registration with the relevant agency as an award, recognition of rights that deserve legal protection (Mulyani, 2012). IPRs are also economic rights given to a creator or inventor for a work resulting from human intellectual abilities (Hidayah, 2013). Economic rights are appropriate compensation for the creator or inventor for a creation and discovery of something that is beneficial to human life (Roisah, 2015). IP is an asset for knowledge-based economic growth in the upcoming ASEAN free market era (Nugroho, 2017). Sherwood (1990) explains the theory of IPRs protection as follows: (i). *Reward Theory.* Creators or inventors are given awards for the efforts they have made in the form of recognition of their intellectual work; (ii). *Recovery Theory.* The creator or inventor has the right to receive reciprocity in order to produce something, where in the process he has sacrificed time, energy, and costs in the form of retrieving the discovery which is beneficial to the public; (iii). *Incentive Theory.* Incentives are needed for the results of creativity in intellectual work so as to provide motivation for further useful research activities; (iv). *Risk Theory.* Protection of intellectual work results is provided based on the risks experienced in the process of creating or researching a work; and (v). *Economic Growth Stimulus Theory.* IPRs are a development tool in a country's economic growth.

IP is generally divided into two categories (Hidayah, 2013), namely Copyright and Industrial Property Rights. Copyright is an exclusive right granted to the copyright owner for works in the fields of art, literature, and science that have been realized in a tangible form that has economic value. These exclusive rights according to Law of Republic of Indonesia Number 28 Year 2014 (Regarding copyright), the meaning is a right that is only directed at the creator or creator of a work, where this right cannot be utilized by other parties without giving permission from the creator or creator. IPR holders who are not creators or creators only have part of these exclusive rights in the form of economic rights. Meanwhile, Industrial Property Rights consist of: (i). *Patent*. Patents in principle seek to protect the work of scientists who make discoveries in the field of technology or what are called inventions. What is meant by the invention is an inventor's idea which is expressed in a specific problem solving activity in the field of technology in the form of a product or process or improvement and development of a product or process, while an inventor is a person who produces an invention; (ii). *Trademark*. A product of goods and services made by a person or legal entity is given a certain mark which functions as a differentiator from other similar goods and services products (Donandi, 2019). A specific sign means an identification mark for the goods and services in question which is usually called a brand; (iii). *Industrial Design*. The Industrial Design Law defines Industrial Design as the creation of shape, configuration or composition of lines or colors or lines and colors or a combination thereof in three-dimensional or two-dimensional form that creates an aesthetic impression and can be realized in three-dimensional or two-dimensional patterns and can be used to produce a product, goods, industrial commodity or handicraft (Donandi, 2019); (iv). *Integrated Circuit Layout Design*. Integrated Circuit Layout Design is a creation in the form of a three-dimensional layout design of various elements, at least one of which is an active element, as well as some or all of the interconnections in an integrated circuit and the three-dimensional layout is intended to prepare for the creation of an integrated circuit. An integrated circuit is a product in finished or semi-finished form, which contains various elements and at least one of these elements is an active element, which is partially or completely interconnected and

formed in an integrated manner in a semiconductor material that is intended to produce electronic functions (Donandi, 2019); (v). *Trade Secret*. Trade secrets are information that is not known to the public in the fields of technology and business, has economic value because it is useful in business activities, and is kept confidential by the trade secret owner (Harjono, et al., 2019); (vi). *Geographical Indication*. Geographical Indication is a sign that indicates the area of origin of goods and/or products which, due to geographical environmental factors including natural factors, human factors or a combination of these two factors, gives a certain reputation, quality, and characteristics to the goods and/or products produced. Signs used as Geographical Indications can be in the form of labels or labels attached to the goods produced. The sign can be the name of a place, area or territory, words, images, letters, or a combination of these elements (Donandi, 2019); and (vii). *Plant Varieties*. According to the Law, Plant Varieties are a group of plants of a type or species characterized by plant shape, plant growth, leaves, flowers, seeds, and the expression of characteristic genotypes or combinations of genotypes that can differentiate them from the same type or species by at least one determining properties and if reproduced does not change (Donandi, 2019).

Previous Research

This research was carried out inseparable from the results of previous studies that had been carried out as a comparison and study material. From previous research, the author did not find research with the same title as the author's research title. However, the author raised several studies (including Peter, 2009; Reichman & Samuelson, 1997; Liebenau, 2016; Songs, 2021; Lin, 2018; and Liu, 2018) as references in enriching the study material in the author's research. The difference between the studies above is in the focus of the problems researched and carried out in various countries. This research will focus on the problem of protecting IP data in Indonesia which can produce more economic benefits for society and IP stakeholders.

Research Methods

This research was conducted using a qualitative approach supported by empirical data. Qualitative research according to Kirk & Miller (1986) refers to natural aspects which are contrasted with quantum or quantity. So qualitative research is defined as research that does not carry out calculations. Bandur (2019) explains several things, namely: (i). Understand the meanings conveyed by respondents to the phenomenon being studied; (ii). Provide open-ended questions to understand the complexity of the main ideas or phenomena under study; (iii). Data can be in the form of words/text, images and so on; (iv). Use of analysis of text, images, and so on to obtain broad and general patterns; and (v). Identify the opinion/position of each participant.

Data collection in this research was carried out through semi Focus Group Discussions (FGD) and In-Depth Interviews, involving stakeholders in accordance with the problem formulation that was developed. Data in qualitative research is relatively rich due to the many different forms and sources with varying data collection techniques where sample approaches are purposive in nature and are in accordance with the aims and objectives of the research. Furthermore, in the semi-FGDs and in-depth interviews conducted, stakeholders will be directed to provide perspectives on the problem formulation formed in this research, so that the objectives of this research can be achieved (see also Bandur, 2019 and Raco, 2010). The results of the semi-FGD activities and In-Depth Interviews will be presented in the form of transcripts from each informant involved. Next, based on the transcripts that have been prepared, a systematic coding process will be carried out. In this case, coding is intended to be able to draw out existing themes contained in the informant's perspective in the form of coding nodes. Apart from that, a systemic literature review will also be carried out to support the findings in the coding analysis. There were 7 (seven) informants involved in 2 types of data collection activities. The following is Table 3 regarding the profile of the informant, namely:

Table 3. Informant Profile

No	Informant	Position and Institution	Activity
1	Dra. Dede Mia Yusanti, MLS	Director TI Directorate General of Intellectual Property, Ministry of Law and Human Rights	FGD I
2	Dr. Andrieansjah, S.T., S.H., M.M.	Division Head of Law Services Bengkulu Provincial Regional Office, Ministry of Law and Human Rights	FGD II
3	Agung Pratama Nugraha, S.H.	Secretariat of One Data Indonesia, Ministry of PPN/Bappenas	FGD II
4	Prof.Dr. Hermin P. Kusumaningrum, S.Si, M.Si	Academician Diponegoro University	In-depth Interview
5	Prof. Muhammad Zilal Hamzah, Ph.D	Academician Trisakti University	FGD I
6	Assc. Prof. Dr. Freddy Harris, S.H., LL.M., ACCS.	Academician Trisakti University	In-depth Interview
7	Dr. Nadya Prita Gemala Djajadiningrat	IP Consultant of Association of Indonesian IPRs Consultants	FGD II

Source: Data Processed

Result and Discussion

The Directorate of Intellectual Property Information Technology has the task of carrying out the preparation of planning and implementation of information technology policies, providing technical guidance and evaluation, system development, information technology infrastructure support, and data and information in the field of intellectual property. In this case, the Directorate of Intellectual Property Information Technology is the unit that carries out data management, but currently, it is limited to managing and backing up routine data, there is no comprehensive data management such as data catalog, data quality, master data management, and disaster recovery planning.

The following is the number of applications for Intellectual Property (IP) and Non-Tax State Revenue (PNBP) recorded at DJKI for the last 5 years (2019-2023). Data on patent applications in DJKI increases every year. Except that in 2020, there was a decrease from 10,018 in 2019 to 8,538 in 2020. This happened because of the Covid-19 pandemic that hit Indonesia. Then in 2021, it increased to 9,200 and 9,968 in 2022, meanwhile in 2023 it became 10,522 applications. By looking at the trend of increasing registration of patent applicants, it illustrates the interest and awareness of patent owners regarding the importance of protecting data so that it is not misused by irresponsible parties and will harm the patent owner in the future.

Patent application data seen from the value of the rupiah increases every year. In 2019, it was recorded that PNBP from patents was IDR 444.7 billion. This revenue has increased in 2020 to IDR 468.5 billion. Then in 2021, it experienced a significant decrease to IDR 419.7 billion, due to the the extraordinary COVID-19. This condition continues in 2022 where the rupiah value of patent registration is IDR 391 billion. However, it increases again in 2023 to IDR 447.2 billion. Furthermore, the trademark application also increases every year. By 2019 the number was 90,001, in 2020 the number was 95,740, in 2021 the number was 106,701, in 2022 the number was 122,257 and in 2023 there were 133,137 registered Trademarks. This proves that brand owners are aware of the importance of the trademark they own. This is proof that DJKI needs to protect registered IP data so that brand owners feel safe and secure in carrying out business continuity in the future.

Furthermore, the data on Trademark applicants, when viewed from the rupiah value, has increased every year. In 2019, it was recorded that the PNBP from the Trademark was IDR 212.4 billion. This revenue increased in

2020 to IDR 225 billion. Then in 2021 it increases to IDR 253,1 billion. Even though there is a new normal condition after the extraordinary event of COVID-19 and it has an impact on the economy in small and large sectors, it has no effect on Trademark registration in 2022 amounting to IDR 294.7 billion. Then it increases again in 2023 to IDR 308.4 billion. On the other side, There is an increase in copyright applications every year. In 2019 there were 42,764, in 2020 there were 58,076, in 2021 there were 80,070 and in 2022 and 2023 the numbers were 177,081 and 141,980. This proves that copyright owners are aware of the importance of protecting their copyright according to applicable regulations so as to avoid misuse which will be detrimental and will provide economic benefits for the sustainability of the copyright owner's business in the future.

Data on copyright applicants, when viewed from the rupiah value, increases every year. In 2019, it was recorded that PNBP from copyright amounted to IDR 15.7 billion. This figure has increased in 2020 to IDR 18,896.1 billion. Then in 2021 it increases to IDR 25.641 billion. Even though there is a new normal condition after the extraordinary event of COVID-19 and it has an impact on the economy in small and large sectors, it has no effect on copyright registration in 2022 amounting to IDR 34.4 billion. Then it increase again in 2023 to IDR 40 billion. Data on industrial design applications increases every year. For example, in 2019 it was 4,398, then in 2020 it was 3,928, in 2021 it was 4,364 and in 2022 and 2023 it increased to 4,875 and 6,309. This proves that design owners are aware of how important their industrial designs so that there is no misuse by irresponsible parties who use or damage their industrial designs that have been registered with DJKI.

Data on industrial design applicants, when viewed from the rupiah value, increases every year. In 2019, it was recorded that PNBP from industrial design was IDR 1.3 billion. This figure has increased in 2020 to IDR 3 billion. Then in 2021 it will increase to IDR 3.06 billion Even though there is a new normal condition after the extraordinary event of Covid-19 and it has an impact on the economy in small and large sectors, it has no effect on industrial design registration in 2022 amounting to IDR 3.5 billion. Then it will increase again in 2023 to IDR 4.7 billion. Likewise, applications for Integrated Circuit Layout Design experience a decline every year. Where in 2019 there were 11, then in 2020 there were 12, while in 2021 there was a decrease with 3 data. The decline in registration of DTLST data applicants was due to the Covid-19 pandemic that hit at that time, becoming one of the obstacles to economic and industrial growth at that time and also had an impact on DTLST applicants in the following year. However, in 2022 and 2023 it will increase again to 7 and 6 data. This proves that they are aware of the importance of their DTLST.

Data on Trade Secret applications at DJKI is still relatively small, in 2023 there will be 7 trade secrets registered with DJKI. Even though it is still relatively new, with global business competition, every year there will be an increase in requests for trade secrets. Data on trade secret applications at DJKI is still relatively small. This is because the data on trade secret applications will only be in separate data in 2023. In previous years it was still not well recorded. Furthermore, Geographical indication application data in 2019 amounted to 32, then in 2020 there were 25, in 2021 it was 28, while in 2022 and 2023 it was 26 and 22. This is proof that with the increasing number of IP data applications being registered, awareness will increase. The importance of protecting IP data is increasing as well. IP owners feel it is important to protect the IP data that they register with DJKI, so that they can minimize material and immaterial losses from misuse of IP data by irresponsible parties.

Seeing the above phenomenon, DJKI needs to protect KI data properly. Of course, policies and regulations are needed to realize IP data protection. There are many impacts that will be obtained if DJKI makes improvements in protecting IP data, apart from the stakeholders involved, it will also have an impact on economic growth and business sustainability in the future, namely economic growth. Then it will also have an impact on increasing PNBP every year and will also maintain Indonesia's competitiveness in terms of national resilience from foreign parties related to registered products/works. Then also, maintaining competitiveness will create several macroeconomic impacts, one of which is Foreign Direct Investment or increased foreign investment which will also have an impact on the amount of output and state revenue itself.

Data Analysis

Informant Data of *Focus Group Discussion* (FGD)

In this research, informants were divided into 4 categories, namely: Regulators, Operators, Academics, Associations. There were 2 informants in the FGD for the Regulator category, namely: (i). Dede Mia Yusanti; and (ii). Andrieansjah. Furthermore, for the Operator category, there was only one informant, namely Agung Pratama Nugraha. For the Academic category, three informant are involved: Muhammad Zilal Hamzah, Hermin P. Kusumaningrum, and Freddy Harris. For the Association category, there was only one informant, namely Nadya

Prita Gemala Djajadiningrat.

Coding Analysis

The following is an aggregate coding hierarchy to see which Nodes are the most dominant (or have the highest number of coding activities) from all informants. In aggregate, there are at least 14 Nodes with the highest hierarchy. The following is a table that describes the aggregate number of references, as follows:

Table 4. Aggregate Hierarchy Nodes Reference

No.	Nodes	Ref.	Files Code d	Max. Value	Share
1	Data Protection > Output Potential	5	5	7	72%
2	National defence	4	4	7	58%
3	HR Skills	4	4	7	58%
4	Data Protection > Business Continuity	3	3	7	43%
5	Data Processing > PNBP	3	3	7	43%
6	Potential of Local Commodities	2	2	7	33%
7	Ease of Data Access > Stakeholders Business Processes	2	2	7	29%
8	BI > Information > DJKI Administration Process	2	2	7	29%
9	Stakeholder Synergy	2	2	7	29%
10	Data Transparency	2	2	7	29%
11	Regulation	2	2	7	29%
12	BI > Information > Operational Visibility + Customer Insight > Company Performance	2	2	7	29%
13	BI > Information > Decision Making	2	2	7	29%
14	Slow Innovation	2	2	7	29%

Source: Data Processed

These results show that the 14 Nodes above have the largest contribution to the overall hierarchy, both in terms of number of references and data sources (transcripts). This indicates that, as a whole (4 categories of informants), both implicitly and explicitly, they touched on the impact of Intellectual Property on the Indonesian economy, especially in the aspect of data protection. Additionally, the “Data Protection > Output Potential” Nodes had the highest source value (5) with a total contribution of 72%. This indicates that 72% of the informants involved touched on the impact of Intellectual Property on the Indonesian economy, especially on the aspect of data protection. The other Nodes, namely "National Resilience" and "HR Skills" have 4 references each with a contribution value of 58%. This indicates that around 58% of informants mentioned the impact of national resilience and HR competency. As for the other Nodes, they have a similar interpretation. Next, the following will show the Hierarchy of the Nodes 1 System (To analyze and study forms of Intellectual Property data protection in Indonesia). It can be seen that, in System Nodes 1, "Data Transparency" is the Nodes with the highest number of references, namely 2. Furthermore, other Nodes only have references of 1. These results mean that, in the context of IP data protection in Indonesia, there is still data transparency after the IP is published (Post-Publication). One of the informants also stated that "But once it (IP) is published, it is mandatory to inform the public via the web or through other means. The contribution value can be seen in the table below:

Table 5. Nodes System Hierarchy Reference 1

No.	Nodes	Ref.	Files Coded	Max. Value	Share
1	Data Transparency	2	2	7	28%
2	Data Trustee (Access Restrictions)	1	1	7	14%
3	Vertical and Horizontal Data	1	1	7	14%
4	Data Type	1	1	7	14%
5	Patent Cost	1	1	7	14%
6	Patent Protection	1	1	7	14%
7	Data Security	1	1	7	14%
8	Post-Publication	1	1	7	14%
9	Pre-Publication	1	1	7	14%
10	Infrastructure Strengthening	1	1	7	14%

Source: Data Processed

From the table above, it can be seen that the "Data Transparency" Nodes contribute 28% of all existing sources. For the purpose of knowing other forms of data protection, there are several Nodes that represent the things in question, namely Data Guardian (Access Restrictions), Vertical and Horizontal Data, Data Types, Patent Cost, Patent Protection, Data Security, Post-Publication, Pre-Publication, Strengthening Infrastructure. Next, the following will show the hierarchy of the Nodes 2 System (To analyze and examine the role of the Ministry of Law and Human Rights over intellectuals from an economic perspective). It can be seen that, in System Nodes 2, "Stakeholder Synergy" is the Node with the highest number of references, namely 2. As for other Nodes such as Creating Data and Quality, E-Government, Profit Balance Oriented, Protection Policy, and Socialization", each only has a reference of 1. These results are also related to one of the Nodes "HR Skills" where one of the informants mentioned the need to improve internal HR Skills at DJKI. The following is the statement in question: *"Should there be a role for the Ministry of Law and Human Rights in data protection? Nothing. This means that the Ministry of Law and Human Rights themselves do not see the economic side. You have to answer and you have to explain. What are the obstacles and support factors? The obstacle is lack of understanding of stakeholders, especially internally."*

Therefore, one of the roles that DJKI needs to pay attention to regarding Intellectual Property is related to HR competency. The contribution value can be seen in the table below:

Table 6. Nodes System Hierarchy Reference 2

No.	Nodes	Ref.	Files Code d	Max. Value	Share	
1	Stakeholder Synergy	2	2	7	28%	
2	Creating Data and Quality	1	1	7	14%	
3	E-Government	1	1	7	14%	
4	Profit Balance Oriented	1	1	7	14%	

Source: Data Processed

Furthermore, the following will show the Hierarchy of Nodes System 3 (Impact of Intellectual Property on the Economy). It can be seen that, in System Nodes 3, "Data Protection > Output Potential" is the Nodes with the highest number of references, namely 5. Next, the Nodes "National Resilience", "Data Protection > Business Sustainability", "Data Processing > PNBP", respectively -respectively have references of 4, 3 and 3. These results mean that, in the context of the impact of IP on the economy, data protection can have an impact on potential output growth. This refers to the threat of database leaks that cause material harm. The impact of protecting IP data

on potential output was the impact most frequently mentioned by all informants (72%). The contribution value can be seen in the table below:

Table 7. Nodes System Hierarchy Reference 3

No.	Nodes	Ref.	Files Coded	Max. Value	Share
1	Data Protection > Output Potential	5	5	7	72%
2	National defence	4	4	7	58%
3	Data Protection > Business Continuity	3	3	7	43%
4	Data Processing > PNBP	3	3	7	43%
5	Ease of Data Access > Stakeholders Business Processes	3	3	7	43%
6	BI > Information > DJKI Administration Process	2	2	7	28%

Source: Data Processed

From the table above, it can be seen that the "Data Protection > Output Potential" node has a contribution of 72% of all available sources. The impact on National Resilience, business sustainability, PNBP, stakeholder business processes, and administrative processes was mentioned by 58%, 43%, 43%, 43%, and 28% of informants, respectively.

Furthermore, it will be shown regarding the Hierarchy of the Other Nodes System (things outside the research objectives that were touched on by all informants). It can be seen that in the Other Nodes System "HR Skills" is the Nodes with the highest number of references, namely 4. Next, the Nodes "Regulation", "BI > Information > Operational Visibility + Customer Insight > Company Performance", "BI > Information > Decision Making ", "Slow Innovation" each has a reference of 2. These results mean that outside the context of the research objectives that have been determined, problems regarding HR competency related to IP are the most numerous. alluded to. Another thing mentioned also refers to the use of Business Intelligence. The contribution value can be seen in the table below:

Table 8. Nodes System Hierarchy Reference Others

No.	Nodes	Ref.	Files Coded	Max. Value	Share
1	HR Skill	4	4	7	58%
2	Regulation	2	2	7	29%
3	BI > Information > Operational Visibility + Customer Insight > Company Performance	2	2	7	29%
4	BI > Information > Decision Making	2	2	7	29%
5	Slow Innovation	2	2	7	29%
6	Data Integration > Synergy Stakeholders	1	1	7	14%
7	Data Management + Socialization > BI Effectiveness	1	1	7	14%
8	Stakeholder Synergy > Policy Effectiveness	1	1	7	14%
9	Public Policy Approach	1	1	7	14%
10	Infrastructure Strengthening	1	1	7	14%

Source: Data Processed

From the table above, it can be seen that the "HR Skills" node has a contribution of 58% of all available resources. Furthermore, Business Intelligence was also mentioned most often after HR competencies, each of which was mentioned by 29% of the informants involved.

Furthermore, the results of the comparison diagram analysis will be displayed. This section is the second stage in coding analysis (Second Cycle Coding). Second Cycle Coding is based on Nodes or coding that has been created previously (First Cycle Coding). The results illustrate the similarities in things mentioned by each informant (category). These similarities are displayed in the Nodes which are located in the middle of the informant's case. Meanwhile, the Nodes to the right and left of the informant are the Nodes mentioned by each informant which are not related to each other, which can replace the exploration diagram. The following will show the similarities in Nodes between Regulators and Operators. In this case, the similarity of the Nodes indicates that there are similarities between the things mentioned by the Regulator and the Operator, both explicitly and implicitly. There are around 5 similar Nodes (HR Skills, Data Transparency, Data Processing > PNBP, Data Protection > Output Potential and National Resilience) which are touched on by both parties either explicitly or implicitly. Next, the results of the comparative diagram analysis between Regulators and Associations will be displayed. There are around 5 similar Nodes (HR Skills, Ease of Data Access > Stakeholder Business Processes, Data Protection > Output Potential, Data Protection > Business Sustainability and National Resilience) which are touched upon by both parties, either explicitly or implicitly. Next, the results of the comparative diagram analysis between Regulators and Academics will be displayed. There are around 9 similar Nodes (HR Skills, BI > Information > Decision Making, BI > Information > Operational Visibility + Customer Insight > Company Performance, BI > Information > DJKI Administration Process, PNBP Data Processing, Data Protection > Business Sustainability, National Resilience and Synergy of Stakeholders) which was alluded to by both parties, both explicitly and implicitly.

Furthermore, the results of the comparative diagram analysis between Operators and Associations will be displayed. There are around 3 similarities in Nodes (HR Skills, Data Protection > Output and National Resilience) which are touched on by both parties either explicitly or implicitly. Next, the results of the comparative diagram analysis between Operators and Academics will be displayed. There are around 4 similarities in Nodes (HR Skills, Data Processing > PNBP, Data Protection > Output Potential and National Resilience) which are touched upon by both parties, both explicitly and implicitly. Next, the results of the comparative diagram analysis between Associations and Academics will be displayed. In this case, the similarity of the Nodes indicates that there are similarities between the matters mentioned by the Association and the Academics, both explicitly and implicitly. There are around 4 similar Nodes (HR Skills, Data Protection> Output Potential, Data Protection> Business Sustainability, National Resilience and Regulation) which are touched upon by both parties, both explicitly and implicitly.

Research Results and Discussion

Intellectual Property Data Protection in Indonesia

Based on the results of the NVivo analysis on the Nodes 1 system in this research, a form of IP data protection in Indonesia was obtained in which the word "Data Transparency" contributed 28% of all existing sources. Meanwhile, other forms of IP data protection such as data guardians (Access Restrictions), Vertical and Horizontal Data, Data Types, Patent Costs, Patent Protection, Data Security, Post-Publication, Pre-Publication, and Infrastructure Strengthening have a contribution of 14%. According to the informant as a regulator, the percentage of data transparency stated that there were still data leaks when the IP data was published. Even though this is actually an obligation for published IP data. Transparency here should have certain provisions that will not cause losses to stakeholders as owners of IP data.

Referring to the implementation of forms of IP data protection that have been carried out so far, according to informants, regulators are generally divided into two forms, namely pre-publication (maintaining data confidentiality before IP publication) and post-publication (data transparency obligations after data publication). Apart from that, regulatory informants also stated that data protection is one part of data protection management. Where apart from managing and utilizing it, data protection management is also carried out in relation to database security so that it is not hacked by third parties which will cause material economic losses. The rapid development of information technology has had both positive and negative impacts. The positive side of technology can also help improve individual performance. However, on the negative side, technology can be used for criminal behavior such as digital piracy, thereby violating IP rights in the form of copyright. Digital product piracy behavior is a complex issue involving various theories for investigation. Consumers may be aware that illegally duplicating, sharing, purchasing, uploading/downloading licensed products is theft which is generally not considered a criminal act

(Balestrino 2008). One of the digital piracy cases that is currently widespread is piracy of social media content, from the YouTube website which is then re-uploaded by other accounts without the permission of the content owner. This can also cause material and immaterial losses for the content owner.

Benefits and Role of Intellectual Property Data in Indonesia's Economic Growth.

The benefits of the role of IP data in Indonesia's economic growth can be seen from the results of the comparison diagram between Regulators vs Academics. Where in the diagram there are around 9 similar Nodes, namely (HR Skills, BI > Information > Decision Making, BI > Information > Operational Visibility + Customer Insight > Company Performance, BI > Information > DJKI Administration Process, PNBP Data Processing, Data Protection > Sustainability Business, National Resilience and Stakeholder Synergy) which are often discussed by both parties, both explicitly and implicitly. According to the researchers, the similarity of results in the comparison diagram between regulators and academics illustrates the benefits and role of IP data in Indonesia's economic growth, which is demonstrated by increasing national resilience.

In order to increase economic growth which has an impact on national resilience, this is reflected in the Data Protection, Business Sustainability, National Resilience, and Stakeholder Synergy Nodes. Achieving optimal implementation of IP data protection will also have an impact on business sustainability without IP violations or piracy. Then this will also have an impact on increasing stable economic growth and high national resilience. In achieving the above, synergy is needed between interested stakeholders so that IP data protection can be achieved optimally. Then, with the existence of special regulations and policies regarding the protection of IP data, the potential for material losses may become smaller so that we are still able to maintain Indonesia's competitiveness (national resilience) from foreign parties related to products/works. Macroeconomic theory related to protecting intellectual property data can include several concepts, namely investment such as Foreign Direct Investment (PMA) and innovation which will have an impact on the amount of output produced and will increase state revenues.

Based on the theory which states that if the IP data protection system runs well and optimally, the country's economic growth will also be good, so the state must have a strategic role in making this happen. The national Intellectual Property Strategy is a series of policy steps formulated to promote and facilitate the creation, protection, management, and effective use of Intellectual Property, as a strategic means to support economic, social, cultural, and technological development (Laoly, IP Forum Seminar in Jakarta, 18 July 2016).

Obtaining IPR is directly proportional to the welfare or economic improvement of SME or IKM entrepreneurs on the one hand and the Regional Government on the other hand with the understanding that protecting IPR data for SMEs will ultimately bring in excess income for the SMEs themselves and in turn will have an impact on increasing regional income. from the micro, small and medium enterprise sector (Mardiyanto et al., 2013). IPR ownership can be used as a benchmark for the progress and development of a nation's economy so that the increasing number of IPRs owned by a nation can be used as a spur for economic development and increase the competitiveness of products produced within the country (Nugroho, 2015).

One of the cities known as the City of Girls is Madiun, which means the city of trade and industry. The Madiun City Government gave the name Madiun City Girls with the intention of developing Madiun City in the industrial and trade sectors. The food industry that is characteristic of Madiun City is the *Pecel* Sauce industry, Plate Crackers and Madumongso. Head of the Department of Industry, Trade, Cooperatives and Tourism (Disperindagkoppar) of Madiun City, Sudandi (in Bisnis.com, 2015) stated that the superior small medium industry products developed by the Madiun City government include the processing of *Pecel* Sauce, Madumongso, Puli crackers or commonly called Madiun Plates, Teak Wood processing, and Madiun Batik. Small and medium industries developing in Indonesia, including in Madiun City, play an important role in strengthening the national industrial structure. Intellectual Property data that must be protected by SMEs in the city of Madiun includes trade secrets. Madiun City SME entrepreneurs need to utilize a trade secret protection system to protect their innovative recipe formulas to increase economic competitiveness. The scope of trade secret protection includes production methods, processing methods, sales methods, or other information in the field of technology and/or business that has economic value and is not known to the general public, including food or drink recipes, formulas, production processes, client lists or plans. marketing.

Then based on the system mapping of other Nodes, "HR Skills" is the Nodes with the highest number of references, namely 4 (58%) compared to other Nodes such as "Regulation", "BI > Information > Operational Visibility + Customer Insight > Company Performance", "BI > Information > Decision Making", "Slow Innovation" each has a reference of 2. These results mean that, outside the context of the determined research objectives, issues

regarding HR competency related to IP data protection are most widely discussed. Apart from that, it shows that HR skills are one of the keys to the successful implementation of IP data protection which will have an impact on economic growth and national resilience.

Implementing IP data protection requires a high level of competence and role of human resources who will carry out the process of administering applications for IP registration with a qualified DJKI. In improving HR competency, identification of "Best Practice" (for example the EU General Data Protection Regulation) is one of the key factors as a basis for formulating existing policies and the level of effectiveness of policy implementation. Then it is necessary to increase work ethic so that we can be more productive in providing services to the community under the principles of good governance. It requires human resources who have extensive knowledge of IP. Apart from that, there is also a need for institutional strengthening. Strengthening institutions that address IP data protection issues in a broad sense. In order to strengthen DJKI institutions, efforts that can be made by the government are institutional strengthening through state revenue and expenditure budget funds (APBN), as well as international assistance.

In the sense that IP data protection also covers communal and personal wealth. To support all of this, it is necessary to have the attitudes and behavior of human resources who are ready to serve starting from State officials from the lowest level to the highest level, namely the decision-making level in government ranks in order to create a good public service in a country in particular. at DJKI. Building a legal culture for society is one way to provide public awareness of the importance of IP in the coming free market era. Apart from that, there is also a need for comprehensive outreach in the field of IP in various circles of society so that there is an understanding of IP and there is no gap in understanding between the government and the community. Where people with high awareness and understanding regarding IP data protection and its various benefits will also have an impact on improving the Indonesian economy in the future

Conclusions and Policy Recommendations

Conclusion

Based on the results and analysis previously described, several conclusions can be drawn regarding this research, as follows:

1. The results of data processing show results that are in accordance with the theme of this research, namely related to "Intellectual Property Data Protection Policy in Indonesia". Intellectual Property data protection in Indonesia is generally carried out in two forms, namely: (i). Data is protected before the Intellectual Property Rights are published (Pre-Publication); and (ii). Data becomes transparent after the Intellectual Property Rights are published (Post Publication). Apart from that, data protection is one part of data management apart from management and utilization. The data protection management carried out is also related to database security so that it is not hacked by third parties which will cause material losses.

2. Regarding the impact of Intellectual Property data protection on the economy, data protection can have an impact on potential output growth. This refers to the threat of database leaks that cause material harm. Based on the concept mapping that has been built previously, this form of data protection is one part of the Intellectual Property ecosystem that will later bring benefits to the economy. However, this certainly requires a role from the Government (DJKI) in bridging these two things, one of which is focusing on the Human Resources (HR) aspect which must be considered. Human Resources (HR) are needed who have extensive knowledge of Intellectual Property and the field of Information Technology.

Policy Recommendations

1. It is necessary to develop regulations and policies for protecting IP data and other IP-related policies that favor IP owners and the stakeholders involved in order to realize national resilience, including for academics, so that with various research results they can obtain protection and use of IP data to encourage high motivation in creating innovation and technology from research results.

2. There is a need to continuously increase HR competency at DJKI both in the field of Intellectual Property and related to information technology, especially databases, in order to improve public services based on good governance. Then it is also necessary to continuously improve database infrastructure to minimize the occurrence of IP data leaks.

3. It is necessary to increase understanding of Intellectual Property stakeholders such as business actors, creators, and others to better understand and know about the types, benefits, and protection of IP data so that when carrying out Intellectual Property registration it complies with regulations and the products produced. This is to avoid misuse or piracy of IP which will be detrimental to business sustainability in the future, especially in the current digital era.

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Legislation

Law Number 20 of 2016 concerning Marks and Geographical Indications.
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