

Valuation, Commodification and Commercialization of Intellectual Property in Enhancing the Economy in the 4.0 Industry in Indonesia

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Abstract:

Intellectual Property has been recognized as a very valuable intangible asset for companies. It considered as value to the company, especially for the micro, small, medium enterprises, and start-up businesses. This paper is focused on valuation, commodification, and commercialization of intellectual property rights in the 4.0 industry. The methods that shall be used to conduct this research are descriptive-analytical and comparative methods, underlies by the normative and sociological juridical approaches. Descriptive analytical method is a systematic method of research using description or presentation of existing data. This article elaborates that within the 4.0 industry, Intellectual Property is becoming more and more varied, specifically the ones produced by universities and start-up businesses. This article concludes that the valuation of intellectual property may be performed through 3 methods, namely the market approach, the cost approach and the income approach. From these three valuations, the most suitable one for intellectual property, is the income approach, which calculate based on cash flows and income from intangible assets. In order to increase the insufficiency of value in certain intellectual property, one can perform a commodification, beside performing a valuation itself. Digital media might help this commodification to increase the value of an intellectual property. Moreover, the most important value of intellectual property lies in its commercialization, an intellectual property must have an economic value and be useful in the trading field in order to produce benefits for its owner.

Keywords: Valuation, commodification, commercialization, intellectual property, 4.0 industry.

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1. INTRODUCTION

Nowadays, intellectual property is a very important intangible asset. This importance is emphasized more in the 4.0 industry, through the development of technology and system for selling and also the technology itself, making the intellectual property takes role as the main asset of a company.

It is necessary for a company to determine certain method to calculate the value of its intellectual property as asset, especially for start-up

businesses which placed technology systems as their main assets. As an intangible asset, intellectual property has different valuation technique incomparable to the tangible asset that has visible physical appearance. This notably occur in the valuation of movable object as intangible asset.

In some ways, intellectual property in 4.0 industry may also be synonymous to the technology. It already become the main capital in the start-up business industry. Start-up businesses usually start with ideation of business process then continued to

the development of sales system, some of the examples are Go-jek, Traveloka, and Bukalapak. The founders of the three ideas developed the concept further and placed them as the main asset of the company. In this regard, companies alike to the three mentioned, will need to protect their intellectual property and further calculate the value of the main assets in their digital business.

A company shall need to calculate the value of its intangible asset (intellectual property) to make a balance sheet, investment, to merge companies, and to know the amount of loan obtained in exchange of putting the intangible asset (intellectual property) as pledge. This paper is discussing about the existing of various and proper method in the calculation of value (valuation) of the intellectual property object. Besides that, the author is also intended to discuss about the commodification and commercialization of the intellectual property.

While the valuation is more focusing on the calculation, the commodification is more focusing on how to increase the valuation. It appears that this design is made to prevent the intellectual property from stopping at developing its valuation, instead, it should be developed into something more valuable than its original object.

Commercialization takes a very strategic role after commodification, in publishing the intellectual property to the market. Commercialization determines whether or not certain intellectual property produce any economic value according to its main function.

The 4.0 Industry (Xu, David, & Kim, 2018) is a form of industrial revolution, or in other words, a transformation occurs to every aspect of human's life in one system. It is a new chapter in human life, equivalent to the first, second, and third revolution. As an institution, the 4.0 industry is also encouraging growth of interaction availability in the set of technologies.

The development of fourth industrial revolution was driven by the emerging technology built through the knowledge and system from the previous industrial revolution, precisely the digital

capabilities from the third industrial revolution. This contribution from the third industrial revolution includes 12 technology clusters, such as artificial intelligence (AI) and robotics, additive manufacturing, neurotechnology, biotechnology, virtual and augmented reality, as well as new material.

The invention of the steam engine in 1760 in Europe, has marked the beginning of the industrial revolution, which simultaneously create transition from agricultural and feudal society into the manufacturing era. During this time, people use coal as the main source of energy and train as the main method of transportation. Textile and steel became dominant in the industry, particularly in terms of employment, output value, and invested capital. Meanwhile, the second industrial revolution began in 1900 with the invention of the internal combustion engine. It has led people to an industrialization era where rapid use of oil and electricity were increased due to the necessity to drive mass production. (Xu, David, & Kim, 2018)

The Industry continued to grow until around 1960s, where the third industrial revolution began. This era has started when there was application of automated production through the use of electronics and information technology. Now, the fourth industrial revolution has involved computer-generated product design and three-dimensional (3D) printing. The 3D printing can create solid objects by building sequential layers of material.

(Prisecaru, 57-62) shows a brief presentation on the industrial revolution from 1760 to the present, (Xu et al., 2018) the current industrial revolution is characterized by the existence of blurred lines in the technology-mix between physical, digital, and biological matters. On that note, it is safe to say that the industrial revolution has grown at exponential pace rather than linear. Moreover, the industrial revolution has disrupted almost every sector of industries in all countries, the breadth and depth of this change, has consequently marked the transformation of the entire system of production,

management, and governance in the affected region. (Schwab, 2016)

Nonetheless, the fourth industrial revolution is more than just a description of changes driven by technology. It also reflect an opportunity for the people to create a series of public conversation among the technology leaders, policymakers, citizens from different group of income, people from different nationalities and backgrounds to understand the change and to create a guidance for the powerful, emerging and convergent technologies as an influence to the world.

In order to make this happen, people need to change the way they view and discuss about the power that shaping our world, which is the new technologies. People must neither consider the technology as an entirely exogenous force that has definite destination of future, nor can they take the opposite view where technology is considered as a mere tool of choice for human to be used as they please. (Schwab, 2018)

Instead, people need to deepened their understanding on how the new technologies are connected one another, of which it might influence the remaining people to make better decision in making investment, design, adoption, and reinvention of the technologies, in subtle and clear manner. This reflect and strengthen the values for the human being. It is indeed difficult, if not impossible, to collaborate on investments, policies and collective actions that may positively influence the future unless we can appreciate the way people and technology interact.

2. LITERATURE REVIEW OR PREVIOUS STUDIES

2.1. Intellectual property in the 4.0 industry

There is a paradigm shift in the Digital Era within the 4.0 industry, notably to the intellectual property. For instance, the course of change due to the use of internet and its implementation in the internet of things. As the tool of access to the data and resources, internet has expanded the

achievement possible for every user. The digital media has facilitated easier access and distribution of intellectual property (McCutcheon, 2017) in the digital era. (Lee, Lee, & Chou, 2017) In consequence, both appropriate use and violation of the intellectual property in the digital era has becoming more cryptic. Changes occur to the use and access of media, and objects of the intellectual property is causing dominance to the digital world and the internet.

There is a new challenge for the protection of copyright in the 4.0 industry. (McCutcheon, 2017) All objects protected under copyright are currently incarnated in digital forms such as text, images, sounds, animations, and photographs. Once analogue matters are digitized, then there will always be possibility of their various elements to be combined, modified, manipulated or mixed to create endless, and variety of new works. The exclusive rights entrenched to the previous owner to reproduce and distribute certain works can only affect the physical copy. Transforming analogue objects protected under copyright into digital form may put them under vulnerable condition to the violation of intellectual property rights. The most possible violation is the easier reproduction of copy to the same technology protected under the relevant copyright, since digital form is creating more difficult condition for the copyright owner to control violation to their work. (Ronchi, 2008)

There has been a shift of view to the protection of objects under the intellectual property rights in the 4.0 industry. For instance, the rising debate on the most adequate protection that should be given to the computer programs, either copyright or patent. Some countries are protecting software by applying patent registration, while some others are applying copyright protection instead. (Ronchi, 2008). This issue is also happening in Indonesia.

2.2. Valuation, Commodification, and Commercialization of the Intellectual Property

2.2.1. Valuation

Within intellectual property rights, there are moral rights and economic rights vested. Even identical intellectual properties have their own separate economic rights attached. As intangible asset, there are different kinds of assessment necessary to determine the value of an intellectual property, they both inseparable with the qualitative method. (Collan & Heikkilä, 2011) The two concepts of the assessment are: *First*, discussion on either the initial capital or the capital spent to create the relevant intellectual property objects. *Second* is the assessment to the intellectual property in concern from the business point of view, in a broader sense, to understand the full utilization of the economic rights of the relevant intellectual property objects. (John Sykes, 2002)

A valuation is a process to determine the monetary (economic) value of an intellectual property as an asset. It involves the act of estimating or correcting value related to monetary issues or others. There shall be no huge problem in calculating the value of assets (Karius, 2016) of an intellectual property in case it is under the formal protection of trademarks, patents, or copyrights, that are possible to be traded in an unregulated market. (Karius, 2016)

As for acceptable traditional methods to assess intangible objects, there are three broad categories: market based assessment, cost-based assessment, and income approach which is also known as assessment based on estimation of economic benefits in the past and in the future. The elaboration of the 3 methods are as follow:

Cost-Based Method

The cost-based method is an assessment made based on the cost incurred for the research and development to obtain the intellectual property objects. This type of valuation is based on the principle of substitution. Replacement cost is representing the currently required cost to purchase the intangible assets in exchange of the comparable utilities to the applicable provisions available in the market. (Fink, 2005) The necessary cost for the

new replacement of the intangible assets must be prevented from obsolescence factors, to make it comparable with the original. (Collan & Heikkilä, 2011) The constraint for this method is when an intellectual property is generated from a large amount of research funds and there are a number of irrelevant cost components within. It will rise-up the costs and valuations of the intellectual property object while at the same time giving competitive advantage of low market price. (Karius, 2016)

Market-Based Method

The market-based method is an intellectual property valuation based on the comparison between the hypothetical value and the actual paid-price of certain intellectual property or other intangible asset under similar circumstances. People use this method to estimate the fair value of an asset by using the reference from the transaction price or the implicit price multiplication found in the identical transaction or similar assets in the market. The difficulty in using this method usually comes from the problem in finding comparable transaction. Since each intellectual property is unique to a particular business entity, thus, intellectual copyright has no concrete form as an asset. This makes it hard to create a comparison between transactions, since in this regard, comparison between entities is difficult or even impossible. (Karius, 2016).

Income Approach Method

The income approach evaluates intellectual property assets based on the amount of expected economic income generated from the intangible assets which have been adjusted to their present value. Various measurement to the financial income of the people must be relevant with the multiple income methods, gross or net income, gross profit, net operating income, income before tax, net income after tax, operating cash flow, net cash flow, and other kinds of financial necessity. The essential element in applying the income-approach method is the assurance that there

shall be consistent decrease of applied discount or rate of capitalization which in line with the economic income.

Intellectual property in the 4.0 industry leads to the current digitalization. Nowadays, protection of the intellectual property are mostly directed to the digital objects, whereas the largest amount and most valuable intellectual property objects are software protected under copyright such as online platform systems in digital business. The valuation of intellectual property in this era is more focusing on the value of assets in the market or commonly known as the market-based method.

2.2.2 Commodification

Commodification is a method used to increase the value of an object, especially that of intellectual property. It is performed through the development of the intellectual property objects by research and knowledge from the relevant owner. (Míguez, 2018) The most important matter in commodification is the comprehension of change of value occurred to certain object. Despite that it is the same object, the change of value is transforming such object into a new intellectual property with new use (commercial) value. An emergence of new intellectual property object shall create permissive condition for a company to include it into the main capital of a company (Coriat & Weinstein, 2011).

Start-up businesses called this period as scaling-up, it is commonly executed after the fruition period. When a start-up business is scaling-up, they create massive development and improve their value through a commodification, for example by developing new ideas fit to the market, or modify their structure to fit their funding and future mission. Overviewing the start-up businesses in Indonesia, it appears that the most determining factor for start-up businesses to develop and modify themselves is the environment. On that note, start-up businesses must adapt their capacity to the challenges occur around them, by developing new business ideas, developing company assets, developing business partnerships,

and enhancing strategic innovation. The commodification will lead to the increase of valuation and commercialization of the intellectual property object.

Four (4) start-up businesses in Indonesia (Tokopedia, Bukalapak, Go-Jek and Traveloka) have achieved business valuation of beyond US \$ 1 Billion (Edi Wittjara, 2018). This is only possible due to their responsiveness to the strategic issues occurred in the society and the needs of the community. Hence, their innovations can be considered as right on target and worth of selling.

At this stage, start-up businesses shall be receiving great demand from their investors, commodification will show the prospective path one company may take and how well is the market evaluate their innovations. Some with huge funding from the investors may see better opportunities.

Start-up businesses need commodification to prevent them from dying and closing half-way. It might be performed in various ways, from various aspects and towards various sides, one of which is through the development of innovation. Innovation is highly related to the intellectual property, particularly in the start-up businesses where it is considered as the most valuable commodity. People can make innovation in the form of change and development of business idea which may lead into potential registration of patent or copyright. For example, the change made into the program algorithm resulting into technical effects in increasing the value of patent already owned by the company.

Start-up businesses plays an important role in the 4.0 industry in Indonesia. They are consisting of micro small and medium-sized enterprises who use their intellectual property objects in the form of digital platforms as main capital. Digital platforms are usually less desirable in the early stage for start-ups, commodification is necessary to add functions or features to make these platforms more useful. (Halt, Donch, Stiles, & Fesnak, 2017)

2.2.3 Commercialization

In general, commercialization is a process to monetize or create a real economic value from intellectual property. It is a main stage for start-ups where at the same time determine whether their intellectual properties have high value or not. In the commercialization process, the selling price remains dependant on the valuation.

The World Intellectual Property Rights Organization (WIPO) considers that there are two main components in the agenda to publish a creative idea or innovation through the protection of intellectual property rights and to commercialize them either with or without license. *First*, an object must be sufficiently valuable to become a company asset, since the natural resources are no longer

considered as commodities in this 4.0 industrial era. Man-made resources such as intellectual property is considered unlimited, replicable and modifiable to suit the market needs. *Second*, intellectual property holds value equal to the capital, commercialization of intellectual property will automatically increase the revenue of a start-up business. Investors usually review company's balance before injecting any investment, and intellectual property might add-up to this amount. This makes commercialization works as one of the main key to the capital. In addition, valuation to the intellectual property may also be used as a reference for fiduciary made to the banks, in order to increase the capital in start-up businesses.

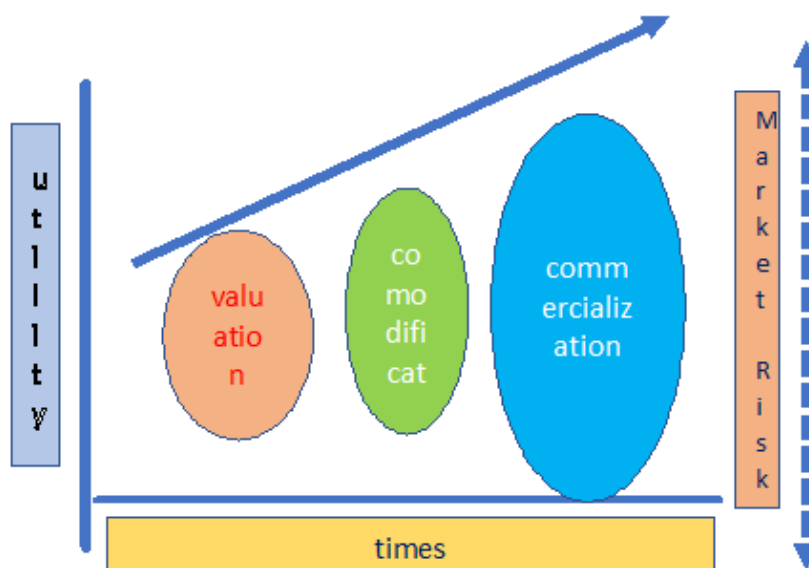


Fig.1--Strategy to increase the value of intellectual property

Intellectual property has expiration period, its value shall be declining by time. This makes it important for people to maximize the exploitation of its economic rights in strategic manner. Valuation, commodification, and commercialization processes are inseparable series in the protection of intellectual property. The three processes entail various aspects including utility and market risk. The utility aspect is directly proportionate to the duration of protection, while the market risk is unpredictable factor for the intellectual property owner. The culmination of the

intellectual property among the three processes is in the commercialization phase, where an object is starting to be offered to the market in certain price determined from the valuation process. Should the price value is considered as low, it may be the case that the object is less attractive to the public. In this regard, it becomes important to execute commodification to the intellectual property through addition of features and some other adjustment in order to match market tastes.

This long journey in the utilization process of economic rights which is vested in certain intellectual property expects to see the improvement to the economy of start-up businesses as well as the micro and small businesses. In its turn, these small steps shall be able to contribute to the economic growth in Indonesia in the 4.0 industry era.

3. RESEARCH MATERIALS AND METHOD

This article is the result of a research made through juridical-normative approach, the study examined the provisions in the Intellectual Property Law in relation to the use of valuation, commodification and commercialization. The research is specified in descriptive-analytical manner, it elaborates the regulations on the Intellectual property law in relation to the use valuation method.

The research has undergone several stages including the examination of literary materials or secondary data, this includes law resources in the primary, secondary and tertiary forms. Primary law materials as in the Intellectual Property Law. Secondary legal as in: a variety of literatures / books related to the research material, various seminar results, workshops, symposiums and researches, journals, articles related to the research issues, and interviews. Tertiary legal materials as in Legal Dictionaries, Large Indonesian Dictionaries, English-Indonesian Dictionaries, Encyclopedias, as well as other printed and digital media.

4. RESULT AND DISCUSSION

Rights vested in the intellectual property are important, even vital, for many businesses. As a complex subject, intellectual property is an asset supposedly developed and valued in start-up businesses. Hence, exclusive and modern businesses such as start-ups have the responsibility to manage their intellectual properties as their assets.

Nonetheless, a company may face internal challenge in giving understanding to the company owner on the importance of managing company's

intellectual property as intangible asset. After intellectual property protection, other equally important step is the analysis to the economic benefits contained in the intellectual property. One must understand how to properly manage this economic right in order to maximize the use of intellectual property.

With regards to economic benefits, intellectual property might as well serve as capital in certain businesses. Unfortunately, in managing their intangible assets such as intellectual property, most businesses are not aware that these assets are indeed manageable capital. Some even have poor management techniques. Only good management will enable any person to understand the importance of intellectual property as man-made capital. In case of proper management, a company might use this kind of capital to go against their business competitors and face other challenges in the field of intellectual property successfully.

Each organization has different policy with regards to management process, notably in the use of intellectual property as capital. Some of the success stories come from large organisations such as the Dow Chemical Company, the Canadian Imperial Bank of Commerce, Scandia and AFS of Sweden. (King J. S., 2003)

The author believes that in order to understand good management of economic benefits for the intellectual property, it is important to understand the utilization of the intellectual property based on the economic theory of law or also known as the economic analysis of the law (The Economic Analysis of Law). It is an economic approach to the law made from critical legal study through an economic approach (Critical Legal Studies with the antecedents of economic approach).

The emergence of the "Economic Analysis of Law" is considered to be starting during the popularity of utilitarianism theory by Jeremy Bentham (1789). He systematically examined on how people were acting against the legal incentives and measure the result of this evaluation against the social welfare of each person. Bentham's legal

utilitarianism was spread in his writings on various form of analysis, may it be criminal laws, criminal law's enforcement, property rights' analysis (law of ownership), or 'substantial treatment' in pursuit of legal remedy.

Bentham remained to be the pioneer of the "Economic Analysis of Law" until 1960s. It did not change until early 1970s where people started to recognize several other scholars, such as Ronald Coase's work (1960), with his article that was discussing about externalities and legal responsibility; Becker (1968), with his article that was discussing about crime and law enforcement; Calabresi (1970), with his book on the law of accident; and Posner (1972), with their textbook entitled as "Economic Analysis of Law" and their publication of "Journal of Legal Studies" (Friedman, 1987).

The "Economic Analysis of Law" is mainly discuss about the principle of the choice of efficiency, which must be based on the ease of understanding. An understanding does not require any technical formulation from economics as a science or any formula in the form of numbers. The main focus of attention in this regard is the possibility of inefficiency in the formation, implementation and enforcement of laws and regulations.

In its development nowadays, the "Economic Analysis of Law" does not limit on the two basic problems as explained above. Instead, it has extended to every use of economic principles in the problems occurred to the laws and public policies. The practice of this extension may be seen in the understanding of the "Economic Analysis of Law" provided by William and Mary School of Law in its online encyclopedia as follows: *A study of many applications of economic reasoning to problems of law and public policy including economic regulation of business; antitrust enforcement; and more basic areas such as property rights, tort and contract law and remedies, and civil or criminal procedures. No particular background in economics is required; relevant economic concepts will be developed*

through analysis of various legal applications (Shavell, 2018).

Putting the "Economic Analysis of Law" into the practice on the field of intellectual property, people should see intellectual property as a defensible material right which set a basis for its own use. From a conceptual point of view, what people usually speak of somewhat loosely as the property rights, can actually be divided into two more basic rights: particular possessory rights, and rights to transfer the possessory rights. A possessory right vested upon certain matter is the right to use the relevant matter within a specified time in certain manner and under a particular contingency. Meanwhile, a right to transfer a possessory right is the right to give or to sell the rights vested upon possessory right in certain matters to other person. Thus, what we commonly conceive of as "ownership" of a certain matter (say, a land) entails both a large swath of possessory rights (rights to build on land, plant on it, and so forth, under most contingencies, and into the infinite future) and the associated rights to transfer them.

One of the justification for the protection of property is that it furnishes incentives to work on people, common example is analogous to the notion that people would not grow crops unless they could keep the product of their labour. Other justification for rights of ownership is that, if their necessity is available yet unprotected, individuals will devote all their time and effort to take and protect what is necessary in their life from others. The enforcement of property rights is showing benefits related to the explanation above, it is to protect people against the risks. In the absence of protection towards the property rights, individuals will face the possibility of losing their property (although they may also enjoy the possibility of taking property from others).

In addition, property right as a system allows people to transfer goods freely. It is mostly clear that in the possibility of trade, goods tend to be allocated to those who value them the most. The economic enjoyment of mass production and specialization of labour shall not exist without the ability to indirectly

transfer various matters. When a certain entity is able to produce large amount of goods, it is a given that the goods shall be ultimately distributed, or transferred, to many others, this includes the growing need of input from other parties.

Besides the protection to the physical property, other protection with no less importance is towards the intellectual property, where people should have obtained maximum economic rights from what they have. Posner's theory in his version of "Economic Theory of Law" elaborates the existence of basic alternative to property rights in the field of information, the state is obliged to offer rewards to the creators of the relevant information, and consequently the developed information shall be legal to be made available to the public. However, the practice of this theory has a major problem in the reward system. The state shall need the information about the value of the innovation in concern in order to determine fair rewards. People should note that, to some degree, society recognize grants and subsidies for basic research and other intellectual works as compensation system akin to the reward. Nonetheless, this is majorly executed only when the intellectual works do not have direct commercial value.

The purpose of rewards for creators and intellectual property owners is to provide access to the maximum economic value of their works. The most adequate way to maximize the value of intellectual property is to make a valuation with various approach to calculate the fair assessment to the intellectual property, either made by the owners or the relevant stakeholders. The procedure of the assessment is basically a combination between the concept of economic value and the property law. The main rule of commercial valuation in this regard, is to not to value certain matters abstractly; all must be stated certainly, be it in a certain place, at a certain time, or under certain circumstances. To adhere to this assessment guideline, one must question 'valuable to whom?' and 'important for what purpose?'. These questions are significant in assessing intellectual property rights.

More often than not, there will only be one or two parties with interest in commercial negotiations. The value of each intellectual property shall be depending on each given circumstances. Failure to take consideration to this circumstances and to the owner's condition will be resulting into meaningless assessment (King K. , 2002).

There are four main concepts in determining intellectual property value, namely: owner's value, market value, fair value and tax value. The owner's value often determining price through the negotiated transaction and often times led by the owner's point of view on the value of the intellectual property object in concern, if he loses it. The market value is determined based on the assumption that the price of comparable property shall have close amount of price to the intellectual property in the subject. The concept of fair value is based on the desire of equality for both parties. It recognizes that the transaction is essentially between the parties, and is not happening on the open market, both vendors and buyers are in legally binding terms. Valuation based on tax has been the subject of case law since the century has turned into new leaves, it is highly esoteric in practice.

There are several concepts that bring pseudo value to the intellectual property that affect the main consideration as mentioned, namely: the investment value, liquidation value, and business continuity value. It is therefore essential to scrutinize the research findings, assessing the potential of these findings, operate due diligence to the intellectual property, and conducting freedom to operate analysis. This is necessary to see whether or not similar findings are present in other patents or whether or not its future development can be under the exclusivity, technology readiness level (TRL), the time to market, the possibility to scale up, the extension of the market, the social resistance, the stakeholders, the competitors, and a cost-benefit analysis of other party. (Vannuzzi, 2019)

Since the valuation of intellectual property is mainly used in a process to commercialization and maximize the enjoyment of intellectual property, it is

more common to be seen in the process of mergers and acquisitions of companies related to the intangible assets of intellectual property. However, to further the maximization of value in the intellectual property, one shall have to go through commodification.

The commodification process of intellectual property may increase the novelty and function of the initial object to produce new valuable asset. This process is limited only around the development of the previous object to produce new intellectual property such as the development of new patents through the commodification of existing patents. The new intellectual property resulting from the process of commodification cannot be offered/commercialized using the initial valuation of the previous object, it must be revalued whether it is essentially the same object or not. Commodification brings expectation of greater valuation to the intellectual property.

The estuary of all processes to maximize the use of intellectual property is the commercialization. Basic price in commercialization process may create a benchmark for other intellectual properties in their final assessment. In commercializing research, although patent may become the first option, there are many other aspects that must be taken into consideration. In particular, the present condition of complex and interdisciplinary research environment, patent registration cannot be simply considered as the main tool to exclude other competitors anymore. Instead, it must be taken as the instrument to enter into a cooperative development in pursuing commercialization for a product. There is possibility that other option of intellectual property might be more appropriate in each given condition.

The author hopes that the three processes of commercialization cycle, starting from valuation, commodification, revaluation up to the commercialization itself of the intellectual property may encourage the enhancement of development for the micro, small and medium enterprises as well as start-up businesses in Indonesia. Their increase of income shall automatically affect the advancement

of people's and state's welfare. This commercialization process is expected to be able to implemented and understood by the companies that use intellectual property as main resources, for instance, start-up businesses which use intellectual properties as their main assets.

5. CONCLUSION

The 4.0 industry may be described as a world where individuals can move between the online and offline domain, by using connectedness in technology to manage their lives. In order to manage living-necessity, one shall require tools of implementation. It may be in the form of intellectual property owned by start-up businesses. Start-up businesses are newly created businesses with the main capital from the man-made resources of intellectual property. Often times, intellectual property becomes the main commodity in this industry, most are in the form of online platforms. On that note, individuals moving in online domains will most likely require start-up businesses to meet their needs.

Despite its rapid growth, not all start-up businesses can strive successfully like Go-jek or Traveloka does. In fact, many start-up businesses face difficulties in doing their business activities due to capital constraints. To increase capital, a company may use intellectual property as its capital. In order to do that, then the intellectual property must state its own value through the valuation process. There are 3 traditional methods to conduct initial process of valuation for intangible assets. If the prediction of value during the 3 stages considered as adequate, then there shall be no problem for the object to enter immediate commercialization. However, in case its value is low, then an intellectual property may enter commodification process to have science transform the object into more valuable asset that can fulfil the needs of the society. After this commodification, the object may then commercialized once again to the public with greater value. At the same time, the owner of the intellectual property and the start-up company may also benefit from this value.

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