



**UNIVERSITAS INDONESIA**

**DUAL USE OF TECHNOLOGY FROM THE PERSPECTIVE OF  
LAW NO. 13 YEAR 2016 REGARDING PATENT: AN ANALYSIS  
ON ENCRYPTION TECHNOLOGY IN RELATION TO  
NATIONAL DEFENSE AND SECURITY**

**UNDERGRADUATE THESIS**

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**FACULTY OF LAW**

**INTERNATIONAL UNDERGRADUATE PROGRAM**

**DEPOK**

**JULY 2017**



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**Submitted in partial fulfilment of the requirements for the degree of  
Bachelor of Law**

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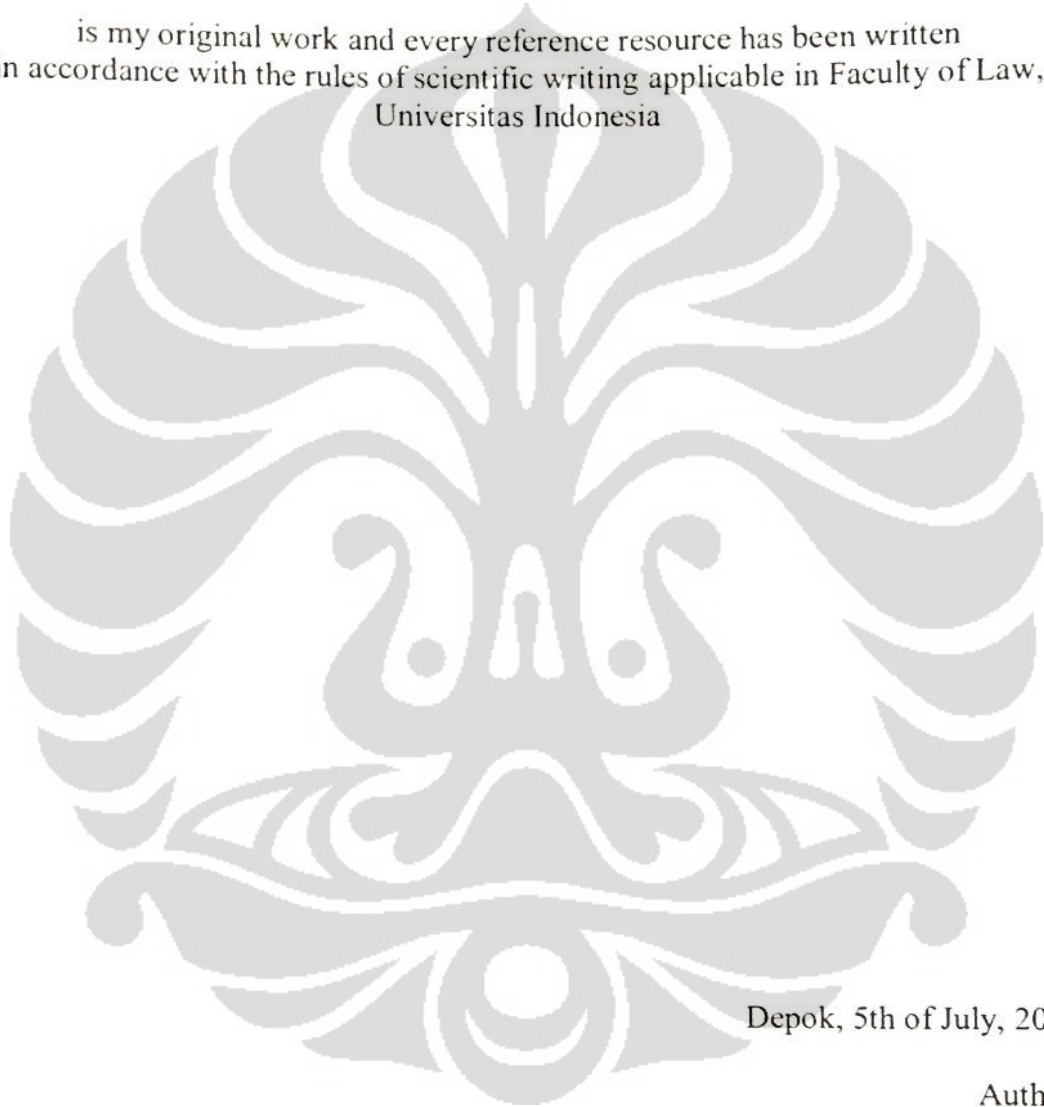
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## STATEMENT OF ORIGINALITY

**The author hereby states that the undergraduate thesis:**

“Dual Use of Technology From the Perspective of Law No.13 Year 2016  
Regarding Patent: An Analysis on Encryption Technology in Relation to National  
Defense and Security”

is my original work and every reference resource has been written  
in accordance with the rules of scientific writing applicable in Faculty of Law,  
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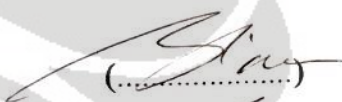

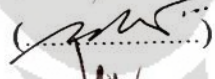


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5. The author's family for their unceasing support throughout this undergraduate thesis and the author whole education. The author would not have been able to come this far without their unconditional love, support, and endless encouragement.

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## ABSTRACT

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Study Program: Intellectual Property Rights Law

Title : Dual Use of Technology From the Perspective of Law No.13 Year 2016 Regarding Patent: An Analysis on Encryption Technology in Relation to National Defense and Security

In this era of modernization, we can see that there is a rapid development of technology. With technology, we can get connected to global information freely through the existence of high-speed internet access, both wired and wireless through all kinds of gadget. Basically, information is fundamentally very important to the implementation of the national security function. There must be a technology, which assures the safety of the information. One of the technologies to secure information is known as encryption. Based on the aforementioned occurrence, this research is going to analyse the on-going discussion of how does Indonesian positive law sees the encryption technology which is part of the dual-use goods, can encryption technology be classified as an invention of patent, to what extent is the government role in dealing with encryption technology, and how does the patent law protect the economic interest of patent holder, including encryption technology patent holder. First this research will explain whether encryption technology is patentable or not. The research would further approach the issue through existing positive law in Indonesia, especially the Indonesian Patent Law. It will then strive to find the answers to the research questions on determining to what extent is the government role in this matter and how does the law protect the economic interest of patent holder.

Key words: *Encryption, National, Defense, Security, Patent, Invention, Inventor, Patent Holder.*



## ABSTRAK

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Program Studi : Hukum Kekayaan Intelektual

Judul : Teknologi *Dual Use* dari Perspektif UU No.13 Tahun 2016 Tentang Paten: Sebuah Analisis Terhadap Teknologi Enkripsi dalam Hubungannya dengan Pertahanan dan Keamanan Nasional

Di era modernisasi ini, kita bisa melihat bahwa ada perkembangan teknologi yang pesat. Dengan teknologi, kita bisa terhubung dengan informasi global secara leluasa melalui adanya akses internet berkecepatan tinggi, baik kabel maupun nirkabel melalui segala jenis *gadget*. Pada dasarnya, informasi sangat penting bagi pelaksanaan fungsi keamanan nasional. Harus ada teknologi, yang menjamin keamanan informasi. Salah satu teknologi untuk menjamin keamanan informasi ini dikenal sebagai enkripsi. Berdasarkan kejadian di atas, penelitian ini akan menganalisis pembahasan yang sedang berlangsung tentang bagaimana hukum positif Indonesia melihat teknologi enkripsi yang merupakan bagian dari *dual-use goods*, dapatkah teknologi enkripsi diklasifikasikan sebagai invensi paten, seberapa besarkah peran pemerintah dalam menangani teknologi enkripsi jika enkripsi termasuk bagian dari invensi paten, dan bagaimana hukum paten melindungi kepentingan ekonomi pemegang paten, termasuk pemegang paten teknologi enkripsi jika enkripsi termasuk dalam invensi paten. Pertama, penelitian ini akan menjelaskan apakah teknologi enkripsi dapat dipatenkan atau tidak. Penelitian selanjutnya akan mendekati isu tersebut melalui hukum positif yang ada di Indonesia, khususnya hukum Paten Indonesia. Kemudian menjelaskan jawaban atas pertanyaan penelitian dalam menentukan sejauh mana peran pemerintah dalam masalah ini dan bagaimana hukum paten melindungi kepentingan ekonomi pemegang paten.

Kata Kunci: *Enkripsi, Nasional, Pertahanan, Keamanan, Paten, Invensi, Inventor, Pemegang Paten.*

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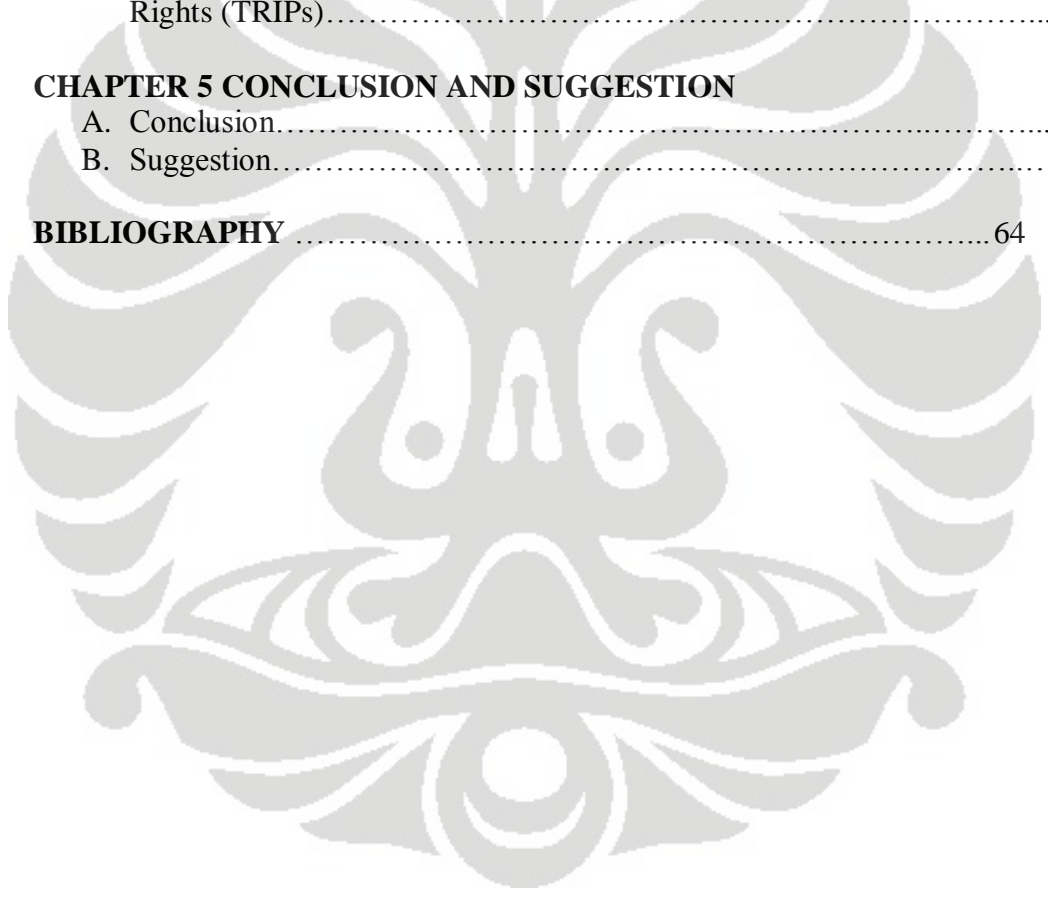
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## CHAPTER 1

### INTRODUCTION

#### A. Research Background

In this era of modernization, we can see that there is a rapid development of technology. Access to technology is widely open to the public nowadays, especially with the existence of internet. With the development of technology, we can get connected to global information easily through the existence of high-speed internet access, both wired and wireless through all kinds of gadget.

Basically, information is fundamentally very important to the implementation of the national security function. Actors that are involved in national security efforts require information in making decisions and act. Essentially, information gathering is a two-part process which involves sorting and synthesis, where sorting refers to the choosing of which information to acquire and then prioritizing the acquired information appropriately and where synthesis is the process of analysing the sorted information and then transmitting it to the appropriate party for decision making. Any impediment to either part of the information gathering process will basically increase the acquisition cost of the desired information. There are 2 (two) primary impediments to information gathering: the amount of available information and timely access to information.<sup>1</sup>

However, even though most of the people in today's world are familiar with internet, World Wide Web (WWW) applications, etc, out of these

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<sup>1</sup> Nathan Klassen, "State Autonomy and Encryption: An Examination of Technology's Ability to Impact State Autonomy", *Journal of Military and Strategic Studies*, Fall 2005, Vol. 8, Issue 1, Page. 14.

people, 40% of them still uses the unsafe browsing facility.<sup>2</sup> That is just one of the examples that shows how vulnerable information is nowadays.<sup>3</sup> For that, we need a technology to solve this problem. Some technologies have been made to solve this issue, one of them is known as encryption.

Basically, the term encryption refers to a set of algorithms, which are used to convert the plain text to unreadable code or the form of text, and provides privacy. To decrypt the text the receiver uses the "key" for the encrypted text. It has been the old method of securing the data, which is very important for the military and the government operations.<sup>4</sup>

Nowadays, the encryption has stepped into the civilian's daily life too. For example, online transaction of a bank, the transfer of the data through networks, exchange of vital personal information, etc. All of that requires the application of encryption for security reasons.

As important as encryption has become, it is important to understand that not all encryption algorithms are created equal. Some of the encryptions are strong and some are weak. The strength of an encryption key is determined by how difficult, it would be for a third party to break the code, which depends on the key length, measured in bits, and the complexity of the algorithm in question.<sup>5</sup> These 2 (two) factors, key length and the algorithm itself, are the primary determinants of strength for they relate directly to the 2 (two) methods used

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<sup>2</sup> Brian Krebs, "Forty Percent of Web Users Surf with Unsafe Browsers"  
[http://voices.washingtonpost.com/securityfix/2008/07/40\\_percent\\_of\\_web\\_users\\_surf\\_w\\_1.html](http://voices.washingtonpost.com/securityfix/2008/07/40_percent_of_web_users_surf_w_1.html),  
Accessed on 30<sup>th</sup> of March, 2017.

<sup>3</sup> Marc Goodman, "The internet of things will turn our machines against us"  
<http://www.wired.co.uk/article/internet-of-hackable-things>, Accessed on 30<sup>th</sup> of March, 2017.

<sup>4</sup> Protecting Computer Network with Encryption Technique: A Study, International Journal of u-and e-Service, Science and Technology Vol. 4, No. 2 June, 2011, Page 43-44.

<sup>5</sup> Tricia E. Black, "Taking Account of the World As It Will Be: The Shifting Course of US Encryption Policy," Federal Communications Law Journal 53/2 (2001), Page 53, 294-295.

to break encryption, the brute force and shortcut approaches.<sup>6</sup>

As mentioned above, encryption basically provides security benefits. Mainly, there are 5 (five) main benefits given by the encryption, namely:<sup>7</sup>

### 1. Protect Data Completely

Securely encrypted data is completely protected, even if it is stolen. If, for example, a file is encrypted with very sophisticated encryption technology<sup>8</sup>, it can take a hacker more than a lifetime to crack the code using the brute-force method.

### 2. Achieve Security On All Devices

Information Technology (IT) security was certainly never a child's play. Whether administrators like it or not, data is pouring out of companies and being distributed among the most diverse of devices. Encryption removes the stress from this situation, as it ensures that data remains secure, regardless of the device on which it is stored.

### 3. Transmit Securely

Just as data security is ensured on all devices, encrypting data also provides a security benefits during transmission. Users sending files by email or distributing them via a cloud server can use encryption. This is to ensure that no unauthorised user can view them.

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<sup>6</sup> Ernest Brickell, Dorothy Denning, Stephen Kent, David Maher and Walter Tuchman, "Skipjack Review: Interim Report," in Building in Big Brother, Page 122-130.

<sup>7</sup> Nanda Bechtholt, "Encryption: Five Major Benefits" [http://newsroom.kaspersky.eu/fr-be/news/news-article/article/encryption-five-major-benefits-2/?no\\_cache=1&cHash=830e0de35b70a99fff12b2ab05405eae](http://newsroom.kaspersky.eu/fr-be/news/news-article/article/encryption-five-major-benefits-2/?no_cache=1&cHash=830e0de35b70a99fff12b2ab05405eae), accessed on 30<sup>th</sup> of March, 2017.

<sup>8</sup> For example, The Advanced Encryption Standard (AES), also known by its original name Rijndael, which is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST) in 2001. Can be seen from the Federal Information Processing Standards Publication 197 <http://nvlpubs.nist.gov/nistpubs/FIPS/NIST.FIPS.197.pdf>, Accessed on 30<sup>th</sup> of March, 2017.

#### 4. Guarantee Data Integrity

Targeted data theft is one thing, but there is another way to misuse data, which is through manipulation. Even though a hacker may have absolutely no interest in the information in question, he or she can manipulate specific data to disrupt corporate communications. If encrypted data is being used, the recipient will definitely notice that it has been tampered with.

#### 5. Ensure Compliance

Corporate IT departments are often have to comply with legal or contractual regulations on data protection. These things may involve archiving a banking data or providing special protection for customer information. In many cases, encrypting the data involved is the easiest way to comply with these rules.

However, encryption does not just bring benefits, encryption also brings risks. Recently, former FBI Director James Comey testified before Congress that terror groups such as ISIS are using encrypted programs to hide their communications and recruiting messages from U.S. federal agencies. As a result, ISIS is aggressively targeting young Americans and they are succeeding.<sup>9</sup> As white-hat hackers repeatedly advise, encryption can be friend. But that doesn't mean it can't be used to harm people. Some hackers are starting to steal data, encrypt it, then demand a ransom in exchange for the unlocked information. The same tools used to prevent people from stealing information can also be used to make it harder to retrieve that data once it's stolen.<sup>10</sup>

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<sup>9</sup> Mike Rogers, "Encryption a growing threat to security" <http://edition.cnn.com/2015/08/01/opinions/rogers-encryption-security-risk>, Accessed on 30<sup>th</sup> of March, 2017

<sup>10</sup> Nathaniel Mott, "Hackers are now stealing information, encrypting it, and holding it for

Given the explanation above, there are some debates whether the encryption technology should be traded freely or not. Some said that it should be traded freely because it gives protection to personal information.<sup>11</sup> They argued that encryption matters because it protects the people's intellectual privacy. The ability to be protected from surveillance or interference when we are making sense of the world by thinking, reading and speaking privately with those we trust. A free society should not fear dangerous ideas, and does not need complete intellectual surveillance. Existing forms of surveillance and policing are enough.

But some also said that, it should not be traded freely because it can endanger the national's security. Encrypted phones and encrypted apps do not protect privacy. They protect terrorists and criminals. Some of the biggest tech companies have deliberately made these software changes so they don't have to comply with law enforcement investigations conducted pursuant to court-ordered warrants. The law enforcement community has labelled this troubling development as "going dark."<sup>12</sup>

This debate certainly makes the inventor and/or owner of encryption worry. Because, the technology that has been created with great effort, already patented in accordance with the procedure, in the end threatened to not be sold due to endangering state security. It certainly has the economic impact on the inventor and / or owner of the patent of encryption technology.

Intellectual Property Right (Or usually known as IP right) is a material right, right over a creation resulted from someone's idea and thinking in immaterial form. Not everybody can work their brain maximally, that is why a

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ransom” <https://pando.com/2015/04/14/hackers-are-now-stealing-information-encrypting-it-and-holding-it-for-ransom/>, Accessed on 30<sup>th</sup> of March, 2017

<sup>11</sup> Neil Richards, “How encryption protects our intellectual privacy (and why you should care)” <http://www.wired.co.uk/article/encryption-intellectual-privacy>, Accessed on 30<sup>th</sup> of March, 2017.

<sup>12</sup> Michael R. D., “Encryption endangers public “ [http://www.newsadvance.com/encryption-endangers-public/article\\_38a574ac-4bbf-5b40-bb6d-ba2b629d76e1.html](http://www.newsadvance.com/encryption-endangers-public/article_38a574ac-4bbf-5b40-bb6d-ba2b629d76e1.html), Accessed on 30<sup>th</sup> of March, 2017



creation resulted from the work of a brain will give the creator the right of Intellectual Property, which is exclusive. The classifications of Intellectual Property Right are divided, as follow: Copyright and Industrial Property Right<sup>13</sup>. Not everybody can have a certain idea and realize it, which is an intellectual property, and that's why the exclusive right of intellectual property is needed to protect it. According to David Bainbridge, the protection of Intellectual Property Right can be expressed through a simple expression. Basically, every person has to be acknowledged and entitled for the right to own his creation. If those are taken away from him, he will be no more than just a slave.<sup>14</sup>

To provide protection to the rights of the inventor of a technology, the patent law was drafted. Patent law is designed to serve the public interest by encouraging the advancement of knowledge while safeguarding the rights of inventors. Basically, the main idea of the patent law is to protect the interest and right of the inventor and/or patent holder over his invention.

Recently, Indonesia has just had a new patent law, namely Law No. 13 of 2016 Regarding Patent. The formation of the law has been passed through the process of discussion at the Commission III of Indonesian House of Representatives for 6 (six) months. There are important main points in the new patent law.

First, the new Patent law can accommodate the things that were not previously listed on the old law. One of them, a patent examiner may be recruited from outside the Directorate General of Intellectual Property, such as universities and research institutions that understand the basis of technology transfer well. This will surely speed up the registration process patent by the inventor or inventors without having to queue long to be examined patent products.

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<sup>13</sup> OK. Saidin, *Aspek Hukum Hak Kekayaan Intelektual*, cet.6 (Jakarta: PT. Raja Grafindo Persada, 2007), Page 10.

<sup>14</sup> Bainbridge, David I, *Cases & Materials in Intellectual Property Law*. (London: Pitman Publishing, 1995), Page 7.

Second, the new Patent law actually protects inventors among students and small and medium enterprises (SMEs). They immediately be referred to as a patent holder on any patent resulting product, not just the inventor or inventors. The patent holder will receive remuneration or royalties when their proprietary products are used by the government or the public.

Third, about national interests. Patent will be encouraged to genetic resources and traditional knowledge. If there is cooperation with foreigners in these two matters, then they must also include the natural resources of Indonesia. That way, there will be a sharing of results between foreign technologists and Indonesian farmers. The new Patent Law remains national sided but does not violate international principles

Fourth, the new Patent Law also reinforces the role of intellectual property consultations in Indonesia. Later patent from overseas entering Indonesia must pass through the registration, consultation and maintenance stages of intellectual property consultants

As stated in Article 1 Paragraph (1) of Law Number 13 Year 2016 Regarding Patent, patent is an exclusive right granted by the state to an inventor for his invention in the field of technology for a certain period of time to implement its own inventions or give consent to others to implement them.<sup>15</sup> Certainly it is necessary to have a legal protection over every creation in all fields, including in technology. Appreciation and protection over the realization of a person's idea sure is needed in order to protect the right of the inventor over the inventions.

As regulated, there are 2 (two) types of patent that are described under the law, specifically: general patent and simple patent. General patent is granted for new invention which incorporate inventive methods and can be applied to industrial activities and processes. Meanwhile, simple patent is granted for new

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<sup>15</sup> Article 1 Paragraph (1) of Law Number 13 Year 2016 Regarding Patent, LN No. 176 Year 2016, TLN No. 5922

invention which are developed from existing invention(s) and are also applicable to industrial activities and processes.

With regards to the encryption technology, it needs to be seen how the new patent law provides protection to the interest of the inventor and/or owner of patent technology in Indonesia, especially for the encryption technology.

## **B. Research Questions**

The research will be done within the scope of Intellectual Property Rights Law, especially within the scope of Patent law. There are 3 (three) research questions, which will be used as guidance in analyzing the encryption technology from the perspective of Law No. 13 Year 2016 Regarding Patent in relation to national defense and security:

1. Is encryption patentable according to Law No. 13 Year 2016 Regarding Patent?
2. To what extent is the government role in regulating patent according to Law No. 13 Year 2016 Regarding Patent?
3. What is the solution to protect the economic interest of patent owner if his/her invention is seen to be important for the national's defense and security according to Law No. 13 Year 2016 Regarding Patent?

This research focuses on the current Indonesian Patent Law, specifically on the newly established and current Indonesian Patent Law, Law No. 13 Year 2016.

## **C. Research Objectives**

General objective of this research is to conduct analytical study regarding the dual use of technology with the specific analysis on encryption technology from the perspective of Law No. 13 Year 2016 Regarding Patent with regards to national defense and security.

The specific objectives of this research are:

1. To explain whether encryption is patentable or not according to Law No. 13 Year 2016 Regarding Patent;
2. To explain the government role in regulating patent invention based on Law No. 13 Year 2016 Regarding Patent;
3. To explain what is the solution to protect the economic interest of patent owner if his/her invention is deemed to be important to the national's defense and security.

#### **D. Conceptual Framework**

There are several terminologies that will be used in this research. In order to avoid differences in interpretation, some of the terminologies in this research will be defined as follow:

1. Patent is an exclusive right granted by the state to an inventor for his invention in the field of technology for a certain period of time to implement its own inventions or give consent to others to implement them.<sup>16</sup>
2. Invention is inventor idea that is poured into a specific problem-solving activities in the field of technology in the form of products or processes, or the improvement and development of products or processes.<sup>17</sup>

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<sup>16</sup> Article 1 Paragraph (1) of Law Number 13 Year 2016 Regarding Patent

<sup>17</sup> Article 1 Paragraph (2) of Law Number 13 Year 2016 Regarding Patent

3. Inventor is a person or several persons acting together implementing an idea poured in an activity resulting invention.<sup>18</sup>

4. Application is a simple application of patent or patent submitted to the Minister.<sup>19</sup>

5. Applicant is the party who filed the patent application.<sup>20</sup>

6. Patent Holder is Inventor as the owner of patent, the party receiving the patent rights of the patent owner, or other party that receives more rights to the patent that is registered.<sup>21</sup>

7. *Kuasa* is intellectual property consultant who resides or is domiciled in the territory of the Republic of Indonesia.<sup>22</sup>

8. The patent examiner or examiner is functional officials of the State Civil Apparatus or expert appointed by the Minister that is given the task and the authority to conduct a substantive examination of the application.<sup>23</sup>

9. Filing date is the date of receipt of application that meets the minimum requirements.<sup>24</sup>

10. Priority Right is the right of an applicant to file an application originating from a member country of the Paris Convention About

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<sup>18</sup> Article 1 Paragraph (3) of Law Number 13 Year 2016 Regarding Patent

<sup>19</sup> Article 1 Paragraph (4) of Law Number 13 Year 2016 Regarding Patent

<sup>20</sup> Article 1 Paragraph (5) of Law Number 13 Year 2016 Regarding Patent

<sup>21</sup> Article 1 Paragraph (6) of Law Number 13 Year 2016 Regarding Patent

<sup>22</sup> Article 1 Paragraph (7) of Law Number 13 Year 2016 Regarding Patent

<sup>23</sup> Article 1 Paragraph (8) of Law Number 13 Year 2016 Regarding Patent

<sup>24</sup> Article 1 Paragraph (9) of Law Number 13 Year 2016 Regarding Patent

the Protection of Industrial Property (Paris Convention for the Protection of Industrial Property) or the Agreement Establishing the World Trade Organization (Agreement Establishing the World Trade Organization) to gain recognition that the filing date in the country of origin is a priority date in destination countries that are also members of one of both agreements for submission is done within the time period specified by the treaty in question.<sup>25</sup>

11. License is a license granted by the patent holder, whether they are exclusive or non-exclusive license, the license is based on a written agreement to use a patent that is still protected within the period and with certain requirements.<sup>26</sup>

12. Patent Appeal Commission is an independent commission in the environment ministry who held government affairs in the field of law.<sup>27</sup>

13. Person is an individual or legal entity.<sup>28</sup>

14. Royalties are rewards given to the use of patent rights.<sup>29</sup>

15. Rewards is the compensation received by the party entitled to a patent for an invention that is produced, in employment or Invention generated either by employees or workers who use the data and / or means provided in his job even if the agreement did not oblige him to produce Invention or the patent holder on Invention generated by an inventor in an official relation or patent

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<sup>25</sup> Article 1 Paragraph (10) of Law Number 13 Year 2016 Regarding Patent

<sup>26</sup> Article 1 Paragraph (11) of Law Number 13 Year 2016 Regarding Patent

<sup>27</sup> Article 1 Paragraph (12) of Law Number 13 Year 2016 Regarding Patent

<sup>28</sup> Article 1 Paragraph (13) of Law Number 13 Year 2016 Regarding Patent

<sup>29</sup> Article 1 Paragraph (14) of Law Number 13 Year 2016 Regarding Patent

holder of the compulsory licensee or patent holder on the patent held by the Government.<sup>30</sup>

## E. Research Methodology

This research will be classified as a juridical normative legal research, which is a research that will be based on the current law and which the implementation in the society will be used to make prediction of the future and analysis. The law will be used as the basis of this research in Intellectual Property Law, especially of Indonesian Patent Law. This research will be legal research on legal systematic, with the patent holder as the subject of law and the encryption technology as the object of law.

In this research, other than using secondary data as the source of data collection by literary research, interviews will also be conducted with several interviewees, therefore this research can also said to be using qualitative method<sup>31</sup>. Through this qualitative approach, the data produced will be a descriptive analytical, that is what is stated by the target of research concerned is written or spoken, and real behavior.<sup>32</sup>

Thesis Statement:

The issue raised in this research is the analysis of encryption technology which is a part of the dual-use items based on the perspective of Law No. 13 Year 2016 Regarding Patent. Indonesia has just recently passed the new patent law which is Law No. 13 Year 2016 Regarding Patent. The new patent law regulates what kind of invention is patentable and the implementation of patent by the government. Encryption is one of

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<sup>30</sup> Article 1 Paragraph (15) of Law Number 13 Year 2016 Regarding Patent

<sup>31</sup> Sri Mamudji, *et.al.*, *Metode Penelitian dan Penulisan Hukum*, cet.1 (Jakarta: Badan Penerbit Fakultas Hukum Universitas Indonesia, 2005), Page 4.

<sup>32</sup> *Ibid.*, Page 67.

the technologies used to protect information. Encryption is not only used for civil purposes, but also for military purposes. That is why it is called a dual-use item. How does the new patent law see the encryption technology? Is it patentable according to the new patent law? How is the implementation of patent by government for encryption?

#### Type of Data:

This research will be using secondary data for sources of knowledge, which includes primary sources, secondary sources, and tertiary sources:

1. *Primary sources*: These are sources that have legal binding power in Indonesia, which are the current implementing regulation in Indonesia that are in relation to the topic of the research. The legal basis will be used for this research is The Indonesian law that will mainly be used in this research is Law number 13 Year 2016 regarding Patent.
2. *Secondary sources*: These are the sources that are related to the primary source that could help to analyze, understand, explain and compare the primary sources. The secondary sources that will be used in this research, includes books, articles, research report, journals, and also information gathered from interviews.
3. *Tertiary source*: This is the source that will give explanation and guidance for the primary and secondary sources. Tertiary source used is general dictionary. This research will not include a field research.

#### Tool of Research:

The tool of research will be used in conducting this research is through literacy or library research. The knowledge resources would be secondary data, which is based on literatures form such as books and journals that are relevant with the research



## **F. Research Systematic**

This research will be systematically divided into 5 (five) chapters; with sub chapters. The systematics, which will be used are, as follow:

Chapter 1: The first chapter will be divided into 6 (six) subchapters and will outline the background of research, which is the explanation of the main issue of the research, research questions, research objectives, conceptual framework, the research methodology, and research systematics.

Chapter 2: This second chapter will illustrate the foundation of this research which is the understanding encryption technology as dual use of technology, starting from definition of the terminologies, background, characteristics, and size and also scope business. The aim of explaining is for the reader to provide better understanding of the definition of the terminologies, background, characteristics, and size and also scope business so that readers may be able to realize the importance of this research to be done.

Chapter 3: The third chapter discusses the patentability of encryption technology. This chapter will review patentability according to Law No. 13 Year 2016. It will explains the elements of invention, novelty, inventive step, industrial applicability of encryption technology. The aim of this chapter is to provide knowledge on how the current positive law sees encryption technology

Chapter 4: In the fourth chapter, it will contain the specific analysis on the relationship with encryption technology and national security. I will explain national security according to Law No. 13 Year 2016 Regarding Patent, the role and authority of the government in relation to the management of patent, protection of the economic interest of patent owner whose patent is implemented by the government, and conformity of provision regarding national security in Law No. 13 Year 2016 Regarding Patent with The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs).

Chapter 5: This closing chapter will provide the conclusion of the research from the research and analysis done in the previous chapters regarding the dual use of encryption technology in Indonesia and the answer of the research questions that is found through the research. At the end of the chapter, writer will also provide suggestions on how to ensure that the economic interest of inventor and/or patent holder over an invention is guaranteed by the government.



## CHAPTER 2

### AN OVERVIEW OF ENCRYPTION TECHNOLOGY AS ONE OF THE DUAL USE GOODS

#### A. Overview of the Dual Use Goods

Nowadays, there are issues being raised about how to manage the potential threat posed by information technology, which growth and spread some believe may position cyber weapons alongside nuclear and biological weapons in the elite club of technologies capable of unleashing massive harm. These technologies may differ in their legal status and characteristics. But they also have one critically important similarity: each is what has come to be called dual-use.<sup>1</sup>

Over the years, this concept has been defined in various ways. The European Commission (EC), for example, defines dual-use goods as “items, including software and technology, which can be used for both civil and military purposes.”<sup>2</sup> The U.S. government’s Code of Federal Regulations takes a similar approach, describing “items that can be used both in military and other strategic uses and commercial applications.”<sup>3</sup> Because of the complexities of the threat, a wide range of different governance measures have been developed to mitigate the risks from dual-use technologies. One commonly used definition of dual-use technology is “technology intended for beneficial purposes that can also be misused for harmful purposes.”<sup>4</sup>

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<sup>1</sup> Elisa D. Harris, “Governance of Dual-Use Technologies: Theory and Practice” <https://www.amacad.org/content/publications/pubContent.aspx?d=22231>, Accessed on 31<sup>st</sup> of March, 2017

<sup>2</sup> Council Regulation (EC) No 428/2009 of May 5, 2009,” Official Journal of the European Union (May 29, 2009): L134/3, Page. 3.

<sup>3</sup> “Dual Use Exports,” Code of Federal Regulations, Title 15, § 730.3 (2000)

<sup>4</sup> See, for example, National Research Council, *Biotechnology Research in an Age of*

Basically, in the twenty-first century, information is the key coin of the realm. Nations are relying on information technology.<sup>5</sup> Computers and networks are integral for most business processes, including payroll and accounting, tracking of sales and inventory, and research and development. Basically, Information and Technology (IT) itself is a major sector of the economy. Modern military forces use weapons that are computer controlled. Coordination of actions of military forces depends on networks that allow information about the battlefield to be shared. Logistics for both civilian and military activities depend on IT-based scheduling and optimization.

However, not all people use IT for good purpose. Some of them use IT for bad purpose. Criminals use IT to steal intellectual property and commit fraud. Terrorists use IT for recruitment, training, communications, etc. They are using IT for criminal purposes.

Preventing the misuse of dual-use technologies is not a new problem but it is one that is needed to be addressed more urgently than ever.<sup>6</sup> Because of the global diffusion of dual-use technology, emerging economies and developing countries have to be part of the solution to the nonproliferation problem. Yet for them, unhindered access to technology is of prime importance, because basically, technology holds the promise of economic development.

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Terrorism (Washington, D.C.: National Academies Press, 2004); and Seumas Miller and Michael J. Selgelid, "Ethical and Philosophical Consideration of the Dual-Use Dilemma in the Biological Sciences," *Science and Engineering Ethics* 13 (4) (2007): 523–580. The definition used in the life sciences contrasts with what might be called a "traditional" definition of dual-use technology; namely, technology that has both civilian and military applications. This traditional definition is used by the U.S. government (15 CFR 730.3) and the European Commission (see "Dual-Use Export Controls," updated January 28, 2016, <http://ec.europa.eu/trade/creating-opportunities/trade-topics/dual-use/>).

<sup>5</sup> M.Prasanna Kumar, "Information Technology: Roles, Advantages and Disadvantages," *International Journal of Advanced Research in Computer Science and Software Engineering*, Volume 4, Issue 6, June 2014, Page. 1022.

<sup>6</sup> "Between Control and Cooperation: Dual-Use, Technology Transfers and the Non-Proliferation of Weapons of Mass Destruction," Page. 6.

The control of trade in militarily significant items has occurred for a very long time. Likewise, however, there have been international markets for these items, for both their military and non-military uses. Basically, the need for export controls has always been balanced between the economic needs for exporting items of military significance and the desire to prevent an enemy from acquiring those same items. This balance leads to 2 (two) different framings of the problem of dual-use technology: as either a problem of control or a problem of the marketability of technology.<sup>7</sup>

## **B. Wassenaar Arrangement**

The Coordinating Committee on Multilateral Export Controls (COCOM) was one of the earliest mechanisms to be established during the Cold War years, as a critical body mandated to stem the transfer of technology from developed to developing countries. Headquartered in Paris, COCOM had 17 members and carried the primary objective of impeding the potential advancement of Soviet military competencies.<sup>8</sup> Such aims become redundant with the end of The Cold War in the 1990s, leading the COCOM members to then explore a future avatar of the committee.<sup>9</sup> The process eventually led to the establishment of the new regime, Wassenaar Arrangement (WA). The group, established in 1995, has 41 member countries including former COCOM members and other cooperating countries, and Russia and Visegrad States including Czech Republic, Hungary, Poland and Slovakia. Wassenaar Arrangement has since become a broader measure to coordinate and harmonise policies on exports of conventional arms

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<sup>7</sup> Samuel A. Evans, "Technological Ambiguity & the Wassenaar Arrangement," New College University of Oxford, thesis submitted for the degree of Doctor of Philosophy, Trinity Term 2009, Page. 156.

<sup>8</sup> Rand C Lewis, "COCOM: An International Attempt to Control Technology," The DISAM Journal, Fall 1990, Page. 66-73.

<sup>9</sup> "The Wassenaar Arrangement, available at <http://www.wassenaar.org/about-us/>, accessed on 31<sup>st</sup> of March, 2017

and armaments, dual-use equipment, and sensitive technologies. The Wassenaar Arrangement implements its regulations through two lists: the Munitions List that tracks conventional weapons, and the Dual-Use Goods and Technologies List.<sup>10</sup> New Members are accepted into the Wassenaar Arrangement based on specific criteria, including countries that:<sup>11</sup>

1. Produce or export arms or associated dual-use goods and technologies;
2. Establish national policies that restrict sale of Arms and sensitive technologies to countries of concern; And
3. Are adherents to the non-proliferation regimes. The Arrangement provides for periodic Meetings in Vienna and the decision-making is based on consensus.

Although a successor to COCOM, the Wassenaar Arrangement is different from its predecessor in critical ways.<sup>12</sup> Wassenaar Arrangement is more comprehensive and inclusive. It has the aim to be universal and open to all countries; Asian presence, however, is so much limited to Australia, Japan, New Zealand and South Korea. Furthermore, members of the Wassenaar Arrangement do not have power to veto another member's export. Every member develops and enforces its own export control policies and consults with other members for approvals or denials.

Although the United States (US) was keen to maintain certain veto powers to control the flow of goods even among the member countries, US basically failed to garner the support of the other members. Also, at the same

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<sup>10</sup> "List of Dual-Use Goods and Technologies And Munitions List," The Wassenaar Arrangement, available at <http://www.wassenaar.org/wp-content/uploads/2015/08/WA-LIST-15-1-2015-List-of-DU-Goods-and-Technologies-and-Munitions-List.pdf>, accessed on 31<sup>st</sup> of March, 2017.

<sup>11</sup> Rajeswari Pillai Rajagopalan and Arka Biswas, "Wassenaar Arrangement: The Case of India's Membership," ORF Occasional Paper #92, May 2016, Page. 3.

<sup>12</sup> *Ibid.*

time, members have a responsibility to provide information about the transactions on a semi-annual basis, through the WA Secretariat based in Vienna. This provides the members, to the major importers and exporters of high-end sensitive technologies and, helps frame the WA's focus areas for governance.<sup>13</sup>

Many of the states spend significant resources in trying to improve Wassenaar one way or another. The Arrangement has two main lists—the Dual-Use List and Munitions List—and two subsets of the Dual-Use List: the Sensitive List (SL) and the Very Sensitive List (VSL). These are arranged hierarchically by the level of control each warrants, with the Munitions List having the most control, then the VSL, SL, and common Dual-Use List.<sup>14</sup>

The Initial Elements, or Guidelines & Procedures, including the Initial Elements as they were renamed in 2003, form the basic outline of the functions of the Arrangement.<sup>15</sup> They are separated into nine sections: I. Purpose; II. Scope; III. Control Lists; IV. Procedures for General Information Exchange; V. Procedures for Exchange of Information on Dual-Use Goods and Technology; VI. Procedures for the Exchange of Information on Arms; VII. Meetings and Administration; VIII. Participation; and IX. Confidentiality.

The purpose of the Arrangement is clearly laid out in section I.1:

*“The Wassenaar Arrangement has been established in order to contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilising accumulations.”*

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<sup>13</sup>*Ibid.*, Page. 4.

<sup>14</sup> Samuel A. W. Evans, “Revising export control lists,” Page. 22.

<sup>15</sup> This and other publicly available documents, including the lists, are on the Wassenaar Arrangement website: <http://www.wassenaar.org>. Accessed on 31<sup>st</sup> of March, 2017.

It does so by focusing on enhancing cooperation to prevent the threats to international and regional peace and security which may arise from transfers of armaments and sensitive dual-use goods and technologies where the risks are judged greatest. In stark contrast to COCOM, it is not directed at “any state or group of states and will not impede bona fide civil transactions.”<sup>16</sup> This statement shows the first explicit recognition by the Arrangement that there is a balance to be struck between the security and economic concerns of dual-use technology.

To carry out its purpose, Wassenaar participating states meet on a regular basis, exchanging, on a voluntary basis, information that will enhance transparency, including information on transfers and denials to transfer. They also continually assess the overall functioning of the Arrangement and develop guidelines and procedures for participating states to use in various aspects of export controls. In doing so, all decisions are reached by consensus.

Participating states, except for the Russian Federation, France, and Ukraine, have agreed to control all items on the List of Dual-Use Goods and Technologies and Munitions List, which will be reviewed regularly “to reflect technological developments and experience gained by Participating States”<sup>17</sup> All Participating States agree to exchange general information on the risks associated with transfers of conventional arms and dual-use goods and technologies, and specific information on the denial of licenses of dual-use items and the approval of items on the Munitions List.<sup>18</sup>

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<sup>16</sup> The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies Initial Elements.

<sup>17</sup> Russia, France, and Ukraine “view this list as a reference list drawn up to help in the selection of dual-use goods” (III n), though their national controls do reflect and often go beyond the Wassenaar Lists.

<sup>18</sup> The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, 1996.



The Arrangement maintains that it is open to any state that may wish to join, though admission is based on consensus of all current members. Finally, Article IX states that:

*“Information exchanged will remain confidential and be treated as privileged diplomatic communications. This confidentiality will extend to any use made of the information and any discussion among Participating States.”*

All discussions at Wassenaar are centered on one primary aspect of technology, which is its military significance. This is the main criterion for the selection of items for each of its lists, and the guides all of the discussions. Within that broad framework, the Arrangement clearly defines the types of knowledge that are relevant for discussions in its criteria for the selection of Dual-Use Items: foreign availability; the ability to control the item; the ability to clearly and objectively define the item; and whether it is controlled by another regime. Each of these criteria is basically control-related, and discussion about technology within the Arrangement is usually about negotiating the knowledge of how a technology does or does not meet the criteria.

As described earlier, Wassenaar Arrangement was originally applicable to conventional arms and dual-use goods and the attempts to control the flow of technology across borders have not always been successful. The most relevant failure in recent memory is the U.S.-sponsored effort to restrict the export of encryption technology via the Wassenaar Arrangement in the late 1990s.<sup>19</sup>

Encryption technology is dual-use technology.<sup>20</sup> In December 2013 the participating members of the Wassenaar Arrangement updated the control list to

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<sup>19</sup> Innokenty Pyetranker, “An Umbrella in a Hurricane: Cyber Technology and the December 2013 Amendment to the Wassenaar Arrangement,” *Northwestern Journal of Technology and Intellectual Property*, Vol. 13, No. 2, Fall 2015, Page. 164.

<sup>20</sup> Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, <http://www.wassenaar.org/wp-content/uploads/2016/12/List-of-Dual-Use-Goods-and-Technologies-and-Munitions-List-Corr.pdf>, Accessed on 31<sup>st</sup> of March, 2017.

include certain surveillance and intelligence gathering software. These introductions are made with the intent of restricting the sale of tools that can be used by oppressive states to spy desktops and remote devices such as cellular phones. For example, tools like the DaVinci system developed by Italian firm Hacking Team and FinFisher made by the UK firm Gamma Group International, have fallen into the hands of the government, especially human rights activists and political dissidents, in violation of their rights.<sup>21</sup>

### C. Description of the Encryption Technology

Cryptography is the science or study of techniques of secret writing and message hiding. Cryptography is as broad as formal linguistics which obscure the meaning from those without formal training. It is also as specific as modern encryption algorithms used to secure transactions made across digital networks. Cryptography constitutes any method in which someone attempts to hide a message, or the meaning thereof, in some medium.<sup>22</sup>

Encryption is one specific element of cryptography in which one hides data or information by transforming it into an undecipherable code. Basically, encryption is a mechanism that protects our valuable information, such as our documents, pictures, or online transactions, from unwanted people accessing or changing it. Encryption works by using a mathematical formula called a cipher<sup>23</sup> and a key to convert readable data (plain text) into a form that others cannot understand (cipher text). The cipher is the general recipe for encryption, and our

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<sup>21</sup> Kim Zetter, "Why an Arms Control Pact has Security Experts up in Arms," <https://www.wired.com/2015/06/arms-control-pact-security-experts-arms/>, Accessed on 31st of March, 2017

<sup>22</sup> Nicholas G. McDonald, "Past, Present, and Future methods of cryptography and data encryption," Page 3.

<sup>23</sup> A cipher is an algorithm, process, or method for performing encryption and decryption. A cipher has a set of well-defined steps that can be followed to encrypt and decrypt messages. The operation of a cipher usually depends largely on the use of an encryption key. The key may be any auxiliary information added to the cipher to produce certain outputs.

key makes our encrypted data unique. Only people with our unique key and the same cipher can unscramble it. Keys are usually a long sequence of numbers protected by common authentication mechanisms, such as passwords, tokens, or biometrics (like fingerprint).<sup>24</sup>

There are 2 (two) main types of encryption: asymmetric encryption (also known as public-key encryption) and symmetric encryption. There are many algorithms for encrypting data based on these types.<sup>25</sup>

Faisal as the interviewer explained that<sup>26</sup> asymmetric encryption uses different keys for encryption and decryption. This key is called private key and public key. Private key is the key used to decrypt. While the public key is the key used for encryption.

Asymmetric encryption uses different keys for encryption and decryption. The message recipient (eg Ani) has a private key and a public key. The public key is assigned to the sender of the message (eg Tono) and Tono uses the public key to encrypt the message. The recipient uses his private key to open encrypted messages that have been encrypted using the recipient's public key.<sup>27</sup>

There is one advantage of encryption using this method. We do not need to send anything confidential (like our encryption keys or passwords) through unsafe channels. Our public key will be downloadable from the web or sent to anyone who wants to dictate a secret message to us. Our private key will remain secure because we always hold the key. Examples of Asymmetric Encryption

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<sup>24</sup> "Understanding Encryption," OUCH July 2011, Page. 1.

<sup>25</sup> "Encryption and Its Importance to Device Networking," Page 4.

<sup>26</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

<sup>27</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

Algorithms are DSA, RSA, PGP and SSL-TLS. Application of Asymmetric encryption in everyday life one of them is accessing online shopping sites which are generally equipped with security features HTTPS and in Electronic Banking ie there are additional security features such as Key BCA (Bank Central Asia).<sup>28</sup>

To encrypt the data, a qualified computing resource is required. The point is that the contained algorithm determines the strength of the encryption.<sup>29</sup>

For the symetric encryption, it uses the same secret key to encrypt and decrypt messages.<sup>30</sup> The problem with this method is transmitting the secret key to a legitimate person that needs it. Examples of systems that use this technique include:

- Data Encryption Standard (DES) - an encryption algorithm that operates on 64-bit blocks with a 56-bit key.
- International Data Encryption Algorithm (IDEA) - an encryption algorithm that operates on 64-bit blocks with a 128-bit key.

The future of encryption is very bright. The demand for more control and the protection of corporation information assets and third-party information is increasing dramatically. The amount of information being communicated and stored electronically is vastly greater than ever. As a result, the need for more effective information security products is growing at a higher rate than any other aspect of IT technology within the enterprise. The internet and the mobility of its

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<sup>28</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

<sup>29</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

<sup>30</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

users have removed the perimeters of communication. Encryption is the last line of defense for the modern day enterprise.<sup>31</sup>

It would be careless to underestimate the role that encryption technology. Encryption technology plays a vital role in safeguarding our public and private networks. It is very important because it protects a lot of things such as: e-mail, medical records, confidential corporate information, data on personal buying habits, legal documents, credit histories and transactions, and government and regulatory agency databases.<sup>32</sup>

It seems as though access and security are at opposite ends of the spectrum<sup>33</sup> where the more access we give, the less security we have. All organizations have a need to protect personal or sensitive data from computer hackers or careless users. Device servers are often connected through the internet, which may exposes the serial device data stream to security risks. To make sure the data secure, it is very important to use data encryption as a means of data translation into another format, or alternate language, where it provides the highest level of security protection.

In the simplest connection scheme where there are 2 (two) device servers set up as a serial tunnel, no encryption application programming is required since both device servers can perform the encryption automatically. However, for the case where a host-based application is interacting with the serial device through its own network connection, modification of the application is needed. It is needed to support data encryption or by adding Secure Com Port Redirector™ (SCPR). SCPR is basically a Windows® application which creates a secure

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<sup>31</sup> Phillip Dunkelberger, "Future of Encryption," Page. 1.

<sup>32</sup> "Encryption and Its Importance to Device Networking," Page. 5.

<sup>33</sup> Ido Dubrawsky, *How to Cheat at Securing Your Network*, (Burlington, MA: Syngress, 2007), Page. 319.

communications path over a network between the computer and electronic serial-based devices that are traditionally controlled via a COM Port. The utilization of the SCPR eliminates the need to change the design.<sup>34</sup>

The use of the various forms of encryption has been enabling us to do things never before possible, and, as a result, is fueling near unprecedented growth in the digital economy. Given that the necessity of secure payment transactions when purchasing via electronic means, the value of encryption is defined much greater than zero. Spotty data notwithstanding, increases in IT security-firm revenue, growing employment numbers for IT security professionals, and also growth in the cybersecurity insurance market together speak to the increasing economic importance of encryption<sup>35</sup>

By guarding vital computers and networks from intrusion, encryption has been at the forefront of efforts to make our information infrastructure more secure, trustworthy, and resilient. Encryption also helps protect against the disruption of critical infrastructure systems. Businesses and policymakers alike are turning to strong encryption to safeguard our electric grid<sup>36</sup>, to protect the industrial control systems<sup>37</sup> that control our waterways<sup>38</sup>, to secure private nuclear

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<sup>34</sup> “Encryption and Its Importance to Device Networking,” Page. 8.

<sup>35</sup> Ryan Hagemann and Josh Hampson, “Encryption, Trust, and the Online Economy: An Assessment of the Economic Benefits Associated With Encryption,” November 9, 2015

<sup>36</sup> Jeff Hudson, “Smart Grids: Digital Certificates and Encryption Play Key Role in Security” <http://www.securityweek.com/smart-grids-digital-certificates-and-encryption-play-key-rolesecurity>. Accessed on 31<sup>st</sup> of March, 2017.

<sup>37</sup> US Department of Homeland Security, “Recommended Practice: Improving Industrial Control Systems Cybersecurity with Defense-In-Depth Strategies” (October 2009), [https://ics-cert.us-rt.gov/sites/default/files/recommended\\_practices/Defense\\_in\\_Depth\\_Oct09.pdf](https://ics-cert.us-rt.gov/sites/default/files/recommended_practices/Defense_in_Depth_Oct09.pdf). Accessed on 31<sup>st</sup> of March, 2017

<sup>38</sup> American Water Works Association, “Process Control System Security Guidance for the Water Sector” <http://www.awwa.org/Portals/0/files/legreg/documents/AWWACybersecurityguide.pdf>. Accessed on 31<sup>st</sup> of March, 2017

facilities<sup>39</sup>, and to protect our air traffic control system from hackers.<sup>40</sup> Encryption also plays an important role around the globe where it enables good people living under repressive regimes to spread freedom and hope.<sup>41</sup>

To be noted, encryption itself is not a software, but rather a method or algorithm used to secure data. Then, to run the algorithm, a software was made to process plaintext to ciphertext (encrypt) and vice versa (decrypt). In general there are 3 (three) main components of encryption / cryptography, namely plaintext, ciphertext, and algorithms and keys used. It will be explained in the following:<sup>42</sup>

- Plain text is data (text and / or message) original that has not been processed.
- Ciphertext is data generated from the encryption process.
- Algorithms and keys are black boxes that process plain text into ciphered text.

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<sup>39</sup> International Atomic Energy Agency, “Computer Security at Nuclear Facilities” [http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1527\\_web.pdf](http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1527_web.pdf), Accessed on 31<sup>st</sup> of March, 2017.

<sup>40</sup> Aaron Cooper, “Report: Air traffic control system vulnerable to cyberattack “ <http://www.cnn.com/2015/03/02/politics/cyberattack-faa-air-traffic-control-hacking/>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>41</sup> Chris Smith, “Seriously Dark Traffic: 500Mil. People Globally Hide Their IP Addresses” <http://digiday.com/publishers/vpn-hide-ip-address-distort-analytics/>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>42</sup> Faisal, IT Expert, Melli Darsa & Co., on 3<sup>rd</sup> of May, 2017.

#### **D. Size of Business and Scope of Commercial of Leading Manufacturers of Encryption Technology**

Encryption is a big business.<sup>43</sup> When Apple's pledge to defy the FBI over a request to unlock the encryption over a terrorist's iPhone ignited a media frenzy, analysts immediately started to speculate on how the apparent crisis might create new lines of business. Corporate data security is a multibillion-dollar industry that Apple actually has not really targeted. But Apple is not the only company positioned to bring the encryption technology to new markets. After a high-profile hacks hit major corporations like Sony, JPMorgan and Hilton, many cybersecurity companies specializing in encryption pivoted toward deep-pocketed corporate clients rather than consumers.<sup>44</sup>

Software companies all around the world have been rapidly adopting encryption software to boost business proficiency and improve data security.<sup>45</sup> A software-based encryption is one of the solutions for end-point data security. Growing concerns of data breaches and privacy compliance regulations are making the companies keener to adopt a software-based encryption solutions to achieve compliance, improved data security, and better flexibility in operations.<sup>46</sup>

<sup>43</sup> Aaron Gregg, "Encryption is big business"  
<http://www.dailyherald.com/article/20160305/business/160309473/>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>44</sup> Aaron Gregg, "For some D.C.-area companies, encryption is big business "  
[https://www.washingtonpost.com/business/on-small-business/for-some-dc-area-companies-encryption-is-big-business/2016/02/27/6af8d056-dcca-11e5-891a-4ed04f4213e8\\_story.html?utm\\_term=.4086f92b930a](https://www.washingtonpost.com/business/on-small-business/for-some-dc-area-companies-encryption-is-big-business/2016/02/27/6af8d056-dcca-11e5-891a-4ed04f4213e8_story.html?utm_term=.4086f92b930a), Accessed on 31<sup>st</sup> of March, 2017

<sup>45</sup> Khusro Khan, "'Encryption Software " New and Growing Trend in IT World"  
<https://www.linkedin.com/pulse/encryption-software-new-growing-trend-world-khusro-khan>, Accessed on 31<sup>st</sup> of March, 2017

<sup>46</sup> Monalee Das, "Global Encryption Software Market: Overview "  
<https://www.linkedin.com/pulse/global-encryption-software-market-overview-monalee-das>, Accessed on 31<sup>st</sup> of March, 2017



An astounding amount of data is generated on a daily basis with the growing incorporation of mobile and also cloud-based devices across enterprises, thereby increasing apprehensions related to data security. Furthermore, organizations have become more vulnerable to data breach, loss, theft, cyber-attacks, and commercial espionage. Thus, they need to prioritize data security more than ever with the escalating strength of commercial espionage across industries.<sup>47</sup>

By the deployment type, cloud-based deployment is accounted for the highest share in the encryption software market in 2015. It is accounted for around 40% of the market share in the global market. The market is being accelerated by certain factors such as rising need for the compliance with regulatory mandates by organizations for data protection and also the rising demand for cloud services and cloud-based databases.<sup>48</sup>

Businesses around the world are becoming more dynamic in response to the growing receptivity toward the latest technologies. Social media, cloud, and mobility, hence increasing the volume of the data generated across these enterprises. There are far too many organizations that are unable to prevent insider threats and data theft.<sup>49</sup> Encryption for this is case is the key element of comprehensive data-centric security.<sup>50</sup>

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<sup>47</sup> Cyber threat intelligence – how to get ahead of cybercrime, November 2014, Page. 1.

<sup>48</sup> Zion Market Research, “Global Encryption Software Market Is Set for a Rapid Growth and is Expected to Reach USD 7.17 Billion by 2021“ <https://www.zionmarketresearch.com/news/global-encryption-software-market>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>49</sup> Vormetic Insider Threat Report: Trends and Future Directions in Data Security, Global Edition, 2015, Page. 10.

<sup>50</sup> David O'Leary, Jason Nelson, Pete Greena and Anne Grahn, “7 Key Elements of a Successful Encryption Strategy“ <http://focus.forsythe.com/articles/364/7-Key-Elements-of-a-Successful-Encryption-Strategy>, Accessed on 31<sup>st</sup> of March, 2017

Prominent encryption providers, such as: Symantec, Microsoft, Sophos, Check Point Software Technologies, and Trend Micro, have already offered advanced encryption solutions. It is based on the specific needs of their clients. Besides those providers, several other technology providers are also developing and innovating techniques that are related to advanced encryption which can also incorporate organizational data to provide robust data security. Furthermore, with cloud service providers offering cloud-based encryption solutions to companies and organizations, the global market for encryption software is hover to rise exponentially in the near future.<sup>51</sup>

The global encryption software market is expected to reach \$2.16 billion by 2020. It is expected to grow at a Compounded Annual Growth Rate (CAGR) of 14.27% from 2014-2020 also with increasing adoption of encryption solutions for data security in various corporation set ups across the globe.<sup>52</sup> Another report from "Encryption Software Market by Application (Disk Encryption, File/Folder Encryption, Database Encryption, Communication Encryption, Cloud Encryption), Service, Deployment Type, User Type, Industry Vertical, Region - Global Forecast to 2021" said that the encryption software market size is estimated to grow from USD 3.05 Billion in 2016 to USD 8.94 Billion by 2021, at an estimated CAGR of 24.0%.<sup>53</sup>

The biggest users of encryption are companies in the field of financial services, healthcare and pharmaceutical, as well as technology and software

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<sup>51</sup> "Encryption Software Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2016 - 2024" <http://www.transparencymarketresearch.com/encryption-software-market.html>, Accessed on 31<sup>st</sup> of March, 2017

<sup>52</sup> Market Intel Reports LLP, "Encryption Software Market to Grow at 14.27% CAGR to 2020" <https://globenewswire.com/news-release/2016/10/31/884765/0/en/Encryption-Software-Market-Expected-To-Reach-2-16-Billion-By-2020.html>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>53</sup> Rohan, "Encryption Software Market worth 8.94 Billion USD by 2021" <http://www.marketsandmarkets.com/PressReleases/encryption-software.asp>, Accessed on 31<sup>st</sup> of March, 2017.

industries.<sup>54</sup> A new study, which is part of an annual survey of more than 5,000 individuals covering 14 major industry sectors and 11 countries, focuses on how encryption is being used in conjunction with business applications in order to protect data and allows companies to benchmark their use of encryption against companies in similar industry sectors and geographies. From the study, it is found that companies reporting extensive use of encryption jumped 7% up to a total of 41%, where it is the largest increase in the 11 year history of the study. Performance and latency basically have ascended to being considered the most critical feature of encryption applications, reflecting increased encryption adoption and the need to ensure that it does not interfere with business operations.<sup>55</sup>

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<sup>54</sup> Bob Violino, "Healthcare industry is among the top users of encryption" <https://www.healthdatamanagement.com/news/healthcare-industry-is-among-the-biggest-users-of-encryption>, Accessed on 31<sup>st</sup> of March, 2017.

<sup>55</sup> "Thales survey reveals record rise in the use of encryption led by financial services, healthcare & pharmaceutical and technology companies" <https://www.thales-ecurity.com/company/press/news/2016/june/encryption-application-trends-study>, Accessed on 31<sup>st</sup> of March, 2017.

**CHAPTER 3**  
**ENCRYPTION TECHNOLOGY FROM THE PERSPECTIVE OF LAW**  
**NO.13 YEAR 2016**

**A. Overview About Patent**

Intellectual Property Rights (IPR) basically can be interpreted as a right of ownership of work arising or born due to human intellectual ability in the field of science and technology. The work is the result of one's intellectual ability or man in the field of science and technology through creativity, taste, intention, and his work.<sup>1</sup>

Patent is a part of the Intellectual Property Rights. The patent grants the inventor the exclusive right to exploit his invention omnisciently for a specified time. The patent also grants the right of the inventor to prohibit other parties from creating, using and selling patent-protected inventions without the consent of the patent holder's. After the patent protection period ends, the invention becomes public property and everyone is free to use it.<sup>2</sup>

The “Patent” word is derived from a latin word “patens” which means “becomes open.” Patent practices began in medieval England made by the British kingdom given in the form of sealed letters or in open circumstances which may be opened without damaging the seal used for granting pardons, honors, or recognition of the inventor.<sup>3</sup>

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<sup>1</sup> Rachmadi Usman, *Hukum Hak Atas Kekayaan Intelektual* (Bandung: PT. Alumni, 2003), Page. 2.

<sup>2</sup> Tim Lindsey et al., *Hak Kekayaan Intelektual Suatu Pengantar* (Bandung: PT. Alumni, 2006), Page. 181.

<sup>3</sup> David I. Bainbridge, *Intellectual Property*, fifth edition, (England: Person Education Limited, 2002), Page. 311.

WIPO (World Intellectual Property Organization) defines patent as follows:

*“A patent is legally enforceable right granted by virtue of a law to a person to exclude, for a limited time, others from certain acts in relation to describe new invention: to privilege is granted by a government authority as a matter of a right to a person who is entitled to apply for it and who fulfils the prescribed condition.”<sup>4</sup>*

From the above understanding, it can be taken an important element of the patent, namely the patent is the right granted by the government to carry out the invention and is exclusive. To obtain patent, an invention must contain substantive terms of novelty, inventive steps, industrial applicability, and formal compliance in each country.

Furthermore, WIPO presents further explanation regarding the patent that is:

*“A Patent is document, issued, upon application, by government office (or regional office acting for several countries), which describe an invention and creates a legal situation in which the patented invention can normally only be exploited, manufacture, used, sold imported with the authorization of the owner of the patent.”<sup>5</sup>*

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<sup>4</sup> WIPO, 1997, Agreement Between The World Intellectual Property Organization and the WTO (1995) and TRIP's Agreement (1994), Geneva.

<sup>5</sup> WIPO Intellectual Property Handbook, Page. 17.

WIPO also explains the definition of the invention itself, namely:

*“Invention means a solution to a specific problem in the field of technology. An Invention may relate to a product or process. The protection conferred by the patent is limited in time.”*<sup>6</sup>

Thus, the notion of patent is often used for 2 (two) terms, namely:

First, for the definition of a document issued by the government which states the existence of a new invention and who the inventor is as the owner of the patent concerned.<sup>7</sup> It will enrich the public knowledge through the available and published patent documents.

Second, it is the exclusive right granted by the state to the inventor of his invention, for a certain period of time carrying on his own and others prohibited from carrying it out without the permission of the inventor.<sup>8</sup>

According to Danny Dunn, patent generally has several types, including:

### **1. Utility patent**

The protected aspect in utility patent is the process used in the production itself. Thus utility patent will be provided to inventors who find a usable invention in the form of methods, processes, machinery, manufacturing, and chemical compounds.<sup>9</sup>

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<sup>6</sup> WIPO Intellectual Property Handbook, Page. 17.

<sup>7</sup> Harsono Adisumarto, *Hak Milik Intelektual Khususnya Paten dan Merek*, (Jakarta: Akademika Pressindo, 1990), Page. 11.

<sup>8</sup> *Ibid.*, Page. 11.

<sup>9</sup> Danny Dunn, *Transferring Intellectual Property*, Practising Law Institute: Tax Law and Estate Planning Course Handbook Series No.11569 (October-November 2007), Page. 5.

## 2. *Design patent*

Design patent is intended to protect the design of items produced by factories that have novel and ornamental properties.<sup>10</sup>

## 3. *Plants patent*

Plants patent is awarded to individual inventors who discover something that is the invention of new plant varieties and the process of asexually reproduces.<sup>11</sup>

Patent by definition according to Law No.13 Year 2016 Regarding Patent is the exclusive right granted by the State to the Inventor for his invention in the field of technology, which for a certain period of time exercises his own Invention or gives his consent to others to exercise it.<sup>12</sup>

Thus, patent is an exclusive rights granted to an inventor of inventions made in the field of technology, whether in the form of a product or process. On the basis of such privileges, others are prohibited from utilizing the results of their invention, except by permission or the inventor himself to carry out the findings. This privilege is granted for a certain period of time, after which the findings are public property.<sup>13</sup>

Patent is awarded to the work or the idea of invention (invention) in the field of technology, which after being processed can produce a product or just a

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<sup>10</sup> *Ibid.*, Page. 5.

<sup>11</sup> *Ibid.*, Page. 5.

<sup>12</sup> Article 1 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>13</sup> Usman, *Hukum Hak Atas Kekayaan Intelektual*, Page. 205.

process only, then when it is utilized, it will bring economic benefits as well. It is this work which gets legal protection after the previous patent application.<sup>14</sup>

## **B. Patentability According to Law No. 13 Year 2016 Regarding Patent**

Based on the definition of patent in Law No. 13 Year 2016 Regarding Patent, it can be seen that the object of the patent is the invention. The term Invention is also contained in the Indonesian dictionary, which is interpreted “*penciptaan atau perancangan sesuatu yang sebelumnya tidak ada atau singkatnya reka cipta.*”<sup>15</sup> Based on Article 3 of Law No. 13 Year 2016 Regarding Patent, patent is granted for new invention, contain inventive step and can be applied in the industry.

Accordingly, pursuant to the article, not all inventions may be patented, only the invention which satisfies the requirement may be granted patent. The intended Invention must:<sup>16</sup>

1. Has the element of novelty;
2. The invention contains inventive step; and
3. The invention should also be applicable within the industry

There is the opinion of scholar concerning the invention which may be granted patent. According to scholar Woerjati, patent can be given to:<sup>17</sup>

1. The new discovery (discovery in the sense of income);
2. Should be a particular problem solving in technology; and

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<sup>14</sup> *Ibid.*, Page. 207.

<sup>15</sup> *Kamus Besar Bahasa Indonesia*

<sup>16</sup> Article 3 of Law No.13 Year 2016 Regarding Patent

<sup>17</sup> Woerjati, *Hak Kekayaan Intelektual*, (Jakarta Rineka Cipta, 2000), Page.11.



3. The invention shall be practicable in the industrial field.

Based on an interview with the Directorate of Patent, for the encryption itself, basically it is patentable. Practically, most encryption inventions in Indonesia are patentable. They fulfill all the requirements stated in Law No. 13 Year 2016 Regarding Patent.<sup>18</sup>

### C. Element of Novelty in Encryption Technology

Novelty is an absolute feature of an invention, since the invention arises with the novelty of the invention. An invention will be said as new if the invention is not present before the patent is filed. In another phrase, when the patent is filed, the invention has already been disclosed, the invention is no longer a newly invented invention, so by itself it is not patentable since it does not meet the requirements as a new invention.<sup>19</sup>

The patent law model for developing countries issued by "Bivieux International Reunis pour la Protection de la Propriete Intelectuelle" (BIRPI) of 1964 adopts the absolute novelty requirement.<sup>20</sup> In Article 2 paragraph (1) is mentioned:

*"An invention is a state of the art, the state of the art being constituted by any state of the art, by names of a written or oral description, By use, or in any other way, before the date of the filling of Patent or the priority date validly claimed in respect thereof. "*

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<sup>18</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12<sup>th</sup> of April, 2017

<sup>19</sup> Usman, *Hukum Hak Atas Kekayaan Intelektual*, Page. 210.

<sup>20</sup> Muhammad Djumhana and R. Djubaedillah, *Hak Milik Intelektual*, (Bandung: PT. Citra Aditya Bakti, 2003), Page. 135.

According to Article 5 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent<sup>21</sup> an invention is considered new if on the date of receipt, the invention is not the same as the technology previously disclosed. The equivalent of the previously disclosed technology term is state of the art or prior art, which includes both patent literature and non-patent literature. Accordingly, an invention is said to be novel if the invention is not the same as the previously disclosed technology or with other expressions that an invention is said to be no longer novel if the invention is the same as the previously disclosed technology.

In Article 5 paragraph (2) and paragraph (3) of Law No. 13 Year 2016 Regarding Patent<sup>22</sup> is explained the meaning of the word of technology which previously disclosed, including:

1. The technology previously disclosed shall be technology already published in Indonesia or outside Indonesia in a written, oral or by demonstration, use, or otherwise enabling an expert to carry out the invention before:

- A. Receipt date; or

- B. The priority date in case Application is filed with Priority Right.

2. The technology previously disclosed as intended includes any other application documents filed in Indonesia published on or after the Filing Date of which a qualified examination is being conducted, but the Filing Date is earlier than the Filing Date or the priority date of the Application.

The latter provision is intended to solve the problems arising from the same invention that other applicants have submitted in a non-conceivable time (conflicting application).

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<sup>21</sup> Article 5 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>22</sup> Article 5 Paragraph (2) and (3) of Law No. 13 Year 2016 Regarding Patent

So as long an encryption invention meets the elements stated in Article 5 of Law No. 13 Year 2016 Regarding patent, basically the encryption fulfills the element of novelty. The invention fulfills one of the requirements. To be noted, what is meant by "not equal" is not merely different, but must be viewed on equal or not to the function of the Invention features rather than the prior technical features of the Invention.<sup>23</sup>

#### **D. Element of Inventive Step in Encryption Technology**

The new invention must have inventive steps, which is the second requirement. That is, even though the invention has fulfilled the novelty requirement, it can still not be granted patent if it does not meet the second requirement, which is inventive step. An invention is said to contain an inventive step when the invention is unexpected (non-obvious) to someone with a particular skill in engineering.<sup>24</sup>

The invention should be the obvious thing that is different from the state of the art. The difference is a key element of the invention. This determination is the most difficult part of patent examination.<sup>25</sup>

This Inventive step in substantive examination is the most difficult and always debatable. These inventive step words consist of the word step and the word inventive. The inventive word is related to creative thinking, whereas the

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<sup>23</sup> Elucidation of Article 5 Paragraph (1) of Law No.13 Year 2016 Regarding Patent.

<sup>24</sup> Usman, *Hukum Hak Atas Kekayaan Intelektual*, Page. 212.

<sup>25</sup> M. Mochtar, *Peranan Paten untuk Pembangunan Industri* (Makalah Seminar Sehari Peran Paten dan Merek dalam Meningkatkan Motivasi Teknologi dan Pertumbuhan Ekonomi, Serpong, 1993), Page. 12.

word step with respect to distance: one step, two steps ahead of the original state. So the inventive step means progress from the state of the art.<sup>26</sup>

In various patent laws and Patent Cooperation Treaty, the term inventive step is defined as the difference between the invention of the claimed and the preceding one which is unclear / unpredictable (non-obvious). Something is obvious when the moment / first sight of something is automatically already in the mind of the observer. An example of unpredictable is when a person is amazed and tells himself, *“I have never thought of such a solution before.”*<sup>27</sup>

Measures to assess progress from previous circumstances are based, as stated in the WIPO Model Law for Developing Countries on Invention:

*Section 115: Inventive Step “An invention shall be considered as involving an inventive step if having regard to the prior art relevant to the patent application claiming the invention it would not have been obvious to a person having ordinary skill in the art.”*<sup>28</sup>

So the size of the judgment is based on a person with ordinary skill in engineering, who can not predict any progress in question (non obvious).<sup>29</sup>

One who possesses ordinary abilities in technology is used as a basis for consideration of progress as an inventive step, for if the inventive step is based on the opinion of the genius it will be rare to meet the element of the inventive step

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<sup>26</sup> Harsono Adisumarto, *Hak Milik Intelektual Khususnya Paten dan Merek*, Page. 13.

<sup>27</sup> M. Mochtar, *Peranan Paten untuk Pembangunan Industri*, Page. 11-12.

<sup>28</sup> *WIPO Model Law For Developing Countries on Inventions Volume I Patents*, (Geneva: 1979), Page. 20.

<sup>29</sup> Harsono Adisumarto *Hak Milik Intelektual Khususnya Paten dan Merek*, Page. 13.

for an invention, the consideration of a layman, almost all claims can qualify inventive steps and this does not encourage progress.<sup>30</sup>

An invention if it contains problem solving that is not different from the problem solving of the invention contained in the comparative document means that there is no inventive step. If a person possessing a particular skill in engineering may suspect the invention of using general knowledge in the field of proposed technology (eg replacing a nail with a screw) means that there is no inventive step.<sup>31</sup>

The examination of the inventive step is basically a continuation rather than a novelty examination. The examination of novelty, based on materials containing disclosure rather than knowledge and skill on technological issues at any given time, is sought and collected for substantive purposes.<sup>32</sup>

The examination of the substance or the invention itself begins with novel research by comparing the invention with respect to the state of knowledge and skill of a prior art problem by means of the material or document as a result of such tracing.<sup>33</sup> The existence of the equation certainly means no novelty of the invention. However, if there is a difference, further examination of the inventive step of the invention is necessary.

In this case, for an encryption to be deemed fulfills the second requirement, which is contains an inventive step, it has to contain problem solving that is different from the problem solving of the invention contained in the

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<sup>30</sup> *Ibid.*, Page. 14.

<sup>31</sup> Tim Lindsey, *Hak Kekayaan Intelektual*, Page. 186.

<sup>32</sup> Harsono Adisumarto, *Hak Milik Intelektual Khususnya Paten dan Merek*, Page. 14.

<sup>33</sup> *Ibid.*, Page. 14.

comparative document. The person possessing a particular skill in engineering should not suspect the invention of using general knowledge in the field of proposed technology. Only the encryption meets the provisions stated above can be deemed to have fulfilled the second requirement.

#### **E. Element of Industrial Applicability in Encryption Technology**

Article 8 of Law No. 13 of 2016 Regarding Patent states that an invention may be applied in the industry if the invention can be carried out in the manner described in the petition.<sup>34</sup> Later in the explanation it is made clear that if the invention is intended to be a product, the product must be capable of being repeatedly (massively) with the same quality, whereas if the invention is a process, the process must be able to be executed or used in practice.<sup>35</sup>

Based on the above explanation an invention may be awarded a patent if the invention is applicable or used in practice or in other words the invention is used repeatedly or practically on an economical scale for the industrial and commercial world. By itself, if the invention is purely theoretical, the patent can not be granted.<sup>36</sup> If the invention is a product, the product can be modeled in a mass of equal quality and if the invention is a process, the process must also be operable, used, or executed.<sup>37</sup>

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<sup>34</sup> Article 8 of Law No. 13 Year 2016 Regarding Patent

<sup>35</sup> Elucidation of Article 8 of Law No. 13 Year 2016 Regarding Patent

<sup>36</sup> Usman, *Hukum Hak Atas Kekayaan Intelektual*, Page. 214.

<sup>37</sup> *Ibid.*, Page. 214.

Regarding industrial words of industrial applicability related to industrial property, contained in the Paris Convention, Article 1 paragraph (3) which reads as follows:<sup>38</sup>

*"Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce, but likewise to agricultural and extractive industries and to all manufactured or natural product; For example, wines, grains, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers and flour. "*

Based on the formula, including industries are agriculture and extractive industries such as mining. Means that the industry in this connection is industry in the broad sense.<sup>39</sup>

An encryption may be awarded a patent if the encryption is applicable or used in practice or in other words the encryption is used repeatedly or practically on an economical scale for the industrial and commercial world. The encryption must be capable of being repeatedly (massively) with the same quality, and the process must be able to be executed or used in practice

#### **F. Elements of the Excluded Invention**

In principle, any invention in the field of technology which has fulfilled the above three conditions may be granted a patent. However there are several invention in the field of technology that can not be granted patent, even though the invention has met all the three requirements above.

Article 9 of Law No.13 Year 2016 Regarding Patent is stipulated on the invention which can not be granted patent, namely:<sup>40</sup>

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<sup>38</sup> Paris Convention, Article 1 paragraph (3)

<sup>39</sup> Harsono Adisumarto, *Hak Milik Intelektual Khususnya Paten dan Merek*, Page. 15.

<sup>40</sup> Article 9 of Law No.13 Year 2016 Regarding Patent.

- The process or product to which the notice and its use or implementation is contrary to applicable legislation, religious morality, public order or morals.
- Methods of examination, treatment, treatment and / or surgery applied to humans and / or animals. In the case of examination, treatment, treatment and surgery using health equipment, this provision applies only to the invention of the method only, whereas medical equipment including equipment, materials or medicines, is not covered by this provision.
- Theories and methods in the field of science and mathematics, or
- Biological processes that are essential for producing plants or animals, except for nonbiological processes or microbiological processes.

Pursuant to Article 19 of Law Number 13 of 2016 Regarding Patent, the patent holder has the exclusive right to exercise his patent and prohibit other parties without his consent to:<sup>41</sup>

(1) The Patent Holder shall have the exclusive right to exercise its Patent and to prohibit any other person without his consent:

A. In the case of a product Patent: making, using, selling, importing, leasing, handing out, or providing for sale or lease or delivery of Patented products;

B. In the case of a process Patent: using a Patented production process to make the goods or other actions as referred to in letter a.

(2) The prohibition of using a Patent-awarded production process as referred to in paragraph (1) letter b only applies to the import of products solely derived from the use of patent-protected processes.

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<sup>41</sup> Article 19 of Law Number 13 Year 2016 Regarding Patent



(3) In the case of education, research, experimentation or analysis the prohibitions referred to in paragraphs (1) and (2) may be exempted to the extent that they do not adversely affect the interests of the Patent Holder and are not commercial.

This exclusive right is excluded from the interests of education and research, as can be seen in article 19 paragraph (3)<sup>42</sup> which permits the use of the Patent by other parties for the purposes of education, research, experiment or analysis to the extent that it does not prejudice the reasonable interests of the patent holder. The provision is intended to provide an opportunity to a party requiring the use of an invention merely to conduct research and education, as long as it is not used for purposes that lead to commercialization that may be harmful or a competitor to the patent holder.

Another exception, is the implementation of patent by the government. If the Government is of the opinion that a patent in Indonesia is of great importance to the defense of state security and the urgent need for the benefit of the public, the Government may exercise its own patent. This is based on Article 109 of Law No. 13 Year 2016 Regarding patent.<sup>43</sup>

Article 109 of Law No. 13 Year 2016 Regarding patent, has the intention that the authority of the government in this case is limited only if the patent has important meaning for the implementation of state security defense. By itself, the patent in question is a patent granted in Indonesia only. Because the defense of state security concerns the national interest, it is natural that the Government be given the authority to implement it. Regarding the implementation of patent by the government, it will be discussed further in the next chapter.

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<sup>42</sup> Article 19 Paragraph (3) of Law Number 13 Year 2016 Regarding Patent

<sup>43</sup> Article 109 of Law Number 13 of 2016 Regarding Patent

## CHAPTER 4

### ANALYSIS ON ENCRYPTION TECHNOLOGY WITH REGARDS TO NATIONAL DEFENSE AND SECURITY BASED ON LAW NO. 13 YEAR 2016 REGARDING PATENT

#### A. Provision About National Defense and Security in the Law No. 13 Year 2016 Regarding Patent

When it comes to public interest, then defense and security of a state are part of the public interest. From existing studies based on applicable laws and regulations, court decisions, and expert opinions, there are several conditions that can be used as a reference in determining the criteria of public interest in IPR protection:<sup>44</sup>

- a. Protection in public health and nutrition;
- b. Socio-economic and technological development;
- c. Taking into account the balance of rights and obligations between IPR owners and IPR users;
- d. Not infringe on business competition;
- e. Non-commercial use;
- f. For education, research and development, experimentation, and science;
- g. For defense and security;
- h. For urgent needs;

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<sup>44</sup> Winner Sitorus, *Kepentingan Umum dalam Perlindungan Hak Kekayaan Intelektual (Kajian terhadap Hak Cipta, Paten, dan Perlindungan Varietas Tanaman)*, Disertasi, Program Doktor, Program Studi Ilmu Hukum, Fakultas Hukum Universitas Airlangga, 2014, Page.173-174.

- i. The existence of a proper remuneration;
- j. Use by the government; and
- k. Defined by legislation by the government (state intervention).

From some of the above conditions can be determined criteria of public interest in IPR protection, namely state intervention through legislation and legislation, allotment of IPR (for community, state, and fair business competition), and a proper remuneration for IPR owners. The above criterion of public interest has a legally binding force if it has been declared and regulated in legislation and can serve as a guide for judges in deciding a dispute relating to the public interest in the utilization of intellectual property.

The criteria of public interest in patent protection can essentially be abstracted from the provisions of the Paris Convention, the Agreement of TRIPs, and Law No. 13 Year 2016 Regarding Patent. As Law No. 13 Year 2016 Regarding Patent is essentially an implementation of the Paris Convention and the TRIPs Agreement, the discussion of this article only focuses on the provisions of Law No. 13 Year 2016 Regarding Patent reflecting the criteria of public interest in patent protection.

Law No. 13 Year 2016 regarding Patent includes regulation on the implementation of patent by the government. The legal basis for the regulation of the implementation of this patent by the government is the provision in article 31 of the TRIPs / GATT Agreement on compulsory licensing. Basically, The implementation of this patent by the government, is actually another form of compulsory license, the article governing the use of other without the consent of the right holder on the basis of an urgent national need<sup>45</sup>, as mentioned below:

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<sup>45</sup> Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs), Article 31.

*“Where the law of a member allows for other use of the subject matter of patent without the authorization of the right holder, including use by the government or third parties authorized by the government, the following provisions shall be respected:*

- a. Authorization of such use shall be considered on its individual merits;*
- b. Such use may only be permitted if, prior to such use, the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and that such effort have not been successful within a reasonable period of time.*

*This requirements may be waived by a member in the case of a national emergency or other circumstances of extreme urgency or in cases of public non-commercial use. In situations of national emergency or other circumstances of extreme urgency, the right holder shall, nevertheless, be notified as soon as reasonably practicable.*

The provisions of Law No. 13 Year 2016 Regarding Patent on compulsory licenses reflect the public interest in patent protection. From the reasons set out for the granting of such a compulsory license, public interest criteria are reflected in the allocation of IPR to the public, the state, and not in conflict with fair business competition, viable remuneration, and state intervention.

Indonesia as a member country of the World Trade Organization shall be obliged to implement the agreements set forth in the TRIPs agreement as set forth in Article 31 of the TRIPs Agreement above and this is realized by the government of Indonesia by stipulating the regulation of the Patent Implementation by the Government of Indonesia in Articles 109 to 120 of Law Number 13 Year 2016 Regarding Patent.

The basis for consideration of the government's patent is that the issue of state defense and security as described above and the urgent need for national interest is fundamental, so it is natural if the government or a third party is

authorized by the government to carry out the related patent. Examples of invention related to defense and state security as described in Law No. 13 Year 2016 Regarding Patent are as follows:<sup>46</sup>

- A. firearms;
- B. ammo;
- C. Military explosives;
- D. Interception;
- E. tapping;
- F. reconnaissance;
- G. Coding tools and password analysis tools; And / or
- H. Processes and / or other state defense and security equipment.

To be noted, encryption in Indonesia is essentially a coding technology (*teknologi persandian*). For governance, basically arranged in the Presidential Regulation that was just created. Such Presidential Regulation is Presidential Regulation No. 53 Year 2017 About the State Cyber and State Codes.<sup>47</sup>

According to the result of an interview from the Patent Directorate, it is necessary to see that the implementation of patent by the government has relation with article 110 of Law No. 13 Year 2016. The implementation of the Patent by the government is basically legitimate for any invention, it is just has to meet the requirements contained in article 110 and 113 of Law No. 13 Year 2016. In this case the Patent Directorate provides an example of intercept. If the encryption is

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<sup>46</sup> Article 110 of Law No. 13 Year 2016 Regarding Patent

<sup>47</sup> Presidential Regulation no. 53 Year 2017 About the State Cyber and State Codes

used by the government to prevent wiretapping, then the government may carry out the patent of the invention.<sup>48</sup>

As known, one of the functions of a patent is to ensure the viability of the state's economy and to increase the welfare of society in the country concerned, which include the protection of the interest of the inventor. In the case of the implementation of the patent by the government with regards to national security, according to Article 112 paragraph (1) of Law No. 13 Year 2016 Regarding Patent, The Patent Holder may not exercise its exclusive rights as referred to in Article 19.<sup>49</sup> But he/she will be given a compensation which will be furtherly explained in the sub chapter below.

Whereas although the law regulates the implementation of patent by the government, the implementation of the patent can not be done immediately by the government. According to Article 114 of Law No. 13 Year 2016 Regarding Patent, The Government notifies in writing of the implementation of patents by the government relating to state security to the Patent Holder. A copy of the Presidential Regulation concerning the approval of the Patent implementation by the government shall be sent by the Minister to the Patent Holder. Then, Implementation of a Patent by the Government is recorded in the General Register of Patents and announced through electronic and / or non-electronic media. To be noted, the Government Decree that a Patent is executed by the Government itself is final and binding.<sup>50</sup>

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<sup>48</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12th of April, 2017

<sup>49</sup> Article 112 paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>50</sup> Article 114 of Law No. 13 Year 2016 Regarding Patent

The implementation of the patent by the government is also accompanied by a reasonable remuneration to the patent holder<sup>51</sup>, this is in view of the utilization of economic rights possessed by the patent-protected invention. Furthermore, it is the government who has the authority to determine the amount of the reward, which if the patent holder disagrees with the amount of the remuneration, his disagreement may be filed in the form of a lawsuit to the commercial court.<sup>52</sup> However, the examination of the lawsuit can not delay or stop the implementation of patent by the government,<sup>53</sup> because the government's decision to implement a patent is final as has been explained before. So the lawsuit filed by the patent holder is not a lawsuit against his or her disagreement on a patent held by the government but only to the extent of his disagreement with respect to the amount of remuneration given by the government.

**B. The Government Role in Relation to State Defense and Security According to Law No. 13 Year 2016 Regarding Patent**

In Indonesia, with reference to the TRIPs Agreement, at the time of formulation of the provisions of the Patent Law, is incorporated into this law, regulating the implementation of patent by the government.

The criteria of general interest in patent protection contained in Law No.13 Year 2016 Regarding Patent are reflected in the terms of restrictions and exceptions and some other provisions. First, in Article 9 of Law No. 13 Year 2016 Regarding Patent it is determined that a Patent shall not be granted for an Invention relating to:

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<sup>51</sup> Article 115 of Law No. 13 Year 2016 Regarding Patent

<sup>52</sup> Article 117 paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>53</sup> Article 117 par (4) of Law No. 13 Year 2016 Regarding Patent

1. a process or product whose notice and use or exercise is contrary to applicable legislation, religious morality, public order or morality;
2. Methods of examination, treatment, treatment and / or surgery applied to humans and / or animals;
3. Theories and methods in the field of science and mathematics;
4. All living things, except micro-organisms; or
5. Biological processes that are essential for producing plants or animals, except for non-biological processes or microbiological processes<sup>54</sup>

Given the government's role in the patent announcement. It is determined that the existence of a patent application is announced. The announcement is made through electronic and / or non-electronic media. In this case, what is meant by "electronic media" is a medium that uses electronic or electro-mechanical energy to access its content, such as an internet site. What is meant by "non-electronic media," in the form of placement in Patent official news published periodically by the Minister, placement on special media which is easily and clearly visible to the public<sup>55</sup>

Given this easy and clear announcement, any party may view it and may submit in writing its views and / or objection to the Application concerned by stating the reasons.<sup>56</sup> If there is an objection to a patent application after the announcement, the Minister shall use the views and / or objections, rebuttal, and / or such explanations in addition to the consideration in the substantive examination stage.<sup>57</sup> This provision indirectly protects the public interest in order to prevent the protection of invention that may have been possessed by others, or

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<sup>54</sup> Article 9 of Law No. 13 Year 2016 Regarding Patent

<sup>55</sup> Article 47 of Law No. 13 Year 2016 Regarding Patent

<sup>56</sup> Article 49 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>57</sup> Article 49 Paragraph (5) of Law No. 13 Year 2016 Regarding Patent



filed by an unauthorized party. If it is related to the criteria of public interest, indirectly these criteria reflect the criteria of IPR for the public and not anti-competition.

As it is known that the regulation of patent implementation by the government is stipulated in Articles 109 to 120 of Law No. 13 Year 2016 Regarding Patent. If the government is of the opinion that a patent in Indonesia is of great importance to the defense of state security and the urgent need for the benefit of society, the government may exercise its own patent.<sup>58</sup>

As a follow-up to the provisions of this Law, on October 5, 2004 , it has been enacted Government Regulation No. 27 of 2004 on Procedures for the Implementation of Patent by the Government. Article 2 of this Government Regulation affirms that:<sup>59</sup>

(1) In the case that the government is of the opinion that a patent in Indonesia is of great importance to the defense of state security, the Government may exercise its own Patent.

(2) In the event that the Government is of the opinion that there is a very urgent need for the public interest of a patent, its implementation may be carried out by the government.

(3) In the implementation of the Patent as referred to in paragraph (1) and paragraph (2) the Government may appoint a third party to implement it.

(4) Third parties as referred to in paragraph (3) shall meet the following requirements:

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<sup>58</sup> Articles 109 to 120 of Law No. 13 Year 2016 Regarding Patent

<sup>59</sup> Article 2 of Government Regulation no. Law No. 27 Year 2004 on Procedures for the Implementation of Patent by the Government

A. Has facilities and is able to carry out the Patent.

B. Not to transfer the implementation of the Patent to another party; and

C. Good production mode of circulation and supervision in accordance with the laws and regulations.

The implementation of a Patent by the government based on consideration of the urgent need for the public interest of a patent covers the following areas:

A. Pharmaceutical products are needed to cope with widespread diseases.

B. Chemical products related to agriculture; or

C. Animal medicines needed to cope with widespread animal pests and diseases.

Taking into account a series of provisions of the above laws and Government Regulations, it is known that the Patent Implementation by the Government may occur in the field of defense and security and in the field of pharmaceuticals.

### **C. Protection of Economic Rights of Patent Holder in Relation to the Implementation of Patent by the Government**

Basically all inventions can be commercialized, including in this case the invention of encryption.<sup>60</sup> Because one of the goals of the establishment of patent law is to protect the economic interests of inventors.<sup>61</sup> Although the invention is

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<sup>60</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12th of April, 2017

<sup>61</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12th of April, 2017

taken over by the government, the inventor is still entitled to a reasonable reward by taking into account the economic benefits derived from the invention.<sup>62</sup> Referred to as "reasonable reward" is a balance between the economic benefits that a Patent Holder may have with the country's financial capacity to pay.<sup>63</sup>

The government shall grant the Patent Holder a reasonable reward as compensation for the execution of the Patent by the government.<sup>64</sup> The amount of the compensation will be determined by a team made by the government. There is no standard of compensation made by the government, It is all based on the consideration of team and the invention itself.<sup>65</sup>

In the event that the government is unable to exercise its own Patent, the government may appoint a third party to exercise.<sup>66</sup> Reward payment on behalf of the government shall be conducted by a designated third party.<sup>67</sup> So either through the government or a third party, the rewards will still be given.

In the event that the Patent Holder does not approve the amount of the Reward granted by the government, the Patent Holder may file a lawsuit to the Commercial Court.<sup>68</sup> In the event that the Patent Holder does not file a lawsuit,

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<sup>62</sup> Article 115 of Law No. 13 Year 2016 Regarding Patent

<sup>63</sup> Elucidation of Article 115 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>64</sup> Article 115 Paragraph (2) of Law No. 13 Year 2016 Regarding Patent

<sup>65</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12th of April, 2017

<sup>66</sup> Article 116 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

<sup>67</sup> Article 116 Paragraph (2) of Law No. 13 Year 2016 Regarding Patent

<sup>68</sup> Article 117 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

the Patent Holder is deemed to receive the amount of the Rewards set.<sup>69</sup> To be noted, the prosecution process does not stop the implementation of the Patent by the government.<sup>70</sup>

To be noted, the implementation of patent by the government can not be used for commercial interest. The government can not commercialize the patent. The implementation of patent by the government is only for the sake of national security. The government can not use the provisions under the Chapter 8 (eight) of Law No. 13 Year 2016 for commercial interest.<sup>71</sup>

The Patent Holder shall be exempted from the obligation to pay annual fees for Patents performed by the government on the grounds that the exercise of such patent is related to the defense and security of the State.<sup>72</sup>

#### **D. Conformity to the Rules on Defense and Security in Law No. 13 Year 2016 Regarding Patent with Trade Related Aspect of Intellectual Property Rights (TRIPs)**

There is conformity between Law No. 13 Year 2016 Regarding Patent and Trade Related Aspect of Intellectual Property Rights (TRIPs). For example, in Article 30 of TRIPs Regarding Patent which provides for member states the ability to grant limited restrictions on the exclusive rights granted to patent holders, provided that such exceptions do not conflict with the reasonable use of patent and not unfairly harming the legitimate interests of the patent holder, and

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<sup>69</sup> Article 117 Paragraph (3) of Law No. 13 Year 2016 Regarding Patent

<sup>70</sup> Article 117 Paragraph (4) of Law No. 13 Year 2016 Regarding Patent

<sup>71</sup> Baby Mariaty and Faisal Syamsuddin, Head of legal considerations and litigation section and electro-patent examiner, Directorate of Patent of Republic of Indonesia, on 12th of April, 2017

<sup>72</sup> Article 118 Paragraph (1) of Law No. 13 Year 2016 Regarding Patent

taking into account the legitimate interests of third parties.<sup>73</sup> The goals and principles of TRIPs are also reflected in IPR arrangements in Indonesian legislation. For example, in Article 19 of Law Number 13 Year 2016 regarding Patent, which regulate the exclusive rights of the Patent Holder, it is determined that the exclusive right to exercise Patent and prohibit other parties to use the Patent shall not apply in the case of the use of the Patent for the purposes of education, Experiment, or analysis to the extent that it does not adversely affect the reasonable interests of the Patent Holder.<sup>74</sup> Similarly, the implementation of the Patent by the Government which allows the Government to carry out the Patent on the grounds is of great importance to the defense of the State's security and is a very urgent need for the benefit of the community.

In TRIPs, the recognition and protection of the public interest in patent protection is governed in general in Articles 7 and 8. In principle both of the TRIPs article specify that the protection of intellectual property rights, including patent, shall be conducted in a manner that supports social and economic welfare and the existence of Balance of rights and obligations.<sup>75</sup> Similarly, the WTO members are allowed to take the necessary steps to protect the health and nutrition of the people, and to promote the public interest in sectors critical to socio-economic development and technology, and to prevent misuse of property rights Intellectual rights by the right holder, provided that such measures are in accordance with the provisions of the TRIPs Agreement. Articles 7 and 8 are central to the implementation and interpretation of the TRIPs Agreement.

The principles contained in the 2 (two) articles are further implemented in the provisions relating to the patent. In Article 27 Paragraphs (2) and Paragraph (3), TRIPs provide leeway to Member States not to grant patent on specific

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<sup>73</sup> Article 30 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

<sup>74</sup> Article 19 of Law Number 13 Year 2016 regarding Patent

<sup>75</sup> Articles 7 and 8 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

inventions to protect public order or morality, including to protect human, animal or plant life Or health or to avoid severe damage to the environment, provided that such exceptions are made not solely because the exploitation of the invention is prohibited by law. Similarly to diagnostic, therapeutic, and surgical methods for the treatment of humans or animals, as well as on plants and animals other than micro-organisms.<sup>76</sup>

The other provision of TRPs that are indirectly related to the public interest is Article 29 concerning disclosure, which must be done clearly and completely. The purpose of this disclosure is to be understood and practiced by persons skilled in the field.<sup>77</sup> In fact TRIPS also allows WTO member states to require that the applicant demonstrate the best way to implement the invention known to the inventor. It aims not only to ensure that the invention can be reproduced by a person who possesses general expertise, but also to prevent the inventor from obtaining protection while concealing the invention of the unwanted invention from the public.

Furthermore TRIPs also provides exceptions to the exclusive rights of the patent holder, which exceptions may be regarded as a form of protection of the public interest. Article 30 provides the possibility for member states to grant limited restrictions on the exclusive rights granted to patent holders, provided that such exceptions do not conflict with the fair use of patent and improperly harms legitimate interests of the patent holder, and consider the legitimate interests of third parties.<sup>78</sup> From the very general words of Article 30, it appears that exceptions to the exclusive rights of the patent holder must meet three conditions: limited in nature, not in contravention of the normal exploitation of the patent, and

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<sup>76</sup> Article 27 Paragraphs (2) and Paragraph (3) of Trade Related Aspect of Intellectual Property Rights (TRIPs)

<sup>77</sup> Article 29 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

<sup>78</sup> Article 30 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

not unfairly harming the legitimate interests of the patent holder. In addition to these three conditions, also must be considered legitimate interests of third parties. These three requirements are also commonly referred to as "three step test" for patent.

Other provision in TRIPs relating to the public interest is Article 31. The provisions of this Article provide the possibility for WTO member countries to grant compulsory license.<sup>79</sup> The TRIPs Agreement refers to 5 (five) reasons for the granting of compulsory licenses:<sup>80</sup> refusal to deal, emergency or extreme urgency, anti-competitive practices, non-commercial use, and patent dependent.

Although TRIPs have arranged several reasons for the granting of compulsory licenses, TRIPs do not restrict the right of WTO member countries to base compulsory licensing on other grounds not directly mentioned in Article 31, for example, to protect the environment or the reason of "public interest". The TRIPs Agreement specifies only the conditions that must be met for the grant of the compulsory license. Similarly to the provisions of Article 30, the provisions of Article 31 are also less clear on certain matters. For example, the provision does not specify when an emergency can be used, how much effort is made to obtain a voluntary agreement with the patent holder before it is said to fail, how much royalty compensation should be paid to the patent holder. Thus, everything depends on the importing country. Throughout the country following the TRIPs procedure, then the country can decide its own decision.<sup>81</sup>

Law No. 13 Year 2016 Regarding Patent as the embodiment of conventions and international agreements in the field of patent, in addition to recognizing the existence of exclusive rights to patent holders also governs the

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<sup>79</sup> Article 31 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

<sup>80</sup>Carlos M. Correa, *Intellectual Property Rights, the WTO and Developing Countries The TRIPS Agreement and Policy Options*, (London: Third World Network, 2000), Page 89.

<sup>81</sup>Hans Henrik Lidgard and Jeffery Atik, "Facilitating Compulsory Licensing under TRIPS in Response to the AIDS Crisis in Developing Countries," Page 7.

limitation and exclusion of such exclusive rights. The setting of exceptions and restrictions on exclusive rights as a manifestation of the protection of common interests is contained in several articles of Law No. 13 Year 2016.

First, in Article 9 it is determined that a Patent shall not be granted for an Invention relating to a process or product whose notice and use or exercise is contrary to applicable laws and regulations, religious morality, public order or morality; Methods of examination, treatment, treatment and / or surgery applied to humans and / or animals; Theories and methods in the field of science and mathematics; Or all living things, except micro-organisms; Biological processes that are essential for producing plants or animals, except for non-biological processes or microbiological processes.<sup>82</sup> As can be seen, it is in line with the provisions under Article 27 Paragraphs (2) and Paragraph (3) of TRIPs.

Second, is the provision of Articles 46-50 of Law No, 13 Year 2016 regarding Patent on the announcement. As has been explained before. There is an announcement. It is determined that the existence of a patent application is announced. The announcement is made through electronic and / or non-electronic media. This provision is in line with provision under the article 29 of TRIPs. The purpose of this is to be understood and practiced by persons skilled in the field.

Third, is the example given above. For example, in Article 19 of Law Number 13 Year 2016 regarding Patent, which regulate the exclusive rights of the Patent Holder, it is determined that the exclusive right to exercise Patent and prohibit other parties to use the Patent shall not apply in the case of the use of the Patent for the purposes of education, Experiment, or analysis to the extent that it does not adversely affect the reasonable interests of the Patent Holder.<sup>83</sup> It is in line with Article 30 of TRIPs. In Article 30 of TRIPs concerning Patent which provides for member States the ability to grant limited restrictions on the

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<sup>82</sup> Article 9 of Law No.13 Year 2016 Regarding Patent

<sup>83</sup> Article 19 of Law Number 13 Year 2016 regarding Patent



exclusive rights granted to patent holders, provided that such exceptions do not conflict with the reasonable use of patents and Not unfairly harming the legitimate interests of the patent holder, and taking into account the legitimate interests of third parties.<sup>84</sup>

Fourth, is the provisions under the Articles 109-120 which regulates the Patent Implementation by the government. It is determined that the government may exercise its own patent if the Government is of the opinion that a Patent in Indonesia is of great importance to the defense of the State's security and that there is an urgent need for the benefit of the public.<sup>85</sup> The urgent need for national interests includes, among other areas, health such as pharmaceuticals that are still protected by patents in Indonesia that are needed to cope with widespread diseases (endemics). As is known, one of the functions of a Patent is to ensure the viability of the state's economy and to increase the welfare of society in the country concerned. Further provisions on the implementation of patent by the government is further regulated through the Presidential Regulation as has been explained before. Although not exactly the same, basically that provisions are the extension of Article 31 of TRIPs where a patent can be implemented by the government in case of national emergency and for non-commercial use.

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<sup>84</sup> Article 30 of Trade Related Aspect of Intellectual Property Rights (TRIPs)

<sup>85</sup> Article 109 of Law No. 13 Year 2016 Regarding Patent.

## CHAPTER 5

### CONCLUSION AND SUGGESTION

#### A. Conclusion

Based on the findings, analysis, and research done in the previous chapters, it can be gathered that the conclusion are as follow:

1. Basically an encryption invention is patentable according to Law No. 13 Year 2016 Regarding Patent. It fulfills all the requirement stated by the law and does not contradict with any provisions.
2. The government has a role in managing patent in Indonesia. If the invention is deemed to be important for security and defense of the state, the implementation of the patent can be done by the government.
3. The government will ensure the economic interest of the patent holder. Even though the implementation of the patent is by the government, the patent holder will still get compensation for the invention. The amount of the compensation will be determined by the government. For invention that is performed by the government is related to defense and security, the patent holder is exempted from the obligation to pay annual fees

#### B. Suggestion

The role of government is very much needed in the implementation and enforcement of matters regulated in the Patent Law. A minimum standard should be made with regards to which encryption can be given patent freely and which one is deemed important for the national security. There should be a minimum standard of compensation for the protection for the economic interest of the patent holder whose patent is taken by the government

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## **Other**

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