



The Urgency of Implementing Patent Commercialization Regulations Based on the Patents Law No. 13 of 2016 in Comparison with the South Korean Invention Promotion Act No. 19495 of 2023

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Abstract: Patent commercialization in Indonesia currently faces challenges due to the lack of clear regulation in the existing Patent Law. Addressing this gap presents a valuable opportunity for enhancing the growth of domestic patents and increasing Indonesia's economic value. There is an urgent need to establish regulations governing patent commercialization, especially in light of South Korea's Invention Promotion Act No. 19495 of 2023, which enhances the protection of inventors' economic rights and promotes economic growth through effective intellectual property development. This study utilizes a normative juridical approach and comparative law to evaluate existing regulatory frameworks and the potential impacts of new patent commercialization regulations on industrial development and innovation. Currently, Indonesia ranks among the countries with the lowest intellectual property indicators in the world. Therefore, it is crucial to implement specific regulations through Government Regulations and Ministerial Regulations, that align with the Patent Law to govern patent commercialization. This research highlights the significance of effective law enforcement in promoting patent commercialization as a vital component of national economic development. By applying incentive theory and economic growth stimulus theory, and utilizing economic analysis of law to evaluate policies that promote certainty, equity, and socio-economic benefits for society and the country.

Keyword: Patent Commercialization, Economic Rights Of Inventors, Economic Stimulus Growth.

INTRODUCTION

Developing innovations under patent protection fundamentally requires significant time, effort, and expense from the inventor and holds substantial economic value. Therefore, the application of technology protected under Intellectual Property Law is regarded as a necessary legal framework that law enforcement officials are tasked to uphold. This legal

protection provides a vital sense of security against interference and various threats from external parties (Zuami & Tresnawati, 2020).

W. R. Cornish emphasized the importance of intellectual property rights to protect inventions, as regulated in applicable laws (Aditya, 2019). According to Patent Law No. 13 of 2016, patent rights aim to protect the rights of patent owners by preventing unauthorized actions by others, while simultaneously encouraging innovation to promotes advancements in technology and industry (Rahmadhani et al., 2021). The rights inherent in patents include exclusive, economic, and moral rights. This legal system reflects a commitment to fairness and respect for intellectual property inventors, which must always be prioritized. Ultimately, the Patent Law was established to encourage inventors to develop new ideas and to produce new inventions for the advancement of industry and the national economy (Marwandy et al., 2024).

Patents remain to be one of the most reliable sources of information for evaluating innovation. However, assessing patented inventions prior to their market introduction can be challenging. Indonesian Dictionary defines commercialization as the process of turning something into a commodity. From a patent perspective, a patented invention can provide benefits to its inventor, including the potential for commercialization. Hence, the commercialization of a patent can significantly influence the value of an invention.

Commercialization is essential for leveraging economic rights, which allow inventors to gain financial rewards from their innovations (Magdariza, 2023). Intellectual Property (IP) serves as a form of recognition and appreciation for an individuals or legal entities for their intellectual inventions by granting them special rights, both social and economic (Mayana et al., 2023). For a new invention to be truly impactful, it must not only meet the standards for patentability but also have practical applications in industry and deliver economic value (Ramli, 2022). Currently, there are more than 100 registered patent licenses, predominantly held by multinational companies. This situation presents an opportunity to empower independent inventors, who could benefit greatly from their ideas but have not fully utilized these licenses (Ng et al., 2010). Implementing compulsory licenses can ensure that inventions are actively used, rather than simply serving as mechanisms for import control. This strategy can stimulate economic growth and promote innovation, unlocking new opportunities for all inventors.

Commercialization also plays a vital role in sustainability of intellectual property rights and determining the valuation of an invention. Technology valuation involves identifying opportunities, financial benefits, and risks both prior to and during the commercialization phase, while research outcome valuation assesses the value of the research product (Octavia et al., 2023). This type of valuation considers the potential for both current and future economic benefits and is influenced by various factors, including legal considerations, market demand, and the availability of raw materials (Muchtar et al., 2021).

Indonesia has established comprehensive regulations regarding patent protection through its Patent Law. However, the aspect of commercialization is neither regulated nor explicitly mentioned. In contrast, South Korea has developed clear regulations for patent commercialization, which could serve as a valuable model for Indonesia as it seeks to advance its patent system, given South Korea's consistent increase in domestic patent applications and the rapid advancement in its electronics, telecommunications, and other industrial sectors. Such developments naturally stimulate innovation and the demand for patents. Additionally, the South Korean government actively supports the development of intellectual property by raising public awareness, enhancing the quality of human resources, and promoting higher education. This commitment is evident in its strong legal framework for commercialization, which is specifically regulated in the Invention Promotion Act No. 19495 of 2023. South Korea subsequently issued the Enforcement Decree of the Invention Promotion Act, which was amended by Presidential Decree No. 25120. This amendment was designed to clarify and

enhance the provisions mandated in the Invention Promotion Act, as well as to address the necessary matters for its enforcement. Invention Promotion Act was established to enhance industrial competitiveness and contribute to national economic development by encouraging inventions and facilitating the securing of rights to inventions and the efficient commercialization of such inventions, as mentioned in Article 1 of the Invention Promotion Act No. 19495 of 2023.

The lack of effective patent commercialization is the main reason why patents in Indonesia remain stagnant and underdeveloped. The country does not prioritize long-term patent innovation, as the scope of the Patent Law is restricted to protecting technological inventions solely through the granting of patent rights. This narrow focus fails to provide inventors with opportunities for economic and social development. As a result, the number of domestic patents in Indonesia is low and many remain non-commercialized. Even when a patent is granted, it may be revoked if it does not yield tangible benefits for the inventor or the broader community, weakening Indonesia's global competitiveness.

This situation requires a concrete response through the establishment and implementation of regulations regarding Patent Commercialization. Recognizing economic rights for inventors is essential, as it serves as a form of appreciation for their innovations and offers protection and incentives to encourage ongoing innovation. By acknowledging their contributions, we can create a supportive ecosystem that motivates continued innovation and development, and with the right legal framework, Indonesia has the potential to transform its patent landscape and foster a thriving environment for creativity and technological advancement.

Ultimately, it is important to recognize the urgency of implementing a law on patent commercialization in Indonesia. By aiming to develop Indonesian patents in a way that mirrors South Korea's success, where domestic patents have flourished and reliance on foreign patents has diminished. Effectively regulating patent commercialization can significantly enhance the fulfillment of economic rights, benefiting society as a whole. It will not only ensure that inventors receive the legal protection they deserve for their hard work but will also foster a stronger belief in the government's commitment to supporting innovation and creativity within the community.

METHOD

This research uses a normative legal or juridical basis, which systematically describes a regulation that govern a particular type or category of law. The normative legal is a method that emphasizes library research, involving a review of primary and secondary legal materials, which can be characterized as the use of secondary data as its source (Soekanto & Mamudji, 2004). The research was conducted by analyzing library materials with the aim of solving the legal problems raised by the author (Marzuki, 2017). The primary foundation for this research is based on Patents Law No. 13 of 2016. Furthermore, the research is also supported by laws and regulations directly related to the commercialization of patents in Indonesia, alongside the South Korean Invention Promotion Act No. 19495 of 2023.

The result of this research is a combination of both normative legal method and also employs a comparative legal approach to enhance the understanding of legal data. The primary objective of this approach is to improve the quality of the law. Therefore, an idealistic perspective is essential. A new, broader approach, where comparative legal scholarship goes beyond the traditional law-as-a-rule framework, focusing instead on academic efforts to understand law within society and as a living culture (Lukito, 2022). Comparative law provides valuable insights into the policies and regulations of Indonesia and South Korea. This analysis enables Indonesia to adopt suitable regulations, facilitating a transformation in Indonesian patent laws, fostering economic growth, and increasing the number of domestic patents.

RESULTS AND DISCUSSION

The Urgency of Implementing Patent Commercialization Regulations Based Invention Promotion Act No. 19495 of 2023

Patent commercialization plays a significant role in the growth of patents. Essentially, commercialization is necessary for effective patent protection and has a profound impact on the economy by fostering technological advancement and innovation. Each innovative product has the potential to enhance economic value, contributing to a more dynamic marketplace. Dede Mia Yusanti, the former Director of Patents, Integrated Circuit Layout Designs, and Trade Secrets at the Directorate General of Intellectual Property, highlighted the significance of patent commercialization, emphasizing its close relationship with trade. Intellectual property, like any economic sector, requires significant investment in research and offers valuable rewards to its creators and inventors. By focusing on commercialization, we can ensure that inventions are not only protected but also lead to meaningful advancements and innovations in the marketplace.

While the commercialization of patents aims to ensure the effective use of intellectual property and technology, in 2019, Freddy Harris, the Director General of Intellectual Property (DJKI), noted that the DJKI office primarily operated as a registration office for intellectual property. However, the key aspect of commercialization lies in its economic value, which contributes to advancing economic progress (Elnizar, 2019). Therefore, patents are utilized to further development, facilitating the creation of additional patents with commercial value. Hence, patents are utilized to further development, facilitating the creation of additional patents with commercial value.

Over time, the barriers to patent protection have evolved. One significant issue is ineffective law enforcement (Martinelli et al., 2024). In a webinar titled "Strategies to Increase the Commercial Value of Patents," held by Universitas Diponegoro in 2021, Ambariyanto, the Vice Rector for Research, Innovation, and Cooperation, stated that the number of patent applications from universities has not kept pace with the commercialization of patents. While an increased number of patents granted could lead to more technological products being commercialized, many research outputs at universities remain unmarketable. This is often due to the use of outdated technology, low quality, and high costs, all of which contribute to the limited uptake of patent licenses in Indonesia (Octavia et al., 2023). This challenge is further illustrated by the fact that since 1991, domestic patent applications in Indonesia have been predominantly submitted by foreign patent applicants, accounting for 81% of the total applications.

Table 1. Patent applications in Indonesia throughout 2020-2023

Year	Domestic Patent	Foreign Patent
2020	1.308	7.230
2021	1.400	7.800
2022	1.516	8.452
2023	1.676	9.676

Source: Direktorat Jenderal Kekayaan Intelektual 2023 Annual Report

According to the latest report in 2023, Indonesia has only 1.676 domestic patent applications, whereas registered foreign patents stand at a striking 9.676. This marked contrast highlights the alarmingly low domestic patent application rate, which has averaged just 14.7% since 2015, especially when compared to other countries (Direktorat Jenderal Kekayaan Intelektual, 2023). A contributing factor to the weak use of domestic patents in Indonesia stems from the lack of applicable regulations governing patent commercialization (Pemaca et al., 2023). Beyond providing legal protection, the implementation of comprehensive regulations

for patent commercialization is key for enhancing the country's economic sector and fostering innovation in Indonesia (Sinaga, 2020).

Despite Indonesia's relatively strong system efficiency indicators, the commercialization of intellectual property (IP) assets remains very low. This lack of progress has placed Indonesia in the 50th place out of 55 countries in terms of overall success in intellectual property utilization. A 2025 report from the U.S. Chamber of Commerce's Global Innovation Policy Center revealed that Indonesia has one of the lowest rates of IP asset commercialization globally, at just 4.17%. This low commercialization rate reflects various barriers and incentives affecting the commercialization and licensing of IP assets. To address this issue and enhance the country's IP ecosystem, it is important to identify and mitigate existing barriers that currently limit commercialization efforts. Key areas of focus may include streamlining registration processes, increasing transparency in licensing agreements, and assessing government policies that impact licensing practices. Moreover, the introduction of targeted tax incentives could encourage greater creation and commercialization of IP assets. By pursuing these strategic initiatives, Indonesia has the potential to significantly elevate its intellectual property standing on the global stage (The U.S. Chamber of Commerce's Global Innovation Policy Center, 2025).

In reality, Patent Law No. 13 of 2016 is limited to regulating the protection of inventions and does not specifically address the commercialization of patents. While Article 13, paragraph (2) of the Patent Law mentions the rights of inventors to receive incentives for commercializing inventions developed in partnership with government agencies, still, there is a noticeable gap in regulations that cover the commercialization of domestic patents in general. The absence of regulations regarding patent commercialization creates uncertainty for the public, as it limits the ability of inventors and patent holders to fully realize their economic rights. Hence, the establishment of specific and comprehensive regulations is essential to ensure the fulfillment of these economic rights, which can significantly benefit individuals who have worked to create inventions and will be guaranteed legal protection (Pemaca et al., 2023).

South Korea, a country with a continuously growing number of patents, presents a valuable opportunity for Indonesia to draw upon its patent commercialization regulations as a framework for growth and development. The Invention Promotion Act No. 19495 of 2023 has resulted in significant advancements, cultivating a preference among South Korean innovators for domestic patents over those from abroad. According to the Intellectual Property Statistics and Figures data from the World Intellectual Property Organization (WIPO) in 2024, domestic patent applications in South Korea rose from 272,326 in 2022 to 287,954 in 2023, reflecting a 5.7% growth. Consequently, patent applicants in South Korea continue to be the most active patent filers relative to their gross domestic product (GDP), with 7,309 applications for every 100 billion US dollars. Indonesia can benefit from these insights to improve its patent system.

Table 2. Comparison of total domestic patent applications in Indonesia and South Korea in 2021-2023

Year	Indonesia	South Korea
2021	1.400	237.159
2022	1.516	272,326
2023	1.676	287,954

Source: Direktorat Jenderal Kekayaan Intelektual 2023 Annual Report and *World Intellectual Property Organization's Intellectual Property Statistics Data Center*

Based on Table 2, Invention Promotion Act as a regulation showed a significant increase in domestic patent applications within a year. In 2024, South Korea's patent application data surged, ranking it fourth in the world, following China, the United States, and Japan. This growth is supported by the Patent Cooperation Treaty (PCT), which reached 23,851

patents, while international patent applications filed through the PCT totaled 273,900. Patents registered under the Madrid System also saw an increase of 1.2%, and those under the Hague System rose by 10.3%. The rise is also reflected in the number of patents from universities, where four Korean universities managed to enter the top 20 university patents, making South Korea the only country overall to achieve a significant increase in the number of patent applications without any decline.

The need to establish Patent Commercialization Regulations can be understood through three perspectives: sociological, philosophical, and juridical. From a philosophical standpoint, the implementation aims to achieve legal certainty and promote legal development in accordance with the 1945 Constitution (Undang-Undang Dasar) and Pancasila. The second principle of Pancasila, "Just and Civilized Humanity," set out to the platform for an invention that will improve people's lives, both in the development of the national economy, encouraging innovation among new inventors, and ensuring the protection of intellectual property rights, as well as the rapid and efficient commercialization of these inventions, as well as advancing the competitiveness of national and global industries.

In the fifth principle of Pancasila, "Social Justice for All Indonesian People," inventors whose technological inventions benefit society are entitled to justice in a form of adequate royalties, as exclusive rights are granted by law as appropriate compensation for inventors and creators of intellectual property. Through royalties, creative people are encouraged to continue honing their intellectual abilities, which can ultimately help improve human life (Sufiarina, 2012). The implementation of regulations for patent commercialization is deeply rooted in the foundation of the 1945 Constitution (Undang-Undang Dasar) and its connection to legal certainty. As stated by Theo Huijbers, law is fundamentally a tool for establishing a just societal order (Remaja, 2014). This implies that positive law should reflect the realities of society, a perspective articulated by Gustav Radbruch (Nurahmasari et al., 2021). Article 28C, paragraph (1) of the 1945 Constitution addresses the need for regulations governing patent commercialization. It states that "everyone has the right to develop themselves through the fulfillment of their basic needs, the right to receive education and to obtain benefits from science and technology, art and culture, to improve the quality of their lives and for the welfare of humanity." By clearly regulating the commercialization of patents, there will be no doubt, and it will not cause normative conflicts in society (Amirulloh et al., 2021). Ultimately, the values embedded in Pancasila and the 1945 Constitution will always intersect to achieve legal objectives, legal certainty, benefits, and justice (Andrianto, 2020).

On the other hand, the sociological perspective on the urgency of establishing patent commercialization focuses on the benefits that can positively impact multiple parties, including society, inventors, and the well-being of the country. Implementing this regulation will enhance the advantages within the economic sector by creating a conducive environment for local industry growth, supporting technological development, and boosting the nation's economy through licensing opportunities (Lindsey et al., 2011). Furthermore, patent commercialization can lead to societal welfare by generating new employment opportunities and increasing corporate revenues and profits, ultimately benefiting society as a whole (Simamora, 2008).

The existence of regulations governing the commercialization of patents helps protect the community, particularly patent inventors. This creates a reciprocal relationship with the surrounding community, allowing them to access the benefits of patented technologies. Such protection is a recognition by the Republic of Indonesia that protect human rights also includes protecting inventors and their creations, as stated in Article 28C, paragraph (1) of the 1945 Constitution.

Juridical standpoint for implementing the Patent commercialization regulations is fundamentally designed to promote legal harmonization, which aims to formulate a cohesive and integrated regulations, preventing any conflicts or overlaps with the current Patent Law

No. 13 of 2016, as well as other relevant laws and regulations (Surya & Wahab, 2023). Legal harmonization is vital, as it treats the national legal system as an integrated whole. By prioritizing this harmonization, we provide a strong legal foundation that aligns with the hierarchy of laws and regulations. Furthermore, ensuring clarity and coherence in the legal system (Slamet, 2004). In this context, the legal system plays a critical role in preparing domestic Patents for competition in the global market by developing regulations focused on commercialization (Alfons, 2018).

Identifying the legal gaps between Indonesian and South Korean patent laws reveals several limitations, including public legal awareness, government oversight, compensation mechanisms, and support for commercialized inventions. South Korea's Invention Promotion Act No. 19495 of 2023 has been developed comprehensively, creating "comprehensive invention promotion policy" aimed at promoting inventions. This act seeks to raise public awareness about the importance of inventions, encourage inventive activities, protect invention rights, and provide guidelines for the transfer and commercialization of existing inventions. The policy is designed to be updated annually to support domestic inventors, as stated in Article 3 of the Invention Promotion Act. Public awareness initiatives are also guaranteed in Articles 5 and 6, through the establishment of "Invention Day," celebrated on May 19th each year. This day aims to emphasize the importance of domestic inventors and to inspire public enthusiasm for creating new inventions.

The government of South Korea has also been actively involved in issuing policies that facilitate the access of inventors and patent company employees, as mentioned in Article 6, point 2, by increasing citizen awareness of inventions through facilitating creative activities for students, women, and the underprivileged. This policy directly supports the development of creative potential and training for women and lower to middle-class communities as superior human resources in the technology sector.

Although Indonesia has established policies regulating compensation or rewards for individuals entitled to obtain a patent for an invention, as stated in Article 1, number 15 of the Patent Law, these regulations mainly focus on the relationship between the inventor and the patent holder, particularly within the employment context. The law specifies that inventors are entitled to receive compensation based on an agreement with their employer, which may take the form of a fixed amount, a percentage, or another mutually agreed arrangement. However, it does not provide clear guidelines concerning the standard value of royalties or what constitutes fair compensation. In contrast, incentives related to intellectual property are governed separately, as outlined in the Regulation of the Minister of Law and Human Rights Number 4 of 2016 concerning Intellectual Property Incentives. This regulation aims to promote and protect domestic intellectual property producers by offering incentives, including support for intellectual property registration.

Furthermore, the Invention Promotion Act offers a more comprehensive framework for compensating inventors and employees involved in inventions. Articles 15 and 16 of this Act emphasize the protection of the inventor's economic rights and the provision of incentives to encourage the effective commercialization of inventions. The policy also highlights the importance of safeguarding economic rights and ensuring proportional compensation in cases of patent infringement. Nonetheless, the legal protections afforded by the Patent Law for employee inventions remain insufficient for both inventors and companies employing inventors. This lack of adequate attention and protection for the role of inventors in employment-related inventions may undermine the effectiveness of intellectual property law, decrease the motivation and creativity of patent inventors, and ultimately reduce productivity in the generation of intellectual property (Whindari, 2019).

Table 3. Comparison of the Indonesia's Patent Law and the Invention Promotion Act of South Korea

Aspects	Patent Law	Invention Promotion Act
Aim	To protect technological discoveries through the granting of patents by providing inventors with exclusive rights to utilize their inventions, preventing unauthorized or arbitrary use.	To enhance the technical competitiveness of industries and to contribute to the development of the national economy by encouraging invention and facilitating the prompt and efficient securing of rights to inventions and the commercialization thereof.
Compensation	Article 1 number 15 Focuses on the relationship between inventor and patent holder, particularly in the context of employment. This can take the form of a specific amount, percentage, or other agreed-upon form. However, there are no clear standards for the value of royalties or fair compensation.	Article 15 dan 16 Protects the economic rights of inventors and provide incentives to optimize the commercialization of inventions. It also emphasizes safeguarding these economic rights and ensuring proportional compensation in cases of patent infringement.
Public awareness of Invention	Not mentioned.	<ul style="list-style-type: none"> • Article 3 <i>Comprehensive Invention Promotion Policy</i> aims to raise public awareness about the importance of inventions, protect invention rights, and provide guidelines for the transfer and commercialization of existing inventions and designed to be updated annually to support domestic inventors. • Article 5 dan 6 The establishment of "Invention Day," celebrated on May 19th each year. This day aims to emphasize the importance of domestic inventors and to inspire public enthusiasm for creating new inventions.
Employee Invention	Article 12 Focuses on the rights and obligations related to employee inventions, particularly regarding patent ownership and use. Patent rights to inventions within the scope of employee invention will belong to the employer or company, while the employee will receive compensation for the results of their invention.	Section 2 Stipulates the compensation mechanisms for inventors and employees in an invention, joint patent ownership, and confidentiality obligations. Focuses on protecting the economic rights of inventors and providing compensation or incentives for optimal commercialization of an invention.

Source: Patent Law No. 13 of 2016 and Invention Promotion Act No. 19495 of 2023

As a result, Indonesia's patent law is deemed insufficiently formulated. Therefore, to realize the law's objectives and prioritize legal harmonization as a manifestation of the implementation of South Korea's Invention Promotion Act in Indonesia, it is necessary to enact a Government Regulation supported by a Ministerial Regulation.

Inherently, legislation has a regulatory nature, meaning it is not a one-time or single-use measure but applies comprehensively to society (Sikumbang et al., 2015). Government Regulation serves to provide further regulation of provisions explicitly mentioned in laws, as well as to manage additional provisions in laws even when they are not explicitly stated, as stated in Article 5, paragraph (2) of the 1945 Constitution. The establishment of patent commercialization through a Government Regulation aligns with this characteristic, as a Government Regulation cannot be enacted without an underlying primary law. In this case, the primary law is the Patent Law. Given that patent commercialization is not explicitly addressed

in the Patent Law, the new regulation can provide more detailed and specific technical implementation regarding the protection and commercialization of patents.

Article 12 of Law Number 12 of 2011 concerning the Establishment of Legislation states that the substance of Government Regulations must implement the provisions of the law or be necessary without deviating from the subject matter regulated in the relevant law. Government Regulations play a crucial role in preventing legal conflicts. This aligns with the principle of *lex superior derogat legi inferiori*, indicating that lower regulations must be adjusted and harmonized with regulations that are higher in the hierarchy. Therefore, it is essential to ensure that regulations on patent commercialization are legally aligned with the current Patent Law. This alignment will create a consistent legal system and prevent normative conflicts in patent protection.

Government Regulations could be supported by Ministerial Regulations in the context of implementing patent commercialization regulation. While in contrast, Ministerial regulations serve as complementary or supplementary regulations that address the evolving and developing needs of legislation (Amin et al., 2023). The material of ministerial regulations elaborates on the provisions established in laws, government regulations, and presidential regulations, both due to attribution and delegation from these laws and regulations (Tesano, 2015). Thus, to establish regulations on patent commercialization, it can be formed through a government regulation that functions as the implementing regulation of the law, outlining the fundamental principles of patent commercialization. In addition, it should be supported by a ministerial regulation to govern technical details and administrative procedures, thereby complementing the provisions outlined in both the Patent Law and the relevant government regulation.

Implementation of Patent Commercialization Regulations and Its Impact on the Protection of Patent Economic Rights for Inventors and the State Based on Incentive Theory, Economic Growth Stimulus Theory, and Economic Analysis of Law

The economy of a country operates within a legal framework that regulates commercial activities. The development of a nation's economy depends upon the effective enforcement of laws which can encourage national industrial development and the growth of domestic industries. Fundamentally, law enforcement implies economic freedom under the law (Newman & Sherwood, 1996). As stated by Robert Sherwood, the foundations of intellectual property rights protection encompass principles and legal recognition of human intellectual creativity through five theories: reward theory, recovery theory, incentive theory, risk theory, and economic growth stimulus theory.

In relation to commercialization, incentive theory serves as the central theoretical framework used in this study. This theory links creative development with the provision of incentives or rewards for inventors and promotes beneficial research activities (Nizwana & Rahdiansyah, 2019). Incentives are specifically provided to protect patent inventors by ensuring they receive support in the form of funding and similar benefits, as a form of compensation for their valuable efforts (Arimuladi, 2021).

The implementation of incentive theory in the formulation of patent commercialization regulations centers on state support provided through the management of intellectual property rights, such as Technology Transfer Offices (TTOs). TTOs are institutions within academia, government, and research organizations that facilitate research and innovation by assisting in transforming academic inventions into marketable products. Strengthening the role of TTOs in supporting and facilitating the needs of inventors, both in terms of motivation and knowledge is essential to increasing the likelihood of successful patent commercialization (Happyana & Hatta, 2025). The absence of clear legal mechanisms for providing incentives to inventors in Indonesia's Patent Law has resulted in the economic rights inherent to inventors and patent

holders not being fully realized. Incentives can be offered to inventions through legal certainty in the form of exclusive rights that are inviolable. This creates opportunities for inventors to receive substantial financial rewards when their inventions are commercially utilized, whether through production, sales, or licensing to third parties in exchange for royalties. Consequently, providing incentives to inventors is crucial in the patent commercialization process, particularly in developing countries such as Indonesia. The initial step is to establish a fair mechanism for granting incentives for innovative inventions and works, thereby enabling technological development (Esthi, 2018).

The establishment of patent commercialization regulations not only provides legal protection for inventors and patent holders but also yields benefits for the state in the form of global economic growth. This economic growth aligns with the economic growth stimulus theory proposed by Robert Sherwood. The theory acknowledges that the protection of intellectual property rights serves as a tool for economic development, enabling a country to build an effective intellectual property legal system (Nurdahniar, 2016).

The economization and commercialization of intellectual property exert a significant stimulus on economic growth. Intellectual property is regarded as a valuable asset with the potential to be transformed into tradable economic commodities. The economic growth stimulus theory closely relates to the impact of incentives, where the protection of intellectual property rights can influence economic growth in various critical ways (Gould & Gruben, 1996). Economic sectors that rely on intellectual property rights contribute significantly to economic growth across multiple dimensions. These contributions include increases in gross domestic product (GDP), tax revenues, employment, foreign investment, and, importantly, strategic value (Hasanov, 2022).

The implementation of the economic growth stimulus theory in the formulation of patent commercialization involves strengthening the legal system, developing an intellectual property market ecosystem, and providing policy support and incentives that encourage innovation and the utilization of patents as key drivers of technology-based economic growth. The establishment of patent commercialization regulations also leads to an increase in domestic patent commercialization promotion applications, thereby contributing to more global economic development. State revenue for development further increases through income tax, value-added tax on royalties, and annual fees or maintenance costs paid by patent holders and/or inventors. Tax revenue plays a vital role in supporting a country's economic growth, serving as the primary source for funding various development programs and public services. With consistent tax revenue, the government can maintain economic stability and sustain growth even during periods of recession or economic slowdown (Saragih, 2018). Tax revenue also fulfills the function of tax stability as described by Prof. Dr. Rochmat Soemito, which involves implementing policies related to price stability to control inflation, regulate the circulation of money within the community, and ensure the effective and efficient use of taxes (Ariffin & Sitabuana, 2022).

If a third party wishes to use a patented invention, an agreement must be established requiring the third party to pay royalties to the inventor. The economic benefits derived from patent commercialization typically take the form of royalties earned annually from the sale of products or processes (Marwandy et al., 2024). Subsequently, the royalties received by the inventor are subject to taxation. Sellers, traders, and manufacturers managing the patented invention are also subject to income tax in accordance with the provisions of Articles 23 and 26 of Law No. 36 of 2008, the fourth amendment to Law No. 7 of 1983 on Income Tax. Under this regulation, the royalty tax rate is set at 15% of the gross amount. Additionally, value-added tax (VAT) is imposed on the delivery of intangible taxable goods. Royalties on registered trademarks are considered intangible taxable goods due to their inherent economic value. As intangible taxable goods, the VAT rate on royalties is 10% (Tanjung & Imaniyati, 2022).

Ultimately, society will also benefit from the establishment of patent commercialization regulations through the economic analysis of law theory, as proposed by Richard Posner. This analysis seeks to identify the impact of legal rules on social behavior by examining three principles: value, utility, and efficiency (Nurahmasari et al., 2021), and to determine whether the legal effects are socially acceptable (Polinsky & Shavell, 2005). This stems from the intersection of law and economics in studying the relationships and social interactions among individuals in their daily activities. By addressing specific questions regarding the causes, consequences, and social value of particular legal rules or sets of rules, the analysis prioritizes the efficiency and utility of legal regulations for the majority, the greatest happiness of the greatest number, rather than solely evaluating the legality from a binary perspective of right or wrong, consistent with Jeremy Bentham's utilitarian theory (Kornhauser, 2022). In conclusion, this theory represents an approach based on risk and benefit that attempts to predict the behavior of society regulated under the law. It also strives to reform law by identifying aspects where the existence of law produces undesirable consequences, whether in terms of economic efficiency, income or wealth distribution, or other values (Posner, 1998).

The integration of both theories by Richard Posner and Jeremy Bentham significantly contribute to the enforcement of laws governing the establishment of patent commercialization regulations in Indonesia. This approach enables the formulation of regulations that uphold both the value of protection and justice for the wider society by maximizing utility. Therefore, the implementation of Economic Analysis of Law (EAL) theory in legal policy is essential to achieve sustainable national development goals and maintain national resilience through effective and efficient regulations (Butarbutar et al., 2023). The application of EAL theory in the development of patent commercialization regulations requires the creation of legal frameworks and infrastructure that facilitate the transparent and efficient transfer, licensing, and utilization of patents. This includes establishing an intellectual property marketplace that allows inventors and patent holders to accurately assess the value of their patents, negotiate standardized license contracts to reduce legal costs, and ensure strong legal rights over their patents. Implementing this theory within the patent commercialization system promotes the creation of a dynamic and sustainable innovation ecosystem, where patents are not merely legal rights but also economic assets that drive national growth and competitiveness. Accordingly, EAL emphasizes the need to balance exclusive rights protection with market accessibility so that patents can function as productive economic assets (Permana, 2025).

CONCLUSION

The absence surrounding patent commercialization in Indonesia creates significant challenges, particularly concerning the economic rights of inventors. An invention that is not commercialized will fail to generate sustainable innovation, which also contributes to the generally low number of patent applications. Data confirms that Indonesia ranks among the countries with the lowest intellectual property asset commercialization rates globally, at just 4.17%. In contrast, South Korea is the only country that has achieved a significant and consistent increase in patent applications without any decline. This situation highlights the urgency of establishing patent commercialization regulations based on the South Korean Invention Promotion Act, based on three standpoints: philosophical, sociological, and juridical. Philosophically, the focus is on the intrinsic value and purpose of innovation. Sociologically, the implementation focuses on the benefits that can impact multiple parties, including society, inventors, and the well-being of the country, through enhancing the advantages within the economic sector by fostering a supportive environment for local industry advancement and boosting the nation's economy. Eventually, it creates a reciprocal relationship with the surrounding community, allowing them to access the benefits of patented technologies. Juridically, the realization of these objectives and legal harmonization related to

patent commercialization can be achieved through government regulations and complemented by ministerial regulations. These regulations will complement the provisions already established within the Patent Law and government regulations.

The implementation of patent commercialization regulations contributes to the economic development by strengthening national industries through effective law enforcement. Guided by incentive theory, which encourages creative individuals to continuously develop their intellectual skills to improve human welfare. This also promotes beneficial research and advances national economic development through tax revenues from royalties. Based on economic growth stimulus theory, intellectual property is treated as a valuable asset that can be converted into tradable commodities. Efficient valuation and management of intellectual property, combined with incentives that encourage innovation and competition, have strong potential to drive long-term economic growth. This also shows that law and economics intersects by applying economic analysis of law to create legal rules that balance economic efficiency with social justice. Thus, patent commercialization regulations act as both legal instruments and drivers of national economic growth and innovation.

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