



Patent Licensing as the Implementation of Utilitarian Theory and a Part of Indonesia's National Resilience

Shelly Kurniawan¹, Demson Tiopan²

^{1,2}Faculty of Law, Maranatha Christian University, Indonesia

Abstract: The rapid development of technology, whether stemming from research results or technological advancements, can be protected through intellectual property, specifically patents. The regulation of patents is stipulated in Law Number 13 of 2016 concerning Patents, with amendments to several articles in Law Number 6 of 2023 concerning the Determination of Government Regulation in Lieu of Law Number 2 of 2022 concerning Job Creation. Utilitarian theory, including its application in the context of patent licensing, is an integral part of patent regulation. However, the number of registered patent license agreements on the Directorate General of Intellectual Property's website is limited. Yet, a proliferation of licenses can enhance a country's national resilience. This study aims to investigate how the utilitarian theory within the patent system becomes a component of Indonesia's national resilience. This normative legal study examined secondary literature and legal regulations related to patents, books, journals, and papers concerning intellectual property law, particularly patents. The research findings indicate that the utilitarian theory can be implemented through licensing. Registering patent licenses in agreements is a legal prerequisite for protection. A high number of patent licenses can enhance Indonesia's resilience in terms of both economic and defense and security aspects.

Keywords: Patent, Resilience, Utility

1. Introduction

Humanity is becoming increasingly intertwined with technology. Technology has greatly facilitated various aspects of human life, encompassing education, work, and household tools, all of which are inseparable from technological advancements. Technology is the product of research and development, resulting in either novel technological innovations or enhancements of existing ones. These technological advancements can be safeguarded through intellectual property rights, particularly patents. The protection of intellectual property is also associated with the economic growth stimulus theory, whereby intellectual property serves as a tool for economic development, thus constituting a fundamental objective in the establishment of an effective intellectual property protection system (Mardiana et al., 2020)

The profound impact of technology compels business entities to compete vigorously, striving to generate novel, sophisticated, and appealing innovations that capture public interest. To illustrate, the author cites the case of a Chinese technology company, Huawei. Despite facing sanctions imposed by the United States in 2019 (Editorial, 2023), which restricted the use of American-developed software and hardware, Huawei managed to resurge and create innovative technology. Remarkably, Huawei's technology is now employed by prominent automotive companies such as Mercedes-Benz, Audi, Porsche, and BMW (Dave, 2023).

Huawei's resurgence from adversity underscores its commitment to constant self-renewal and its continuous demonstration of China's intellectual property potential to the world, exemplified by its ownership of over 110,000 active patents (Editorial, 2022). Manuel Desantes, former Vice President of the European Patent Office, highlights that,

Correspondence:

Name Shelly Kurniawan

Email shellyelvira@gmail.com.

Received: Nov 23, 2023;

Revised: Jan 13, 2024;

Accepted: Feb 02, 2024;

Published: Feb 26, 2024



Copyright: © 2024 by the authors.

Submitted for possible open access publication under the terms and conditions of the Creative Commons

Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0) license (

<https://creativecommons.org/licenses/by-nc/4.0/>).

amid the rapid transformations in the global landscape, the paramount consideration is not merely the quantity of patents or registered inventions but the intellectual property system's ability to ensure that deserving innovations receive tangible benefits (Editorial, 2022). The tangible evidence of a company's rapid progress, even eliciting vigilance from global superpowers such as the United States, presents an opportunity for Indonesia to advance and harness its domestic potential, including the regulation of patents.

The protection of patents must yield tangible benefits and enhance the quality of the resulting technology. According to the Utilitarian Theory, a state should adopt policies that maximize the happiness of its citizens, which may include restrictions on patented inventions by parties other than the rights holder, with exceptions for the common good (Utomo, 2010). Achieving this objective can be facilitated through incentives for creation, disclosure, and the dissemination of advanced technology by inventors to the broader public (Utomo, 2010). In this context, the implementation of the Utilitarian Theory can be realized through licensing agreements. Huawei, in furthering its business development, has engaged in licensing agreements with various major companies, such as Porsche, Mercedes-Benz, and others.

On the other hand, as Indonesia is actively developing technology for resource management, such as nickel, it is highly beneficial to strengthen regulatory frameworks for the mutual benefit of both private companies and the government. This includes encouraging private enterprises to enter into licensing agreements with the government. Similarly, foreign companies seeking to utilize Indonesian technology can engage in licensing agreements as part of the implementation of the Utilitarian Theory. Licensing agreements for patents are required to be registered with the Directorate General of Intellectual Property (DJKI). However, it is worth noting that only two such patent licensing agreements are currently recorded on the DJKI website (Direktorat Jenderal Kekayaan Intelektual, 2023). The urgency of this research is that there is a need to foster the creation of new inventions, license these inventions made in Indonesia, and ensure their registration with the DJKI. Authors expected that the substantial number of inventions licensed and recorded on the Directorate General of Intellectual Property's data could enhance Indonesia's national resilience.

To the best of the author's knowledge, there appears to be a lack of research with a specific focus on strengthening the utilitarian theory and national resilience. Building upon the discussions outlined above, the author is inclined to delve deeper into the field of patents as they relate to Indonesia's resilience, which is written in a paper Entitled "Patent Licensing As The Implementation Of The Utilitarian Theory And A Component Of Indonesian Resilience." The research addresses the following question: How does the Utilitarian Theory in patent protection contribute to Indonesia's resilience.

2. Materials and Methods

This normative legal study used statute and conceptual approaches. Legal materials used in this study were regulations and concepts related to intellectual property, especially related to patent, and aspects of Indonesia's national resilience. Data were analyzed qualitatively. The regulation of patents is stipulated in Law Number 13 of 2016 concerning Patents, with amendments to several articles in Law Number 6 of 2023 concerning the Determination of Government Regulation in Lieu of Law Number 2 of 2022 concerning Job Creation.

3. Results and Discussion

3.1. Patent Licensing as the Implementation of Utilitarian theory

The Utilitarian Theory asserts that law, in its positive form (legislation and regulations), should provide a benefit to individuals and advocate the greatest happiness principle (Nurhasanah, 2012). The theory's objective is to generate the greatest pleasure or happiness for the greatest number of people (Ridwansyah, 2016). It also believes in a process of maximizing utility, encompassing happiness, benefit, profit, and enjoyment for as many individuals as possible (Pratiwi et al., 2022). In the context of patent law, the

Utilitarian Theory is realized through incentives for creation, disclosure, and the dissemination of advanced technology held by inventors to the broader public (Utomo, 2010). Additionally, it can be achieved through the granting of licenses to third parties to implement patents. Patent licensing is essential in reducing the likelihood of monopolies over a particular technology (in this case, inventions) by specific entities (Utama, 2012).

Regulations regarding licenses are established in Law Number 13 of 2016 concerning Patents, Law Number 6 of 2023 concerning the enactment of Government Regulation in Lieu of Law Number 2 of 2022 concerning Job Creation, and Government Regulation Number 36 of 2018 concerning the Registration of Intellectual Property License Agreements. There are two types of licenses: exclusive and non-exclusive. An exclusive license means that the patent holder agrees not to grant licenses to others except the licensee or grants permission to only one party, while a non-exclusive license can be sub-licensed to multiple parties (Demmassabu, 2017). Furthermore, there are four types of patent licenses: 1) Ordinary licenses granted by the patent holder at their discretion through an agreement; 2) Licenses executed by the government, as regulated in Article 109 of Law Number 13 of 2016 concerning Patents in conjunction with Presidential Regulation Number 77 of 2020 on the Implementation of Patents by the Government; 3) Compulsory licenses for patent implementation, based on the Minister's decision, as stipulated in Article 82 of Law Number 13 of 2016 concerning Patents and Minister of Law and Human Rights Regulation Number 14 of 2021 concerning Amendments to Minister of Law and Human Rights Regulation Number 30 of 2019 on the Procedure for Granting Compulsory Patent Licenses; and 4) Cross-licensing, which occurs when a patent is a derivative or development of a previous patent, allowing both patent owners to grant licenses to each other (SLN, 2021).

Following the enactment of the Job Creation Law, patents can be implemented through three activities: patent-product, patent-process, and patent-method execution by creating, importing, or licensing products (Kurnianingrum, 2022). The implementation of the Utilitarian Theory can be carried out independently by the inventor (in a monopolistic manner) by selling the invention to the public to gain profits. This monopolistic implementation is permitted by Article 50 of Law Number 5 of 1999 concerning Monopoly Practices and Unfair Business Competition. Monopoly rights entail that the holder of intellectual property is granted several powers to: 1) Use intellectual property rights individually; 2) Grant licenses and transfer intellectual property to others for economic benefits within a specific timeframe and under certain conditions; and 3) Have the right to prohibit others from using that intellectual property (Putranti, 2015). It's essential to note that the monopolies allowed by the law for intellectual property are not absolute; they have certain limitations. There are critical points to consider when analyzing whether a licensing agreement constitutes an exception, including: 1) Determining if the intellectual property being requested for licensing can be categorized as essential facilities. 2) Examining whether the agreement qualifies as an intellectual property licensing agreement. 3) Ensuring compliance with the licensing agreement requirements, including registration with the Directorate General of Intellectual Property (DJKI). 4) Assessing the clauses within the intellectual property licensing agreement for any indications and/or anti-competitive characteristics (Hakim, 2016).

Inventors should consider whether the invention they intend to patent has commercial potential, economic viability, and downstream prospects (VER, 2023). Within a 3-4 year timeframe, inventions that are not maximally utilized may lead inventors to file for patent annulment due to their inability to pay the patent maintenance fees (VER, 2023). The annulment of a registered patent can occur when the patent is deemed ineligible for patent protection or when the patent holder fails to fulfill obligations, including the non-payment of annual fees, as stipulated in Article 130 of Law Number 13 of 2016 concerning Patents (Ramadhani et al., 2021).

The Utilitarian Theory can also be realized through licensing, as the benefits of an invention are not only experienced by the general public as consumers who purchase the

invention to address their needs. Licensees can also gain access to and/or further develop the invention as per the terms outlined in the licensing agreement. Additionally, this approach broadens the market and enhances public access to the invention because licensees market the inventor's creation as licensors through products combined with their own, as exemplified by Huawei. The Chinese technology company, Huawei, has produced a multitude of patents for its inventions. For instance, Huawei manufactures various gadgets such as smartphones, tablets, and laptops. If Huawei were to exclusively implement its patents (in a monopoly), consumers might only enjoy their innovations by purchasing Huawei gadgets, with market prices reflecting the technological sophistication. However, when other companies, like car manufacturers such as Porsche, utilize technology invented by Huawei through licensing agreements, it indirectly enlarges Huawei's market share. The realization of the Utilitarian Theory is further exemplified through licensing because it extends the availability of inventions not only to the general public but to other companies that can benefit from the technology created. This results in material gains for the inventor who licenses their patent to other companies, receiving royalties as a fulfillment of their economic rights or as recognition of their intellectual property. There are compelling reasons for acknowledging and rewarding intellectual property. This is essential because intellectual works arise from hard work that demands both physical and mental efforts, and not everyone can create them. Furthermore, recognizing and appreciating intellectual property can motivate individuals to engage in creative and innovative endeavors (Simatupang, 2021). Currently, Indonesia has made notable progress in terms of the quantity of patent registrations, with nearly 40% of the target set by the Directorate General of Intellectual Property reached in 2022 (KAD, 2023). However, Indonesia needs to focus on enhancing the quality of its inventions to attract potential licensees and encourage inventors to keep innovating. This is essential to prevent a scenario where many patents remain uncommercialized, and inventors lack the financial means to cover the annual maintenance fees. Another challenge is the recording of licensing agreements in Indonesia (Direktorat Jenderal Kekayaan Intelektual, 2023).

As per Government Regulation Number 36 of 2018 concerning the Registration of Intellectual Property License Agreements, these agreements are mandatory to be recorded by the Minister. Currently, there are only two recorded patent licensing agreements, both of which were recorded in January 2020, as per the Official Gazette of Patent License Agreements. This situation is concerning because the recorded data for licensing agreements is limited to the year 2020 and includes only two inventions. It is highly likely that numerous licensing agreements have been established but remain unrecorded. To address this, the government should continue efforts to raise awareness and encourage inventors and patent holders, whether as licensors or licensees, to record their licensing agreements.

In contrast, when an inventor faces challenges in generating innovations that are potentially easy to commercialize, they must consider various possibilities through research and development to create an invention. One solution, in the author's view, lies in the need for the government to establish an ecosystem that supports inventors in their innovation efforts, akin to Shenzhen City in China, often referred to as the "Tech City." Shenzhen, the headquarters of Huawei, serves as a fertile ground for inventors to foster new innovations and technologies. Indonesia has also initiated cooperation with China in 2019 to study intellectual property administration and substance in China (Direktorat Jenderal Kekayaan Intelektual, 2019a) (Direktorat Jenderal Kekayaan Intelektual, 2019b). Through such collaborations, benchmarking can be conducted to create a conducive system and conditions that further unlock the potential of inventors, making their inventions sought after not only by businesses but also by the broader public.

One of the challenges in realizing an inventor-friendly ecosystem is the issue of funding. The government can provide financial support to inventors through prize competitions that encourage them to create high-quality prototypes with commercial potential. In this regard, Indonesia can look to India as an example of a country that fosters innovation with relatively limited funding. For instance, India managed to de-

velop a satellite mission to the Moon with a budget of around \$74 million, while similar projects in other countries required substantially more funding, such as Russia's \$200 million and the United States' approximately \$100 million (McFall-Johnsen & Focht, 2023). Indonesia has significant potential, particularly in developing technologies for nickel processing to advance nickel downstream projects. In Indonesia, two inventions have received patents for nickel-related technologies, specifically the production of TiO₂ by Ilmerit Indonesia and the low-grade nickel laterite ore processing process (Subagja, 2021). Indonesia is not the only country with abundant nickel reserves; other nations like Australia, Brazil, China, and Canada also have substantial reserves (CNN Indonesia, 2023b). Indonesia can create inventions for nickel processing and license these inventions to companies from other countries, capitalizing on its nickel resources.

3.2. Patent Licensing and the Relationship with Indonesia's national resilience

National resilience refers to a nation's capacity to address various threats, challenges, obstacles, and disruptions (Widiuseno, 2013). There are 8 aspects that serve as approaches in tackling a nation's strategic issues, consisting of 3 natural static aspects (trigatra), including geographical, demographic, and natural resource aspects, as well as 5 dynamic social aspects (pancagatra), encompassing ideological, political, economic, socio-cultural, and defense and security aspects (Mardhani, 2020). A country's strength against internal and external threats, disruptions, obstacles, and challenges is significantly bolstered when these 8 aspects are well fulfilled. Regarding the natural aspects, Indonesia has met all 3 aspects effectively. Geographically, Indonesia holds a highly strategic position as it lies between two continents and two oceans. Demographically, Indonesia boasts a substantial population, and in terms of natural resource wealth, it possesses vast potential, including nickel, forests, and more. In terms of the dynamic aspects, Indonesia has successfully fulfilled them all. The ideological aspect is grounded in the noble values of Pancasila, the political system is based on Pancasila and the 1945 Constitution to achieve national goals, Indonesia's economic system is structured on the principles of Pancasila and Article 33 of the 1945 Constitution, and a spirit of solidarity in human coexistence acts as a unifying element. Furthermore, the defense and security aspect, geared toward safeguarding the nation's interests, is firmly established in Indonesia (Sulisworo et al., 2012).

The aspect most closely associated with the implementation of patent utilization theory through licensing inventions to others is the economic aspect. Economic strength is a crucial determinant of a nation's power. To illustrate this, the author takes China as an example. China's remarkable economic progress has made it a phenomenon, reshaping the landscape of East Asia and enabling China to modernize and bolster its military capabilities (Purnama, 2020). China's robust economic and military power has granted it significant diplomatic influence, even challenging the long-standing hegemony of the United States. Despite facing "attacks" like the ban on Huawei sales in the United States and persistent efforts by the U.S. Congress to restrict the use of Chinese-owned TikTok (CNN Indonesia, 2023a), China has managed to endure these challenges. Moreover, as a founding member of BRICS, the New Development Bank headquartered in Shanghai has invested substantial funds with the goal of providing an alternative to the World Bank and IMF (Arbar, 2023). Indonesia, as a developing nation, can benefit from studying the experiences of advanced countries, including China.

Indonesia has already achieved its patent registration quantity target of 40% in 2022. Therefore, Indonesia's next task is to create high-quality inventions with strong commercial potential to attract both domestic and foreign companies. This will lead to licensing agreements with Indonesian inventors. The more inventions that are licensed, the more patent utilization is realized, which, in the long run, will positively impact Indonesia's economic aspect and contribute to its economic strength.

4. Conclusions

Based on the discussion above, the conclusion of this research is that the utilitarian theory can be implemented, in part, by licensing inventions to various other parties or companies as a form of patent utilization. The substantial number of inventions licensed and recorded with the Directorate General of Intellectual Property can enhance Indonesia's national strength in terms of the economic aspect. It is evident that patents can be utilized by numerous parties, further contributing to the nation's economic power, and that can have a good impact on the licensors and Indonesia. The aspect most closely associated with the implementation of patent utilization theory through licensing inventions to others is the economic aspect. Economic strength is a crucial determinant of a nation's power.

Author Contributions: The first author contributes about the first problem about patent licensing that is related to utilitarian theory and a brief second problem about the national resilience. The second author contributes the the second problem about the national resilience that is related to patent licensing.

References

- Arbar, T. F. (2023, August 22). 5 Fakta BRICS, geng Rusia-China yang Bikin RI 'Kepincut.' <https://www.cnbcindonesia.com/news/20230822144101-4-465097/5-fakta-brics-geng-rusia-china-yang-bikin-ri-kepincut>.
- CNN Indonesia. (2023a, March 27). 5 Poin Utama Muncul Saat CEO TikTok 'Disidang' Kongres AS. <https://www.cnnindonesia.com/teknologi/20230327093510-185-929697/5-poin-utama-muncul-saat-ceo-tiktok-disidang-kongres-as>.
- CNN Indonesia. (2023b, July 4). RI Jadi Produsen Nikel Terbesar, Negara Mana Saja Pesaingnya? <https://www.cnnindonesia.com/ekonomi/20230704134901-85-969308/ri-jadi-produsen-nikel-terbesar-negara-mana-saja-pesaingnya>.
- Dave, P. (2023, December 23). Huawei Reaps More Patent Royalties than it Pays Out for Second Straight Year. <https://www.thejakartapost.com/business/2022/12/23/huawei-reaps-more-patent-royalties-than-it-pays-out-for-second-straight-year.html>.
- Demmassabu, V. M. (2017). Penghapusan Lisensi Paten Oleh Pemegang Hak Paten Menurut Undang-Undang Nomor 13 Tahun 2016 tentang Paten. *Lex Privatum*, V(2), 101–106.
- Direktorat Jenderal Kekayaan Intelektual. (2019a, August 18). *Indonesia Jalin Kembali Kerjasama di Bidang Kekayaan Intelektual dengan Tiongkok*. <https://www.dgip.go.id/artikel/detail-artikel/indonesia-jalin-kembali-kerjasama-di-bidang-kekayaan-intelektual-dengan-tiongkok?kategori=Berita%20Resmi%20Desain%20Industri>.
- Direktorat Jenderal Kekayaan Intelektual. (2019b, December 17). *DJKI Pelajari Sistem Administrasi KI dari China*. <https://dgip.go.id/index.php/artikel/detail-artikel/djki-pelajari-sistem-administrasi-dan-substansi-ki-dari-china?kategori=liputan-humas>.
- Direktorat Jenderal Kekayaan Intelektual. (2023). Berita Resmi Perjanjian Lisensi Paten. In <https://dgip.go.id/berita-resmi/berita-resmi-lisensi-paten>.
- Editorial. (2022, June 10). *Penemuan Baru Huawei Merevolusi AI, 5G, dan Pengalaman Pengguna*. <https://kastara.id/10/06/2022/penemuan-baru-huawei-merevolusi-ai-5g-dan-pengalaman-pengguna/>.
- Editorial. (2023, January). *Bisnis Mulai Membaik, Huawei Tak Peduli Lagi Dampak dari Sanksi AS*. <https://www.merdeka.com/teknologi/bisnis-mulai-membaik-huawei-tak-peduli-lagi-dampak-dari-sanksi-as.html>.

- Hakim, D. A. (2016). PENGECUALIAN PERJANJIAN HAK KEKAYAAN INTELEKTUAL DALAM HUKUM PERSAINGAN USAHA. *FIAT JUSTISIA: Jurnal Ilmu Hukum*, 9(4), 409-427. <https://doi.org/10.25041/fiatjustisia.v9no4.608>
- KAD. (2023, March 7). *Permohonan Paten Lokal ke DJKI Hampir Capai 40 Persen*. <https://www.dgip.go.id/artikel/detail-artikel/permohonan-paten-lokal-ke-djki-hampir-capai-40-persen?kategori=agenda-ki>.
- Kurnianingrum, T. P. (2022). Dampak Hukum Penghapusan Pasal 20 UU No. 13 Tahun 2016 tentang Paten. *Negara Hukum*, 13(1), 41-62.
- Mardhani, D. (2020). Security And Defence Dalam Studi Ketahanan Nasional Guna Mewujudkan Sistem Keamanan Nasional. *Jurnal Pertahanan & Bela Negara*, 10(3), 279-298. <https://doi.org/10.33172/jpbh.v10i3.862>
- Mardiana, H., Amirulloh, M., & Faisal, P. (2020). Hak paten sebagai objek jaminan fidusia berdasarkan peraturan perundang-undangan mengenai jaminan fidusia dan paten. *Jurnal Cakrawala Hukum*, 11(2), 177-186. <https://doi.org/10.26905/idjch.v11i2.4094>
- McFall-Johnsen, M., & Focht, M. (2023, August 2). *How India Landed on the Moon and Flew to Mars at a Fraction of the Cost of NASA dan Russia Missions*. <https://www.businessinsider.com/how-india-moon-landing-cost-cheap-compared-to-nasa-russia-2023-8>.
- Nurhasanah. (2012). *Meningkatkan Kewaspadaan Nasional Terhadap Arus Globalisasi Guna Mewujudkan Ketahanan Pangan Dalam Rangka Kemandirian Bangsa*.
- Pratiwi, E., Negoro, T., & Haykal, H. (2022). Teori Utilitarianisme Jeremy Bentham: Tujuan Hukum Atau Metode Pengujian Produk Hukum? *Jurnal Konstitusi*, 19(2), 268-293. <https://doi.org/10.31078/jk1922>
- Purnama, R. (2020). Strategi China di Kawasan Asia Timur. *Jurnal Diplomasi Pertahanan*, 6(3), 78-93.
- Putranti, D. (2015). Pembatasan Perjanjian Lisensi Hak Atas Kekayaan Intelektual Dalam Hukum Persaingan Usaha. *Jurnal Yuridis*, 2(1), 43-61.
- Ramadhani, M., Amirulloh, M., & Faisal, P. (2021). Perlindungan terhadap inventor terkait unsur kebaruan paten yang hapus akibat tidak membayar biaya tahunan. *Jurnal Cakrawala Hukum*, 12(1). <https://doi.org/10.26905/idjch.v12i1.4717>
- Ridwansyah, M. (2016). Mewujudkan Keadilan, Kepastian dan Kemanfaatan Hukum dalam Qanun Bendera dan Lambang Aceh. *Jurnal Konstitusi*, 13(2), 278-298. <https://doi.org/10.31078/jk1323>
- Simatupang, T. H. (2021). Hak Asasi Manusia dan Perlindungan Kekayaan Intelektual dalam Perspektif Negara Hukum. *Jurnal HAM*, 12(1), 111-122. <https://doi.org/10.30641/ham.2021.12.111-122>
- SLN. (2021, August 13). *Yuk Simak! Jenis-Jenis Lisensi Paten yang Perlu Anda Tahu*. <https://smartlegal.id/hki/pendaftaran-paten/2021/08/13/yuk-simak-jenis-jenis-lisensi-paten-yang-perlu-anda-tahu/>.
- Subagja, R. (2021). *Pengembangan Teknologi Proses Ekstraksi Titanium, Nikel, dan Tembaga untuk Kemandirian Industri Nasional*. Lembaga Ilmu Pengetahuan Indonesia.
- Sulisworo, D., Wahyuningsih, T., & Arif, D. B. (2012). *Geostrategi Indonesia*. <https://eprints.uad.ac.id/9436/1/GEOSTRATEGI%20Dwi.Pdf>.
- Utama, K. W. (2012). Manfaat Lisensi Paten Bagi Industri Teknologi dan Informasi Indonesia. *Masalah-Masalah Hukum*, 41(3), 385-391.
- Utomo, T. S. (2010). *Hak Kekayaan Intelektual (HKI) di Era Global: Sebuah Kajian Kontemporer*. Graha Ilmu.
- VER. (2023, June 20). *DJKI Targetkan 45% Permohonan Paten Dalam Negeri di Tahun 2023*. <https://www.dgip.go.id/artikel/detail-artikel/djki-targetkan-45-permohonan-paten-dalam-negeri-di-tahun-2023?kategori=agenda-ki>.
- Widisuseno, I. (2013). Ketahanan Nasional Dalam Pendekatan Multikulturalisme. *Humanika*, 18(2), 1-6.