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Reconciling Conflicting Norms: Addressing Patentability Challenges in Indonesia's Virtual Workspaces

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Abstract. *This research is done to analyze the nature of virtual workspace, which is increasingly becoming an important part of tech development around the world. Analysis is done to uncover the IPR elements of virtual workspaces and how these elements affect the patentability of virtual workspaces. Through the normative legal research method, analysis of this research finds that the Indonesian Patent Law grossly undermines the capability and the importance of computer programming, which is reflected in various normative restrictions, mainly governed within Law No. 13 of 2016 on Patents. Instead, the Indonesian legal framework presents the copyright law as the viable option, which, in essence, was made to protect creations that don't necessarily involve problem-solving, unlike the Patent Law. This finding is important as it fills the research gap in the analysis of virtual workspace not just as a cybersecurity topic but also as a possible patent, particularly in Indonesia's intellectual property rights (IPR) legal framework.*

Keywords*: Intellectual Property; Patentability; Patent Law; Virtual Reality; Virtual Workspaces.*

1. INTRODUCTION

The rise of virtual workspaces has revolutionized the way people collaborate and conduct business in the digital age,[1] with a unique opportunity to alleviate distractions and facilitate detachment from work in ways that no other technology can.[2] Virtual workspaces refer to online platforms or software that enable individuals or teams to collaborate and work together in a shared virtual environment, regardless of their physical location. These virtual workspaces can take various forms, including virtual offices, virtual meeting rooms, virtual design studios, virtual classrooms, and other possible forms into which virtual reality (VR) can be developed.[3] The growing popularity of virtual workspaces has significant legal consequences that need to be

[1] Veronica, Popovici, and Alina-Lavinia Popovici. "Remote work revolution: Current opportunities and challenges for organizations." *Ovidius Univ. Ann. Econ. Sci. Ser* 20, no. 1 (2020): 469.
[2] Nadia, Fereydooni, and Bruce N. Walker. "Virtual reality as a remote workspace platform: Opportunities and challenges." (2020).
[3] Eric J. York and Johndan Johnson-Eilola. "Enduring designs, transient designers: A comparison of the workspaces and materials of professionals and novices." In *Proceedings of the 38th ACM International Conference on Design of Communication*, pp. 1-8. 2020.

considered from an Indonesian patent law perspective. Virtual workspaces, which involve technologies like VR and augmented reality (AR) environments, collaborative tools, user interfaces, and communication systems, have gained significant popularity in recent times, revolutionizing remote work and collaboration.[4]

As inventors and innovators continue to create novel virtual workspace inventions to facilitate collaborative works, the potential of virtual workspace being included as one of the forms of intellectual property is ever so present, particularly by recognizing integral aspects of virtual reality as a computer program.[5] This legal research focuses on the perspective of Indonesian patent law in relation to the invention of virtual workspaces, examining the relevant legal principles, requirements, and challenges. The rapid evolution of virtual workspaces has transformed the creation, sharing, and management of collaborative projects in many countries, including Indonesia. Indonesia is a prominent Southeast Asian country with a growing innovation ecosystem,[6] making it adaptive to many forms of technological advancements. This research aims to provide insights into the patentability and protection of virtual workspaces from the perspective of Indonesian patent law. By examining the existing legal framework, this research seeks to elucidate the patentability criteria that virtual workspace inventions must meet to be eligible for patent protection in Indonesia.

The legal analysis in this research considers key aspects of Indonesian patent law, such as novelty, non-obviousness, and utility, and how these requirements may apply to virtual workspace inventions. It also explores potential challenges, such as issues related to software patents, computer-related inventions, and business methods, which may arise in the context of virtual workspaces. By providing a comprehensive overview of the relevant legal principles and challenges, this research aims to contribute to the understanding of the patentability and protection of virtual workspaces in Indonesia. Understanding the patentability and protection of virtual workspaces from the perspective of Indonesian patent law is crucial for inventors and practitioners operating in the field of virtual workspaces in Indonesia. By providing insights into the relevant legal principles, requirements, and challenges, this research aims to contribute to understanding the legal landscape for virtual workspace inventions in Indonesia. It may serve as a valuable resource for inventors, practitioners, and stakeholders seeking to navigate the complex realm of patent law in Indonesia and protect their virtual workspace inventions in accordance with local regulations. Additionally, this research may also contribute to the academic discourse on intellectual property law and technology innovation, particularly in the context of virtual workspaces in Indonesia, and may spur further research and analysis in this area.

Existing literature on the topic of virtual workspaces and patent law provides valuable insights into the global legal landscape, but there is limited research specifically focused on the Indonesian perspective. A study explored various aspects of virtual workspaces, including their technological advancements, applications in different industries, and their impact on remote work and collaboration, along with how they

[4] Muhammad Nur Affendy, Nor'a, and Ajune Wanis Ismail. "Integrating virtual reality and augmented reality in a collaborative user interface." *International Journal of Innovative Computing* 9, no. 2 (2019).

[5] J. R. Boulé III. (2017). Redefining Reality: Why Design Patent Protection Should Expand to the Virtual World. *American University Law*, *66*(4), 1114.

[6] Ratih, Purbasari, Zaenal Muttaqin, and Deasy Silvya Sari. "Digital entrepreneurship in pandemic Covid 19 era: The digital entrepreneurial ecosystem framework." *Review of integrative business and economics research* 10 (2021): 115.

originated.[7] In addition, another study analyzed common patent law principles and requirements to understand the patentability and protection of virtual workspaces.[8] The study shed light on key legal considerations, such as the eligibility criteria for virtual workspace inventions, the challenges of obtaining software patents, and the role of patent protection in fostering innovation in the field.

However, literature has only explained the growing interests and legal considerations regarding patentability in countries other than Indonesia. Due to the rising popularity of virtual workspaces in Indonesia,[9] the patentability of virtual workspaces is becoming a more relevant topic to discuss. Research on Indonesian patent law has primarily focused on traditional areas of innovation, such as pharmaceuticals, biotechnology, and agriculture, with limited attention given to emerging technologies like virtual workspaces. Other studies have analyzed the legal framework for software patents and computer-related inventions in Indonesia, along with the importance of patenting these inventions.[10] However, these studies have no mention of virtual workspace, which in itself is a computer-related invention and has its own distinctive values related to the virtual elements, as highlighted by another study.[11]

In recent years, Indonesia has emerged as a fast-growing market for tech developments, with increasing adoption in various industries among different business scales,[12] including gaming, architecture, engineering, and education. The Indonesian government has also introduced policies and initiatives to support innovation and technological advancement, including the development of a national intellectual property strategy. However, the specific legal landscape for virtual workspaces in Indonesia, including the patentability criteria under Law No. 13 of 2016 on Patents, along with the challenges of applying it to analyze the patentability of virtual workspaces, remains understudied. Therefore, this research aims to address this gap in the literature by examining the perspective of Indonesian patent law and other norms within the legal framework of intellectual property rights on virtual workspaces. It delves into the legal principles and requirements, focusing on what constitutes patentability in the context of virtual reality technologies under the Indonesian legal framework. By conducting a comprehensive review of the existing literature on virtual workspaces, patent law, and Indonesian intellectual property regulations, this research aims to contribute to the understanding of the legal framework for virtual workspace

[7] Luisa, Errichiello, and Daniele Demarco. "From social distancing to virtual connections." *TeMA-Journal of Land Use, Mobility and Environment* (2020): 152.

[8] Adailton Goncalves, da Silva, Marcus Vinicius Mendes Gomes, and Ingrid Winkler. "Virtual reality and digital human modeling for ergonomic assessment in industrial product development: a patent and literature review." *Applied Sciences* 12, no. 3 (2022): 1084.

[9] Hartika, Lisdiawati, Ujang Sumarwan, and Lilik Noor Yuliati. "Decision Analysis To Rent of Co-Working Space and Virtual Office in Jabodetabek Areas." *Indonesian Journal of Business and Entrepreneurship (IJBE)* 10, no. 1 (2024): 66.

[10] Asri, Sarif, and I. Gede Mahatma Yogiswara Winatha. "Regulation of Patent Protection of Computer Programs as Inventions in Indonesia." *Indonesia Law Reform Journal* 3, no. 1 (2023): 123. See also: Satya Arinanto, and Ike Farida. "Protection of Computer Programs in Industrial Revolution 4.0 Era: From Indonesian Legislation Perspective." *US-China L. Rev.* 17 (2020): 92.

[11] Hayoung, Choi, Seunghyun Oh, Sungchul Choi, and Janghyeok Yoon. "Innovation topic analysis of technology: The case of augmented reality patents." *IEEE Access* 6 (2018): 16120.

[12] Beby Karina, Fawzeea, Fivi Rahmatus Sofiyah, Ilyda Sudardjat, and Iskandar Muda. "The role of technology marketing micro business, small and medium enterprises (SMEs) agents for repurchase intention and its impact on the community satisfaction (case in Indonesia)." *International Journal of Scientific and Technology Research* 8, no. 12 (2019): 1725.

inventions in Indonesia and provide guidance to inventors and practitioners seeking patent protection in this jurisdiction.

2. RESEARCH METHODS

This research employed the normative legal research method to analyze many aspects of the relevant positive law sources.[13] The normative analysis was done to analyze the IPR legal framework in Indonesia relative to the issue of patentability of virtual workspaces. To support the analysis, this study employed the statutory approach, using secondary data in the form of primary law sources, namely Law No. 28 of 2014 on Copyrights, Law No. 20 of 2016 on Trademark and Geographical Indication, Law No. 30 of 2000 on Trade Secrets, and Law No. 13 of 2016 on Patents.

3. RESULTS AND DISCUSSION

3.1 Virtual Workspace and Why it Matters?

In today's society, the virtual workspace has gained significant relevance and has become a topic of considerable academic, professional, and judicial discourse. Virtual workspace refers to a digital environment that allows individuals and organizations to collaborate, communicate, and work remotely using various tools and technologies. With the rapid advancement of technology, virtual workspaces have emerged as a fundamental aspect of how work is conducted in the 21st century. With the constantly evolving efforts to integrate the latest technological developments into the daily lives of many people, virtual workspace has become a reality in today's society.[14]

Firstly, virtual workspace is crucial in facilitating remote work, which has become increasingly prevalent in today's society. Remote work, also known as telecommuting or teleworking, refers to employees working from locations other than a traditional office setting, enabled by virtual workspaces that allow for seamless collaboration and communication. Virtual workspaces, also sometimes referred to as virtual offices, provide employees with the flexibility to work from anywhere, reducing the need for physical presence in a central office location. This has numerous benefits, such as reducing commuting time, enhancing work-life balance, and increasing productivity. Moreover, virtual workspaces have proven particularly useful during crises, such as the ongoing COVID-19 pandemic, where remote work is necessary to ensure business continuity while adhering to social distancing measures. Many companies have facilitated their employees through technological training to enable them to operate in many forms of virtual workspaces and further improve their remote working experience.[15]

Secondly, virtual workspaces are critical in promoting inclusivity and diversity in the workplace. Traditional work environments may present physical barriers for individuals

[13] Hari Sutra Disemadi. "Lenses of Legal Research: A Descriptive Essay on Legal Research Methodologies." *Journal of Judicial Review* 24, no. 2 (2022): 290.
[14] Sunaina, Kuknor, and Shubhasheesh Bhattacharya. "Organizational inclusion and leadership in times of global crisis." *Australasian Accounting, Business and Finance Journal* 15, no. 1 (2021): 94.
[15] Lina, Vyas, and Nantapong Butakhieo. "The impact of working from home during COVID-19 on work and life domains: an exploratory study on Hong Kong." *Policy design and practice* 4, no. 1 (2021): 60.

with disabilities or other personal constraints.[16] However, virtual workspaces offer accessibility features, such as screen readers and keyboard navigation, which make it easier for individuals with disabilities to participate in the workforce.[17] This promotes inclusivity and allows organizations to tap into a more diverse talent pool, fostering a more inclusive and equitable workplace. Additionally, virtual workspaces enable organizations to transcend geographical boundaries and hire talent from different regions, cultures, and backgrounds, bringing a diversity of thought and perspectives into the workplace, which can lead to increased innovation and creativity.

Thirdly, virtual workspaces play a significant role in promoting sustainability and reducing the environmental impact of work.[18] Traditional office spaces are associated with significant energy consumption, waste generation, and carbon emissions. In contrast, virtual workspaces reduce the need for commuting, resulting in lower carbon emissions and energy consumption. Additionally, virtual workspaces facilitate the use of electronic documents, reducing paper consumption and waste generation.[19] This aligns with the growing global focus on sustainability and environmental conservation, making virtual workspaces an essential tool for organizations to reduce their ecological footprint and contribute to a more sustainable society.

Furthermore, virtual workspaces are instrumental in enhancing collaboration and communication among teams across different time zones and geographical locations.[20] Virtual workspaces provide a plethora of tools and technologies that enable real-time communication, document sharing, and project management. These features foster seamless collaboration among team members, enabling real-time.[21] Virtual workspaces enable employees to collaborate on projects, share ideas, and provide feedback in a virtual environment, breaking down barriers of time and space. This leads to improved team dynamics, increased knowledge sharing, and enhanced productivity, resulting in better organizational performance.[22]

The significance of virtual workspaces in today's society cannot be overstated. The ability to work remotely through virtual workspaces has become a crucial aspect of modern work culture. Organizations are increasingly adopting virtual workspaces as a means to attract and retain talent, enhance productivity, and respond to changing work patterns and demands.[23] The flexibility provided by virtual workspaces allows

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[16] Jakob, Lauring, and Charlotte Jonasson. "Can leadership compensate for deficient inclusiveness in global virtual teams?." *Human Resource Management Journal* 28, no. 3 (2018): 393.

[17] Suhana, Mohezar, Noor Ismawati Jaafar, Waqar Akbar, Suhana Mohezar, Noor Ismawati Jaafar, and Waqar Akbar. "Welcoming Disabled Employees Through Accommodating Workspace and Work Design." *Achieving Quality of Life at Work: Transforming Spaces to Improve Well-Being* (2021): 90.

[18] Ibtisam Abdulelah Mohammed, Al Khafaji, and Raz Kamaran. "The influence of spatial flexibility to improve sustainability of interior design by using smart technology (case study–future smart home in Iraq)." *European Journal of Sustainable Development* 8, no. 4 (2019): 439.

[19] Pratyush Panjwani. "The Impact of the COVID-19 Pandemic on International Arbitration Practices: Greener Arbitrations with Reduced Due Process Paranoia?." In *The Impact of Covid on International Disputes*, pp. 28-61. Brill Nijhoff, 2022.

[20] Lisa Aufegger and Natasha Elliott-Deflo. "Virtual reality and productivity in knowledge workers." *Frontiers in Virtual Reality* 3 (2022): 890700.

[21] Souvik, Mukherjee, Ngudup Tsering, and Jinan Fiaidhi. "Towards the Design and Evaluation of Interactive Technologies for Social Good." *Authorea Preprints* (2023).

[22] Khandelwal Komal and Ashwani Kumar Upadhyay. "Virtual reality interventions in developing and managing human resources." *Human Resource Development International* 24, no. 2 (2021): 220.

[23] Tamara Kildiushova. "Building trust in virtual teams/Author Tamara Kildiushova." PhD diss., Universität Linz, 2021.

employees to balance their personal and professional responsibilities, leading to increased job satisfaction and employee well-being.

In addition, virtual workspaces foster enhanced collaboration and communication among teams and organizations. Real-time communication tools, document-sharing platforms, and project management software enable seamless collaboration and coordination among team members, regardless of their physical location.[24] Virtual workspaces facilitate effective communication, knowledge sharing, and feedback, leading to improved team dynamics and increased productivity. These collaborative features of virtual workspaces are particularly valuable in today's fast-paced and globally connected work environment.

Virtual workspaces also raise legal and regulatory concerns. Data privacy and security are critical issues in virtual workspaces, as sensitive information may be shared and stored in a digital environment. Therefore, important aspects of privacy, such as data control, data protection, and maintenance of security, need to be properly addressed as a part of security precautions.[25] Aside from privacy and cyber security issues, virtual workspaces may also raise legal questions regarding intellectual property, as collaborations and the sharing of ideas can shape a virtual workspace into something with distinct values. This goes back to the fact that virtual workspaces are created in the first place to facilitate the collaborations of many individuals, which in itself provides significant value. The distinctness of virtual reality space can come from how it facilitates collaboration with unique mechanisms and features.[26] An adequate legal framework is necessary for addressing the potential challenges of creating and utilizing virtual workspace, as it becomes more common in the digital age.

3.2 Development of Legal Framework to Support Virtual Workspace

The development of a comprehensive legal framework to support virtual workspaces has become of paramount importance in today's society. With the widespread adoption of virtual workspaces as an integral part of modern work culture, it is crucial to address various legal issues associated with these digital environments, including the protection of intellectual property rights (IPR).[27] This is particularly relevant in the context of Indonesia, where the legal framework of IPR is continuously evolving to keep pace with technological advancements and changing societal dynamics. In Indonesia, the protection of IPR constitutes a fundamental aspect of the legal frameworks to accommodate IPRs, which are the results of human intelligence.[28] Virtual workspaces

[24] MU Ananya, Babu, and Priyanka Mohan. "Impact of the metaverse on the digital future: people's perspective." In *2022 7th International Conference on Communication and Electronics Systems (ICCES)*, pp. 1576-1581. IEEE, 2022.

[25] Sarah-Sabrina Kortekamp, Sebastian Werning, Oliver Thomas, and Ingmar Ickerott. "The future of digital work-use cases for augmented reality glasses." (2019).

[26] Farzad Pour Rahimian, Tomasz Arciszewski, and Jack Steven Goulding. "Successful education for AEC professionals: case study of applying immersive game-like virtual reality interfaces." *Visualization in Engineering* 2 (2014): 2.

[27] Dragana Nikolic, Laura Maftei, and Jennifer Whyte. "Becoming familiar: How infrastructure engineers begin to use collaborative virtual reality in their interdisciplinary practice." *Journal of Information Technology in Construction* 24 (2019): 490.

[28] Kholis Roisah. "Kebijakan Hukum "Tranferability" Terhadap Perlindungan Hak Kekayaan Intelektual di Indonesia." *Law Reform* 11, no. 2 (2015): 242.

have come as a solution for bridging barriers in work collaboration,[29] which in itself is an innovation in the field of virtual reality, bringing potential patentability from its elements.[30] As virtual workspaces are increasingly used for collaboration, content creation, and sharing of digital assets, it is imperative to analyze the legal issues related to it.[31] Indonesian law recognizes various forms of IPR, including copyrights, trademarks, patents, and trade secrets, which are protected under specific laws and regulations.

Law No. 28 of 2014 on Copyrights (Copyrights Law) in Indonesia provides the legal framework for protecting copyrights in virtual workspaces. This law grants exclusive rights to creators of original works, including literary, artistic, and musical works, among others.[32] It also recognizes the concept of "work made for hire," which applies to digital assets created within the scope of employment or under a commissioned agreement. Creators of digital assets in virtual workspaces are entitled to assert their copyrights and seek remedies in case of infringement, including civil and criminal sanctions.

The important cornerstone of a normative basis for virtual related objects in the context of IPR is based on the definition of "computer program", provided by the provision of Article 1 No. 9 of the Copyrights Law, which states, "Computer Program means a set of instructions that are expressed in the form of languages, codes, schemes, or in any form that is intended for a computer to perform specific functions or to achieve certain outcomes." Even though this provision doesn't specifically deal with virtual workspace, this provision is nonetheless important because it acknowledges the role of computer programs, which is the core technical aspect of virtual reality (VR) and augmented reality (VR), the two building blocks behind virtual workspace.

Unlike the copyrights law, Law No. 20 of 2016 on Trademark and Geographical Indication (Trademark and GI Law) doesn't have any provision that explicitly mentions the word "digital" and also doesn't have any provision that links another related word such as electronic or computer to possibly refer to a protective mechanism of trademarks and geographical indications in the digital or virtual space, or to the expansion of the normative definition of what a trademark is. Moreover, the legal framework for virtual workspaces in Indonesia also recognizes the importance of protecting trade secrets.

Trade secrets, which refer to confidential business information that derives value from being kept secret,[33] are critical for many businesses, including the ones that utilize virtual workspaces. Trade secrets in Indonesia are governed by a rather old regulation, which is the Law No. 30 of 2000 on Trade Secrets (Trade Secret Law). As an old regulation passed in the year 2000, this source of law doesn't provide any relevant

[29] Luz, Castillo-Cuesta, Cesar Ochoa-Cueva, and Paola Cabrera-Solano. "Virtual workspaces for enhancing collaborative work in EFL learning: A case study in higher education." *International Journal of Emerging Technologies in Learning (iJET)* 17, no. 2 (2022): 3.

[30] John R. Boule III. "Redefining Reality: Why Design Patent Protection Should Expand to the Virtual World." *Am. UL Rev.* 66 (2016): 1113.

[31] Darrell G Mottley. "Intellectual Property Issues in the Network Cloud: Virtual Models and Digital Three-Dimensional Printers." *J. Bus. & Tech. L.* 9 (2014): 151.

[32] Hari Sutra Disemadi. "Mengenal Perlindungan Kekayaan Intelektual di Indonesia." (2023).

[33] Camilla A., Hrdy, and Mark A. Lemley. "Abandoning trade secrets." *Stan. L. Rev.* 73 (2021): 1.

aspects of technological developments that are inseparable from today's daily life. The law does mention the protection of information related to the field of technology in Articles 1 and 2 but doesn't provide any elaboration sufficient to connect the remaining provisions to the latest scientific and technological advances, including virtual and augmented reality. These grossly generalized provisions do not adequately cover the complexity and technicalities of trade secrets in the digital age, where the fast-paced dissemination of information can lead to the rapid and uncontrolled spread of proprietary knowledge.

In addition to the two mentioned above, another important part of the IPR legal framework in Indonesia is Law No. 13 of 2016 on Patents (Patent Law). Patents are granted for new inventions that are industrially applicable and involve inventive steps.[34] The Patent Law provides procedures for patent registration, examination, and enforcement in the digital sphere, including provisions related to software patents, business method patents, and other forms of digital inventions.[35] Much like the Trademark and GI Law and Trade Secret Law, the Patent Law also doesn't have any provision explicitly mentioning the word "digital," along with any other words related to it within the context of the invention in the digital or electronic form, including "virtual," which is a significant advancement of digital technology.

It is worth noting that the legal framework for virtual workspaces is not only limited to IPR protection but also encompasses other legal aspects, such as data privacy, cybersecurity, and contract law.[36] Legal provisions regarding these aspects are essential to ensure the smooth operation of virtual workspaces and to foster a conducive environment for virtual collaboration and innovation, ultimately ensuring ethical and safe technical integration.[37] However, it's also important to note that all of these legal domains are connected directly or indirectly to the IPR legal framework in Indonesia, as they're all relevant in determining the legal liability of many kinds of IPR misappropriation.[38]

The Copyright Law in Indonesia, for instance, grants creators of original works in virtual workspaces exclusive rights to reproduce, distribute, and publicly display their works.[39] This includes digital assets such as software, graphics, videos, and other digital content.[40] Creators are also entitled to assert their copyrights and seek remedies in case of infringement, including damages and injunctions. The Copyright Law also recognizes the concept of fair use, which allows for limited use of copyrighted works

[34] Lu, Sudirman, and Hari Sutra Disemadi. "Comparing patent protection in Indonesia with that in Singapore and Hong Kong." *Legality: Jurnal Ilmiah Hukum* 29, no. 2 (2021): 201.
[35] Disemadi, Hari Sutra. "Mengenal Perlindungan Kekayaan Intelektual di Indonesia." (2023).
[36] Virginia A. Greiman. "Cyber Law and Regulation." In *Cyber Security: Critical Infrastructure Protection*, pp. 59-78. Cham: Springer International Publishing, 2022.
[37] Amjad, Almusaed, Ibrahim Yitmen, and Asaad Almssad. "Reviewing and integrating aec practices into industry 6.0: Strategies for smart and sustainable future-built environments." *Sustainability* 15, no. 18 (2023): 13464.
[38] Wolfgang, Kerber, and Jonas Frank. "Data Governance Regimes in the Digital Economy: The Example of Connected Cars." *Available at SSRN 3064794* (2017).
[39] Yogi, Saputra, and Pasha Aizani. "Aspek Hak Kekayaan Intelektual Dalam Hukum Perdata: Perlindungan Terhadap Karya-Karya Seni Dan Inovasi Teknologi." *Jaksa: Jurnal Kajian Ilmu Hukum dan Politik* 2, no. 2 (2024): 51.
[40] Annisa Nur, Rahmawati, Febrina Putri, and Tsalissya Nabila. "Optimalisasi Perlindungan Hukum Terhadap E-Commerce Websites Dikaji dari Perspektif Hak Kekayaan Intelektual." *Jurnal Al Azhar Indonesia Seri Ilmu Sosial e-ISSN* 2745 (2023): 5920.

without permission for certain purposes such as criticism, commentary, and education.[41] The Trademark Law provides procedures for trademark registration, examination, and enforcement, including provisions related to the use of trademarks. The normative basis in the Trademark and GI Law, despite not having enough elements to connect it to the many processes of digitalization, is still relevant to be applied in the context of digital and virtual spaces such as social media and other platforms. It also establishes civil and criminal remedies for trademark infringement, such as damages, injunctions, and criminal sanctions.

The Indonesian Patent Law establishes procedures for patent registration, examination, and enforcement, including provisions related to the novelty, inventiveness, and industrial applicability of inventions.[42] Patents granted in Indonesia provide exclusive rights to inventors to exploit their inventions, and inventors are entitled to seek remedies in case of patent infringement, such as damages, injunctions, and invalidation actions.[43] In the realm of patents, the Patent Law in Indonesia doesn't necessarily govern that an invention has to be in a certain form. However, the Patent Law provides a list of exclusions consisting of inventions that are not considered patentable, such as presentations, game rules, and schemes.[44]

Furthermore, laws regarding contracts are also a crucial aspect of the legal framework for virtual workspaces. Virtual workspaces often involve various contractual arrangements, such as employment contracts, service agreements, and licensing agreements, which govern the rights and responsibilities of the parties involved.[45] In Indonesia, the validity of contracts is based on the norms constructed by Article 1320 of the Civil Law Code, which governs the four requirements for a valid agreement, namely agreement of those who bind themselves, capacity to make an agreement, a certain thing, and a lawful cause.[46] These requirements are normatively valid for all kinds of contracts, including the ones made within virtual reality.[47] With the utilization of virtual workspaces, it's possible that a contract can be made in a virtual environment, which certainly needs legal certainty.[48] In the event of disputes arising from virtual workspaces, the legal framework also provides mechanisms for dispute resolution. This may include litigation in courts, arbitration, mediation, and other alternative dispute resolution methods. These mechanisms ensure that parties involved

[41] Gunardi, Lie, and Bilqis Alifia Wathan. "Pelanggaran Hak Cipta Pembajakan Buku Berdasarkan Undang-Undang Nomor 28 Tahun 2014." *Innovative: Journal Of Social Science Research* 3, no. 6 (2023): 3903.

[42] Endang Purwaningsih. "Patent Law and Its Enforcement in Indonesia, Japan and the USA." *Jurnal Media Hukum* 27, no. 1 (2020): 2.

[43] Sudjana Sudjana. "Pelindungan Paten Dalam Perspektif Fungsi Hukum Sebagai Kontrol Sosial Dan Rekayasa Sosial:-." *Dialogia Iuridica* 13, no. 1 (2021): 62.

[44] Rr Aline Gratika Nugrahani. "Problematika Dihidupkannya Kembali Paten Yang Telah Dihapus Berdasarkan Pasal 141 Undang-Undang Nomor 13 Tahun 2016 Tentang Paten." *Jurnal Hukum PRIORIS* 9, no. 1 (2021): 73.

[45] Mark A., Lemley, and Eugene Volokh. "Law, virtual reality, and augmented reality." *U. Pa. L. Rev.* 166 (2017): 1051.

[46] Desi Syamsiah. "Kajian Terkait Keabsahan Perjanjian E-Commerce Bila Ditinjau Dari Pasal 1320 Kuhperdata Tentang Syarat Sah Perjanjian." *Jurnal Inovasi Penelitian* 2, no. 1 (2021): 327-332.

[47] Muhammad Azis Ramdhani Sobari, Afiatin, Neni Sri Imaniyati, and Diana Wiyanti. "Keabsahan Jual Beli Non-Fungible Token (Nft) pada Metaverse yang Dimiliki oleh Ransverse Ditinjau dari Kitab Undang-Undang Hukum Perdata dan Kompilasi Hukum Ekonomi Syariah." In *Bandung Conference Series: Law Studies*, vol. 4, no. 1. 2024.

[48] Hatta, Isnaini, and Wahyu Utomo. "The existence of the notary and notarial deeds within private procedural law in the industrial revolution era 4.0." *International Journal of Innovation, Creativity and Change* 10, no. 3 (2019): 129.

in virtual workspaces have access to fair and effective means of resolving disputes and seeking remedies in case of legal violations.

Overall, the development of a legal framework to support the utilization and protection of virtual workspace as an innovation in the field of virtual reality requires careful consideration, with many of its legal complications spanning across different legal fields. Therefore, the development of a legal framework for this needs to take into account the importance of harmonization with other laws to ensure that the protection of virtual workspace as an innovation in the field of virtual reality doesn't come at the cost of breaking existing legal norms. Ultimately, it's evident that the protection of IPR in the context of virtual workspace can't be fully separated from non-IPR legal issues, which calls for a holistic approach in future legal developments in the context of virtual workspace.

3.3 Patentability of Virtual Workspace and Emerging Legal Problems

The patentability of virtual workspaces and their emerging legal problems are complex and multifaceted issues that require careful consideration. As technology continues to advance at an unprecedented rate, virtual workspaces have become increasingly prevalent in various industries, enabling collaboration, innovation, and productivity in the virtual realm. One of the key issues in the patentability of virtual workspaces is the determination of what constitutes an eligible invention. Patent law typically requires that an invention be novel, non-obvious, and have industrial applicability to be eligible for patent protection.[49] Determining the patentability of a virtual workspace as an invention in the realm of virtual reality must be based on the analysis of the relevant laws, particularly the patent regime, which is governed by Law No. 13 of 2016 on Patents.

According to Indonesia's Patent Law Article 2, there are two (2) types of Patents: Patent and Simple Patents. These are defined through Article 3, which states, "(1) A patent as referred to in Article 2 letter a is granted for an invention that is new, contains an inventive step, and can be applied in industry; (2) A simple patent as referred to in Article 2 letter b is granted for each new invention, development of an existing product or process, and can be applied in industry." Normatively, these basic provisions do not provide enough aspects of technicality, such as what has already been mentioned, including novelty, among many others. In contrast, this leaves room for the Patent Law to govern even more forms of invention as it can applied to many industry sectors. The case of patentability of virtual workspace from this standpoint is then visible, as virtual workspace can be invented according to both forms of patents.

However, the Patent Law gives limitations to the forms of inventions that can be patented through the provision of Article 3, which states, "The invention does not cover a. aesthetic creations; b. scheme; c. Rules and methods for carrying out activities involving mental activity, games, and business; d. rules and methods that contain only computer programs, e., presentation of information; and f. findings (discovery) in the form of new uses for existing and/or known products, and/or a new form of an existing compound that does not result in a significant increase in efficacy and there is a difference in the associated chemical structure that is already known

[49] Ana Santos Rutschman. "Patent Law." In *Laws of Medicine: Core Legal Aspects for the Healthcare Professional*, pp. 407-417. Cham: Springer International Publishing, 2022.

from the compound." While this provision is necessary to prevent disharmony with the copyright law, it also presents a serious normative problem. The provision in letter d, which limits inventions that are based only on computer programs from patentability, ignores the technological advancements in today's society that are increasingly dependent on computer programs, such as algorithms that can actually solve real-world problems,[50] cybersecurity tools,[51] and virtual reality spaces.[52] The main consequence of the direction of today's society is the move from doing activity in the physical world to the digital and virtual world. This is the case of virtual workspace, where people do their work in virtual reality, which is essentially built by nothing but computer programs.

One of the key legal issues related to the patentability of virtual workspaces in Indonesia is the determination of inventive steps. As virtual workspaces often involve complex software algorithms, data processing, and user interfaces, assessing the level of inventiveness required for patentability can be challenging. The Indonesian Patent Law requires that an invention involves an inventive step if, having regard to the prior art, it is not obvious to a person skilled in the art. Determining the level of "obviousness" in the context of virtual workspaces may require a deep understanding of the technological landscape, industry practices, user expectations, and the application of legal principles and precedents. This issue is governed by the Patent Law to explain the inventive step of a supposed invention. This is explained by the provision of Article 7, which states, "(1) An invention contains an inventive step if the invention is something that cannot be foreseen for someone who has certain expertise in the technical field; (2) To determine that an Invention is something that cannot be foreseen as referred to in paragraph (1) must be carried out by taking into account the expertise that existed at the time the Application was filed or was present at the time the first application was filed in the case that the Application was filed with Priority Rights."

The provision in this article is a strict one as it adds that the invention has to be something that "cannot be foreseen" with taking into account the expertise that exists at that point in time. While it's true that a restrictive provision like this can prevent the misuse of patent rights to dominate a market and create a non-competitive atmosphere, it's also important to consider the direction of STEM (Science, technology, engineering, and mathematics). With the rapid development of STEM and the integration of an innovation-focused approach to education, there needs to be a further explanation of what the cannot-be-foreseen element really is, along with its relation to the current relevant expertise. In the context of virtual workspaces, the advancement of virtual reality (VR) and augmented reality (AR) didn't bring virtual workspaces up as a technology that is far from imagination and possible expertise. However, the combined elements of VR and AR brought the technology and turned it

[50] Jerry IH., Hsiao. "Patent eligibility of predictive algorithm in second generation personalized medicine." *SMU Sci. & Tech. L. Rev.* 22 (2019): 23.

[51] Vignesh Ramachandran. "Cybersecurity and Patent Law-Let's Work Together." *Am. U. Intell. Prop. Brief* 10 (2019): 1.

[52] Farzad, Pour Rahimian, Tomasz Arciszewski, and Jack Steven Goulding. "Successful education for AEC professionals: case study of applying immersive game-like virtual reality interfaces." *Visualization in Engineering* 2 (2014): 2.

into something innovative, making virtual workspaces a valuable alternative to physical workspaces.[53]

Another legal problem related to the patentability of virtual workspaces is the determination of the appropriate scope of patent protection. Patent claims are used to define the boundaries of the invention and determine the extent of protection granted by a patent.[54] In virtual workspaces, determining the appropriate scope of patent claims can be challenging due to virtual reality's dynamic and evolving nature, where new features are constantly being developed.[55] In this case, due to the normative restriction in Indonesia's Patent Law, it makes more sense for virtual workspace to be copyrighted instead of patented, even though the invention of digital workspace itself is patent by nature. Virtual workspaces may involve various components, such as software, hardware, user interfaces, and data processing methods,[56] which may be subject to different forms of intellectual property protection, such as copyright, trade secret, or patent. Determining the appropriate scope of patent claims in virtual workspaces may require careful analysis of the invention's technical features, functionality, and innovation.

Furthermore, the issue of patentability of digital inventions also raises questions about the disclosure requirements for patent applications.[57] Patent law typically requires that an invention be disclosed in a patent application in a manner that is sufficiently clear and complete to enable a person skilled in the art to practice the invention. In the context of virtual workspaces, disclosing the invention in a manner that meets the legal requirements while protecting sensitive and proprietary information can be challenging. Virtual workspaces may involve complex algorithms, proprietary software, or other confidential information that may need to be carefully disclosed to satisfy the legal requirements of patentability while safeguarding valuable trade secrets and proprietary knowledge. An example of an active patent is a patent on a virtual reality collaborative workspace that is dynamically generated from a digital asset management workflow held by Stephen Cronan.[58]

Another emerging legal problem in the patentability of virtual workspaces is the issue of inventorship and ownership. In traditional patent law, the inventor is typically an individual who conceived of the invention and reduced it to practice. However, in the context of virtual workspaces, inventions may be created through collaborative efforts involving multiple individuals or entities. In the example of a currently active patent in US10956868B1 held by Stephen Cronan, there's an emphasis on the origin of the patent itself, which came from a digital asset management workflow. There needs to

[53] Muhammad Nur Affendy, Nor'a, and Ajune Wanis Ismail. "Integrating virtual reality and augmented reality in a collaborative user interface." *International Journal of Innovative Computing* 9, no. 2 (2019).
[54] Larisa V. Sannikova, and Yu S. Kharitonova. "Protection of Patent Holders' Rights under a Conflict of Drug Patents." *Perm U. Herald Jurid. Sci.* 43 (2019): 121.
[55] Fabio Vinicius, de Freitas, Marcus Vinicius Mendes Gomes, and Ingrid Winkler. "Benefits and challenges of virtual-reality-based industrial usability testing and design reviews: A patents landscape and literature review." *Applied Sciences* 12, no. 3 (2022): 1755.
[56] Luis, Alfaro, Ricardo Linares, and Jose Herrera. "Scientific articles exploration system model based in immersive virtual reality and natural language processing techniques." *International Journal of Advanced Computer Science and Applications* 9, no. 7 (2018).
[57] Vinicius Sala. "Can an Improved Disclosure Mechanism Moderate Algorithm-Based Software Patentability in the Public Interest." *Cybaris Intell. Prop. L. Rev.* 11 (2020): 1.
[58] Stephen Cronan. "Virtual reality collaborative workspace that is dynamically generated from a digital asset management workflow." U.S. Patent 10,956,868, issued March 23, 2021.

be a clear determination of who's responsible for this workflow, as it usually involves more than one person and how that person affects the origin of the invention itself. Determining the rightful inventors and owners of an invention in a virtual workspace may require careful analysis of the contributions made by different parties, the roles and responsibilities of individuals or entities involved, and the legal agreements governing the collaborative efforts.

Through Article 1 No. 3, the Indonesian Patent Law stipulates that "An Inventor is a person or several people who jointly carry out an idea that is poured into an activity that produces an Invention." However, in virtual workspaces, questions may arise regarding identifying the legal status of AI-generated inventions, the attribution of inventorship, and the rights of inventors and owners in such cases, which may require careful analysis of the current legal framework and potential amendments to address these emerging issues. With the increasing use of AI and machine learning in virtual workspaces, AI systems may generate inventions autonomously without human intervention. This raises questions about such inventions' eligibility, inventorship, and ownership. Patent law in many jurisdictions currently requires human intervention in the inventive process for an invention to be eligible for patent protection. However, as AI continues to advance, the legal framework for patentability may need to evolve to address the challenges posed by machine-generated inventions in virtual workspaces. This is even more complex when there's human-robot collaboration in creating a virtual workspace.[59]

In addition to these legal problems, the patentability of virtual workspaces may also raise issues related to international patent protection, enforcement, and licensing. Virtual workspaces may involve cross-border collaborations, global distribution of digital products or services, and potential infringement in different jurisdictions. This may raise complex legal questions related to international patent protection, including applying national laws international treaties, and harmonizing patent standards across different countries. Furthermore, enforcing patent rights in the digital realm can be challenging due to the borderless nature of virtual workspaces, the potential for infringement through online platforms, and the difficulty in identifying and tracking infringers.[60] Additionally, licensing virtual workspace inventions may require careful consideration of the license's scope, terms, and limitations, as well as compliance with antitrust and competition laws to ensure fair competition and avoid monopolistic practices.

Enforcement of patent rights in the digital realm can also pose challenges in Indonesia, which may come from legal realms other than IPR, namely cybersecurity and data privacy, but nonetheless directly affects the protection of inventions through the Patent regime. The borderless nature of virtual workspaces opens the potential for cybersecurity breaches, combined with the difficulty in identifying and tracking the parties responsible for the breach,[61] which can complicate the protection of users' privacy, along with the integrity of the virtual workspace itself as an intellectual

[59] Nikos, Dimitropoulos, Theodoros Togias, Natalia Zacharaki, George Michalos, and Sotiris Makris. "Seamless human–robot collaborative assembly using artificial intelligence and wearable devices." *Applied Sciences* 11, no. 12 (2021): 5699.

[60] Timothy R. Holbrook. "Extraterritoriality and digital patent infringement." In *Research Handbook on Intellectual Property and Digital Technologies*, pp. 338-362. Edward Elgar Publishing, 2020.

[61] Siyanda, Dlamini, and Candice Mbambo. "Understanding policing of cybe-rcrime in South Africa: The phenomena, challenges and effective responses." *Cogent Social Sciences* 5, no. 1 (2019): 1675404.

property. It can also be difficult to choose the correct law to criminalize an infringement due to the very similar nature of some IPR regimes in Indonesia. Moreover, the effectiveness of enforcement measures, including litigation, injunctions, and damages, may vary depending on the jurisdiction, and the enforcement landscape for digital inventions is still evolving.

Furthermore, the issue of patentability of virtual workspaces may also have implications for public policy and societal impact. Virtual workspaces play a critical role in fostering innovation, collaboration, and economic growth in various industries.[62] However, the patentability of virtual workspaces may also have broader implications for access to knowledge, affordability of digital products or services, and the potential for monopolistic control over essential digital technologies. Balancing the interests of inventors, users, and the public at large may require careful policy considerations, including the promotion of open standards, fair use exceptions, and the promotion of competition to foster innovation and benefit society as a whole.

Another legal issue that may arise in the context of virtual workspaces in Indonesia is the disclosure requirements. The Indonesian Patent Law requires that an invention must be disclosed in a clear manner, as explained by Article 25, paragraphs (3) and (4), which states, "(3) The description of the Invention as referred to in paragraph (2) letter b (description of the invention) must clearly and completely disclose how the Invention can be implemented by a person who is an expert in the field; (4) Claims or claims of Invention as referred to in paragraph (2) letter c (claims or claims of invention) must clearly and consistently express the essence of the Invention, and be supported by the description referred to in paragraph (3)." However, disclosing all relevant details for the purpose of proving patentability can increase the risk of cybersecurity breaches, as the information regarding the patent will become publicly accessible. This isn't necessarily a normative issue, but it does challenge the patent holder, particularly in ensuring that the cybersecurity framework for the virtual workspace is constantly updated.

In addition to legal challenges, there may be broader public policy considerations in Indonesia related to the patentability of virtual workspaces. Indonesian policymakers may need to carefully assess the implications of patenting virtual workspaces on economic growth, technological development, and social welfare while considering the country's specific needs and priorities. Overall, the normative issues and other challenges mentioned must be properly addressed and fixed for Indonesia to fully embrace virtual reality technology as one of the most advanced digital advancements.

4. CONCLUSION

The normative analysis of this study finds that there are conflicting norms between copyright law and patent law, particularly regarding the restriction of patentability of inventions created solely by computer programs. This normative restriction grossly undermines the importance and capability of computer programming and how it can affect the direction of technological advancements. Indonesia's Patent Law, in essence, is not ready to be applied in patenting virtual workspaces, which will be an important part of many organizational cultures in the future. Instead, the only viable option is the

[62] S. K., Sasikumar, and Kanikka Sersia. "Digital platform economy: overview, emerging trends and policy perspectives." *Productivity* 61, no. 3 (2020): 337.

copyright law, which is more applicable but lacks the invention-focused protection nature of patents. Ultimately, the findings of this study highlight the gap between the IPR legal framework, particularly the patent regime, and technological advancements. This analysis challenges existing Indonesian legal norms on IPR and encourages an interdisciplinary dialogue that could reshape the understanding and implementation of patent law to accommodate technological progress better. The limitation of this research comes from the lack of technical analysis of specific aspects of the virtual workspace, which might vary depending on the examples. Future research can dive into this issue to assess the patentability of a specific example of a virtual workspace, juxtaposing it with technical knowledge regarding virtual reality.

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