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EDITORIAL TEAM

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EDITORIAL NOTE ON VOLUME 14, NUMBER 1, 2025

Editorial Note

Dr. Yii-Der Su
Assistant Professor,
Graduate Institute of Intellectual Property,
National Taipei University of Technology

As the Executive Editor of this issue, I would like to express my sincere gratitude to all the authors, reviewers, editors, and advisors whose invaluable efforts have upheld the academic quality and integrity of this journal.

The articles featured in this issue address a wide spectrum of intellectual property topics and explore timely intersections with artificial intelligence, finance, and litigation. The diversity of contributions also reflects the growing importance of the Indo-Pacific region in shaping today's intellectual property discourse.

Together, these works not only enrich the ongoing dialogue on intellectual property but also extend a warm invitation for future submissions from the global intellectual property community and related interdisciplinary fields. It is my heartfelt hope that our readers will find both inspiration and practical insights in the perspectives shared throughout this publication.

With deepest appreciation,

Executive Editor

Dr. Yii-Der Su

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NTUT Intellectual Property Law and Management is a multidisciplinary journal which concerned with legal, economic and social aspects of IP issues. This journal is included in the SCOPUS, WESTLAW, WESTLAW HK, LAWDATA, AIRITI LIBRARY citation databases, and it welcomes contributions to address IP topics at national, regional and international level.

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Evaluating the Legal Accountability of Artificial Intelligence (AI) in Bangladesh: Beyond Regulatory Frameworks

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Abstract

The rapid proliferation of Artificial Intelligence (AI) across sectors poses significant legal, ethical, and regulatory challenges, especially in emerging economies like Bangladesh. Despite increasing AI deployment in public and private domains, Bangladesh currently lacks a dedicated legal framework governing AI-related liabilities and data governance. This paper investigates the extent to which Bangladesh's existing legal instruments can accommodate AI-specific harms and proposes actionable regulatory pathways. Owing to the widespread use of AI in recent times, Bangladesh has experienced infringements on privacy, safety, and security, in addition to the advantages it offers. The legislators in Bangladesh are currently undecided on whether to implement a new legal framework for AI or adopt a wait-and-see approach by studying the experiences of other nations, such as the USA and the UK. Hence, the primary aim of this research is to address the question: To what extent can existing legal principles in Bangladesh accommodate or be adapted to establish accountability for decisions made by AI systems? This paper employs a mixed-methods approach, combining doctrinal legal analysis with a quantitative empirical survey, to investigate the necessity and framework for regulating AI in Bangladesh. This study initially examines the exploration of many challenges and issues related to its implementation. This paper makes comparison between Bangladesh and others, such as the EU, China, the USA, and the UK in AI regulation. An extensive public survey was undertaken with 110 participants regarding the necessity of adopting regulations on AI. The results underscore widespread public support for AI-specific regulation, especially concerning transparency, job displacement, discrimination, and data misuse. The study offers policy recommendations for a tailored, risk-based, and ethically grounded regulatory framework, emphasizing multi-stakeholder collaboration and alignment with international best practices. This research contributes to the broader discourse on AI by offering a foundational blueprint for responsible AI regulation in Bangladesh.

Keywords: Artificial Intelligence, regulation, framework, necessity, Bangladesh.

I. Introduction

The domain of AI has experienced significant expansion in recent years, with its applications continuing to broaden. AI refers to computer programs capable of executing complex tasks that were previously exclusive to human capabilities, such as problem-solving, thinking, and decision-making. AI enhances the efficacy, precision, and velocity of human labor. AI responds to specific instructions, such as "Generate a comprehensive marketing strategy for the upcoming launch of our new product."[1] In the early stages of AI research, the primary focus was on the development of rule-based systems. These systems were designed to carry out tasks based on a specified set of rules. Since the 1980s, the progress of machine learning (ML) methods has enabled AI systems to acquire knowledge from data and enhance their performance as time goes on. This emerging technology has the potential to revolutionize the operations of enterprises by showcasing how technology may effectively facilitate and stimulate innovation within the realm of business. According to Table 1, the global AI market had a value of USD 136.6 billion in 2022. According to Grand View Research (2022), it is projected to see a compound annual growth rate of 37.3% between 2023 and 2030.[2]

Table 1: *Global impact of AI on business*

	Global Revenue - USD (2022)	**Global Revenue – USD (2023)**	**Expected Global Revenue - USD (2023-2030)**
Asia Pacific AI market size	37.3%		
North American AI market size	36.8%		
AI market size value (estimated)	136.6 billion	196.63 billion	
Advertising accounted (AI)	More than 19.5%		
Data-driven applications (AI)	Around 36.4%		
AI market size value in 2023 (expected)		196.63 billion	
Revenue forecast in 2030			1811.75 billion
Compound Annual Growth Rate (CAGR)			37.3%

Source: *www.grandviewresearch.com*

The rapid integration of Artificial Intelligence (AI) into diverse sectors—ranging from healthcare and education to justice and finance—has redefined operational capacities across the globe, including in developing nations like Bangladesh. However, while technological innovation progresses at an exponential rate, legal and regulatory systems often lag behind, leading to significant concerns about how AI-generated actions and decisions should be governed. Existing literature, such as Ashraf & Islam (2024), has initiated discussions on the need for a regulatory framework for AI in Bangladesh. Nevertheless, there remains a critical gap in addressing a more nuanced issue: the question of legal

[1] Yuan-Ho Huang, *Exploring the Implementation of Artificial Intelligence Applications Among Academic Libraries in Taiwan*, 42(3) LIBR. HI TECH 885 (July 2022), https://doi.org/10.1108/lht-03-2022-0159.

[2] Grand View Research, *Artificial Intelligence (AI) Market Size, Share & Trends Analysis Report by Solution, by Technology (Machine Learning, Natural Language Processing, Robotics, etc.), by End Use, by Region, and Segment Forecasts, 2022–2030* (2022), https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market.

accountability when AI systems cause harm or violate rights.[3]

This research specifically investigates the legal ambiguity surrounding AI-induced damages—whether civil or criminal—and examines how traditional notions of liability can be adapted to a context where machines, rather than humans, make decisions. The central research question is: *To what extent can existing legal principles in Bangladesh accommodate or be adapted to establish accountability for decisions made by AI systems?* This question is particularly urgent given Bangladesh's increasing reliance on AI without a parallel development of coherent legal guidelines. The study aims to explore possible legal approaches, including the reinterpretation of existing doctrines, the potential recognition of AI as a legal entity, or the imposition of vicarious liability on AI developers or users. Each section of this research contributes to answering the core question. The first part outlines the global legal discourse on AI and accountability. The second critically evaluates the status of legal norms and judicial trends in Bangladesh. The third discusses potential legal models and recommendations for legislative reform in the Bangladeshi context.

II. Literature Review

The prevalence of AI in business is increasing, offering numerous benefits such as enhanced decision-making, precision, and productivity. These technologies simplify processes and facilitate the growth of the financial industry. Ping, a Chinese insurance, uses AI to streamline the process of distributing pay-outs. Walmart and other retailers utilize AI to provide customized recommendations and efficiently manage their inventory. The application of AI across several sectors has facilitated the enhancement of production, efficiency, and competitive edge. The adoption of AI is visible in Bangladesh, where organizations are actively exploring how it may enhance their company operations. Bangladesh's rapidly growing AI literature reflects the growing interest in utilizing AI for business optimization. Various studies have acknowledged the potential applications of AI in the corporate sector of Bangladesh.

A study investigated the utilization of AI in the banking sector of Bangladesh, where AI can improve customer service, detect fraud, and control risks. Similarly, Shetu *et al*. (2021) have recognized many prospects for the implementation of AI in the banking sector, including but not limited to fraud detection, customer service, and loan processing.[4] Nevertheless, they also emphasized certain obstacles, such as a scarcity of data and proficient experts. AI has a broad spectrum of applications for enhancing company processes in Bangladesh. Automating data input processes can save time and reduce error rates. AI can evaluate vast amounts of data, uncovering intricate patterns and valuable insights that are difficult to identify by manual methods. Another inquiry into the utilization of AI in the healthcare sector of Bangladesh was conducted as a component of a broader study endeavor. The study revealed that the utilization of AI can be advantageous in the areas of patient monitoring, therapy, and diagnosis. Hossain, M. S. *et al*. (2022)[5] emphasized the capacity of AI in the healthcare industry, while Haque, Islam, Samrat, Dey, and Ray (2021)[6] investigated its potential in the agriculture sector.

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[3] S. B. Ashraf & M. M. Islam, *AI and the Future of Human Rights in Bangladesh: A Call for Robust Legal and Ethical Frameworks*, 31 INT'L J.L. & INFO. TECH. 331 (2023),.

[4] S.F. Shetu et al., *Predicting Satisfaction of Online Banking System in Bangladesh by Machine Learning*, IN PROCEEDINGS OF THE 2021 INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE & COMPUTER SCIENCE TECHNOLOGY (ICAICST) 223, 223–28 (IEEE 2021).

[5] M. S. Hossain et al., *The Perception of Health Professionals in Bangladesh Toward the Digitalization of the Health Sector*, 19 INT'L J. ENVTL. RES. & PUB. HEALTH, art. 13695 (2022).

[6] A. Haque et al., *Smart Farming Through Responsible Leadership in Bangladesh: Possibilities, Opportunities, and Beyond*, 13 SUSTAINABILITY, art. 4511 (2021).

In order to achieve the Sustainable Development Goals (SDGs), Bangladesh's e-commerce sector is making significant investments in the integration of artificial intelligence (AI), blockchain, the Internet of Things (IoT), and big data. While Hasan, Rahman, Rahman, Islam, and Mazid-Ul-Haque (2023)[7] looked into the use of AI to support sustainable development in Bangladesh, Ahmad and Al Mamun (2020)[8] looked at the possibilities of AI in the country's banking sector. The use of artificial intelligence (AI), 5G networks, and the Internet of Things (IoT) in the financial services industry was investigated empirically in Rashid's (2020) study. Iqbal, Islam, Zayed, Beg, and Shahi (2021) examined how AI affects business operations and provided actual data on how AI is being integrated across Bangladesh's industries.[9] One area that has been investigated for the potential application of AI technology is education. Khan et al. (2021b) evaluated AI's potential in Bangladesh's educational system.[10] They underlined that AI might be applied to student performance evaluation, personalised learning, and raising educational standards generally. Babu (2021a, 2021b) acknowledged both the potential of AI and the challenges it presents in Bangladesh's services, transportation, education, agriculture, health, and environmental sectors.[11] In a study on Bangladesh's textile industry, Sikka et al. (2024) demonstrated how AI may be used to modernise operations.[12]

The European Union (EU) has responded to these concerns by launching the AI Act, a comprehensive legal framework for governing AI technologies. Introduced in 2021, the regulation takes a risk-based approach, classifying AI systems into categories based on their potential risks to human rights and public safety (Arora *et al.,* 2025).[13] Paul (2023) found that **the European Commission's use of risk analysis, outlawing some AI uses as matters of deep value conflicts and tightly controlling (at least discursively) so-called high-risk AI systems, enables Brussels to fashion its desired trademark of European "cutting-edge AI … trusted throughout the world" in the first place.**[14] The European Union's approach to AI regulations, which respects freedom and human rights, is contrasted with other regions like the US and China (Atadoga *et al.*, 2024).[15] Tianfang's (2024) findings suggest that China's regulatory framework for generative AI is designed to balance innovation with risk management, setting a precedent for comprehensive AI regulation.[16] Another study found that China's response manifests as a dual-track AI regulatory approach, comprising (1) a mix of restrictive and facilitative regulation at the central level; and (2)

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[7] M. Hasan et al., *Software Engineering Methodology for Smart Healthcare Security and Its Application in Bangladesh*, AJSE (2023).

[8] S. M. Ahmad & A. Al Mamun, *Opportunities of Islamic Fintech: The Case of Bangladesh and Turkey*, 2 CENRAPS J. SOC. SCI. 412, 412-426 (2020).

[9] M. M. Iqbal et al., *Impact of Artificial Intelligence and Digital Economy on Industrial Revolution 4: Evidence from Bangladesh*, 6 AM. FIN. & BANKING REV. 42, 42-55 (2021).

[10] M. S. U. Khan, M. F. Hasan, M. S. Islam & S. T. Hassan, *Artificial Intelligence in the Banking Sector of Bangladesh: Applicability and the Challenges*, Roundtable Discussion Series-2021, 6(2) Keynote Paper of ROUNDTABLE DISCUSSION OF BIBM (2021).

[11] K. E. K. Babu, *Artificial Intelligence in Bangladesh, Its Applications in Different Sectors and Relevant Challenges for the Government: An Analysis*, 7 INT'L J. PUB. L. & POL'Y 319, 319–33 (2021a). K. E. K. Babu, *Artificial Intelligence, Its Applications in Different Sectors and Challenges: Bangladesh Context*, in *Artificial Intelligence in Cyber Security: Impact and Implications: Security Challenges, Technical and Ethical Issues,* FORENSIC INVESTIGATIVE CHALLENGES 103, 103–19 (2021b).

[12] Sikka, M. P., Sarkar, A., & Garg, S.. *Artificial intelligence (AI) in textile industry operational modernization. Research Journal of Textile and Apparel,* 28(1) RESEARCH JOURNAL OF TEXTILE AND APPAREL (2024), https://doi.org/10.1108/RJTA-04-2021-0046.

[13] A. Arora et al., *Human-Centric Versus State-Driven*, 21 Int'l J. Intelligent Info. Techs. 1 (2025).

[14] R. Paul, European Artificial Intelligence "Trusted Throughout the World": Risk-Based Regulation and the Fashioning of a Competitive Common AI Market, 18 Regulation & Governance 1065, 1065–82 (2023).

[15] A. Atadoga et al., AI's Evolving Impact in US Banking: An Insightful Review, 11 Int'l J. Sci. & Research Arch. 904, 904–22 (2024).

[16] Y. Tianfang, *Legal Regulation of Generative Artificial Intelligence in China*, 4 LAW & DIGITAL TECH. 25 (2024).

facilitative regulation at the local level 9Ma, 2024).[17] Bazarkina *et al.* (2024) found that in the USA counteraction to MUAI has not yet been shaped into systemic decisions at the level of federal authorities. It is more about decisions that consider the growing risks of MUAI within the framework of general regulation of AI and the safety of its use.[18]

O'Sullivan et al. (2018) highlight that the EU framework seeks to differentiate between low-risk and high-risk AI applications, emphasizing transparency, human oversight, and legal accountability.[19] Kotsis (2025) advances this argument by analyzing the EU's attempt to balance innovation with legal certainty. He proposes that assigning legal personhood to autonomous AI agents may not be necessary, but that a form of strict liability could be imposed on AI operators or designers.[20] In a developing country context, Nikam (2023) investigates how India is attempting to reconcile its growing AI sector with traditional liability rules. His findings underscore that while there is no standalone AI law in India, courts have begun to interpret existing legal principles—such as negligence and product liability—in ways that may accommodate AI-based harms. This strategy of incremental legal adaptation may offer valuable lessons for jurisdictions like Bangladesh, which also operates under a common law heritage.[21]

The reviewed literature highlights a stark contrast: while jurisdictions like the EU and India are actively debating or adapting their legal frameworks to address AI accountability, Bangladesh has yet to enter this phase of legal reform. This research addresses that gap by focusing not merely on the utility of AI technologies, but on the deeper legal question: *how should accountability be structured when harm arises from AI decisions in Bangladesh?* The international discourse provides both conceptual models (e.g., risk-based regulation, strict liability, product liability adaptation) and methodological insights that can inform Bangladesh's approach. This study builds upon those frameworks while contextualizing them within Bangladesh's socio-legal realities, aiming to provide a foundational contribution to the national dialogue on AI governance.

III. Methodology

This research adopted a mixed-methods approach, combining doctrinal legal analysis with a quantitative empirical survey, to investigate the necessity and framework for regulating Artificial Intelligence (AI) in Bangladesh. The methodology was selected to ensure a comprehensive understanding of both the legal landscape and public perception regarding AI-related risks and regulatory needs.

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[17] A. Ma, *Regulation in Pursuit of Artificial Intelligence (AI) Sovereignty: China's Mix of Restrictive and Facilitative Modalities*, (34) AFR. J. INFO. & COMM. 1-16 (2024), https://doi.org/10.23962/ajic.i34.20103.

[18] Daria Bazarkina, Evgeniy Pashentsev & Elena Mikhalevich, *Regulating the Risks Associated with Malicious Use of Artificial Intelligence in the US, EU and China*, 6(127) CONTEMPORARY EUROPE 156, 156–67 (2024), https://doi.org/10.31857/s0201708324060147.

[19] S. O'Sullivan et al., *Legal, Regulatory, and Ethical Frameworks for Development of Standards in Artificial Intelligence (AI) and Autonomous Robotic Surgery*, 15(1) INT'L J. MED. ROBOTICS & COMPUTER ASSISTED SURGERY e1968 (2019).

[20] K. T. Kotsis, Legality of Employing Artificial Intelligence for Writing Academic Papers in Education, 3(1) J. CONTEMPORARY PHILOSOPHICAL & ANTHROPOLOGICAL STUD. 10 (2025).

[21] R. J. Nikam, *Legality of Usage of Artificial Intelligence and Machine Learnings by Share Market Intermediary*, 15(2) PASSAGENS: INT'L REV. OF POLITICAL HISTORY & LEGAL CULTURE 319 (2023).

1. Doctrinal Legal Research

The doctrinal component forms the foundation of the study, analyzing existing legal texts, statutes, constitutional provisions, and relevant case law in Bangladesh to evaluate their adequacy in addressing AI-related challenges. Primary sources included the Constitution of Bangladesh, the Copyright Act 2000, the Digital Security Act 2018, the Patents Act 2022, the Contracts Act 1872, Cyber Security Act 2023, and the Cyber Security Ordinance 2025. These were scrutinized to determine their applicability to issues such as liability, intellectual property, privacy, employment, and accountability in the context of AI. This legal analysis was supplemented with international comparisons, examining the AI regulatory frameworks of the European Union (AI Act), China (CAC Guidelines and Deep Synthesis Regulation), the United Kingdom (AI Principles), and the United States (AI Bill of Rights). These jurisdictions were selected due to their advanced engagement with AI legislation and their potential to offer instructive models for Bangladesh.

2. Quantitative Survey

To incorporate stakeholder and public perspectives, a structured questionnaire survey was conducted among individuals involved in AI use and development across different sectors in Bangladesh. The survey employed non-probability convenience sampling to reach participants from various professional backgrounds, including business owners, CEOs, IT professionals, and general citizens. A total of 110 responses were collected, with 73 submitted online via Google Forms and 37 collected through face-to-face interactions using printed copies. Participants were drawn from eight administrative divisions: Dhaka, Rajshahi, Chattogram, Sylhet, Rangpur, Khulna, Mymensingh, and Barishal. The questionnaire focused on respondents' awareness of AI risks, their views on the necessity and scope of AI regulations, and their expectations regarding transparency, accountability, public education, and institutional collaboration. The data collected were analyzed using descriptive statistics to identify prevailing attitudes, concerns, and policy expectations. These empirical findings were then triangulated with the doctrinal analysis to formulate policy recommendations. While the doctrinal approach provided a robust legal framework for analysis, the empirical component was limited by the non-random sampling method, which may affect the generalizability of the findings. Additionally, given the absence of judicial precedents specifically addressing AI in Bangladesh, the legal analysis relied on analogies and predictive reasoning based on current laws.

IV. Potential Hazards and Concerns Associated with AI in Bangladesh

Similar to any powerful technology, AI possesses both benefits and drawbacks. AI possesses the capacity to enhance scientific investigation and address significant problems. However, with the increased utilization of AI, numerous risks and unanticipated consequences have been observed. Nevertheless, the utilization of AI entails potential hazards to security, privacy, and the potential for abuse or misuse, as well as the creation of hazardous content. Despite the numerous advantages of AI, the lack of regulation in the AI business necessitates thorough consideration of all significant risks, disadvantages, and debates. Moreover, the development and implementation of AI technologies, such as ChatGPT, raise numerous problems and apprehensions, particularly due to the inadequate level of regulation. Currently, the AI business in Bangladesh lacks comprehensive regulation, leading to several implications such as possible misuse, economic inequalities, prejudices, and ethical challenges. This section will analyze the concerns and potential dangers associated with the absence of regulation in the AI industry and argue for the immediate need to regulate AI technologies in Bangladesh.[22]

[22] Restrepo Amariles, David, and Pablo Marcello Baquero, *Promises and Limits of Law for a Human-Centric Artificial Intelligence,* 48 COMPUTER LAW & SECURITY REVIEW 1 (April 2023). https://doi.org/10.1016/j.clsr.2023.105795.

AI often relies on computer programs for the creation of items or processes. These goods have raised concerns over intellectual property restrictions, including copyrights and patents, in terms of their development and ownership. AI, which is rapidly gaining prominence as a disruptive influence in several sectors, is profoundly reshaping worldwide economies and the functioning of businesses. Bangladesh, being a progressive nation, has also begun leveraging AI technologies to enhance creativity and productivity. AI pertains to the creation of computer systems that possess the ability to execute tasks that are traditionally carried out by humans, including learning, problem-solving, and decision-making. In the realm of intellectual property, a diverse range of legal safeguards, including copyrights and patents, exist to safeguard the various forms of intellectual creations that arise from human ingenuity. As AI becomes more integrated into various industries, it brings up significant concerns over intellectual property rights (Ahmed, 2025).[23]

The primary concern with AI revolves around the ownership of the intellectual property it generates. The primary concern of patent law in Bangladesh, as stated in the Copyright Act 2000, revolves around the question of whether AI can be recognized as an inventor. Traditionally, the artist is regarded as the legitimate proprietor of a piece of work according to established copyright norms. Nevertheless, AI complicates the task of determining authorship. Given the ability of AI entities to autonomously generate material, the issue arises about the rightful creator of the system: should it be attributed to the human programmer who constructed it, the individual who provided instructions or input, or may the AI entities themselves assert copyright? This question not only challenges the widely accepted beliefs about authorship but also has significant implications for the advancement of intellectual property law (Rahman, 2022).[24] The applicability of the Copyright Act 2000 to works generated by AI is not fully evident. The inclusion of a human creator as a prerequisite in the Bangladesh Copyright Act greatly diminishes the likelihood of copyright protection applying to content generated by AI.

AI-generated products may be eligible for copyright protection if they meet Section 14 of the Copyright Act's standards, ensuring originality. The Copyright Act 2000's language is crucial in determining the applicability of copyright protection to AI-generated works. However, the Act faces challenges in distinguishing between data and database protection, and it does not define a "qualified person" in Bangladesh. Hence, any work that meets the requirements for copyright protection and is created by an eligible individual (or, in the event of a work with many authors, any of the writers) is automatically granted copyright. While the matter has not yet been determined in Bangladeshi courts, the existing legal framework indicates that works generated by AI may not meet the criteria for copyright protection in Bangladesh. That is because any creations made by AI can be considered computer-generated. It is worth considering whether the modified AI-generated output of the user could be eligible for copyright protection if it meets the requirements outlined in Section 17 of the Copyright Act. According to this section, the work must (a) exhibit significant differences from other works and (b) be expressed in a tangible form. This scenario raises intriguing inquiries about the interplay between AI and human innovation, as well as the potential adjustments that copyright law may need to make in response to these emerging dynamics.

:The case Thaler v. Comptroller General of Patents, Trade Marks, and Designs [2021] EWCA Civ 1374 ruled that an invention must be made by a human being, not a computer, as a "natural person." This decision was based on the case of DABUS, an AI system invented by Dr. Stephen Thaler. The UK Intellectual Property Office rejected Thaler's claims of ownership when he submitted patent

[23] T. Ahmed, *A Comparative Legal Analysis of Copyright and Patent of Outputs Generated by Artificial Intelligence: In Search of Possible Approaches for Bangladesh*, 2(1) CHINESE J. TRANSNAT'L L. 39 (2025), https://doi.org/10.1177/2753412X241312077.

[24] M.A. Rahman, *Designing Copyright Laws to Combat Digital Piracy and Effectively Balance Proprietary and Public Interests in Bangladesh* (Ph.D. dissertation, Macquarie Univ. 2020) (on file with Macquarie Univ.).

applications under the name DABUS. Dr. Thaler appealed to the High Court, which affirmed the UKIPO's decision, stating that DABUS could not be recognized as an inventor or granted patent rights to Thaler. The Supreme Court's ruling will have a significant impact on the UK's ability to safeguard AI-driven advancements. The case also has implications for Bangladesh, where the term "invention" is not legally defined in PA 2022. To prevent ambiguity in patent ownership, the current legal system must adapt to AI advancements. The determination of whether AI can overcome these challenges will be made by the courts in Bangladesh (Hossain et al., 2024).[25]

The use of AI in commercial arrangements raises questions about legal responsibility and accountability, especially when AI is solely or primarily responsible for fulfilling specific contractual duties. As long as AI contracts meet the requirements for a legitimate contract, they can be legally enforced under the Contracts Act of 1872. These prerequisites include the desire to create legal responsibilities as well as the existence of an offer, acceptance, and consideration. In fact, this is the case if there are no conditions that could render the agreement void (Miazi, 2023).[26] The National Fourth Industrial Revolution Policy (4IR Policy) published in 2020 outlines Bangladesh's government's strategy to enhance environmental sustainability through the utilization of AI and other technological breakthroughs. This entails achieving a position within the top 50 on the Environmental Performance Index (EPI) and reducing greenhouse gas emissions by 45 percent by the year 2030 (Rahman et al., 2024).[27] The administration has prioritized the five core technologies of the Fourth Industrial Revolution (4IR): research and development; training and retraining the AI workforce; establishing data and digital infrastructure with a focus on ethics; ensuring data privacy, security, and compliance with regulations; and providing funding and support to accelerate the growth of AI start-ups and the industrialization of AI technologies. AI is often seen as the most crucial among these five technologies due to its pervasive presence across industries and its rapid integration into our everyday lives. Enabling corporations and social enterprises to utilize 4IR technology in addressing socio-environmental problems is a specific measure of environmental challenges.

The government aims to establish a robust and enduring AI innovation ecosystem in the country by implementing the national plan for AI, which aims to use AI expertise across various industries. Although not explicitly mentioned, financial institutions should include the development of innovative or effective carbon capture technologies when conducting climate scenario analysis, even if it does not involve AI. Given the Bangladeshi government's strong focus on AI in addressing environmental challenges, it is expected that additional industry rules will be issued soon.

1. Employment Laws:

The introduction and broad use of AI in the workplace may put many jobs at risk, potentially demonstrating that human workers are dispensable in certain fields. To mitigate the extensive and detrimental impact of layoffs on the economy in the long term, it might be imperative to enforce limitations. Below are a few significant provisions outlined in Bangladeshi legislation[28]:

[25] Hossain, M. B., Miraz, M. H., & Ya'u, A. (2024). From Legality to Responsibility: Charting the Course for AI Regulation in Malaysia. *IIUMLJ*, *32*, 397.

[26] M. A. N. Miazi, *Legal Personality of Artificial Intelligence (AI): A Study with Special Reference to the Penal Laws of Bangladesh*, 9(2) GREEN UNIV. REV. OF SOC. SCIS. 177 (Dec. 2023).

[27] Rahman, A., Murad, S. W., Mohsin, A. K. M., & Wang, X. (2024). Does renewable energy proactively contribute to mitigating carbon emissions in major fossil fuels consuming countries?. *Journal of Cleaner Production*, *452*, 142113.

[28] A. Haque, N. Islam, N. H. Samrat, S. Dey & B. Ray, *Smart Farming through Responsible Leadership in Bangladesh: Possibilities, Opportunities, and Beyond*, 13 SUSTAINABILITY 4511 (2021).

A. Article 28 of the People's Republic of the Constitution of Bangladesh states: "(1) The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex or place of birth. (2) Women shall have equal rights with men in all spheres of the State and of public life. (3) No citizen shall, on grounds only of religion, race, caste, sex, or place of birth be subjected to any disability, liability, restriction, or condition with regard to access to any place of public entertainment or resort, or admission to any educational institution. (4) Nothing in this article shall prevent the State from making special provision in favour of women or children or for the advancement of any backward section of citizens."

B. Article 29: "(1) There shall be equality of opportunity for all citizens in respect of employment or office in the service of the Republic. (2) No citizen shall, on grounds only of religion, race, caste, sex, or place of birth, be ineligible for, or discriminated against in respect of, any employment or office in the service of the Republic. (3) Nothing in this article shall prevent the State from –(a) making special provision in favour of any backward section of citizens to secure their adequate representation in the service of the Republic; (b) giving effect to any law which makes provision for reserving appointments relating to any religious or denominational institution to persons of that religion or denomination; (c) reserving for members of one sex any class of employment or office on the ground that it is considered by its nature to be unsuited to members of the opposite sex".

C. In cases of workplace discrimination, if an employee and employer disagree, the Director General has the authority to investigate and settle the matter by sections 209-210 of chapter fourteen of the Labour Code 2006. This decision may compel the Director General to issue a directive. Section 3 of the Labour Code 2006 explicitly prohibits employers from engaging in discriminatory practices against job candidates, employees, or members based on their union membership or affiliation.

D. According to section 16(1) of the Rights and Protections of Persons with Disabilities Act of 2013 (RPPWDA), individuals with disabilities are entitled to the same employment opportunities as employees without disabilities. According to Sections 35-36 of the RPPWDA, employers must guarantee that individuals with disabilities are afforded the same rights as those without disabilities in the workplace. These rights encompass equal opportunities, fair compensation, protection against harassment, and access to mechanisms for resolving complaints (Rahman et al, 2023).

2. Data Privacy Laws:

The Constitution does not explicitly provide for the fundamental right to privacy. The courts have integrated the right to privacy within the existing fundamental rights. Article 39 ensures the freedom to think and have personal beliefs, whereas Article 32 ensures the right to life and personal independence. The Constitution grants essential rights; however, these rights can be limited by the State under Article 39(2) of the Constitution. As per Article 43 of the Constitution, every individual is entitled to the confidentiality of their correspondence and other forms of contact, unless there are justifiable legal limits in place to safeguard the security of the State, public order, public morals, or public health. Moreover, the Constitution explicitly declares that individuals cannot be denied their right to life or personal freedom unless authorized by lawful protocols. Consequently, the legal system in Bangladesh allows for court intervention, and privacy can be legally intercepted (Islam & Khan, 2024).

The Technology Act and the Digital Security Act specifically tackle concerns about unauthorized disclosure, improper utilization of personal data, and violation of contractual obligations regarding personal data. Currently, there is a lack of legislation on data privacy and data protection, which is a challenging reality. Article 33(b) of the Constitution guarantees every individual the entitlement to privacy. If an individual's right is infringed upon, they have the option to initiate legal proceedings in

the High Court Division under Article 102(1). Furthermore, as stated in section 7 of the Right to Information Act of 2009, individuals possess the entitlement to safeguard their personal information, and it is prohibited for anybody to disclose such information without their consent. Furthermore, no individual or governing body possesses the authority to access their data. The Digital Security Act 2018 (DSA 2018) can be utilized to thwart the abuse of personal data, although these restrictions are inadequate. However, the DSA 2018 Act was repealed by the Cyber Security Act 2023 (CSA 2023), and was later repealed by the Cyber Security Ordinance 2025 recently. While the DSA 2018 criminalized misuse of personal data broadly and punitively, the CSA 2023 softened some penalties but retained problematic clauses. The Cyber Security Ordinance 2025 went further by introducing procedural safeguards, reducing prosecutorial overreach, and moving toward rights-based digital governance, although comprehensive data protection legislation is still needed.

AI systems can easily handle large quantities of sensitive information. To avoid any improper usage or security breaches that may jeopardize the integrity and confidentiality of data, it is essential to establish strict regulations for the management of such data. Bangladesh has not yet formally implemented the Data Protection Act of 2023 (DPA). This is significant since AI often involves the handling and gathering of personal data in business operations. All individuals who handle personal data, regardless of their role, are required to comply with the Data Protection Act (DPA). Therefore, it is imperative to adhere to these standards, even when data users employ AI to process personal data. Considering the overall perspective, it is often necessary to obtain consent before processing data. This suggests that those who utilize AI technology must make sure that they only process personal data for the period that the data subject has given their consent. Stringent security and integrity measures are especially important when utilizing AI to manage personally identifiable information. Data users who adhere to the DPA are likely to face reduced responsibility when utilizing AI for personal data processing .

V. The Necessity of a Regulatory Framework for AI in Banglades

Bangladesh lacks a dedicated AI law, relying on existing laws and industry norms. To meet growing demand, the Ministry of Science and Technology (MOST) is responsible for establishing AI governance, launching the National Strategy for AI 2019-2024.[29] The MOST should have initiated the process of establishing AI governance and an ethics code, while also having intentions to enact a full AI bill. The purpose of this code of ethics is to establish laws and regulations that promote responsible, ethical, and secure application of AI technology. The proposed AI Bill should address many concerns such as safeguarding data privacy, raising public awareness about AI usage, ensuring accountability and transparency, and managing cybersecurity risks. This legislation must be crafted to achieve a harmonious equilibrium between promoting innovation and mitigating any hazards while ensuring that AI remains advantageous to both society and the economy. To ensure the robustness and relevance of this legislative initiative, it is imperative to seek input from technology experts, legal professionals, stakeholders, and the general public[30].

In addition, the government might collaborate with Nvidia Corp, a US-based company, to develop AI infrastructure and expedite the introduction of the most advanced supercomputers to Bangladesh. In addition, there is potential for a partnership between the government and worldwide tech giant Google to facilitate the growth of local firms and boost the digital economy. The AI Act raises concerns about potential hindering of technological growth, potentially necessitating increased investments in

[29] *Ibid.*

[30] H. Benbya, T. H. Davenport & S. Pachidi, *Artificial Intelligence in Organizations: Current State and Future Opportunities*, 19(4) MIS Q. EXEC. (2020).

infrastructure and resources depending on the specific sector and domain.[31] To adhere to the new regulations, firms will be required to allocate resources and acquire the necessary expertise. This would require the establishment of robust governance frameworks for AI, evaluating potential hazards, and implementing measures to ensure accountability and transparency. Companies must develop and execute AI systems that are equitable, transparent, and responsible. This involves ensuring that AI decisions can be justified, reducing bias through the application of techniques, and creating and constructing systems with ethical considerations in focus.

Industry stakeholders can offer legislators their expertise and perspectives to assist in the development of practical and effective legislation. Industrialists should recognize that regulations may promote innovation by fostering a conducive environment, mitigating risks, and ensuring ethical and accountable implementation of AI. To ensure a harmonious blend of innovation and adherence to regulations, it is imperative for all parties involved to actively engage in ongoing discussions and collaborate with the pertinent government department to influence AI policy.
Bangladesh stands to benefit from being at the forefront of AI regulation, even though only China and the European Union have taken this step thus far. Other countries, like the United States and the United Kingdom, are also implementing comparable regulations. AI legislation should encompass concerns such as data privacy, impartiality, and liability, as they will foster ingenuity and advance conscientious progress. In addition, we will ensure that the level of regulatory engagement is proportional to the potential harm caused by certain applications, to promote flexibility and minimize unnecessary burdens on low-risk applications[32]. Until the AI regulation is established in Bangladesh, the sector must be vigilant regarding algorithmic bias, privacy infringement, and discrimination against individuals or groups.

The study used convenience sampling to select individuals with practical experience in implementing AI in Bangladesh's businesses and general citizens. The data was collected through self-administered questionnaire surveys, combining face-to-face and online responses. 110 respondents from eight regions were included, with 73 online responses and 37 face-to-face questionnaires. The analysis focused on a diverse dataset, encompassing both physical and online responses.

Table 2: *The imperative for AI regulation in Bangladesh*

No.	***Questions***		***Frequency***	***Percentage (%)***
1	Are you aware of the potential ethical concerns associated with using Artificial Intelligence (AI) technologies in Bangladesh?	Yes	36	32.72
		No	43	39.09
		Partially	31	28.18
2	In your opinion, how important is it for Bangladesh to establish regulations specifically targeting the development and deployment of AI technologies?	Very Important	54	49.09
		Important	32	29.09
		Neutral	11	10
		Not Very	8	7.27

[31] Serena Oduro, Emanuel Moss & Jacob Metcalf, *Obligations to Assess: Recent Trends in AI Accountability Regulations*, 3(11) PATTERNS 100608 (Nov. 2022), https://doi.org/10.1016/j.patter.2022.100608.
[32] Dipankar Das, *Understanding the Choice of Human Resource and the Artificial Intelligence: "Strategic Behavior" and the Existence of Industry Equilibrium*, 50(2) J. ECON. STUD. 234 (Mar. 7, 2022), https://doi.org/10.1108/jes-06-2021-0305.

		Important		
		Not Important at All	5	4.54
3	Do you believe that AI regulations are necessary to ensure the protection of individuals' privacy and personal data in Bangladesh?	Strongly Agree	78	70.90
		Agree	15	13.63
		Neutral	8	7.27
		Disagree	6	5.45
		Strongly Disagree	3	2.72
4	To what extent do you think AI regulations should focus on promoting transparency and explainability in AI systems?	Extensively	67	60.90
		Moderately	26	23.63
		Neutral	11	10
		Minimally	4	3.63
		Not at All	2	1.81
5	In your opinion, should AI regulations prioritize fostering innovation while addressing potential risks associated with AI technologies?	Strongly Agree	57	51.81
		Agree	24	21.81
		Neutral	21	19.09
		Disagree	3	2.72
		Strongly Disagree	5	4.54
6	How concerned are you about the potential impact of AI technologies on job displacement in Bangladesh?	Very Concerned	82	74.54
		Somewhat Concerned	17	15.45
		Neutral	6	5.45
		Not Very Concerned	4	3.63
		Not Concerned at All	1	0.90
7	Do you think that AI regulations should include provisions for testing and certification of AI systems to ensure their safety and reliability?	Strongly Agree	54	49.09
		Agree	37	33.63
		Neutral	11	10
		Disagree	3	2.72

		Strongly Disagree	5	4.54
8	How confident are you in the ability of AI regulations to prevent discriminatory practices in AI algorithms and decision-making?	Very Confident	31	28.18
		Somewhat Confident	24	21.81
		Neutral	8	7.27
		Not Very Confident	34	30.90
		Not Confident at All	13	11.81
9	Should AI regulations in Bangladesh encourage collaboration between industry stakeholders, academia, and government agencies to promote responsible AI development?	Strongly Agree	76	69.09
		Agree	19	17.27
		Neutral	7	6.36
		Disagree	6	5.45
		Strongly Disagree	2	1.82
10	Do you believe that public awareness and education initiatives about AI technologies and regulations are essential for informed decision-making?	Strongly Agree	69	62.72
		Agree	25	22.73
		Neutral	8	7.27
		Disagree	5	4.54
		Strongly Disagree	3	2.72

Source: *Public Survey*

The analysis from Table 2 above is as follows:

1. Question 1: From the percentages, we can deduce that there is a varied level of understanding regarding the ethical concerns of AI technology in Bangladesh. Although a considerable proportion of respondents possess some level of awareness, there is also a noteworthy percentage who lack complete awareness of these concerns. This indicates that there are potential prospects to improve the level of understanding and instruction on the moral consequences of AI technology in the nation.

2. Question 2: The percentages indicate that a substantial majority of respondents (78.18% combined from the "Very Important" and "Important" categories) agree that Bangladesh should implement legislation specifically targeting AI technologies. This demonstrates robust endorsement for implementing regulatory mechanisms to oversee the development and use of AI in the nation.

Nevertheless, it is noteworthy that a minority of respondents remain neutral or hold the belief that such restrictions are of little or no significance.

3. Question 3: An overwhelming majority of respondents (84.53% combined from the "Strongly Agree" and "Agree" categories) hold the belief that AI legislation is essential for protecting the privacy and personal data of persons in Bangladesh. This demonstrates robust endorsement for regulatory measures designed to safeguard data privacy inside the realm of AI technologies. However, a minority of respondents are ambivalent or fail to recognize the importance of implementing legislation for data privacy.

4. Question 4: An overwhelming majority of respondents (84.53% combined from the "Extensively" and "Moderately" categories) feel that AI rules should give priority to encouraging transparency and explainability in AI systems. This demonstrates robust endorsement of regulatory measures designed to guarantee transparency and accountability in the advancement and implementation of AI technologies. Nevertheless, a minority of participants express neutrality or assign a lower level of importance to transparency and explainability in AI rules.

5. Question 5: The majority of respondents, totaling 73.62% from the "Strongly Agree" and "Agree" categories, hold the belief that AI rules should give priority to promoting innovation while also dealing with the possible concerns linked to AI technologies. This demonstrates robust endorsement for regulatory approaches that achieve a harmonious equilibrium between fostering innovation and guaranteeing conscientious utilization of AI. Nevertheless, a significant proportion of participants remain impartial or express concerns over the prioritization of innovation in AI policies.

6. Question 6: The vast majority of respondents (89.99% combined from the "Very Concerned" and "Somewhat Concerned" groups) express concern about the potential consequences of AI technologies on job displacement in Bangladesh. This demonstrates a significant degree of consciousness and concern over the possible impacts of AI implementation on the job market in the nation. Nevertheless, a minority of responders express neutrality or diminished interest regarding this matter.

7.Question 7: An overwhelming majority of respondents (82.72% combined from the "Strongly Agree" and "Agree" categories) believe that AI legislation should encompass procedures for the testing and certification of AI systems to guarantee their safety and reliability. This demonstrates robust endorsement of regulatory measures designed to improve the safety and reliability of AI systems through standardized testing and certification procedures. Nevertheless, a significant proportion of participants express neutrality or have concerns over the inclusion of testing and certification requirements in AI rules.

8. Question 8: Nearly half of the respondents (49.99% combined from the "Very Confident" and "Somewhat Confident" categories) expressed confidence in the effectiveness of AI rules in preventing discriminatory practices in AI algorithms and decision-making. However, a significant proportion of respondents remain impartial or express skepticism over the efficacy of AI rules in mitigating discrimination in AI systems. This emphasizes the significance of resolving concerns and establishing strong regulatory frameworks to foster impartiality and equality in AI technologies.

9. Question 9: An overwhelming majority of respondents (86.36% combined from the "Strongly Agree" and "Agree" categories) believe that AI rules in Bangladesh should actively promote collaboration among industry players, academia, and government agencies to foster responsible AI research. This is a significant endorsement for cooperative endeavors in shaping regulatory frameworks and promoting responsible AI practices. Nevertheless, a portion of the participants remain impartial or express concerns over the advocacy of collaboration in AI policies.

10. Question 10: Based on the percentages, it can be deduced that a substantial majority of respondents (85.45% combined from the "Strongly Agree" and "Agree" categories) agree that public awareness and education activities about AI technology and legislation are essential for making well-informed decisions. This demonstrates robust endorsement for endeavors focused on enhancing awareness and comprehension of AI-related matters among the general population. Nevertheless, certain participants remain impartial or express doubts regarding the significance of these activities in enabling well-informed decision-making.

The data shown above demonstrates a significant level of endorsement for the regulation of AI in Bangladesh. The main areas of concern include safeguarding data privacy, promoting transparency, fostering innovation, assuring safety, encouraging collaboration, and raising public awareness. The necessity for thorough and accountable AI governance structures in the country is emphasized by concerns over ethical dilemmas, employment displacement, and prejudice. Moreover, strict compliance with the regulations would enhance trust and assurance among customers and stakeholders. Concurrently, it will reduce the likelihood of legal conflicts and sanctions associated with unfair, biased, or discriminatory AI systems. To enhance public awareness of AI and its potential benefits and drawbacks, it is imperative to involve the general public in discussions and deliberations. Robust ethical guidelines and comprehensive legal frameworks for the implementation of AI will also yield advantages.

VI. Chinese Regulations on AI Applications

The Cyberspace Administration of China (CAC) has introduced new legislation governing AI, aiming to mitigate potential risks. The legislation applies to all individuals and organizations within the People's Republic of China (PRC), including foreign entities involved in AI research and development. The Deep Synthesis Regulation imposes significant obligations on individuals and entities associated with deep synthesis technology, including online app distribution platforms, service providers, users, and technical support personnel. The regulation also requires institutions and corporations involved in research and technology-related activities to conduct ethical evaluations. If service providers fail to comply, they may face penalties, including admonitions, public condemnations, or directives for correction. If violations persist, authorities may suspend information updates and impose fines ranging from CNY10,000 to CNY100,000 (Hossain et al., 2024).

The Deep Synthesis Regulation does not specify any direct repercussions for infringement. Article 22 stipulates that if a technical supporter or provider of deep synthesis services breaches the limits and other applicable laws and regulations, they may be subject to fines. The consequences of noncompliance with the guidelines by individuals or websites are not mentioned. However, the law provides the telecom, cyberspace, and public security authorities with the authority to monitor compliance with regulations and conduct inspections of deep synthesis activities. If the cyberspace departments and other relevant authorities deem the deep synthesis service to present significant threats to information security, they have the authority to direct the service providers and technical supporters to cease any future updates, user account registrations, or associated services. Additionally, they can require compensation for any breaches of regulations.

According to Article 21 of the AI legislation, any service provider (including technological supporters through APIs) who violates the legislation will be subject to fines imposed by the relevant authorities, in accordance with applicable laws and regulations such as the CSL, DSL, PIPL, and STPA. Unless specified otherwise by applicable laws and regulations, the appropriate authorities have the power to issue warnings, public denouncements, or orders for rectifications within a specified timeframe. Legal authorities possess the authority to temporarily halt AI services if a violation remains unresolved in a timely manner or if there are aggravating circumstances. Specifically, if the laws and

regulations of the People's Republic of China (PRC) have been broken, the Cyberspace Administration of China (CAC) has the authority to request relevant authorities to implement necessary technical or other actions regarding AI services that are offered to individuals within the PRC but originate from outside the country. The Draft Ethical Review Measure does not outline any prescribed repercussions for non-compliance. Article 48 states that any entity engaged in significant research and technology operations that violates regulations may be subject to penalties imposed by other laws and regulations.

VII. The European Union and the Regulations or Framework Governing AI Applications

The European Parliament has endorsed its stance for negotiations on the Artificial Intelligence (AI) Act, with 499 votes in favor, 28 against, and 93 abstentions. The AI Act, which aims to preserve human rights, will have direct applicability to all EU Member States. The Act defines AI as a machine-based system designed to generate outputs that influence physical or virtual environments. The Act aims to ensure that AI developed and used in Europe aligns with EU rights and values, including human oversight, safety, privacy, transparency, non-discrimination, and social and environmental wellbeing. The regulations establish obligations for providers and implementers of AI systems using a risk-based approach, excluding systems that pose minimal or no risk. The three-tier risk model includes unacceptable risks, high-risk systems, and restricted risk systems, with the latter allowing direct human-to-human interaction as long as they comply with transparency standards (Hossain et al., 2024).

VIII. The USA and AI Regulation

Despite being in its nascent stages, the regulation of general AI is highly active in most jurisdictions across the United States. S. 3205/H.R. 6936, the Federal Artificial Intelligence Risk Management Act of 2023/2024, provides rules for the federal government to reduce the dangers related to AI. In addition to an Executive Order addressing the safety, security, and reliability of AI, the White House has released a draft AI Bill of Rights. Regardless of whether the source of risk is a human or a robot, the Equal Employment Opportunity Commission (EEOC) has made it clear that it will uphold Title VII of the Civil Rights Act, which prohibits discrimination against both employees and job seekers. At the moment, New York City's Local Law 144 is the only law pertaining to AI.

IX. The United Kingdom's Strategy for Regulating AI

The UK's new approach recognizes the need for fair implementation of regulations. The purpose of the Framework is to ensure that there is substantial evidence to justify any expenses that companies or other entities may have to bear before the implementation of new legislation. The UK government has devised a cross-sector, outcome-based approach to regulate AI, which is founded on five core principles. Contestability and redress, justice, accountability and governance, safety, security, robustness, appropriate openness, and explainability are the main tenets that are covered in this context. Based on principles, the framework is a cross-sector, non-statutory paradigm. The goal is to use the current technology-neutral AI regulatory framework in a way that strikes a balance between innovation and safety. The UK acknowledges the need for laws in the future, especially with regard to general-purpose AI systems (GPAI). However, it claims that it would be premature to act in this manner at this time and that more knowledge is needed on the risks, concerns, and regulatory shortcomings related to AI. This approach differs from other regions that are adopting more specific legislative measures, such as the European Union and, to a certain degree, the United States. This demonstrates that there is a higher probability of having different ways to regulate AI on a worldwide scale, even when there are agreements in place for international cooperation.

X. Comparative Analysis: AI Legal Accountability

Based on the above discussion, the following is the comparative analysis table of AI legal accountability in Bangladesh, China, EU, USA, and the UK:

Table 3: *Comparative analysis on AI legal accountability in Bangladesh, China, EU, USA, and the UK*

Jurisdiction	**Status of AI Law**	**Legal Accountability Framework**	**Risk-Based Classification**	**Key Enforcement Mechanisms**	**Unique Features**
Bangladesh	No comprehensive AI law yet; AI covered under existing general laws (Contracts Act 1872, Copyright Act 2000, etc.)	Currently unclear; AI actions may be attributed to developers or users under traditional liability doctrines	Not yet introduced; policymakers advised to consider models like the EU (risk-based) or China (scope-based)	Proposal for a regulatory body; Data Protection Act 2023 not yet enacted	Lacks statutory AI definitions; Recommendations for testing, transparency, and ethical governance
China	Yes (AI Regulations including Deep Synthesis Regulation, Algorithmic Recommendation Regulation)	AI service providers and tech supporters liable for breaches; mandatory ethical reviews	Material and territorial scope-based classification	CAC and relevant authorities can impose fines, suspend services, and require rectification	Applies extraterritorially to foreign entities targeting Chinese users; AI can only be used publicly with state-approved services
European Union	Yes (EU AI Act 2024 – pending final adoption)	Accountability varies by AI system risk level; high-risk systems have strict	Comprehensive risk-based model (Unacceptable, High, Limited Risk)	Significant financial penalties (up to €30M or 6% global turnover);	Emphasizes human rights, fundamental freedoms, and

		obligations		conformity assessments for high-risk AI	transparency; requires documentation, testing, and human oversight
United States	No unified federal AI law; fragmented across sectors and states (e.g., NYC Local Law 144)	Accountability mostly rests on existing anti-discrimination, data privacy, and consumer protection laws	Not formally risk-tiered, but sector-specific risk mitigation encouraged (e.g., hiring, healthcare)	Executive Orders, EEOC guidance, and state-specific laws ensure oversight; FTC enforces deceptive AI use	Federal AI Bill of Rights proposed; AI Risk Management Framework 2024 promotes voluntary standards
United Kingdom	No binding AI-specific law yet; currently using a principle-based, non-statutory framework	Liability relies on existing law; responsibility lies with deployers and developers, case-by-case	Does not formally classify risk yet; regulatory sandbox approach encouraged	No fines or central authority yet; anticipates future legislation on general-purpose AI (GPAI)	Emphasizes proportionality, flexibility, and cross-sector regulatory guidance; government-led white papers inform policy

From the above table, the followings can be concluded:

1. Bangladesh is in a formative stage, learning from China's scope-focused regulation and the EU's rights-based, risk-tiered AI Act.

2. China enforces centralized and assertive controls, especially on content generation and public deployment.

3. The EU leads in transparency, explainability, and rights-based protections with detailed accountability mechanisms.

4. The USA follows a decentralized, sector-specific approach relying on existing laws, with federal guidance developing.

5. The UK promotes innovation-friendly oversight with plans for future binding rules focused on general-purpose AI.

XI. Recommendations for Bangladeshi Legislators

The Ministry of Science and Technology (MOST) is responsible for many tasks, including the establishment of AI governance, the promotion of AI research and development, and the growth of digital infrastructure to facilitate AI. To establish a robust and enduring AI innovation ecosystem in Bangladesh by 2024, the Ministry of Science and Technology (MOST) has initiated the implementation of the National Strategy for Artificial Intelligence (2019-2024). This plan seeks to utilize the quadruple helix collaboration among the government, academia, industry, and society. However, as AI is currently unregulated in Bangladesh, Bangladeshi legislators should consider the following suggestions while creating legislation:

1. Precise Definition of AI: Initially, the regulation regarding AI should delineate the scope of technology that it aims to govern. This provides stakeholders and technology users with a clear understanding. It would be prudent to evaluate the extent of the Chinese AI's capabilities to choose the appropriate course of action in this scenario.

2. Demonstrate Adaptability: Given the rapid growth of the AI industry, legislation regulating it should be flexible in its scope and application to ensure its continued effectiveness as the field evolves and expands. Under these circumstances, it may be prudent to consult the guidance provided by UK legislation.

3. Develop an AI Classification System: Various AI tools and items possess distinct purposes, and there can exist considerable variation among them. The Chinese classification system is divided into material and territorial divisions, whereas the European Union (EU) uses a risk-based structure. Nevertheless, Bangladesh is not required to adopt a similar system. Alternatively, Bangladesh might offer comprehensive rules for all AI systems, as well as more specific standards for common AI systems such as chatbots and image generation tools.

4. Enforce Information Handling Regulations: To ensure the secure handling of potentially sensitive information and prevent the AI from retaining it, Bangladesh must ensure that all data and information processed by the AI adhere to the provisions of the Data Protection Act 2023. Foster the Growth of the AI industry Instead of obstructing it, Bangladesh should embrace the progress of AI and actively contribute to the advancements in the field, recognizing the inevitable presence of AI. While regulation is now important, it should not be excessively burdensome to the extent that it obstructs the growth of Bangladesh's AI industry.

5. Penalties: The EU AI Act proposal permits penalties of up to €30 million or 6% of the annual global sales. The AI Regulations in the PRC consist of a set of rules issued by different departments, which cover different aspects of AI systems. Consequently, Bangladeshi regulations concerning AI should either conform to Chinese legislation or meet international benchmarks as a sanction.

6. Awareness and Education Initiatives: Create and execute public awareness and education campaigns about AI technology, its ethical implications, and the significance of AI regulation. These programs should focus on a diverse group of individuals and organizations, such as the general public, legislators, industry experts, and academia.

7. Collaborative Efforts: Foster collaboration among industry stakeholders, academic institutions, and government agencies to advance responsible AI development. Create platforms or forums that facilitate the exchange of knowledge, best practices, and policy discussions about the regulation and governance of AI.

8. Transparency and Explainability: Emphasize the significance of transparency and explainability in AI systems under regulatory frameworks. Promote the adoption of methods by AI developers and organizations that improve transparency and elucidate the decision-making process of AI systems.

9. Data Privacy and Protection: Enhance AI regulations to guarantee the implementation of strong safeguards for data privacy and protection. Develop explicit protocols and criteria for managing personal data in AI applications, emphasizing user consent, data anonymization, and secure storage.

10. Innovation and Risk Mitigation: Foster innovation while mitigating risks by implementing regulatory measures that strike a balance in addressing possible concerns linked with AI technologies. Promote conscientious advancement by offering rewards for the creation of AI that gives priority to ethical considerations, justice, and safety.

11. Testing and Certification: Incorporate measures in AI rules to mandate the testing and certification of AI systems, ensuring their safety, dependability, and adherence to non-discriminatory conduct. Implement uniform testing protocols and certification standards that AI systems must satisfy before their deployment.

12. Mitigation of Discriminatory Behaviors: Strengthen AI legislation to mitigate discriminatory behaviors in AI algorithms and decision-making. To enhance fairness and equity, it is important to implement measures such as bias detection and mitigation approaches, algorithmic audits, and ensuring diversity in AI development teams.

13. Job Displacement Mitigation: Alleviate worries regarding the possible consequences of AI technologies on job displacement by enacting laws and initiatives to provide the workforce with new skills and enhance their existing skills. Facilitate cooperation among industries, educational institutions, and government agencies to establish training programs that are in line with the evolving AI-related skills and employment prospects.

14. Monitoring and Enforcement: Develop systems to oversee and enforce AI legislation to guarantee adherence and responsibility. Establish regulatory entities or agencies to supervise AI governance, do audits, investigate complaints, and enforce penalties for failure to comply.

15. Ongoing Assessment and Adjustment: Consistently assess the efficiency of AI rules and governance frameworks by engaging with stakeholders, employing feedback systems, and conducting impact assessments. Consistently modify and improve regulatory measures to tackle growing issues, technological developments, and evolving ethical considerations in the development and use of AI.

By implementing these recommendations, Bangladesh may establish a comprehensive and responsible regulatory framework for AI. This framework will encourage innovation, safeguard individual rights, maintain fairness, and promote the responsible utilization of AI technologies for the betterment of society.

XII. Conclusion

Bangladesh is currently exploring prospective policy modifications as it lacks any regulations or guidelines, unlike the EU and China, to govern the utilization of AI. There has been discussion on incorporating both general AI and AI into the framework of Bangladesh. The Ministry of Science and Technology emphasizes the importance of increasing public awareness. To do this, they advocate for the development of resources and the implementation of initiatives aimed at educating people about AI and its uses in the entertainment industry. One component of this is to educate the audience about the differences between human-generated material and AI-generated content, as well as the potential for AI bias. Consequently, the minister has proposed recommendations for potential legal measures that would enhance AI education for the public and strengthen AI research and development. Ultimately, this results in a community that is more vigilant and aware, so mitigating the influence of AI-generated disinformation. Furthermore, it encourages people to adopt a more analytical approach when consuming media, while also promoting discussions on AI norms and laws. All of these characteristics boost a person's decision-making ability.

Furthermore, data generated either wholly or partially by AI must be easily distinguishable. To prevent the hindrance of investment and innovation, the minister believes it is crucial to strike a balance between risk mitigation and the potential for transformative AI innovation, which can significantly impact the country's economy and improve people's quality of life. Although AI has the potential to transform numerous industries, it is crucial to consider the significant legal consequences that arise from human utilization of AI. We must acknowledge and recognize individuals for their ingenuity and ability to find solutions. The motivation for human artists and inventors could decrease if AI is capable of producing valuable and original stuff. Hence, it is imperative to establish a comprehensive legal framework that integrates both human and AI agents to sustain a robust intellectual property environment. Overall, the data analysis clearly shows that AI regulation in Bangladesh has several advantages. These include protecting privacy, increasing transparency, managing the risks associated with innovation, addressing concerns about job loss, ensuring quality control, and promoting collaboration and education. The poll results highlight the significance of well-rounded and accountable AI governance frameworks that are in line with societal values and priorities, while also facilitating the ethical and advantageous utilization of AI technologies.

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Intellectual Property Financing Scheme (IPFS): A Comparative Study on Regulation and Implementation Between Indonesia and Singapore

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Abstract

According to the United Nations Report, the creative economy industries generate annual revenues of over $2 trillion and provide nearly 50 million jobs worldwide. Despite the massive growth, the creative economy still has much room to grow, but there are also several challenges, including the financing scheme. The creative economy is linked strongly with intellectual property as one of the most important creative business assets. The importance of financing the creative economy sector has been acknowledged and implemented in many countries through the Intellectual Property Financing Scheme (IPFS) although in implementation, this IPFS faces several challenges that impact the success rate. This paper aims to analyze the regulation and implementation of the IPFS in Indonesia and Singapore using the juridical normative approach and the implementing models. This research found that the Government of Indonesia dominantly used regulative and policy approaches while the Government of Singapore took the programs and initiative-based approach by launching a range of programs and initiatives. Based on an analysis of challenges faced by Indonesia and Singapore in the implementation of IPFS, the authors conclude that government intervention potentially becomes a critical factor in mitigating the challenges. Lastly, the model of government initiative and intervention need to be comprehensive and practical.

Keywords: Creative Economy; Collateral; Financing; Intellectual Property.

I. Introduction

The global economy is increasingly driven by innovation and Intangible Assets (IA). Intellectual Property (IP) such as Copyrights, Patents, and Trademarks became the key components of IA. With rapid proliferation across different technology fields, the global value of intangible assets today has risen above USD 65 trillion according to *Brand Finance's 2020 Global Intangible Finance Tracker*.[1] As for specific examples, Google's trademark is currently valued at U$ 44.3 billion, highlighting the importance of brand recognition in the current business world.[2] Additionally, U$ 5 billion was spent on acquiring music rights in 2021, demonstrating the value of IP in various industries.[3]

The increasing enterprise value founded in IA and IP aligns with the growth of the creative economy worldwide. The recognition of IP value has increased over time, as its commercial importance has grown in various business sectors,[4] especially creative businesses. The creative economy is the most emerging economy in Indonesia and many parts of the world. Most creative economy players are creativity-based businesses where intellectual property became one of the most essential business capital. In a knowledge-driven economy, IP has emerged as a critical asset for businesses, particularly small and medium enterprises. Although many creative businesses are self-funded at the initial stages, financing support is an essential factor in business development. The large-scale creative economy business requires huge financial capability to provide financing support. The financial capability to provide large-scale financial support mostly belongs to financial institutions, especially banking institutions.

In recent years, there has been a growing realization of the importance of IP as collateral in commercial transactions due to its inherent value. Several countries have regulated and implemented the Intellectual Property Financing Scheme (IPFS) by providing loans and financing to creative economy businesses and accepting their intellectual property assets as collateral or intellectual-property-based collateral. On the other hand, banking institutions are known as *"heavily regulated institutions",* particularly in implementing prudential banking principles before loan distribution. One of the most important principles related to prudential banking is *"Know Your Customer Principles"*, implemented by analyzing several important factors of debtors in the form of the 5Cs of customers consisting of: *Character, Capacity, Capital, Collateral,* and *Condition of Economics.*

The *Character*, *Capacity*, and *Condition of Economics* are mostly related to the debtors and business condition, whereas the *Capital* and *Collateral* are mostly attached assets that can be bound as collateral and/or guarantee. *Collateral* become one of the most important aspects of bank financing. Banking institutions perceive collateral as credit security, to ensure that there will be assets used as the source of loan repayment in the condition of non-performing loans.

Although IP is not a conventional collateral, it can be promising, considering that IP can be monetized through many forms of commercialization. Using IP as collateral for financing is not something new, one notable early example occurred in the late 1880s when Thomas Alva Edison used

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[1] Andre Toh, Unlocking IP-Backed Financing in Singapore, WIPO Magazine (Dec. 2021), https://www.wipo.int/wipo_magazine/en/2021/04/article_0001.html (last visited Nov. 26, 2024).

[2] Heather Hamel, Valuing the Intangible: Mission Impossible? An Analysis of the Intellectual Property Valuation Process, 5 Cybaris 183, 183–210 (2014), https://open.mitchellhamline.edu/cybaris/vol5/iss1/9/ (last visited Dec. 4, 2024).

[3] Aaron Lichtschein, The Ongoing Gold Rush in Music Catalog Sales, NYU J. Intell. Prop. & Ent. L. Blog (Mar. 11, 2022), https://jipel.law.nyu.edu/the-ongoing-gold-rush-in-music-catalog-sales/ (last visited Dec. 4, 2024).

[4] Dodik Setiawan Nur Heriyanto & Alif Muhammad Gultom, Intellectual Property as Collateral: The Future of Indonesian Intellectual Property Legal Policy in Commercial Transactions, 39(2) Jatiswara 136 (July 2024), https://jatiswara.unram.ac.id/index.php/js/article/view/730/330 (last visited Dec. 4, 2024).

his patent for the incandescent electric light as collateral to secure a loan for his new company.[5] Globally, numerous companies have used their brands' value and reputation to obtain financing or credit. One of the most famous examples is Walt Disney, which gained about USD 725 million from the Industrial Bank of Japan in 1988 through the issuance of bonds against future earnings of theme parks for 20 years. *"Bowie Bond"* became a breakthrough in conventional music industry financing as the pioneer of asset securitization in the form of music royalty as future receivables and licensed fees.[6] The contract got David Bowie $55 million in 1997.[7] It further ignites other industries that are strongly connected with the commercialization of IP to consider the IP Financing Scheme as a viable financing tool.[8]

Nowadays, with the rise of the creative economy sector, IP assets become more valuable for business and are further being used in Intellectual Property Financing Schemes. In Indonesia, the government seeks to drive a competitive and productive creative economy sector. The progressive step that has been taken by the Indonesian Government is providing a legal basis in the form of Law Number 24 / 2019 on Creative Economy and Government Regulation Number 24 / 2022 on the Implementation of Creative Economy Law. These regulations state the mandate for the formulation of the Intellectual Property Financing Scheme carried out by financial institutions (banks and non-banks) to support creative economy businesses.[9] Despite the existence of a legal basis for the Intellectual Property Financing Scheme (IPFS), the implementation is almost non-existence. The data from the Indonesian Creative Agency and Indonesian Central Bureau of Statistics shows that 92,37% of creative industry players in Indonesia are independently self-funded and have not received any external funding from banking institutions.[10]

The Intellectual Property Financing Scheme (IPFS) has been implemented in Singapore since 2014. In developing the IPFS program, Singapore has a **"10-year master IP Hub"** that has been built since 2013, which is a policy direction in the development of IPFS implementation. In 2016, in line with Singapore's broader economic strategy, the IP Hub Master Plan was revised and updated. In 2021, the Singapore Government launched the Singapore Intellectual Property Strategy 2030 (SIPS 2030).

With the massive development of the creative economy, the domination of fixed assets in businesses is replaced by intangible assets like intellectual properties in the form of patent technology,

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[5] Brian W. Jacobs, Using Intellectual Property to Secure Financing after the Worst Financial Crisis Since the Great Depression, 15 Marq. Intell. Prop. L. Rev. 449 (2011), https://scholarship.law.marquette.edu/iplr/vol15/iss2/6/ (last visited Dec. 4, 2024).

[6] Teressa N. Kerr, Bowie Bonding in the Music Biz: Will Music Royalty Securitization Be the Key to the Gold for Music Industry Participants?, 7(2) UCLA Ent. L. Rev. 367, 367–97 (2020), https://www.semanticscholar.org/paper/Bowie-Bonding-in-the-Music-Biz%3A-Will-Music-Royalty-Kerr/0a790c4feb813551e29cbd17858cb591675a1716 (last visited Dec. 4, 2024).

[7] Dashpunstag Erdenechimeg, Using Intellectual Property as Collateral: An International Experience and a Mongolian Perspective (2016), https://www.itcilo.org/sites/default/files/inline-files/Erdenechimeg.pdf (last visited Nov. 25, 2024).

[8] Ranti Fauza Mayana & Tisni Santika, Intellectual Property-Based Financing Scheme for the Creative Industry in Indonesia: Policy, Progress, Challenges, and Potential Solutions, J. World Intell. Prop. (2024), https://onlinelibrary.wiley.com/toc/17471796/0/0 (last visited Nov. 25, 2024).

[9] Ranti Fauza Mayana, Tisni Santika & Zahra Cintana, Skema Pembiayaan Berbasis Kekayaan Intelektual: Peluang, Tantangan dan Solusi Potensial Terkait Implementasinya (Intellectual Property-Based Financing Scheme: Opportunity, Challenge and Potential Solutions), 1 Das Sollen: Jurnal Kajian Kontemporer Hukum & Masyarakat 1 (2022), https://journal.forikami.com/index.php/dassollen/article/download/23/10/103 (last visited Nov. 21, 2024).

[10] Agus Eko Nugroho, Komersialisasi Kredit Program untuk Pengembangan UMKM dan Penanggulangan *Kemiskinan: Kasus Kredit Usaha Rakyat—Commercialization of Financing Program for the Development of MSMEs and Poverty Eradication: Working Capital Case* (Jakarta, LIPI Press 2016), https://lib.unikom.ac.id/opac/detail/0-21020/KOMERSIALISME%20Kredit%20Usaha%20Rakyat%20untuk%20Pemberdayaan%20UMKM%20di%20Indonesia (last visited Nov. 25, 2024).

brands, and copyrights. As enterprise value is increasingly founded in IA and IP, the ability of businesses to raise capital from these assets is critical to unlocking business value and driving enterprise growth. Despite the massive growth of the creative economy worldwide and the rising global awareness of IP value as a business asset in the creative economy sector, the formulation of the Intellectual Property Financing Scheme in each country is not in the same phase. This research particularly aims to analyze the regulation, formulation, and implementation model of the Intellectual Property Financing Scheme in Indonesia and Singapore and further provides some suggestions concerning the more effective and productive framework for the Intellectual Property Financing Scheme in Indonesia by elaborating and analyzing several success stories from other countries as references.

II. Creative Economy and Intellectual Property Financing Regulations and Implementation in Indonesia: Potentials & Solutions

"Creative Economy" is a phrase that was first captured in a book called *Creative Economy: How People Make Money from Ideas* written by John Howkins where "Creative Economy" is defined as a "transaction of creative products (good or services) that results from creativity and has economic value.[11] In Indonesia, the creative economy sector occupies an estimated 19,39 million workforce and contributes around USD 82 billion to the GDP.[12] According to the 2019 Focus Creative Economy Outlook, the creative economy sector contributed 1.105 trillion Rupiah to Indonesia's Gross Domestic Product (GDP),[13] and placed Indonesia in the world's third position for the total contribution of the creative economy sector to GDP, after the United States and South Korea.[14]

The Indonesian Government enacted Law Number 24 of 2019 concerning the Creative Economy (hereafter called the **"Creative Economy Law"**), which in Article 16 paragraph (1) mentions that the government supports the advancement of Intellectual Property Based Financing for Creative Economy enterprises. Subsequently, the "Creative Economy Law" was succeeded by Government Regulation Number 24 year 2022, which addresses the Implementation Regulation of Law Number 24 year 2019 regarding Creative Economy (hereafter referred to as **"Indonesian Government Regulation of Creative Economy"**). This serves as the regulatory structure for fostering the creative economy, particularly by enhancing access to financing through the establishment of the Intellectual Property Financing Scheme (IPFS).

Article 1 point 4 of the Indonesian Government Regulation on Creative Economy defines the Intellectual Property Financing Scheme as a funding mechanism where intellectual property serves as collateral for financial institutions (both bank and non-bank) to provide financial support to creative economy actors/enterprises. Article 36 stipulates that the Government and/or Regional Government

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[11] John Howkins, Creative Economy: How People Make Money, 1st ed. (London: Penguin Press, 2001).

[12] Ministry of Foreign Affairs (Indonesia), Projecting Indonesia's Creative Economy Potential (n.d.), https://kemlu.go.id/files-service/storage/repositori/56580/Projecting%20Indonesias%20Creative%20Economy%20Potential.pdf (last visited Nov. 26, 2024).

[13] Kementerian Pariwisata dan Ekonomi Kreatif/Badan Ekonomi Kreatif Indonesia, Ekonomi Kreatif Lokal Diyakini Mampu Mendunia: Sumbang PDB hingga Rp 1.100 Triliun [Local Creative Economy Believed Capable of Globalization: Contributes to GDP up to Rp 1,100 Trillion] (n.d.), https://pedulicovid19.kemenparekraf.go.id/ekonomi-kreatif-lokal-diyakini-mampu-mendunia-sumbang-pdb-hingga-rp-1-100-triliun/ (last visited Nov. 26, 2024).

[14] A. Caesar, Sumbang PDB Rp 1.100 T, Sandiaga Yakin Ekonomi Kreatif Lokal Mampu Mendunia [Contributing GDP IDR 1,100T, Sandiaga Believes that the Local Creative Economy Is Capable of Going Global], Tempo.co (Jan. 2021), https://bisnis.tempo.co/read/1424285/sumbang-pdb-rp-1-100-t-sandiaga-yakin-ekonomi-kreatif-lokal-mampu-mendunia (last visited Nov. 26, 2024).

are responsible for fostering the creative economy. These responsibilities include the formulation of the Intellectual Property Financing Scheme. The framework established by the Creative Economy Law and Government Regulation of Creative Economy includes three key aspects: Intellectual Property Financing Scheme, Intellectual Property as Collateral, and Intellectual Property-based Collateral.[15]

However, multiple challenges exist in its implementation. **First,** there is a lack of specific regulations in the banking industry governing IP as collateral and IP-based collateral. **Second,** the absence of a registration model for binding IP collateral that ensures legal protection, legal certainty, and credit security for banks. **Third,** the internal valuation departments and external valuation agencies in Indonesia are not prepared to execute the relatively complex IP valuation agencies in Indonesia are not prepared to execute the relatively complex IP valuation methods. **Fourth,** strategies for mitigating the volatility of IP as collateral assets are insufficient. **Fifth,** a revised model for executing IP as collateral in instances of non-performing has not been provided yet.

The types of credit collateral accepted in Indonesian banking practices are currently restricted according to Bank Indonesia Regulation Number 9/6/PBI/2007 which serves as the Second Amendment to Bank of Indonesia Regulation Number 7/2/PBI/2005 regarding the Asset Quality Rating for Commercial Banks. The assets eligible as collateral include (1) Securities and stocks that are actively traded on the Indonesian stock exchange or hold an investment grade and are subject to a pledge; (2) Land, buildings, and residential properties that are secured by a mortgage; (3) Machinery that is an essential part of the land and secured by a mortgage; (4) Aircraft or vessels exceeding 20 cubic meters also secured by a mortgage; (5) Motor vehicles and inventory subject to fiduciary agreements; and/or (6) Warehouse receipts secured by Collateral Rights as outlined in Law Number 9 of 2006 regarding Warehouse Receipt Systems, specifically designated for collateral objects in the form of Agricultural, plantation and fishery products.[16]

Even though Intellectual Property is not included as banking collateral in the Bank of Indonesia Regulation Number 9/6/PBI/2007, various IP laws in Indonesia established a fundamental rationale for IP as Collateral. **First:** The Law of the Republic of Indonesia Number 28 year 2014 on Copyright (Copyright Law) Article 16 verse (1) indicates that Copyright is an intangible movable asset and mentions in verse (3) that copyright can serve as an object of fiduciary collateral. **Second**, the Law of the Republic of Indonesia Number 13 year 2016 concerning Patents (Patent Law) specifies that patent rights may serve as an object of fiduciary collateral.[17]

Despite the various challenges surrounding IP as collateral in terms of legal, practical, and technical infrastructure, the implementation of IP-based collateral is feasible. According to Article 9 of the Indonesian Government Regulation concerning Creative Economy, there are 3 (three) options relayed to collateral in the IPFS, **first:** utilizing Intellectual Property as Collateral; **Second,** contracts associated with creative economic activities and **third,** Billing Rights or the right to claim remuneration in those activities as collateral.[18]

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[15] Ranti Fauza Mayana, Tisni Santika & Zahra Cintana, Implementation of IP-Based Financing in Indonesia: Notaries' Point of View, 29 J. Intell. Prop. Rts. 173 (May 2024), https://or.niscpr.res.in/index.php/JIPR/article/download/563/2969 (last visited Dec. 20, 2024).

[16] Ramlan Ginting, Pengaturan Pemberian Kredit Bank Umum [Regulations of Banking Credit Distribution] (n.d.), http://www.oocities.org/hukum97/kredit.pdf (last visited Nov. 26, 2024).

[17] Teguh Rizkiawan, Kekayaan Intelektual sebagai Objek Jaminan Kredit Perbankan: Prospek dan Kendala [Intellectual Property as Banking Collateral Object: Prospect and Challenges], 7(4) Lex Renaissance 883 (Oct. 2022), https://journal.uii.ac.id/Lex-Renaissance/article/view/28155/15470 (last visited Dec. 20, 2024).

[18] Maulida Anggun Nur Rahmi & Aminah, "Utilization the Economic Value of Intellectual Property (Copyright) as Collateral Object in Indonesia" [Utilization of the Economic Value of Intellectual Property (Copyright) as a Collateral Object in Indonesia], Legal Brief, Vol. 11, No. 5, 2022, pp.2742 - 2751,

Additional explanation of Article 9 (b) and (c) of the Government Regulation on Creative Economy elaborates that agreements in creative economic activities involve license agreements, employment agreements / project-based agreements, and royalty agreements/orders obtained by creative economy actors. Meanwhile, the right to collect royalties must be paid by users of songs and/or musical instruments for commercial purposes under Indonesian Government Regulation No. 56 of 2021 regarding the Management of Song and Music Copyright Royalties.[19]

IP as collateral and IP-based Collateral governed by fiduciary collateral binding are regulated in Law Number 42 of 1999 on Fiduciary Collateral Law. Article 1 of Fiduciary Law describes Fiduciary Collateral as rights over movable items, whether tangible or intangible, as well as immovable properties, particularly structures that cannot be subject to mortgage collateral. These items remain with the Fiduciary giver as security for the repayment of specific debts, granting the Fiduciary Recipient a priority status compared to other creditors.

The conditions for a fiduciary collateral object are that it must have ownership proof and be transferable (to be executed in the event of a non-performing loan). The establishment of fiduciary collateral is implemented through a notarial deed, which includes the details regarding: **First:** the legal identities of the fiduciary giver and fiduciary recipient, **second:** the loan / credit /financing agreement secured by the fiduciary collateral; **Third:** the object of the fiduciary collateral; **Fourth:** the value / amount of the binding fiduciary collateral; **Fifth:** the valuation of the fiduciary collateral object.

Regarding the financing applications, Article 7 of the Indonesian Government Regulation on Creative Economy stipulates that the Intellectual Property Financing Scheme is suggested by actors in the creative economy sectors to banks and / or non-bank financing entities. The criteria for applying for Intellectual Property Financing must include: a credit / financing proposal, evidence of a current creative economy business, documents of any contracts and / or agreements related to intellectual property for creative economy products, and the registration letter or certificate of intellectual property.

Regulations concerning banking collateral in Indonesia are notably strict, presenting difficulties in developing an Intellectual Property Financing Scheme. Although Indonesia possesses a Creative Economy Law and associated implementing regulations, and both the Copyright and Patent Laws explicitly establish the legitimacy of intellectual property as fiduciary collateral, this recognition remains at the regulatory level. There is a lack of specific technical guidelines governing the binding of IP as banking collateral, along with insufficient facilities and infrastructure for effective implementation. Although there is a legal provision permitting IP to be used as collateral in Indonesia, practical implementation faces difficulties because of a general lack of understanding regarding the legal concept of IP as collateral and the lack of relevant comprehensive policies and mechanisms. As of now, Intellectual Property Financing in Indonesia remains non-existent.[20]

It is essential to evolve the IPFS not just as a narrative for the creative economy's growth, but also as an effective structure for development policy and its execution. The authors examine various challenges related to the development and execution of Intellectual Property Financing in Indonesia. **First, the challenge lies in assessing the value of IP**. In contrast to physical assets, which can be

https://legal.isha.or.id/index.php/legal/article/view/562/442. Accessed 20 December 2024.

[19] Ika Atikah, Ahmad Zaini & Iin Ratma Sumirat, Intellectual Property Rights as a Resource for the Creative Economy in Indonesia, 22(4) Jurnal Penelitian Hukum De Jure 451, 451–64 (Dec. 2022), https://ejournal.balitbangham.go.id/index.php/dejure/article/download/2978/pdf (last visited Dec. 20, 2024).

[20]Ranti Fauza Mayana, Ahmad M. Ramli & Tisni Santika, Dysfunctional Regulations and Ineffective Implementation of Intellectual Property Rights-Based Banking Collateral: A Critical Analytical Study, 9(1) NTUT J. Intell. Prop. L. Mgmt. 58, 58–87 (2020), https://iip.ntut.edu.tw/var/file/92/1092/img/2036/102015920.pdf (last visited Nov. 26, 2024).

readily evaluated according to market value, the economic value of intellectual property is frequently subjective and may fluctuate due to various elements, including the industry, competitive landscape, shifts in market demand, technological progress, and legal issues. This characteristic complicates the assessment of an accurate value of IP, potentially leading to an over - or underestimation of the collateral.[21] The regulatory framework for IP valuation does not present a clear concept or an elaborate mechanism. Additionally, the certification connected to this regulation has not been further defined, creating a challenge for the government and financial institutions in the future concerning the aspect of IP valuation. The valuation of IP is important for multiple issues, including legal and economic factors; therefore, it is essential to have independent entities that are independent of banking institutions throughout the valuation process.[22] So far, the current Bank Indonesia Regulation still lacks specific guidelines or rules concerning the acquisition of banking collateral for intangible assets.[23]

Second, there are no specific technical regulations governing the collateralization of IP and IP-based collateral in banking institutions, along with the exclusion of IP from banking collateral. The types of credit collateral acknowledged by banking practices are restricted according to the Regulation of Bank Indonesia Number 9/6/PBI/2007, which pertains to the Second Amendment of The Regulation of Bank of Indonesia Number 7/2/PBI/2005 regarding Asset Quality Rating for Commercial Banks, stating that Intellectual Property is excluded as banking collateral in Bank of Indonesia Regulation Number 9/6/PBI/2007.[24]

Third, the significant fluctuations in IP value, are caused by the intricate factors that affect the IP value. This presented difficulties concerning the variations and future value of IP, as financial institutions look for assurance and steadiness in collateral value. The violation of IP, counterfeiting, and/or infringement of IP through piracy or illegal downloads can potentially undermine the monetization and value of IP. [25] The fluctuation in IP value has emerged as a key factor that places banking institutions in a hesitant stance regarding the adoption of the Intellectual Property Financing Scheme (IPFS).

Fourth, the readiness of banking institutions to provide Intellectual Property Financing Schemes. Banks in Indonesia predominantly extend credit through conventional loan models or financing with traditional collateral, such as housing loans, working capital loans, construction loans, investment loans, or motor vehicle loans. This trend arises from the heavily regulated nature of banks concerning credit distribution and the acceptance of collateral for loans. Indonesian banking institutions perceived conventional assets as more bankable collateral, while IP is perceived as a more complex collateral asset and, therefore mostly recognized as supplementary forms of collateral.[26]

Fifth, implementation of IP collateral execution. As per Fiduciary Law, the enforcement of fiduciary collateral can be performed by: (1) the fiduciary recipient executing the title (2) selling the

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[21] Jody C. Bishop, The Challenge of Valuing Intellectual Property Assets, 1(1) Nw. J. Tech. & Intell. Prop. 59, 59–65 (2003), https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1011&context=njtip (last visited Dec. 4, 2024).

[22] Russell L. Parr, Intellectual Property: Valuation, Exploitation, and Infringement Damages (John Wiley & Sons, Ltd. year).

[23] Bank Indonesia Regulation Number 9/6/PBI/2007.

[24] Ginting, R. Pengaturan Pemberian Kredit Bank Umum [Regulations of Banking Credit Distribution]. (n.d.). http://www.oocities.org/hukum97/kredit.pdf.

[25] Itria Mahmudah, Mohammad Benny Alexandri & Yogi Suprayogi Sugandi, Scenario Planning of IP-Based Financing Scheme Implementation: Study on the Animation Creative Industry, 4(7) Eduvest J. Universal Stud. (July 2024), https://eduvest.greenvest.co.id/index.php/edv/article/download/1597/2426/11273 (last visited Dec. 20, 2024).

[26]Dodik Setiawan Nur Heriyanto & Alif Muhammad Gultom, Intellectual Property as Collateral: The Future of Indonesian Intellectual Property Legal Policy in Commercial Transactions, supra note 4, at 2.

fiduciary object with the fiduciary recipient's authority through public auction and collecting loan repayment from the sale's proceeds (3) private sales conducted following an agreement between the fiduciary giver and fiduciary recipient. When using IP as collateral, the primary emphasis on execution will be on realizing the economic value of the fiduciary asset (such as royalty payments and licensing fees) of the IP, which will serve as repayment for the loan to the bank. The implementation and auction of intellectual property as fiduciary collateral are not adequately governed by the Government Regulation of the creative economy. Moreover, the greatest obstacle to IP execution is the absence of a secondary market for IP collateral.[27] [28]

III. Creative Economy and Intellectual Property Financing in Singapore

In creating the IPFS program, Singapore has established a 10-year IP Hub Master Plan since 2013, serving as a policy framework for the advancement of IPFS implementation. IPFS was introduced in Singapore in 2014. Starting from 1 July 2016, IP holders can anticipate monetizing their IP assets, including registered trademarks and copyrights. Singapore approves *Masai Group International.*[29] To receive the first loan backed by IP collateral for shoe-making. The application for the loan was submitted through the Intellectual Property Office of Singapore (IPOS). This IP Financing Scheme is backed by 3 (three) participating financial institutions: DBS Bank, OCBC, and UOB.[30] IPFS in Singapore has offered funding totaling $100 million to various firms. During the execution phase, multiple challenges arise. The Singaporean government, along with its affiliated bodies and agencies, implements various initiatives to address the challenges.[31]

Initially, regarding IP Valuation Standard Practice, there is no single organization that conducts IP valuation in Singapore. To address this issue, the government alongside the Institute of Valuers and Appraisers of Singapore (IVAS) intends to create a standardized framework of IP valuation guidelines that can gain international recognition.[32] Furthermore, a group of IP valuation experts is established. The Intellectual Property Office of Singapore (IPOS) has become the accrediting authority for businesses and individuals qualified to perform IP Valuation. Under the IP Financing Scheme, there are 7 (seven) firms or individuals accredited by IPOS to conduct IP Valuation. IPOS does not perform IP Valuation as it primarily focuses on policy-making activities.[33]

Secondly, there remains a deficiency in awareness, knowledge, and skills to manage, safeguard, and extract value from IP assets through IP development and commercialization. The Intellectual

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[27] Salsabilah Suci Rahmadani, Desy Rizky Mahrunnisa, Alifia Intan Maharani & Immanuella Yvette Aneyory, Copyright as an Object of Banking Guarantee (Comparative Study of Indonesia and Singapore), 8(1) Diponegoro Priv. L. Rev. 34, 34–46 (2021), https://ejournal2.undip.ac.id/index.php/dplr/article/download/18427/10253 (last visited Dec. 20, 2024).

[28] M. Anas Fadli, M. Pravest Hamidi, Farhan A. Edwin & Rayyan G.K. Aritonang, Let's Play Content as a Fiduciary Collateral under Indonesian Law: Potential Challenges, 38(3) Yuridika 481, 481–98 (Sept. 2023), https://e-journal.unair.ac.id/YDK/article/download/44756/27217/260367 (last visited Dec. 20, 2024).

[29] Ashima Ohri, Singapore Approves First IP-Backed Loan, Asian Legal Bus. (June 9, 2016), https://www.legalbusinessonline.com/news/singapore-approves-first-ip-backed-loan/72556 (last visited Dec. 4, 2024).

[30] First IP-Backed Loan Approved in Singapore, Out-Law News (June 6, 2016), https://www.pinsentmasons.com/out-law/news/first-ip-backed-loan-approved-in-singapore (last visited Dec. 4, 2024).

[31] Stanley Lay & Low Pei Lin, S$100 Million IP Financing Scheme Launched: Patents as Collateral for Bank Loans, Allen & Gledhill LLP (May 27, 2014), https://www.lexology.com/library/detail.aspx?g=f05f47c6-73bd-420b-8e25-276c4fe044f9 (last visited Dec. 20, 2024).

[32] Chartered Valuer and Appraiser Programme — Institute of Valuers & Appraisers, Singapore (IVAS), Accounting & Corporate Regulatory Authority (ACRA), https://www.acra.gov.sg/accountancy/professional-development/chartered-valuer-and-appraiser-programme/ivas (last visited Dec. 20, 2024).

[33] Intellectual Property Office of Singapore (IPOS) & World Intellectual Property Organization (WIPO), Unlocking IP-Backed Financing: Country Perspectives—Singapore Journey, WIPO Magazine (2021), https://www.wipo.int/web/wipo-magazine/articles/unlocking-ip-backed-financing-in-singapore-42263 (last visited Dec. 20, 2024).

Property Office of Singapore (IPOS) and the Accounting and Corporate Regulatory Authority (ACRA) are leading a joint inter-agency committee that will collaborate with an industry working group to create an IP disclosure framework, aiding companies in effectively conveying their intangible assets, such as IP, to stakeholders and prospective investors to promote possible IP commercialization and funding endeavors. In Singapore, the organization called A-STAR (Agency for Science, Technology, and Research) established by the Ministry of Trade acts as the agency for intellectual property commercialization.[34]Additionally, to enhance the productive and sustainable utilization of IP assets, the Singapore government employs a taxation strategy for these assets. The Singapore Government provides a tax exemption or tax relaxation for IP-based transactions. The government additionally offers various advantages for priority sectors, such as the creative economy.[35]

Third, regarding the sources of funding. The government has initiated the IP Financing Scheme of Singapore with a $100 million financing program designed to assist companies in monetizing their IP for business development and expansion. The IPFS was established as a financing model based on collateral with some restricted government backing. The IPFS is distributed through selected local banks.[36]

Fourth, the fluctuation of IP Value and the enforcement of IP collateral in the event of Non-Performing Loans. Financial institutions, particularly banks, are concerned that intellectual property is frequently seen as volatile assets with limited liquidity because there is no secondary market. To mitigate this challenge, the Singapore IP Strategy 2030 will provide support for IP transactions and/or IP-based transactions through platforms and networks to enhance IP commercialization prospects for businesses while also boosting the liquidity of IP assets and their attractiveness to capital stakeholders. Additionally, the firms promote revealing essential IP details and information in the company's financing report to hinder an accurate evaluation of the value or contribution of IP as well as to support the process of the IP Financing Scheme.[37]

IV. Comparative Study on Intellectual Property Financing Regulations in Indonesia and Singapore: Some Suggestions and Considerations

Singapore begins with a solid advantage. It features a globally acknowledged world-class IP ecosystem that offers a strong legal and regulatory framework, allowing businesses to safeguard, oversee, and monetize their intellectual property. The Singapore government has developed a comprehensive plan by establishing the Singapore Intellectual Property Strategy (SIPS) 2030, in which pertinent government bodies will collaborate closely with industry stakeholders and global partners to enhance the understanding, disclosure, and valuation of IP, assisting businesses in unlocking and monetizing value from their IP resources.

The Government of Singapore adopted a programs and initiative-focused strategy by introducing a variety of programs and initiatives aimed at elevating the nation's status as a global center for

[34] Jhonny A. P. Cadavid, Copyright Challenges of Legal Deposit and Web Archiving in the National Library of Singapore, 25(1–2) Alexandria 1, 1–19 (2014), https://www.researchgate.net/publication/272927093_Copyright_Challenges_of_Legal_Deposit_and_Web_Archiving_in_the_National_Library_of_Singapore (last visited Dec. 20, 2024).

[35] APEC Intellectual Property Rights Experts Group, Best Practices on Intellectual Property (IP) Valuation and Financing in APEC (APEC Secretariat 2018), https://www.apec.org/docs/default-source/Publications/2018/4/Best-Practices-on-IP-Valuation-and-Financing-in-APEC/218CTIBest-Practices-on-Intellectual-Property-IP-Valuation-and-Financing-in-APEC.pdf (last visited Dec. 20, 2024).

[36] Daren Tang, IP-Backed Financing: Sharing of the Singapore Country Report—The Role of IP Assets in Strengthening Business Access to Finance, Remarks of the Director General, World Intell. Prop. Org. (Aug. 26, 2021), https://www.wipo.int/about-wipo/en/dg_tang/docs/ip_backed_finance_20210826.pdf (last visited Dec. 20, 2024).

[37] Unlocking IP-Backed Financing—Singapore's Journey, supra note 33, at 8.

intellectual property activities. The IP ecosystem in Singapore comprises a wide-ranging network of IP service providers, encompassing financial institutions, private lenders, valuers, consultants, and legal professionals. Collaboration between relevant government bodies industry participants and other stakeholders keeps enhancing the IP ecosystem.

Indonesia primarily employs a regulatory and policy framework by enacting Law Number 24 of 2019 on the creative economy and Government Regulation Number 24 of 2022 regarding the Implementing Regulations of Law Number 24 of 2019 Creative Economy, serving as the legal framework and manifestation of legal development initiatives in the creative economy, collateral law, and intellectual property law. The implementation of these regulations is a beneficial reaction and significant advancement. The regulations outline several important aspects that acted as the standard for developing an intellectual property-based financing system for Indonesia's creative sector. The execution of the IP Financing Scheme as required by the Government Regulation on Creative Economy in Indonesia continues to encounter challenges because of insufficient initiatives and procedural policies, as well as a lack of synergy and coordination among the government and stakeholders. Consequently, banking institutions still show relatively low to non-existent willingness to accept and utilize intellectual property assets as collateral, leading to a situation where, in practice, the use of IP as collateral for banking loans remains extremely low and non-existent. Banks in Indonesia currently consider intellectual property as a supplementary component of credit agreements and collateral instead of being the main/primary collateral.[38] One reason for this is that, to date, there are no established procedures to serve as a standard for the valuation and execution of collateral in case of a default. A detailed and explicit Standard Operational Procedure (SOP) is essential in banking institutions to assess the collateral value derived from the economic IP value provided by the IP appraiser. Banking institutions require legal, procedural, and technical assistance concerning IP valuation, along with directives for IP assessment techniques to establish the value and legality of the collateral item. Finally, there is no initiative concerning the Pilot Project launched by the Indonesian Government that provides specific funding or banking credit in the form of an Intellectual Property Financing Scheme.

According to the examination of issues encountered by Indonesia and Singapore, the authors suggest that government involvement/intervention could be a key element in alleviating these challenges. The government initiative and intervention must be thorough and address various key aspects. **Firstly,** the development of an Intellectual Property Financing Scheme that encompasses not only a regulatory framework but also needs to be supported by a comprehensive procedural framework. For instance, in 2006, the Chinese Government through the State Intellectual Property Office (SIPO) initiated the Pilot Project for Intellectual Property Rights Collateral Financing to promote the use of IP assets as credit collateral. This initiative included banking special funds, interest subsidies, and valuation guidelines called " Standard Valuation of Assets for Intangible Assets" and "Guidelines for Valuation of Patent Assets" released in 2009, along with additional supportive measures aimed at mitigating the risk of non-performing loans. This Pilot Project is backed by the Ministry of Finance, the State Intellectual Property Office (SIPO), and various special funds in rapidly growing areas.[39] [40]

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[38] Trias P. Kurnianingrum, Intellectual Property as Banking Credit Guarantee, 8(1) Negara Hukum 31, 31–54 (2017), https://jurnal.dpr.go.id/index.php/hukum/article/view/936 (last visited Dec. 4, 2024).

[39]APEC Intellectual Property Rights Experts Group, A Study on the Harmonization of the IP Financial System (APEC Secretariat 2023), https://www.apec.org/docs/default-source/publications/2023/7/223_ipeg_a-study-on-the-harmonization-the-ip-financial-system.pdf?sfvrsn=eaab9a1_4 (last visited Dec. 20, 2024).

[40] Helitha Novianty, Miranda Risang Ayu & Muhammad Amirulloh, Intellectual Property Financing in Indonesia: A Comparative Study with China and South Korea, 44 Kasetsart J. Soc. Sci. 1175, 1175–86 (2023), https://kasetsartjournal.ku.ac.th/abstractShow.aspx?param=YXJ0aWNsZUlEPTgzMDN8bWVkaWFJRD04ODM2&from

Second, Funding Source. The Intellectual Property Financing Scheme is an unconventional financing model that banking institutions generally view as high-risk funding. Government assistance in supplying the funding source through the IPFS mainstreaming strategy is anticipated to boost the trust in banking institutions to disseminate IPFS. The government of Singapore has launched the Intellectual Property Financing Scheme with a $100 million initiative and has also offered a limited guarantee on IPFS provided by local banks involved in this program.[41] In 2013, the Malaysian Government initiated a program to help SMEs expand their businesses by developing their IP and using it as collateral. Under this initiative, a budget of RM 200 million was allocated to Malaysian Debt Ventures (MDV) to create an IP financing fund scheme with IP serving as collateral. The Malaysian Government additionally offers a 2 % interest rate subsidy for this initiative.[42]

Third, technical guidelines related to practical legal due diligence and business due diligence for IPFS implementation. It's crucial to establish a procedure that serves as a standard for legal due diligence and business due diligence. These technical guidelines also be backed by sufficient facilities and infrastructure for their execution. For instance, this could be established through Financial Services Authority Regulations serving as codes of conduct for banks to perform legal and business due diligence on requests for the Intellectual Property Financing Scheme. This can encompass the processes of verifying the feasibility of creative businesses, validating IP certificates/proofs of ownership, and applying prudential banking principles within the context of IPFS.

Fourth, The Approach for Verification and Valuation of IP involves legal, procedural, and IP evaluation techniques along with protocols for IP evaluation techniques to assess the valuation, legality, and validation of IP as collateral. A clear and detailed Standard Operating Procedure (SOP) is essential in banking institutions for assessing the collateral value of IP. Given the intrinsic characteristics of IP as non-fixed and growth assets, accurately determining its value, even for current assessments, is quite challenging. The conventional/traditional method for evaluating collateral value is not entirely suitable for IP valuation, as it possesses distinct characteristics compared to other forms of collateral and presents its challenges. Creditors such as banks may have an internal appraisal department that is additionally backed by an independent appraisal. The formation of an appraisal agency with expertise in IP valuation or developing an asset valuation strategy centered on IP, such as through education, training, and enhancement of staff within the internal appraisal team, can be advanced as a resolution to this issue. To contribute to the solution, the government can lead the way in creating valuation guidelines, following the example set by China's Government which introduced the "Standard Valuation for Intangible Assets" and the "Guidelines for Valuation of Patent Assets". An additional example is the Malaysia IP Office, which in collaboration with the Ministry of Finance and Multimedia Development Corporation, established guidelines for IP Valuation. These guidelines feature illustrations of how the economic benefits from the royalty method should apply to patents, trademarks, and copyrighted materials.[43]

Fifth, Synergy in the Intellectual Property Financing Scheme, for example, China's government initiated the *"Pilot Project on Intellectual Property Rights Pledge Financing"* through the State Intellectual Property Office (SIPO) in 2006 as a government initiative to promote the utilization of IP assets as collateral for credit by providing a specific financing model, interest subsidies and other support mechanisms to enhance the accessibility of IP Financing. This pilot initiative involves a

=5 (last visited Dec. 20, 2024).

[41] Id.

[42] Varun Gupta & Arvind Thakur, IP-Backed Financing: Using Intellectual Property as Collateral, Duff & Phelps 13 (Dec. 2019), https://media-cdn.kroll.com/jssmedia/assets/pdfs/publications/valuation/ip-backed-financing-intellectual-property-collateral.pdf (last visited Dec. 18, 2024).

[43] Malaysian Investment Development Authority (MIDA), *Intellectual Property Protection* (2016), https://www.mida.gov.my/ (last visited Dec. 20, 2024).

partnership among the Ministry of Finance, SIPO, and various special funding institutions in rapidly growing areas.[44] Another example is Japan, where the Japan Patent Office (JPO) launches collaborative projects with multiple banks such as *Chukyo Bank* to assist SMEs in launching new ventures in partnership with academic institutions, *Kanagawa Shinkin Bank* to foster new enterprises by collaborating with additional supportive organizations, *Kiraboshi Bank* and *Hiroshima Bank* to enhance business valuation skills at the organizational level by participating in IP financing.[45] By the end of 2019, 204 financial institutions had conducted IP-based business evaluations and assessments, with 55 of those entities providing 93 companies with 98 loans, totaling approximately JPY 4.38 billion.[46] In Korea, the Korea Intellectual Property Office (KIPO) and the Financial Services Commission collaborated to create a midterm strategy to increase the amount of IP-based financing to 2 trillion won by 2022, bolstered by a low-interest policy for such financing.[47]

Sixth, Credit Risk Mitigation. An insurance-supported approach can be viewed as credit mitigation, wherein the bank collaborates with an insurance firm/company, enabling the bank to distribute the risk with external entities if there is a Non-Performing Loan or a decrease in the value of IP used as collateral. This model is likewise applied in Germany and South Korea. German law offers a relatively clear alignment of IP law with general loan security law, while the South Korean Government set up the Korea Credit Guarantee Fund (KODIT) and Korea Technology Finance Corporation (KIBO) as the leading institution for credit guarantees. Further, KODIT and the Seoul Guarantee Foundation developed "IP Smart Guarantees" to calculate the real-time value and rating of IP. KIBO operates "IP Fast Guarantees" utilizing the KIBO Patent Appraisal System II (KPAS II) with the evaluation procedure lasting approximately one week.[48] Another example is Malaysia, where the government offers a 50 % guarantee through the Credit Guarantee Corporation.[49]

Seventh, Collateral Execution. For regulatory example, German Law offers fairly straightforward guidelines for creating and resolving financing contracts based on intellectual property. The integration of IP law with general financing security regulations establishes the basis for the collateral bond of IP.[50] In Germany, 2 (two) prevalent models of IP collateral exist: the pledge of rights and security assignments involving IP owners as debtors and lenders (typically banks).[51] In cases of default, multiple execution options are available; however, post-default agreements outlining the processes and responsibilities of all parties are predominantly utilized. In case of insolvency, the IP used as collateral will be handed over to a trustee for liquidation.[52]

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[44] *Ibid.*

[45] *Naoto Koizuka, IP Finance in Japan (WIPO presentation, 2019), https://www.wipo.int/export/sites/www/sme/en/documents/pdf/mr-koizuka-presentation-en.pdf (last visited Dec. 19, 2024)*.

[46] APEC Intellectual Property Rights Experts Group, supra note 35, at 9.

[47] Bae Hyunjung, South Korea Expands Benefits for IP-Backed Financing, The Korea Herald (Dec. 29, 2019), [URL if available] (last visited Dec. 20, 2024).

[48] Id.

[49] Gupta, Varun & Thakur, Arvind, supra note 42, at 11.

[50] David Heller, Leo Leitzinger & Uwe Walz, Intellectual Property as Business Loan Collateral: A Taxonomy on Institutional and Economic Determinants (Aug. 1, 2022), SSRN, https://papers.ssrn.com/ (last visited Dec. 18, 2024).

[51] Marco Stief, IP as a Means of Securing a Loan under German Law, Managing IP (Jan. 10, 2023), https://www.managingip.com/article/2b4pye0ya5iaws8lx4mio/sponsored-content/ip-as-a-means-of-securing-a-loan-under-german-law (last visited Dec. 20, 2024).

[52] Heller, David, Leitzinger, Leo and Walz, supra note 50, at 12.

V. Conclusion

Despite the substantial expansion of the creative economy globally and the increasing global recognition of IP value as a business asset in the creative sector, the development of the Intellectual Property Financing Scheme varies across countries and is not in the same phase in terms of implementation, strategy, and progress.

The Indonesian Government primarily employs a regulatory and policy strategy by enacting Law Number 24 in the year 2019 on Creative Economy and Government Regulation Number 24 in the year 2022 regarding the implementation of regulations of Law Number 24 in the year 2019. Nonetheless, although the law provides a legal basis and provisions of IP as collateral and IP-based collateral in Indonesia, its practical implementation faces difficulties and challenges due to a lack of comprehension regarding the legal notion of IP as collateral and the absence of appropriate, thorough policies and mechanisms. Currently, the Intellectual Property Financing Scheme in Indonesia remains non-existent due to various technical and procedural obstacles.

The Government of Singapore adopted a program and initiative-based strategy by introducing multiple programs and initiatives. The IP ecosystem in Singapore comprises an extensive network of IP service providers, which includes financial institutions, private lenders, valuers, consultants, and legal professionals. Collaboration between related government agencies and industry participants is enhancing the IP ecosystem. The Singapore government has developed a comprehensive approach through the creation of the Singapore Intellectual Property Strategy (SIPS) 2030, wherein relevant government agencies will collaborate with industry stakeholders and global partners to enhance the understanding, sharing, and assessment of intellectual property, assisting businesses in realizing and capitalizing the value of their IP assets.

Drawing from the analysis of challenges and obstacles encountered by Indonesia and Singapore, the authors contend that government intervention may serve as a vital element in alleviating these challenges. The government initiative and intervention must be all-encompassing and address several crucial aspects: **First,** the establishment of an Intellectual Property Financing Scheme that includes not just a regulatory approach but also necessitates a thorough procedural approach. **Second:** Funding Sources. Government backing for financing through the IPFS mainstreaming strategy is expected to boost trust in banking institutions to distribute IPFS. **Third:**technical directives regarding practical legal due diligence and business due diligence for IPFS application. **Fourth:** the approach for Validation and Valuation of Intellectual Property Assets. **Fifth:** Synergy in Intellectual Property Financing Scheme, **Sixth:** Credit Risk Mitigation.

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Bad faith litigation of patents as abuse of dominance under Pakistan's competition act: How and why to improve?

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Abstract

Even though justice's accessibility is a globally acknowledged fundamental human right, the European Union and China's comparative experiences show that, under competition law, bad faith-related lawsuits involving intellectual property (IP) might amount to exploitation of power. The study found that, in Pakistan, there are some enforcement concerns which include a weak system for examining IP (patents), lack of definite judicial precedents, inadequate barriers against bad faith allegations, and restricted openness and patent data accessibility. This essay carefully analyses the bad faith litigation of IP within the antitrust legislation in China and the European Union and makes the case that their approaches are fundamentally comparable. China has enacted, more contemporary, regulations regarding bad faith litigation aiming to cope with such issues. This article proposes that Pakistan ought to implement clear criteria for the bad faith lawsuit of IP under the Competition Act and construct an antitrust counterclaim in an IP infringing action based on comparative experiences. Pakistan should allow opposition to antitrust in an IP-infringing case by employing a two-pronged methodology to determine whether IP litigation was filed in bad faith. Pakistan should outline two distinct situations: the first is regarding a situation in which the owner of the IP knew it hadn't been eligible for any sort of IP rights and the subsequent one talks about a situation in which the related IP turns into the (de facto) standard.

Keywords: Competition Act of Pakistan, Bad faith litigation, Patents, Intellectual property, TFEU

I. Introduction

Any person or business, especially a dominating enterprise affected by another, can seek justice from the court. Because everyone agrees that one essential element of both human rights and the rule of law is access to justice.[1] However, a dominating enterprise might indulge in bad faith litigation to harm its rivals rather than seeking legal redress, which would be detrimental to the competition process. Especially in cases involving IP infringement, this kind of anti-competitive and bad faith proceedings might emerge as a form of competition rebuttal.[2] To find a practical threshold for competition involvement in bad faith proceedings, particularly regarding patents in Pakistan, it is vital to maintain an acceptable equilibrium within antitrust contributions and the freedom to access the courts.

Patents provide inventors with the sole right to prohibit any individual or company from producing, utilizing, or sharing their creations without authorization, which makes them valuable assets.[3] By restricting rivals from duplication of any inventions, a competitive advantage is given to patent holder by enabling them to dominate the market regarding their innovations.[4] In this way, patents can yield enormous revenue, which makes them an appealing avenue of large economic benefits.[5]

A patent is an exclusive privilege granted to an innovation. It helps inventors or creators by offering juridical safeguards for their discoveries.[6] A patent does not confer ownership rights on products, uses, or sales. It does not indicate any such right, either explicitly or implicitly.[7] All it gives is the authority to keep others out. Private law governs the ownership of patents in the majority of nations, and the only way for the owner of a patent to protect their legal entitlements is to file a lawsuit against anyone who violates the patent.[8]

Since patent licensing is permitted, businesses may decide to obtain patent rights to safeguard their products. However, if a business misuses its patent rights, it may cause competition issues, especially if the enterprise has significant market dominance or influence.[9] Numerous patent-related

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[1] Damyanti N and others, The Concept of Human Rights from The Qur'an Perspective, 2 Bulletin of Islamic Research 17,19 (2024). (accessed 28 May 2025). URL:https://doi.org/10.69526/bir.v2i1.20

[2] Baker JB, Conduct that Increases Market Power Without Lessening Competition: A Challenge for Antitrust Law, 4 (2025). (accessed 23 May 2025). URL:http://dx.doi.org/10.2139/ssrn.5113399

[3] Princewill K-N, Appraisal Of The Importance Of Patent In Innovation And Technology, Alex-Ekwueme Federal University Faculty Of Law Ll B Projects, 13 (2024). (accessed 23 May 2025). URL: https://www.nigerianjournalsonline.com/index.php/FUNAILAWPROJECTS/article/view/5564/6503

[4] Mary T and Enoch O, Legal Considerations in the Development and Commercialization of Corporate Intellectual Property, 8 International Journal of Rural Development, Environment and Health Research 01, 03 (2024). (accessed 25 May 2025). URL:https://dx.doi.org/10.22161/ijreh.8.3.1

[5] Yuan X and Hou F, How do patent thickets affect financial performance: a three-way interaction model, 28 European Journal of Innovation Management 1095, 1101 (2025). (accessed 30 May 2025). URL:https://doi.org/10.1108/EJIM-02-2023-0122

[6] Bera RK, 'Vulnerabilities of the Patent System' in Bera RK (ed), *The Evolution of Knowledge: Scientific Theories for a Sustainable Society* 138-141 (Springer Nature Singapore 2024). (accessed 13 May 2025). URL:https://doi.org/10.1007/978-981-99-9346-8_5

[7] Merges RP, 'Updating the Private Law of Patent Contracting, 64 IDEA 295, 301 (2023). (accessed 18 May 2025). URL:https://heinonline.org/HOL/LandingPage?handle=hein.journals/idea64&div=12&id=&page=

[8] Suwardi, Legal Protection of Patent Right Holders In Efforts To Develop Economic Aspects. MARAS: 2(1) Jurnal Penelitian Multidisiplin, 459, 463 (2024). (accessed 30 May 2025). URL: https://doi.org/10.60126/maras.v2i1.207

[9] Rimšaitė L, 'Market Restrictions Created by the Abuse of Dominant Position' in Rimšaitė L (ed), *The Crossroads of Competition Law and Energy Regulation* 298-300 (Springer Nature Switzerland 2024). (accessed 13 May 2025). URL:https://doi.org/10.1007/978-3-031-73238-6_8

antitrust cases have been filed worldwide, notably in the European Union (EU), China, and Pakistan.

The *Microsoft case*[10] of the EU was one notable instance. Regardless of whether Intellectual Property Rights (IPRs) are at issue, this case was a turning point in European antitrust prosecution and shows how powerful companies must refrain from abusing their authority. In this instance, Microsoft hurt competition by keeping companies out of the relevant market by using its dominant position. According to EU competition law, it is believed that Microsoft had misused its influence in the market.[11]

Pakistani competition laws forbid a dominant enterprise from abusing its market position, by filing bad faith ligation cases, to stifle rivalry. Exploiting patents by monopolistic businesses may give rise to worries about competitiveness and ultimately be detrimental to it.[12] However, in contrast to the EU and China, which are the fastest-growing and biggest competition law regions, Pakistan does not have any specific applicable anti-monopoly laws, except some sections of the Competition Act 2010,[13] which can control patent abuse that is harmful to the country's competition and consumer interests.[14]

II. Research Question

The primary research question is: When patent litigation in bad faith qualifies as a misuse of market power under the Competition Act of Pakistan and how might the strategy be strengthened?

III. Structure of the paper

This study will employ a few research approaches to address this research topic, which can be presented as follows:[15]

Firstly, several legal sources and data will be used in this work for evaluations. This article focuses on Pakistan as its target jurisdiction. It has been shown through comparative findings that patent lawsuits in bad faith may be a market dominance violation. The Competition Act of Pakistan, under section 3, enumerates several actions that could be considered abuses of market power. Although there is a dearth of information on particular antitrust proceedings in Pakistan regarding IP litigation in bad faith, there are legislative procedures in place to combat such conduct. Trademark laws and competition legislation provide stakeholders with recourse if they are worried about IP operations that are conducted in bad faith. Over the past few years, Pakistan has seen a sharp rise in the number of

[10]Case T-201/04 Microsoft Corp v Commission [2004]. (accessed 01 June 2025). URL: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62004TJ0201

[11] Ibáñez Colomo P, REMEDIES IN EU ANTITRUST LAW, Journal of Competition Law & Economics nhae022, 4 (2025). (accessed 25 May 2025). URL:https://doi.org/10.1093/joclec/nhae022

[12] Nikolic I, From competition law to sector regulation of standard essential patents: a critique, *Research Handbook On Competition And Technology* 366-367 Edward Elgar Publishing (2025). (accessed 21 May 2025). URL:https://doi.org/10.4337/9781035302642.00028

[13] Competition Act. 2010, (accessed 20 May 2025). URL:https://cc.gov.pk/assets/images/Downloads/competitionn_act_2010.pdf

[14] Gupta A, The Economics of Intellectual Property Rights: Balancing Innovation and Market Competition, 2 LawFoyer Int'l J Doctrinal Legal Rsch 141, 150 (2024). (accessed 06 August 2025). URL:https://heinonline.org/HOL/LandingPage?handle=hein.journals/lwfyrinl2&div=144&id=&page=

[15] There may be certain restrictions on the methods and analytical framework used in this work. There are usually three types of abusive practices regarding patents: refusal to license patents, bad faith litigation and non-challenge provisions. It is only possible to classify bad faith court proceedings as an abuse of power if the IP holder holds a dominant position in the relevant market. Owing to word constraints, the primary focus of this presentation will be on abusive practices related to bad-faith litigation.

patent violation claims regarding bad faith litigation.[16]

Pakistan's competition statute and its implementation are significantly impacted by both Chinese anti-money laundering regulations and EU competition law. Regarding the connection between patents and competition law, Pakistan is currently under a lot of pressure to make sure that IP is fairly and openly enforced.[17] One could argue that in comparison to China and the EU, Pakistan's present familiarity with bad faith IP complaints under the Competition Act is inadequate.[18] As a result, this study will examine the comparative experiences of each of these countries and offer recommendations for Pakistani legal procedures based on those experiences.

Second, in contrast to earlier Pakistani research that often examines bad faith litigation depending on Trade Marks Ordinance 2001, particularly Section 73(4) of the Trade Marks Rules 2004,[19] this work makes the case that a dominating company's bad faith IP litigation may amount to misuse of dominating market position under competition act. A dominant corporation is not allowed to abuse its market dominance under Pakistan's competition legislation, specifically the Competition Act. Having a catch-all clause, section 3 of the Competition Act[20] lists several common abusive actions that a dominant corporation may partake in. The article will adhere to the structure of the legislation on abuse of dominance and investigate the situations in which IP lawsuits filed in bad faith may qualify as exploitation of dominance under section 3 of the Competition Act.

Lastly, this article examines comparative experiences from China and the EU to offer specific recommendations for Pakistan's anti-trust policies, given that the country lacks adequate experience in handling bad faith infringement of IP. Given that cases involving patent infringement frequently involve bad faith litigation, this study suggests for establishing possible antitrust objections. This study recommends that Pakistan take a clear-cut two-fold test[21] and benefit from comparative experiences when evaluating bad faith IP litigation depending on the Competition Act.

1. A.Two Pronged Test

Under Pakistan's Competition Act of 2010, this test is a helpful analytical tool for assessing whether bad faith IP litigation is a possible abuse of dominance. Objective Baselessness is covered as Prong 1, and Anti-competitive Intention acts as Prong 2. The CCP in Pakistan can evaluate allegations that intellectual property owners, particularly technological or pharmaceutical companies, are stalling licensing or preventing generic entry through sham litigation[22] by applying the Two-Pronged Test. Under Pakistan's antitrust structure, which makes sure that intellectual property rights aren't used as a weapon to undermine robust markets, this test is an essential instrument for assessing bad faith IP lawsuits. When determining abuse, the CCP and courts must consider both intent and

[16] Office of the United States Trade Representative, Special 301 Report (USTR April 2024) 47 (2024). (accessed 6 April 2025). URL: https://ustr.gov/sites/default/files/2024-Special-301-Report.pdf

[17] Amir Nadeem, The Enforcement of Competition Law in Pakistan: An Insightful Overview, 5(4) Tanazur Research Journal 20 (2024). (accessed 22 May 2025). URL:https://tanazur.com.pk/index.php/tanazur/article/view/434

[18] Mushtaq SA and others, The Importance of China's Competition Law in the Management of Data in the Country's Rapidly Developing Digital Economy: Policy Recommendations for Pakistan, 4 Current Trends in Law and Society 27 (2024). (accessed 25 May 2025). URL:https://doi.org/10.52131/ctls.2024.0401.0030

[19] See for more details; Trade Marks Rules (2004). (accessed 19 May 2025). URL: https://www.wipo.int/wipolex/en/legislation/details/3491

[20] Ibid 13

[21] Two components make up this test: objective and subjective evaluations. Which means to deter "patent trolling" by patent holders while guaranteeing the protection of legitimate IPRs.

[22] Colangelo AR, That's the Way the Cookies Crumbl: Using Antitrust to Punish Sham Trade Dress Litigation, 12 Belmont L Rev 670 (2024). (accessed 09 August 2025). URL: https://heinonline.org/HOL/LandingPage?handle=hein.journals/belmolre12&div=21&id=&page=

statutory validity.[23]

The format of this paper is: Part 4 explores the present anti-monopoly practices surrounding the IP's bad faith litigation in Pakistan. It offers a concise overview of the literature, discusses *the Hoffmann-La Roche case*,[24] on patent related bad faith litigation. Comparative experiences of the two key international antitrust states, China and the EU, are presented in Part 5. The case of *Huawei v. InterDigital* [25] is the focus of the Chinese section. The EU section examines case law about litigation in bad faith and examines the well-known antitrust cases of *ITT Promedia case*[26] and *AstraZeneca.*[27] Part 6 offers particular recommendations for the Competition Commission of Pakistan (CCP) and courts regarding how they should address cases associated with the bad faith infringement of IP (patents), which may amount to the abuse of a dominant position under the Competition Act, following an analysis of comparable legal experiences from China and the EU. It makes the point that Pakistan ought to apply antitrust objections in cases involving IP infringement and use a two-pronged evaluation process for cases involving IP presented in bad faith. Additionally, it lists two scenarios that the CCP ought to take into account when addressing anti-monopoly proceedings involving IP litigation in bad faith. The conclusion is given in the last section (Part 7).

IV. Pakistan's current approach

1. Literature Review

During the economic liberalization period, which spanned the 1990s to the early 2000s, there was a need to develop a law due to the increasing participation of the private sector.[28] Anti-competitive practices were not regulated in the available law which was Monopolies and Restrictive Trade Practices Ordinance, 1970 (MRTPO).[29]

The parliament of Pakistan passed the new law, the Competition Act, in October 2010. This law gave proper legal structure to CCP, with multiple key features. Prohibition of anti-competitive contracts, restriction of misuse of dominance, merger control and consumer protection are some highlighted features of CCP.[30] The Competition Act is considered as a milestone in the country's legal and economic development.

'Guidelines on Abuse of Dominance' [31] is another piece of law that was introduced in the

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[23] Hussain I, Shakoor U and Qaiser K, Enforcement Mechanism of IP Tribunals Decisions in Pakistan: Challenges and Opportunities, 3 Law Research Journal 113 (2025). (accessed 06 August 2025). URL: https://lawresearchreview.com/index.php/Journal/article/view/106

[24] F. Hoffmann-La Roche Ltd v Drug Regulatory Authority of Pakistan, Constitutional Petition No. 39 of 2014 (Sindh High Court, Karachi) (2014). (accessed 10 May 2025). URL: https://caselaw.shc.gov.pk/caselaw/view-file/MTUyOTE4Y2Ztcy1kYzgz

[25] Huawei Technologies Co Ltd v InterDigital Communications Inc, Shenzhen Intermediate People's Court, 4 February 2013; upheld by Guangdong High People's Court, 28 October 2013. (accessed 12 May 2025). URL: https://www.competitionpolicyinternational.com/assets/Uploads/AsiaNovember3.pdf

[26] ITT Promedia NV v Commission of the European Communities (Case T-111/96) [1998]. (accessed 10 May 2025). URL: https://curia.europa.eu/juris/liste.jsf?language=en&num=T-111/96

[27] AstraZeneca v Commission (T-321/05) [2010]. (accessed 13 May 2025). URL: https://curia.europa.eu/juris/liste.jsf?num=T-321/05&language=en

[28] Nadeem A, The Enforcement of Competition Law in Pakistan: An Insightful Overview, 5 Tanazur 20 (2024). (accessed 30 May 2025). URL:https://tanazur.com.pk/index.php/tanazur/article/view/434

[29] ibid

[30] Fatima S, Cartels under Competition Act 2010 of Pakistan: An Appraisal, 5 Journal of Law & Social Studies (JLSS) 491 (2023). (accessed 27 May 2025). URL:https://www.advancelrf.org/wp-content/uploads/2023/09/Vol-5-No.-3-8.pdf

[31] Guidelines on Abuse of Dominance: (accessed 20 May 2025). URL: https://cc.gov.pk/assets/images/guidlines/guidelines_section_3.pdf

Competition Ordinance in 2007, which was replaced by the Competition Act in 2010. The CCP issued these guidelines for the first time in 2009 under the, already in practice, competition ordinance 2007. Prohibited practices such as refusal to deal, unfair price differences, bundling and tying, and predatory pricing were outlined in these guidelines.[32]

After consultation with legal experts, economists and other stakeholders, the CCP introduced the Competition (Merger Control) Regulation.[33] In 2016, clear financial thresholds, strict timelines, pre-merger notification and remedies, in case of noncompliance, were introduced in these regulations. These regulations remained a keystone of the CCP while safeguarding competition to create a free and fair economic environment in Pakistan.[34]

There are few bad faith litigation cases in Pakistan like, *Hoffmann-La Roche case,* [35] and *Martin Dow v. Getz Pharma case.*[36] This paper will discuss *Hoffmann-La Roche case* for probing strengths and weaknesses of Pakistani IP related legislation.

A. Hoffmann-La Roche case

The *Hoffmann-La Roche case* is a notable example of patent-related bad faith exploitation of dominance. This case highlights the conflict between sole ownership of patents and the public availability of necessary medications in Pakistan. In this case, Roche's patented medication Pegasys, which treats hepatitis C, was at issue, and the Drug Regulatory Authority of Pakistan (DRAP) decided to permit generic copies of the medication to be sold in Pakistan.

Pegasys, for hepatitis C medication, is a product of Roche and pegylated interferon is its active ingredient. In Pakistan, Roche was granted the only patent for Pegasys, allowing it to produce, distribute, and market the medication without facing any rivals. However, due to its higher and affordable costs, compared with alternative generics, many patients were unable to obtain Pegasys. This is why, contrary to Roche's patent, the DRAP permitted regional drug manufacturers to create and sell generic forms of pegylated interferon. As public health matters a lot, this decision aimed to provide access to reasonably priced hepatitis C treatment. Since this case dealt with IP competition, some academics thought it was significant because it showed that Pakistan is not just committed to protecting IPRs but also steadfast in its efforts to combat any IPR abuses, in bad faith, that would prevent or limit competition.[37]

This case involves two legal problems: (1) Patent Protection vs. Public Concern: According to Roche, the generic copies can't be sold as it had the sole right to manufacture and market Pegasys under its patent protection. The goal of patent protection was allegedly undermined by Roche's argument that DRAP's approval of generics infringed upon its patent rights. (2) State Intervention and

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[32] Amir A, Zafar R and Rafi M, Trademark Counterfeiting in Pakistan: A Critical Analysis of the Legal Framework, 2 The Journal of Research Review 219 (2025). (accessed 18 May 2025). URL:http://thejrr.com/index.php/39/article/view/100

[33] Competition (Merger Control) Regulations :(accessed 19 May 2025). URL:https://cc.gov.pk/assets/images/regulations/updated/merger_regulation_2016.pdf

[34]Yuhui W, Appraisal of existing evidences of competition law and policy: Bilateral legislative developments of Sino-Pak,9 Heliyon, 5 (2023). (accessed 29 May 2025). URL:https://www.cell.com/heliyon/fulltext/S2405-8440(23)06143-1

[35] F. Hoffmann-La Roche Ltd v Drug Regulatory Authority of Pakistan (2014) (Sindh High Court, Karachi) Constitutional Petition No. 39 of [2014]. (accessed 13 May 2025). URL:https://caselaw.shc.gov.pk/caselaw/view-file/MTUyOTE4Y2Ztcy1kYzgz

[36] Martin Dow Ltd v Getz Pharma (Pvt) Ltd (Sindh High Court, Karachi) [2016]. (accessed 14 May 2025). URL: https://caselaw.shc.gov.pk/caselaw/view-file/MTU2MzMzY2Ztcy1kYzgz

[37] Xiong D and others, Characteristics of Trade Networks in Countries Along the Belt and Road and Their Impact on Innovation Capacity, American Journal of Economics and Sociology, 567, 573 (2025) (accessed 25 May 2025) URL:https://doi.org/10.1111/ajes.12621

Compulsory Registration: DRAP claimed that there was an urgent national need to provide access to low-priced medication for the treatment of hepatitis C which is a primary requirement in public health. This sparked debate about the government's ability to successfully balance IP rights with public health requirements by granting mandatory licenses or permitting generic manufacture, by mitigating bad faith litigation occurrence.

The court decision was in favor of DRAP and permitted the production and sale of generic pegylated interferon in Pakistan. In this case, Roche's essential patent rights were superseded due to the public interest and access to necessary medications. Moreover, the court recognized Roche's patent rights but still decided that the state had an obligation to safeguard the public's health. As of right now, the Hoffmann-La Roche case is the sole case involving competition law in Pakistan that incorporates bad faith litigation along with a non-challenge clause in patents. The ruling has several important ramifications, including (1) Public health which takes priority over patent protection, (2) essential medicine accessibility, (3) the possibility of bad faith litigation, and (4) the effect on foreign pharmaceutical-related investment.

This is the only case in which the court gave a verdict regarding bad faith litigation. The decision sets a standard for Pakistani courts and regulatory agencies by stating how to resolve disputes related to public health requirements, especially when it comes to necessary medications. Even though patent protection is compulsory, it still not be enforced if it leads to limited supply of essential medications due to higher costs and essential patent rights. The court tried to stop the possible bad-faith litigation by any other dominant firm.

(1.) Weaknesses in the decision

The court decision was in favor of DRAP and hence the Hoffmann-La Roche scenario in Pakistan serves as a reminder of the difficulties multinational firms may have when adjusting to local markets and the significance of the structural and cultural change in overcoming organizational obstacles. On the one hand court permitted the production and sale of generic pegylated interferon in Pakistan but the court recognized Roche's patent rights but still decided that the state had an obligation to safeguard the public's health.

However, on the other hand, the interest balance in the "Hoffmann-La Roche" was not taken into consideration by the Pakistani court. Access to justice, an essential right of humanity, is intimately tied to the control of IP lawsuits filed in bad faith.

V. Comparative Approaches: China and the EU

1. Bad Faith Litigation and Chinese Approach

The definition of anti-competitive practices was expanded by China's AML [38] in 2022 to incorporate IPR misuse, which includes bad faith lawsuits. These changes specifically dissuade powerful companies from utilizing litigation as a means of impeding rivals. Due to this expansion, it is now easy to enforce actions against companies who bring baseless cases, particularly in IP-related industries.[39]

[38] Anti-Monopoly Law (AML): (accessed 20 May 2025). URL:http://www.npc.gov.cn/zgrdw/englishnpc/Law/2009-02/20/content_1471587.htm

[39] Wu H and Dong Y, Data Intellectual Property Registration and Remedies: Yinmu (Shanghai) Technology Co, Ltd v Shujutang (Beijing) Technology Co, Ltd, Journal of Intellectual Property Law and Practice jpaf016, (2025). (accessed 15 May 2025). URL: https://doi.org/10.1093/jiplp/jpaf016

This amendment targets the misuse of IPRs, notably patents, which are frequently the subject of bad-faith lawsuits.[40] The AML currently deters businesses from using their IP rights in ways that are not meant to be used, such as bringing legal action to stall competition without valid grounds. In IP-related industries like technology and pharmaceuticals, where businesses have long employed legal claims to hinder competitors' market entry, this strategy has proven especially crucial. The financial incentives for businesses to use litigation as a strategy to restrict competition are introduced by China's AML reforms, by enacting fines or other sanctions for cases that are judged pointless.[41] Businesses that file lawsuits in bad faith are being looked at and punished more frequently by the State Administration for Market Regulation (SAMR). The SAMR has the authority to examine and penalize actions that limit competition or amount to abuse of power. This adds another layer of disincentive because when businesses file anti-competitive cases, they must take both the regulatory scrutiny and the court's decision into account.[42]

Chinese regulatory bodies promote sincere negotiation as a precondition for litigation in IP-related matters. This strategy deters businesses from jumping into court without using discussion as a dispute resolution method.[43] This is especially important in situations where disagreements are frequent, such as standard essential patents (SEPs) and fair, reasonable and non-discriminatory (FRAND) licensing. Chinese courts are increasingly encouraging arbitration and mediation to settle disputes without going to court. Arbitration and mediation have grown up in industries like e-commerce and pharmaceuticals, where bad-faith IP-related disputes can delay product launches.[44]

A. Huawei v. InterDigital case

The foremost antimonopoly lawsuit, considered completely in the claimant's favor, was *Huawei v. InterDigital* case. It is a historic case concerning bad faith ligation for SEP licensing in China. Huawei is a Chinese company that manufactures wireless communication devices. A US business called InterDigital is the owner of several telecom-related SEPs. Because SEPs constitute a requirement for producers to build similar technologies, companies such as Huawei are compelled to use them. In terms of licensing each SEP it owns, the Court determined that InterDigital is one of the leading companies in the market.

In 2008, Huawei and InterDigital agreed on an agreement to license for SEPs. Huawei contended that InterDigital's license fees were significantly greater than what it had provided to prior projects. Huawei filed a lawsuit against InterDigital, claiming that, despite InterDigital's promise to license its SEPs under the FRAND structure, the business had been abusing its market-dominating position, while imposing irrational licensing conditions. InterDigital's action amounted to an abuse of market power, according to Huawei. InterDigital obtained SEPs for the 3G network in this instance. InterDigital held the entire market share in the pertinent market because SEPs became necessary for manufacturers to develop the necessary technology. Thus, according to the Chinese court, InterDigital was deemed a

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[40] Cheng D and Zhao L, 'Main Amendments of Chinese Intellectual Property Law' in Cheng D, Yu X and Bacher K (eds), *New Progress of Regulations and Judicial Practice of Intellectual Property* 52 Springer Nature Singapore (2025). (accessed 25 May 2025). URL:https://doi.org/10.1007/978-981-97-6095-4_1

[41] Borst N, State and Market Tensions Throughout China's Economic Reforms' in Borst N (ed), *The Bird and the Cage: China's Economic Contradictions* 52 Springer Nature Singapore (2025). (accessed 25 May 2025). URL:https://doi.org/10.1007/978-981-96-3997-7_2

[42] Ju H and Li M, Object and Effects Tests in Resale Price Maintenance Cases in China, Journal of Competition Law & Economics 188, 195 (2025). (accessed 30 May 2025). URL: https://doi.org/10.1093/joclec/nhae021

[43] Chen T, Xu W and Zhao J, The Court as a Policy Information Discoverer: Evidence from China's Emerging Industries, 9 China Law and Society Review 1 (2024). (accessed 20 May 2025). URL:https://doi.org/10.1163/25427466-20240001

[44] Ahmad N, Smart Resolutions: Exploring the Role of Artificial Intelligence in Alternative Dispute Resolution, 73 Cleveland State Law Review 273 (2025). (accessed 18 May 2025). URL:https://heinonline.org/HOL/LandingPage?handle=hein.journals/clevslr73&div=19&id=&page=

dominating firm.[45]

The Court decided that InterDigital's US lawsuit was a fraud and not meant to safeguard its inventions. Since the two companies were still negotiating the terms of the licence, it was found that the patent rights claim of InterDigital was meant to force Huawei to accept its unreasonable licence requirements. Through bad faith infringement proceedings, InterDigital failed to stop Huawei from negotiating honestly about utilizing its SEPs, since it had promised to grant FRAND conditions to willing licensees. Infect Huawei was at a unique situation that was pertinent to SEPs. To ensure that their patents are incorporated into business norms, the SEP holders have committed to permit their patents to any interested licensee under FRAND conditions. If a SEP owner has the right to sue potential licensees for violation, they could be compelled to accept unreasonable terms even though they are likely to get the license in good faith. One could argue that InterDigital's practices are incompatible with the FRAND requirements because they require the company to grant licenses to SEPs on appropriate and equitable terms.[46] According to the European Commission, bad faith SEP litigation can result in two types of anti-competitive consequences: (a) it may impede prospective rival businesses from entering the market, (b) In contrast to what they could have agreed under FRAND terms, it might persuade prospective licensees to agree to unfavorable licensing provisions. [47] Additionally, it should be mentioned that while SEP holders are required by FRAND to engage in negotiations with possible licensees, various countries may evaluate the behavior of entities engaged in SEP licensing negotiations based on a distinct set of predetermined standards.[48]

B. Qualcomm v. NDRC case[49]

In the *Qualcomm v. NDRC* case, Qualcomm was abusing its power by preventing Chinese smartphone makers from contesting its IP claims through the use of hefty licensing fees and legal threats. The matter was resolved by committing to more equitable licensing procedures in China and accepting a $975 million fine. Regarding bad faith IP-related litigation, this case was a turning point as it demonstrated China's opposition to anti-competitive proceedings through forceful IP compliance. In this case, Qualcomm was compelled to implement clear and smooth license conditions, and this case opened up more investigation ways in which powerful companies utilize intellectual property lawsuits to stifle competition.[50]

2. Bad Faith Litigation and the EU Approach

Competition-restricting lawsuits in bad faith are prohibited by EU competition law. According to

[45] Li X, Cheng Z and Du M, Standard-essential patent legal protection in China's telecommunication industry: an international trade and economy perspective, 32 Asia Pacific Law Review 504 (2024). (accessed 29 May 2025). URL: https://doi.org/10.1080/10192557.2024.2349374

[46] Effraimidis G, Werner D and Boushie K, Determination of FRAND royalty rates: an examination of prominent SEP cases, 19 Journal of Intellectual Property Law and Practice 64 (2024). (accessed 25 May 2025). URL:https://doi.org/10.1093/jiplp/jpad112

[47] EU Commission Case. For more details see paragraph 62: (accessed 11 May 2025). URL: https://ec.europa.eu/competition/antitrust/cases/dec_docs/39939/39939_1501_5.pdf

[48] Schmitt VJ, Disentangling patent quality: using a large language model for a systematic literature review, Scientometrics 1 267, 288 (2025). (accessed 11 May 2025). URL: https://doi.org/10.1007/s11192-024-05206-w

[49] Qualcomm Inc v National Development and Reform Commission, NDRC Decision, 10 February 2015 (China). (accessed 15 May 2025). URL: https://www.chinalawinsight.com/2015/03/articles/compliance/ndrcs-qualcomm-decision%EF%BC%9Aa-warning-to-patent-heavy-companies/

[50] Wei Han, The PRC NDRC Case Against Qualcomm: A Misguided Venture or Justified Enforcement of Competition Law? 5(1) Journal of Antitrust Enforcement 76 (2017). (accessed 10 May 2025). URL:https://doi.org/10.1093/jaenfo/jnw005

Professor Lianos, it is frequently referred to as "vexatious litigation" in European literature.[51] Both the China and EU have "singularly close" doctrines on bad faith litigation, even though there are few disparities between their antitrust laws.

A. AstraZeneca case

In the EU, the *AstraZeneca* case is a well-known example of vexatious anti-competitive litigation. This case showed that when a dominating firm sues its rivals, it could be considered abuse. In this instance, it was determined that AstraZeneca had misused its power by strategically suing to prevent generic competition after deceiving patent authorities to secure longer protection. Since this behavior resulted in the unfair exclusion of competitors, it was considered vexatious because of the infringement of article 102 of Treaty on the Functioning of the European Union (TFEU).[52]

AstraZeneca was fined €60 million by the EU Commission, which emphasized that manipulating regulatory procedures to impede competition is unacceptable. Although AstraZeneca filed an appeal against this court order, the General Court sustained the fine along with the majority of the findings. Four fundamental legal principles were established, and they are as follows: (a) Regulatory Exploitation as an Abuse of Dominance: Businesses that hold a dominating position in the market are not permitted to impose restrictions on competition through regulatory procedures. (b) Objective Justification: While businesses may have good commercial reasons for requesting extensions of IPRs, these justifications are inadmissible if their main goal is to impede competition. (c) Intent as a Sign of Abuse: The Court stressed that behavior is abusive if it shows a desire to manipulate regulatory tools only to hurt other businesses. (d) Importance: The decision reaffirmed the requirement that businesses operating in regulated sectors, like medicines, behave honestly.[53]

B. ITT Promedia case

Another significant EU competition law case that explains when bad faith litigation by a dominating corporation could be considered dominance abuse under article 102 of TFEU is the *ITT Promedia case.* Belgium's Belgacom was the leading service provider of voice telephones, in this particular case. Belgacom had been working with Promedia for various years. The company was able to release telephone directories by having access to Belgacom's dataset. As their collaboration came to an end, Belgacom filed a national court lawsuit against Promedia for stealing its database. By bringing national cases against Belgacom, Promedia appealed to the EU Commission, claiming that the company had taken advantage of its market dominance. Promedia's allegations were dismissed by the EU Commission, which also offered a two-part test to determine whether a dominant corporation engages in vexatious litigation to misuse its dominance. (a) The behavior can only be used to harass the other party because it cannot be logically interpreted as an effort to validate the rights of the enterprise in question and (b) the behavior is envisioned within a strategy aimed at eradicating competition.[54]

Promedia challenged and contended in front of the court that the Commission's standard was

[51] Lianos I and Regibeau P, "Vexatious'/'Sham'Litigation in EU and US Antitrust Law: A Mechanism Design Approach, 62 Antitrust Bulletin (2017). (accessed 25 May 2025). URL:https://ssrn.com/abstract=3076073

[52] Treaty on the Functioning of the European Union: (accessed 09 April 2025). URL: https://eur-lex.europa.eu/EN/legal-content/summary/treaty-on-the-functioning-of-the-european-union.html

[53] Hans Zenger and Mike Walker, AstraZeneca Judgment: Implications for IP and Regulatory Strategies, 1(6) Journal of European Competition Law & Practice 500 (2010). (accessed 25 May 2025). URL:https://doi.org/10.1093/jeclap/lpq057

[54] J. Głowacki, The Interface Between EU Competition Law and Standard Essential Patents – From Orange-Book-Standard to the Huawei Case, International Review of Intellectual Property and Competition Law, 367 (2016). (accessed 21 May 2025). URL:https://doi.org/10.1080/17441056.2015.1123455

improperly applied. Since accessibility to the Court is an inherent right and an umbrella concept that ensures the rule of law, the court upheld the two-part test's legality, ruling that it is only in extremely rare situations that a finding in which the emergence of legal actions may be seen as a misuse of market power. In evaluating the first test part, it was ruled that the Court was in charge of determining whether the dominant firm had a reasonable belief on the legal foundation, not to investigate whether legal privileges existed at the time of the litigation. [55] Although Belgacom filed a lawsuit against Promedia, the General Court determined that Belgacom believed the activities had legal grounds and did not constitute vexatious. Here, the first criterion was not satisfied. The General Court maintained the Commission's ruling since the two-part test is 'combined' and it was deemed unnecessary to proceed with the evaluation of the second part.[56]

Both objective and subjective elements are included in the two-part test. When a dominating corporation tries to assert its legal rights in court, the first section looks at whether it thinks it has those rights. The opposite party would be harassed by the dominating undertaking's assertion if it lacked a right. The second part of the test determines the reason for filing a lawsuit by a dominant company. Moreover, competition legislation shouldn't apply if a company brings a bogus case solely due to its carelessness.[57] In some cases, competition regulators must concentrate on cases, which are in bad faith, presented by a dominating corporation.

C. Summary

In recent times, China and the EU are the biggest antitrust regions, which shows that suing people in bad faith over IP, including patents, can amount to abusing market power. In cases involving bad faith, the court must determine whether the dominant firm's suit is factually lacking probable reason and how much the dominating company consciously wants to harm rivals. Additionally, it was maintained, under article 102 of TFEU, that the prolonged litigation could be considered a kind of market dominance abuse. The US technique, which necessitates both objective and subjective parameters, is comparable to the test called ‘two-pronged’ that was developed *ITT Promedia* case.

A bad faith lawsuit has previously been evaluated by Chinese competition regulators and courts. AML may be violated by bad faith litigation about SEPs, according to *the Huawei v. InterDigital* case ruling of a Chinese court. However, neither a specific standard nor the relationship between antitrust involvement and the capacity to access the court was considered by the court. Similar regulations have been implemented in China, especially under its AML, which has the power to punish powerful companies that misuse intellectual property rights to stifle competition. After AML amendments in 2022, China's competition agencies have been closely examining "sham" or bad faith IP litigation, particularly patent litigation. Similar to the *ITT Promedia case's* focus on both the absence of merit and anti-competitive purpose, the SPC of China has made it clear that IP rights ought not to be abused unfairly to eliminate rivals.

IV. Bad faith litigation: Suggestions for identifying and improving patents’ enforcement in Pakistan

It has been shown through comparative findings that patent lawsuits in bad faith may be a market dominance violation. The Competition Act of Pakistan, under section 3, enumerates several actions

[55] D. Bosco, Reconsidering the Limits of EU Competition Law on the IP-Competition Interface, 15(3) Journal of European Competition Law & Practice 188 (2024). (accessed 25 May 2025). URL:https://doi.org/10.1093/jeclap/lpae021

[56] Brancusi L, A multi-perspective view on visibility in EU design law, 19 Journal of Intellectual Property Law and Practice 648 (2024). (accessed 19 May 2025). URL: https://doi.org/10.1093/jiplp/jpae019

[57] Lachenbruch PA, Comparisons of two-part models with competitors, 20 Statistics in medicine 1215 (2001). (accessed 25 May 2025). URL: https://doi.org/10.1002/sim.790

that could be considered abuses of market power. Although this list does not directly contain bad faith litigation, the CCP is authorized to identify additional types of abusive conduct outside of the list under the umbrella provisions of sections 3 and 4. Using the lessons learnt from the EU and China, this paper offers several recommendations for evaluating bad faith lawsuits under Pakistan's competition law, especially as they pertain to patents.

In previous few years, there is a huge rise in patent related violations in Pakistan.[58] Although there haven't been many reported incidents in Pakistan where a dominant company has abused its position of power and used patent infringement lawsuits to hurt rivals, this number is probably going to rise shortly. Legislators and the CCP have also understood that it is unlawful to litigate IPRs in bad faith.

Some key enforcement concerns include: 1- weak system for examining patents, 2- lack of definite judicial precedents, 3- inadequate barriers against bad faith allegations, and 4- restricted openness and patent data accessibility. Moreover, due to bad faith litigation, delays in market entry, increase in cost of doing business and overburden on the judiciary take place.

Research from China and the EU shows that competition authorities must maintain a fair balance between the capability to seek justice and other rights. Pakistani attorneys similarly believe that everyone has a basic right to access the legal system.[59] Regarding the connection between patents and competition law, Pakistan is currently under a lot of pressure to make sure that IP is fairly and openly enforced.[60] Therefore, Pakistan must create a precise methodology to identify the kinds of patent cases that the Competition Act might classify as abuses of market power. Some particular recommendations are made in the following part.

1. Allowing opposition to antitrust in an IP-infringing case

As long as the dominant corporation acts in bad faith, a lawsuit brought by a dominating enterprise, against the other party, for supposedly breaching the complainant's IP may be considered an abuse of dominance. This kind of litigation across Pakistan might be handled in three different ways. First, because of its bad faith IP complaint, the dominant company (A) may be the subject of an antitrust inquiry by the CCP. Second, in a different court case, company (B) may bring another civil suit against A. Thirdly, company (B) has the right to make a unilateral objection that the IP infringement complaint was brought in bad faith and amounts to an abuse of the dominating position.

Filing a separate infringement civil complaint against company (A) or reporting the claimed bad faith litigation to the CCP could be costly and time-consuming for company (B). For this reason, comparative experiences show that in cases involving IP infringement, bad faith action frequently arises as a response. It might be considerably simpler for company (B) to openly counterclaim that company (A) misuses its market position by pursuing the IP counterfeiting litigation in bad faith. The CCP will instantly reject the violation lawsuit if the prosecuting attorney finds bad faith, which is B's claim.

Nevertheless, antitrust counterclaims in an IP infringement litigation have not yet been defined by Pakistani competition law. There are no known instances where the CCP or judge ruled that

[58] Shafi M and others, Geographical indications (GIs) protection in Pakistan: assessing the role of new legislation in sustainable development, Asian Journal of Technology Innovation 1 (2024). (accessed 20 May 2025). URL:https://doi.org/10.1080/19761597.2024.2353361

[59] Nishan-E-Hyder Soomro and Wang Yuhui, Competition Law in Pakistan and China: A Comparative Study, 14(2) Journal of Politics and Law 1 CCSE +3 (2021)

[60] ibid

IP litigation brought in bad faith qualifies as an antitrust complaint. According to this study, Pakistan ought to approve competitive objections in IP infringement cases. It is recommended that the CCP revise its legal definitions of all forms of IP, such as patent, copyright, and trademark, to include a clause allowing the respondent to argue that the lawsuit brought by the complainant may amount to an abuse of dominance. The complainant's arguments should be rejected by the CCP or court if the IP lawsuits were filed in bad faith and constituted an abuse of power.

In this study, several concrete recommendations are made to solve these issues. First of all, it is recommended that the CCP should issue precise rules regarding the extent and use of antitrust counterclaims. The CCP should, for instance, state that certain Pakistani courts with a strong background in both competition and IP law, like the Securities and Exchange Commission of Pakistan's (SECP) tribunals and the high courts' special benches for IP-related cases, are qualified to handle cases involving IP infringement and antitrust objections. If the respondent in a particular IP infringement case claims that the case amounts to abuse of dominance as a counterattack against antitrust, the cases need to be referred to and managed by specialized IP courts. It is recommended that the court notify the CCP for additional antitrust inspections if it determines the existence of an antitrust allegation to facilitate collaboration amongst various legal agencies.

Second, it is essential to give Pakistani judges and legal professionals resources and training because they might not be well-versed in antitrust defenses. Additionally, Pakistan ought to speed up the processes for the filing and resolution of antitrust objections to lessen the unjustified load on respondents.

In summary, the CCP and competition authority must consider whether the dominant business intends to use bad faith litigation to limit competitiveness along with the objective criterion. It is possible to deduce an anti-competitive purpose from the dominating company's actions. For example, some observers contend that repeated bad faith complaints by a dominating organization might indicate that the organization possesses a "plan" to eliminate competition.[61]

2. Employing a two-pronged methodology to determine whether IP litigation was filed in bad faith

Arguably, the protection of IP may be impacted in some way by the antitrust interference of bad faith lawsuits.[62] For this reason, the CCP and courts must develop a clear-up rule for evaluating bad faith proceedings so that owners of IP can determine when their case may be subject to antitrust examination.

This study suggests a two-part examination for CCP and Pakistani competition agencies based on the comparative experiences learnt from both countries. The objective and subjective assessment are key objective under this test.[63] The objective assessment analyze the following: 1- does the plaintiff holds a valid IP right? 2- Whether the infringement or unfair competition claims have any legal foundation, even if the litigation result is unsuccessful, and 3- The courts can assess whether the

[61] Milner, Defining Unfair Methods of Competition in the Federal Trade Commission Act. Wis. L. REv., 109 (2023). (accessed 30 May 2025). URL:https://heinonline.org/HOL/LandingPage?handle=hein.journals/wlr2023&div=6&id=&page=

[62] Ling Ling He, On Re-invigorating the Australia-China Free Trade Agreement Negotiation Process, 14 The Journal of World Investment & Trade 690 (2013). (accessed 21 May 2025). URL:https://brill.com/view/journals/jwit/14/4/article-p672_4.xml?ebody=References

[63] Borgogno O and Colangelo G, European Commission's Draft Regulation on SEPs: An IP Finance Assessment, 73 GRUR International 1067 (2024). (accessed 23 May 2025). URL: https://doi.org/10.1093/grurint/ikae118

plaintiff has actually used the right for business or just filing in bad faith, to hamper competition.[64] Similarly, the subjective assessment examine the following: 1- whether the party withhold the important information or involve in misrepresentation the facts, to gain market advantage, 2- to see if the plaintiff using injunctions as a business tactic, to delay the litigation process, and 3- the court may look if the plaintiff has involved in vexatious litigation.[65]

The competition authority or CCP should only classify a claim of patent infringement brought by a dominant corporation targeting its competitors as a case of bad faith if the complaint is demonstrable without merit. In other words, a rational patent holder is unlikely to anticipate winning such a case of infringement, therefore the action can simply serve to intimidate other competitors. Sometimes it is more crucial to ascertain if the dominant corporation legitimately believes that the litigation is without merit than it is to ascertain whether an enforceable legal right exists, as courts have determined in numerous cases, across the globe.[66]

Pakistan can learn, from the individual competition statutes of China and the EU, regarding the evaluation of bad faith IP litigation as abuse of dominance by applying this test, as shown below:

	The EU	China (AML)	**Pakistan (Competition Act, 2010)**
Objective Baselessness (Prong 1)	According to Article 102 TFEU, the deliberate application of legally or regulatory processes that are objectively baseless, that is, without a reasonable chance of success, amounts to a misuse of power.[67]	According to Article 22 of the AML, bringing IP action without a proper legal basis is an exploitation of dominance, particularly where the patent is known to be void or ineffective.[68]	No legal foundation or merit, false or pointless litigation. Pakistan need to learn it from China and the EU
Anticompetitive Purpose (Prong 2)	An enforcement action that targets	If the primary goal or consequence of IP	Implementation of Prong 2 is unclear

[64] Wu P, Bad faith litigation of intellectual property as a violation of China's anti-monopoly law: How should the current approach be improved?, (2024) 32 Asia Pacific Law Review 60 (2024). (accessed 10 May 2025). URL:https://doi.org/10.1080/10192557.2023.2274634

[65] Yarmak A, Trade mark dilemmas in the Metaverse: interplay between stakeholders, Journal of Intellectual Property Law and Practice jpae118 (2025). (accessed 10 May 2025). URL:https://doi.org/10.1093/jiplp/jpae118

[66] Gold AS and Smith HE, The Equity in Corporate Law, 100 Notre Dame Law Review 789 (2025). (accessed 25 May 2025). URL:https://heinonline.org/HOL/LandingPage?handle=hein.journals/tndl100&div=16&id=&page=

[67] Kalintiri, A, EU antitrust law's resilience: the good, the bad, and the ugly, *Yearbook of European Law*, yeae009 (2025). (accessed 06 August 2025). URL: https://doi.org/10.1093/yel/yeae009

[68] Wang, Y, *The application of the Chinese Anti-monopoly Law to anti-competitive practices of patent owners when exploiting their rights,* (Doctoral dissertation, University of Glasgow) (2018). (accessed 06 August 2025). URL: https://theses.gla.ac.uk/30747/

	other competitors or possesses the effect of limiting competitiveness may be considered an abuse of dominance, even if it is not wholly without merit.[69]	action is to exclude or repress competition instead of preserving genuine rights, it may still qualify as an abuse of dominance under Article 22 of AML regardless of whether it has some legal foundation.[70]	since Pakistan's Competition Act lacks comprehensive regulatory direction on assessing the anti-competitive motive behind IP litigation. In this sense, Pakistan needs to take a cue from China and the EU.

3. Circumstance where a de facto standard is connected to a patent

The case laws, discussed in this study, provide a way forward for Pakistan, to enact its IP-related laws, especially regarding patent protection. A different situation could arise if a patent is linked to a de facto standard. An outline of SEP-related bad faith litigation can be found in the *Huawei v. InterDigital* case. The features of SEP-related circumstances are outlined from two perspectives: (a) the patent in dispute is essential in such a way that all manufacturers are required to employ it for supplies that ought to adhere to the standard, (b) developers have reasonable hopes of obtaining a permit for SEPs using FRAND terms.[71] Due to these attributes, actions by SEP owners that are inconsistent with the FRAND pledge, including bringing a lawsuit in bad faith to get irrational conditions, may be considered abuses under the competition law.

A patent can serve as a 'de facto' that grants market dominance when it is incorporated into a formal standard that has been released by a standardization organization.[72] Therefore, it is probable that the CCP and Pakistani competition institutions would detect litigation in bad faith if (1) the dominating company is required, by competition law, to share patents, (2) the CCP imposes a FRAND responsibility on the dominating enterprise, and (3) dominating organization files a lawsuit for irrational trading conditions.

4. A few potential ramifications of the suggestions

This study makes several recommendations to the CCP and Pakistani competition bodies on the

[69] Auer, D., & Radic, L, The Commission's Art. 102 TFEU guidelines: consolidation or creation?, *European Competition Journal*, 1. 9 (2025). (accessed 06 August 2025). URL:https://doi.org/10.1080/17441056.2025.2511419

[70] Zhang, Z., & Wu, B, Governing China's administrative monopolies under the anti-monopoly law: a ten-year review (2008–2018) and beyond, *15*(1) *Journal of Competition Law & Economics*, 718, 721 (2019). (accessed 06 August 2025). URL: https://doi.org/10.1093/joclec/nhz009

[71] Singh M, Licensing of SEPs and the Determination of FRAND' in Singh M (ed), *Standard-Setting Organisations, IPR Policies: Intellectual Property and Competition Issues* 90-91 Springer Nature Singapore (2022). (accessed 29 May 2025) URL:https://doi.org/10.1007/978-981-19-2623-5_4

[72] Pantelidis K, Divisional patents: a system prone to abuse, 13 Journal of Antitrust Enforcement 76 (2025). (accessed 29 May 2025). URL:https://doi.org/10.1093/jaenfo/jnae021

evaluation of bad faith lawsuits about patents. To analyze the misuse of dominance, the company in question have significant dominance in the pertinent market. According to this paper, Pakistan ought to investigate cases, which are in 'bad faith', from objective and subjective standpoint by learning from comparable experiences from the EU and China. There are primarily two situations in Pakistan where bad-faith litigation of patents may take place. One is, that competitors may be sued by a dominating company for patent infringement. The second is that, similar to Huawei's case context concerning SEPs, a dominant company may file a bad faith complaint once the patent establishes a de facto standard.

One could argue that the aforementioned suggestions might have some impact on Pakistani IP professionals and owners. IP holders and practitioners who file such litigation may be more vulnerable to antitrust investigation if antitrust objections are established. Considering this, establishing an antitrust counterclaim is difficult since the respondent has to demonstrate the three components of abuse of power: abusive behavior, market definition, and market domination.[73] Furthermore, the two-prong approach can affect the claimants' obligation to proof. It should be clear under Pakistani law that the onus is on the respondent to prove that the objective and subjective requirements have been met.

Under Pakistani law, the rights and responsibilities of intellectual property professionals and owners might be impacted by the suggested proposals. For example, the ability of IP holders to assert their IP will typically not be impacted since it is typically challenging to ascertain whether an IP owner holds a dominating position in the pertinent market. However, if the legal action taken by the owner of the IP is deemed to be abusive, it might be dropped. Establishing clear two-pronged criteria for litigants is vital to maintaining an equilibrium between antitrust involvement and access to equality, allowing them to understand the conditions in which the case may be deemed abusive.[74] Pakistani law ought to state that IP is not required to prove that the case was started in good faith to prevent deterring the holder of the property from bringing a lawsuit. The onus ought to fall on the respondent to demonstrate that the lawsuit violated antitrust laws.

Finally, it should be mentioned that societal and cultural variations may influence how Pakistani courts evaluate cases involving IP that are filed in bad faith. One could argue that Pakistani society has historically placed a high value on protecting one's face and interpersonal relationships, which could make it more difficult for the CCP to convict a dominating firm of bad faith proceedings, especially when the petitioner is a significant local organization. Additionally, China has a distinct political and financial framework, with the government playing a crucial role in financial decision-making and the economy being controlled by state-owned enterprises.[75] Pakistan could learn from the Chinese example since the government of China has recently recognized that competition policies, rather than industrial, ought to be the primary driver of economic growth. It is argued that the CCP and courts need to concentrate on the aims of the competition and consider both government-owned businesses and private businesses identically whenever assessing the bad faith lawsuit of IP.

VII. Conclusion

According to this study, bad faith lawsuits involving patents are abusive behavior. The EU, China and Pakistan, all three acknowledge that a dominant company's bad-faith IP lawsuits may amount to market power abuse. Pakistan lacks significant expertise in handling situations of patent litigation in

[73] Druckman J, Patent Assertion Entities, Antitrust And Sham Litigation: Creating An Exception To The Noerr-Pennington Doctrine For Paes, 30 UCLA Journal of Law & Technology (2025). (accessed 20 May 2025). URL: https://research.ebsco.com/c/xs4s2a/viewer/pdf/bdient4m75

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bad faith when compared with the other regions. According to this argument, Pakistani competition regulators ought to examine these issues using both objective and subjective standards. The situations where a patent acquires a de facto standard ought to be specifically considered by the competition agencies.

The following findings are reached after this paper's examination of some comparable experiences from both China and the EU. As both regions, China and the EU, are the two biggest antitrust jurisdictions, showing that suing someone in bad faith over IP can amount to abusing market power.

Comparative analyses have shown that intellectual property lawsuits filed in bad faith may be considered abuses of market dominance under competition law. Article 22 of China's anti-money laundering law has been said to include several actions that could be considered abuses of market dominance. The umbrella clause under Article 22 permits the competition authority to determine more types of abusive activities outside of the list, even though bad faith litigation is not expressly covered by this list. Additionally, the EU competition agency and court maintain that, according to article 102 of TFEU, offensive litigation could lead to the abuse of a market-dominating position. The ITT Promedia's two-pronged test necessitates both objective and subjective requirements.

Along with defining the current situation in Pakistan, this article offers some particular suggestions regarding the prosecution of IP in bad faith as an antitrust infringement. In evaluating IP cases with bad faith litigation, the CCP and courts lack expertise. To analyze the misuse of market authority, it is assumed that the enterprise in question should have significant influence in the pertinent market. According to the article, Pakistan ought to file antitrust objections in an IP misappropriation case. Furthermore, when it comes to IP litigation in bad faith, the CCP and courts ought to take into consideration both objective and subjective situations. In certain situations, such as the Huawei v. InterDigital case, a dominating corporation may sue rivals for IP infringement even when the dominant business lacks legitimate IP rights. In a different case, a dominant enterprise might bring bad faith cases that damage rivals by breaking FRAND rules once IP becomes a (de facto) standard.

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