

The Role of Progressive Law and Legal Culture in Optimizing FinTech Services

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Abstract— The lack of regulations that support technological developments in the FinTech service sector in Indonesia limits the technological innovation of industry players and the trust of service users more optimally. To analyze the regulatory and legal cultural aspects in optimizing FinTech services in Indonesia, qualitative descriptive research methods are used. The primary and secondary data that have been obtained are then analyzed through three stages, namely data reduction, data presentation, and inductive conclusion drawing. The results showed that interviews with users of fintech services revealed concerns about data security and a lack of understanding of risks, such as high interest on online loans. Industry players highlight overly rigid regulations, especially related to blockchain technology and AI, which slow down innovation and create challenges in global competition. Existing regulations, such as POJK 77/2016 and the PDP Law, are considered not comprehensive in accommodating technological developments, while regulations related to crypto assets and AI are still limited to general guidelines. Based on progressive legal theory, adaptive and responsive regulation will be able to encourage technological innovation, provide consumer protection, and accelerate the adoption of new technologies. Legal culture theory emphasizes the importance of digital literacy in increasing public trust in fintech services. The combination of these two theories provides a solid foundation for optimizing fintech services by creating an inclusive, secure, and sustainable financial ecosystem.

Keywords— *Digital Literacy; FinTech; Legal Culture; Progressive Law; Social Change*

I. INTRODUCTION

Technological advances accompany changes in people's habits in meeting their daily needs. The rapid development of technology has changed the way humans interact with borderless [1]. Technology is now an important and inseparable part of various aspects of life [2], including financial needs that no longer depend on the traditional banking system. People are starting to turn to technology-based services known as financial technology (FinTech) [3]. FinTech is a technological innovation that provides convenience in financial services efficiently [4].

FinTech plays a role in expanding people's access to digital financial services. Digital transformation in the FinTech services sector offers convenience and flexibility [5]. The innovation makes it easier for small business actors to participate in improving the national economy [6]. The flexibility of its use can increase turnover as well as people's welfare along with business development [7]. FinTech services have replaced several roles of conventional banks, such as payments, transfers, and loans [8]. FinTech contributes by providing and opening wider access in the financial sector for the public to facilitate their activities [9]. Bank Indonesia recorded digital financial transactions in Indonesia reaching Rp 4,000 trillion in 2023 [10]. The use of digital wallets has reached around 184.3 million people (64.8% of the total population) in 2024 [11].

To further optimize the potential of FinTech, new regulations that are smart and adaptive are needed [12]. Current regulations have not fully accommodated the rapid development of technology safely and efficiently [13]. Law No. 11/2008 on Electronic Information and Transactions (ITE) only generally regulates electronic transactions to electronic contracts and does not explicitly mention blockchain technology. Financial Services Authority Regulation Number 77/POJK.01/2016 on Information Technology-Based Money Lending and Borrowing Services

(POJK) only provides a basis for digital financial services, but does not discuss the use of blockchain technology in depth. This lack of a clear legal framework creates uncertainty for FinTech industry players who want to implement blockchain in their services. Blockchain allows transactions conducted through FinTech to be more secure and efficient, which is expected to increase the level of trust of its users [14].

Without blockchain, FinTech services are more vulnerable to security, lack of transparency, less fast transaction processes, cost inefficiencies, and reliance on third parties. The case of dissemination of personal data by debt collectors on online loan services [15] and ransomware attack on PT Bank Syariah Indonesia [16] shows weak consumer protection. This unsecured data security not only harms users, but also has a direct impact on declining trust in FinTech services, thereby hindering user adoption.

In addition, cryptocurrency-related regulations. FinTech platforms started to offer services related to cryptocurrencies, such as digital payments, investments, and crypto-based loans [17]. As these cryptocurrencies are different from the currencies issued by the authorities [18], the Indonesian Government prohibits the use of cryptocurrencies as a means of payment through PBI Number 18/40/PBI/2016 on the Implementation of Payment Transaction Processing and PBI Number 19/12/PBI/2017 on the Implementation of Financial Technology. The Financial Services Authority (OJK) and the Commodity Futures Trading Supervisory Agency (Bappebti) allow the trading of crypto assets as commodities based on Bappebti Regulation Number 8 of 2021.

The lack of adaptive regulations has also led to a decline in public trust in FinTech services. Legal uncertainty raises concerns about potential fraud and security risks, especially in digital transactions. People feel hesitant because there is no legal certainty that protects them, especially with the rise of fraud cases in FinTech. The digital literacy rate in Indonesia is only 34.57%, indicating that most people still do not understand the products, features, and risks of FinTech services [19]. As a result, many users are reluctant to switch from conventional services, so user adoption of FinTech services has been slow [20], [21].

With the rapid development of technology in the financial sector today, this research is very important. Rapid technological developments in the digital financial sector require the law to not only regulate, but also to be proactive in responding to new innovations that arise can be studied through Satjipto Rahardjo's progressive legal theory. Through this theory, laws are made not just formal rules, but laws are made to serve human behavior that is in harmony with human values and must be responsive to social changes [22]. Meanwhile, digital literacy, which is a new culture in community activities, is studied using one of the elements of the legal system expressed by Lawrence M. Friedman, namely legal culture [23]. Legal culture includes people's attitudes, values, beliefs, and perceptions of the law, which affects the extent to which the law is accepted, obeyed, or ignored [24].

Previous studies have been conducted by Rahmaini and Lubis where the main problem of FinTech implementation is the security of consumer personal data such as data leaks, data misuse, and illegal trade of personal data, without discussing the aspects of adaptive legal culture and regulations in the FinTech service sector [25]. A study related to technological innovation in the FinTech service sector that is growing faster than regulations has been carried out by Aradhita Deb where in its conclusion flexible and visionary regulations are needed, but the research has not explored the role of progressive law in dealing with the changes that occur [26]. Research that focuses on regulations related to P2P Lending consumer protection has been conducted by Ratih Pratiwi and her colleagues but does not integrate the role of progressive law or legal culture [27].

The research aims to analyze regulations and legal culture in optimizing fintech services. Changes in people's habits encourage technological innovations that make it easier to access financial services. The law must be able to adapt to these developments in order to remain relevant. Progressive legal theory is used to assess the adaptability of regulations to technological innovations. Responsive regulation is needed for fintech services to thrive without neglecting consumer protection. The results of this research are expected to be a practical foundation for the community and stakeholders in improving fintech services with comprehensive regulatory support.

II. METHOD

This study uses qualitative methods to describe the challenges of fintech services in Indonesia. The focus is on regulations and legal culture that affect service optimization. Primary data was obtained through interviews with five key informants, consisting of three users and two fintech industry players. Secondary data comes from literature studies, including regulations and official publications. Data analysis is carried out by data reduction to identify key patterns. The filtered data is presented in the form of a descriptive narrative. Conclusions are drawn inductively based on empirical findings to provide a comprehensive picture of fintech services.

III. RESULTS AND DISCUSSION

A. Fintech Services in Indonesia: Potential, Challenges, and Regulatory Needs of New Technologies

Financial technology or FinTech is an innovation in the financial sector that utilizes digital technology to provide faster, more efficient, and accessible services [28]. FinTech offers various solutions for financial needs, ranging from digital payments, investments, to insurance [29]. The presence of fintech in Indonesia has changed how people interact with traditional financial services, making financial access more inclusive [30]. Based on OJK data, by the end of 2023, more than 200 registered fintech operators served people from various segments [31].

Digital payment services through apps such as GoPay, OVO, and Dana are the most popular. Online loan services or peer-to-peer (P2P) lending help MSMEs get faster financing

than conventional banks [32]. Digital banks such as Jenius and Blu provide banking alternatives without physical offices, while platforms like Bibit and Ajaib facilitate small-capital investments. Digital insurance services are also starting to gain public attention as a practical financial protection solution.

Technological advancements drive transformation in fintech services, particularly through blockchain and artificial intelligence (AI) [33]. Blockchain enhances transaction transparency and security by recording data in a distributed system [34], ensuring user data integrity and reducing manipulation risks [35]. Meanwhile, AI analyzes data, provides personalized recommendations, and detects fraud risks. However, technology adoption in Indonesia is still limited due to cost, resource, and regulatory constraints [36].

Industry players operate under existing regulations. The 2022/2023 FinTech members' annual report shows that 49.3% of fintech industry players comply with international standard regulations [37]. Most fintech players in digital payments, such as GoPay, OVO, and Dana, operate without blockchain or AI, relying on simpler systems for transaction efficiency. Some fintech companies, such as Pintu, use blockchain for crypto transactions, ensuring transparency and security [38]. AI-based fintechs, such as Bibit and Ajaib, use AI to analyze risk profiles and provide personalized investment recommendations. Tokocrypto combines blockchain for transaction transparency and AI for fraud detection [39].

The lack of specific and comprehensive regulations on blockchain and AI poses risks for industry players and consumers [40]. Blockchain, despite ensuring security, can be misused for illegal activities like money laundering or terrorism financing if not strictly monitored [41]. AI, without ethical and technical standards, may lead to algorithmic bias, discrimination in credit analysis, or harmful automated decisions [42].

Without regulation, consumers lack clear legal protection against violations or misuse. In blockchain-based fintech, such as crypto assets, users often face losses due to non-transparent transactions or unregistered platforms [43]. Similarly, AI-driven personal data misuse can lead to privacy violations [44]. Without rules governing data collection, processing, and storage by AI, risks increase.

Fintech players in Indonesia can operate legally without blockchain or AI, provided they comply with existing regulations. POJK Number 77/POJK.01/2016 regulates P2P lending, while Bappebti oversees crypto asset trading through Regulation Number 8 of 2021. However, Bank Indonesia (BI) regulations prohibit cryptocurrencies as a payment method, reinforcing that only the rupiah is legal tender under Law Number 7 of 2011 [45], [46].

Unclear AI regulations create legal uncertainty, hindering development and implementation [47]. Without technical standards, fintech players struggle to ensure AI algorithms comply with ethical and legal principles [48]. This poses legal risks, especially in disputes between users and service providers. Industry players looking to innovate with AI face administrative challenges due to the lack of regulatory accommodation [49].

In Indonesia, some investment platforms use AI for portfolio recommendations, but without strict oversight, they may provide high-risk recommendations, harming users. AI is also used for automatic collection (telecollection) of online loans [50], which, without proper regulations, can be invasive and violate privacy.

Currently, Indonesia lacks specific AI regulations, but existing laws apply indirectly [51]. The Personal Data Protection Law (PDP Law) regulates AI-driven data processing, emphasizing transparency and security. The Electronic Information and Transaction Law (UU ITE) provides a framework for electronic transactions, including AI technology, focusing on security and preventing data misuse. POJK Number 13/POJK.02/2018 regulates digital financial innovation, including AI in fintech, with an emphasis on consumer protection. Law Number 5 of 1999 prevents AI misuse that could harm competition. Presidential Regulation Number 39 of 2019 on One Data Indonesia promotes responsible data use to support AI-based policies. While a legal framework exists, specific AI regulations are still necessary for safe and fair implementation.

B. Progressive Legal Theory: Responsiveness to Change

The progressive legal theory initiated by Satjipto Rahardjo emphasizes that the law must not only be an instrument of regulation but also a tool for social change that is responsive to the needs of society. Progressive law focuses on substantive justice, ensuring that the law provides tangible benefits rather than being rigidly fixated on formal rules [52]. Law must be dynamic and adaptable, particularly in the era of digital transformation [53]. Satjipto Rahardjo also emphasized that the law is for humans, not the other way around, prioritizing human values and social justice [54].

In the context of FinTech services in Indonesia, progressive law highlights the need for adaptive regulations that accommodate technological advancements while ensuring consumer protection. Existing regulations such as POJK Number 77/POJK.01/2016 and POJK Number 13/POJK.02/2018 provide a legal framework for FinTech, yet industry players often find these regulations too rigid and less responsive to new technologies like blockchain. Long administrative processes and an unclear legal framework hinder innovation and reduce Indonesia's competitiveness in the global market. Literature supports this, showing that blockchain enhances transparency and efficiency, yet existing laws do not explicitly address its application [55]. The only relevant regulations are PBI No.19/12/PBI/2017 on Financial Technology Implementation and POJK No.37/POJK.04/2018 on Crowdfunding Services [56]. From a progressive legal perspective, these reactive regulations indicate that the law lags behind societal developments, as reflected in the adage *het recht hink achter de feiten aan* [57].

The issue of personal data protection is also critical in FinTech. Interviews with users reveal concerns about data leaks, while the OJK PASTI Task Force recorded over 400 cases of data misuse by illegal services [58]. Regulations such as the ITE Law and POJK 77/2016 address data protection, but enforcement remains weak due to inadequate supervision and sanctions [59]. Progressive law suggests that regulations should

be proactive, not just reactive. Stronger oversight mechanisms and technological integration, such as blockchain-based encryption, are necessary to prevent violations rather than merely responding after they occur [60].

Financial inclusion is another key issue. FinTech should not only provide access to financial services but also ensure that users can safely and effectively utilize them. Many individuals, especially in rural areas, lack the digital literacy needed to navigate FinTech services. Progressive law supports adaptive regulations that mandate FinTech companies to educate users about risks such as high-interest loans and fraudulent schemes. Additionally, regulations should encourage the development of user-friendly FinTech applications accessible to those with limited technological proficiency.

Collaboration among regulators, industry players, and the public is crucial for responsive regulation. Regulators like OJK should engage with FinTech providers to balance innovation and consumer protection. Industry players must participate in regulatory development to ensure that rules foster, rather than stifle, innovation. Public engagement, through transparent education and outreach, can enhance trust in FinTech services [61].

Concrete solutions within the progressive legal framework include establishing a dedicated FinTech supervisory unit under OJK. This unit could monitor compliance, address consumer complaints, and provide policy recommendations aligned with technological advancements [62]. Adaptive regulations should also provide clearer technical guidance on blockchain implementation to enhance security and transparency. For instance, mandating blockchain-based encryption can help protect user data from misuse.

Public trust is a fundamental factor in FinTech adoption. Interviews indicate that users feel safer using services supervised by OJK, yet doubts persist about regulatory effectiveness against illegal services. Many unauthorized online lenders continue to operate due to regulatory gaps [27]. Progressive law emphasizes that regulations must be dynamic and flexible, evolving alongside technological and societal changes [63]. Regulatory transparency is also essential; public disclosure of enforcement actions can build trust and encourage wider FinTech adoption [64].

Regulatory responsiveness is also important to encourage financial inclusion, especially among people with low digital literacy [65]. Low financial literacy remains a barrier to inclusion. Studies show that many Indonesians lack an understanding of FinTech risks, such as high-interest online loans [66]. Interviews with users and industry players confirm that most have only a basic grasp of FinTech services. Progressive law supports regulations requiring FinTech providers to enhance financial literacy initiatives, including transparent disclosures of fees and terms. This approach ensures that regulation not only governs but also empowers users to make informed financial decisions.

Through a progressive legal lens, Indonesia's FinTech regulations require greater responsiveness to societal and technological needs. Laws should foster innovation while ensuring robust consumer protection, particularly in data

security and trust-building [67], [68]. A responsive regulatory framework can support an inclusive and secure FinTech ecosystem, balancing technological advancement with legal safeguards.

By integrating financial inclusion, stakeholder collaboration, concrete regulatory solutions, and public trust, progressive legal theory provides a comprehensive approach to optimizing FinTech services. Responsive, flexible, and community-oriented regulations will serve as a strong foundation for an inclusive, secure, and innovative FinTech landscape in Indonesia [69].

C. Legal Culture Theory: Digital Literacy and Trust

Based on the results of the 2023 Consumer Financial Technology survey conducted by DataIndonesia.id on 1,100 respondents in various regions in Indonesia with a margin of error of 4.2%, it was found that 81.75% of Indonesians have understood fintech services. The most frequently used fintech service is digital payments, with a usage rate of 93.81% of respondents, followed by digital bank services at 56.67% and online investment at 29.59% [70]. Although this figure shows a fairly high adoption rate, there is a gap in the use of other fintech services, such as online investment and insurance.

Most respondents revealed that they only use fintech services for daily transactions. The potential of fintech for financial management, investment, or financial protection through insurance has not been optimally utilized. The main factors influencing this are habits and preferences, with respondents feeling more comfortable with conventional methods. They worry about risks such as transaction failure or fund loss. Some respondents also complained about digital infrastructure constraints, where signal difficulties lead to transaction delays, hindering fintech adoption.

The theory of legal culture by Lawrence M. Friedman provides insight into how law is accepted, applied, and practiced by society. Friedman divides law into three elements: legal structure, legal substance, and legal culture [71]. Legal structures include institutions that administer the law, such as courts and supervisory bodies. Legal substance includes rules and norms in the legal system. Legal culture refers to people's values and perceptions of the law, affecting its enforcement [72].

Legal culture is crucial in optimizing FinTech services, especially as this technology transforms financial interactions. MSME actors benefit from FinTech services [73], yet respondents primarily understand only digital payments, lacking awareness of associated risks such as high interest rates or data breaches. This gap indicates a disparity between financial technology understanding and regulatory complexity [74]. Consequently, trust in FinTech security remains low, particularly among vulnerable communities.

Education is a strategic step to improve digital literacy, an essential component of legal culture [75]. Education helps people understand their rights and obligations as FinTech users, enhancing protection. It also provides insights into the benefits of FinTech, such as ease of transactions, while warning of risks like data misuse. Continuous education builds confidence in FinTech and prevents costly mistakes [76]. Moreover, it

encourages users to choose legal services supervised by regulators.

Everett M. Rogers' innovation diffusion theory explains how innovations, including FinTech, are adopted by society. Rogers categorizes adopters into five groups: innovators, early adopters, early majority, late majority, and laggards [77]. Innovators and early adopters have high digital literacy, whereas the late majority and laggards take longer to accept changes. Understanding this distribution helps design educational programs tailored to each group, ensuring broad and secure technology adoption.

Five key factors influence innovation adoption: relative advantage, compatibility, complexity, trialability, and observability [78]. FinTech's advantages, such as convenience, attract users. However, technological complexity and lack of education hinder adoption. Compatibility is crucial, particularly in areas unfamiliar with digital technology. Enhancing digital literacy and overcoming these barriers will significantly expand FinTech adoption [79].

Public trust in regulations is vital in shaping a legal culture that supports FinTech. Some respondents trust FinTech services due to OJK's strict supervision and consumer protection regulations [80]. However, concerns persist over increasing data security risks, cyberattacks, and insufficient technical expertise [81]. Transparent and inclusive regulations can strengthen trust and address these challenges.

Such regulations must be accompanied by improved digital literacy. People with high digital literacy can effectively utilize FinTech services [82]. Digital literacy drives financial inclusion, enhancing FinTech adoption [83]. Interoperability, through collaboration between regulators, industry players, and educational institutions, is essential for digital literacy advancement. Regulators must provide clear regulatory frameworks, while industry players innovate based on ongoing educational efforts.

Continuous education enhances public compliance with FinTech regulations [84]. When people understand the benefits of legal protection, they are more likely to comply with the rules. Compliance includes choosing legal FinTech services and reporting illegal operators [85]. Higher compliance fosters a safer, more trustworthy FinTech ecosystem, supporting sustainable digital financial growth [86]. Ongoing education ensures the public remains informed about FinTech developments, recognizes emerging risks, and learns data protection strategies. Updated knowledge empowers users in the digital transformation era.

Education is particularly crucial for previously unbanked populations, especially those in remote areas with traditional financial habits [87]. Some respondents found current technology too complicated, limiting optimal FinTech utilization. Their urgency for technology use is minimal, reflecting a knowledge gap rather than an infrastructural issue [88]. The Indonesian government must address these gaps to promote prosperity and equality. However, financial literacy alone is insufficient; education on FinTech infrastructure and accessibility is equally necessary [89].

Friedman's legal culture theory, reinforced by Rogers' innovation diffusion theory, provides an analytical framework for understanding digital literacy, public trust, and FinTech adoption. Continuous education strengthens legal culture, increases trust, fosters financial inclusion, and mitigates risks. These steps not only address current challenges but also create a more inclusive and sustainable FinTech ecosystem in Indonesia.

IV. CONCLUSIONS

This study shows that the optimization of fintech services in Indonesia requires a balance between adaptive regulations and a strong legal culture. Current regulations allow fintechs to operate without advanced technology such as blockchain or AI, as long as they comply with applicable regulations. However, technology-based innovation still requires more responsive regulations in order to develop without neglecting consumer protection. Digital literacy and public trust are also important factors to support sustainable financial inclusion.

This research contributes to regulators, industry players, and the community. Flexible regulations are needed to accommodate technological developments while safeguarding consumer interests. Industry players are expected to innovate while still being guided by ethical standards and regulations. The public needs to be empowered through education to understand the rights and obligations as fintech users. The limitations of this study include a limited number of respondents and a lack of technical discussions related to blockchain and AI implementation, so a more comprehensive follow-up study is needed.

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