

DIGITAL PRODUCT LIABILITY: A LEGAL CASE STUDY OF CONSUMER LOSSES ARISING FROM MOBILE APPLICATIONS

Muhammad Aldiyan Rofiqi, Rafadi Khan Khayru, Didit Darmawan

Universitas Sunan Giri, Surabaya

correspondence: dr.diditdarmawan@gmail.com

Abstract - The rapid advancement of digital technology, particularly mobile applications, has revolutionized economic behavior and triggered significant changes in digital consumption patterns. While such innovations enhance efficiency and convenience in daily activities, they also present growing challenges relating to personal data protection, privacy, and the legal liability of application providers for consumer losses. This study examines the liability of mobile application providers for consumer losses in Indonesia, employing a normative juridical analysis based on Law Number 8 of 1999 concerning Consumer Protection and Law Number 11 of 2008 concerning Electronic Information and Transactions. The findings reveal that regulatory implementation still faces several obstacles, including contract clauses that undermine consumer position, weak oversight of application providers, and complex cross-border jurisdictional challenges in resolving digital disputes. Consumer protection is often impeded by limited public understanding of their rights and low digital literacy levels. Clarity and harmonization of regulations, especially regarding personal data protection, are identified as urgent needs within both national and international legal frameworks. Efforts to optimize consumer protection must be supported by strengthening digital literacy education, developing innovative online dispute resolution mechanisms, and improving supervisory systems for application providers. Synergy among government, regulatory bodies, business actors, and society is essential to create an inclusive, transparent, and adaptive legal ecosystem in response to developments in the mobile application industry. Therefore, producer accountability and consumer justice can be better ensured amid the dynamics of digital transformation.

Keywords: producer liability, mobile applications, consumer loss, consumer protection, digital regulation, data privacy, digital literacy.

INTRODUCTION

The development of information and communication technology has fundamentally transformed the social, economic, and legal landscape in the modern era. Digitalization has become a key driver, accelerating the integration of various sectors into the online ecosystem and significantly impacting not only efficiency but also the patterns of interaction among society, businesses, and government. This transformation is clearly reflected in the shifts in public consumption preferences and in the ways services and products are delivered and accessed via digital devices (Phan Hrong et al., 2023).

Amidst the wave of digital transformation, mobile applications have emerged as vital instruments which not only facilitate daily activities, but also redefine the relationships between producers, consumers, and regulators. The widespread dissemination of mobile applications has heightened societal dependence on technology and broadened the spectrum of risks faced by consumers, particularly regarding aspects of legal protection, privacy, and data security. This reality demands special attention to ensure that consumer protection can keep pace with the rapid advancement of technological innovation (Revak & Gren, 2022).

Technological innovation has become a principal force driving changes in economic behavior (Alamin et al., 2021). Mobile applications, as key products of digitalization, mediate various daily activities more efficiently. The development of digital technology has provided significant benefits to society, particularly through the continuous evolution of mobile applications. Digital payment technology, as described by Au and Kauffman (2008), illustrates how such innovations have generated efficiencies in various economic activities, including online transactions. Privacy challenges, as highlighted by Bennet (2008) and Solove (2004), underscore the necessity for improved privacy protection and data management in the era of mobile applications.

Data quality and transparency are fundamental to the effective governance of mobile applications. Analytical technologies and business intelligence tools play increasingly important roles in determining the digital competitiveness of SMEs. Brown et al. (2017) emphasize the necessity of digital analytical tools in improving data quality and supporting greater transparency in applications. Furthermore, Grabova et al. (2010) illustrate that data integration through business intelligence is pivotal for decision-making based on mobile applications, especially for SMEs aiming to compete in the digital marketplace. Such applications not only lead to greater efficiency but also build user trust.

User experience is a critical factor determining the success of mobile applications in the digital marketplace. Consumer trust in the security and convenience of application usage forms the basis of customer loyalty. Darmawan and Putra (2022) note that positive user experience, such as ease of access and secure transactions, influences impulsive consumer behavior in online shopping. This finding is supported by Fared et al. (2021), who demonstrate that high-quality digital services strengthen customer loyalty and repeat purchase intentions. Meanwhile, Frith (1988) reminds us that copyright protection in application content remains crucial for supporting a healthy digital ecosystem.

Digital literacy constitutes the primary foundation for empowering society in the technological era. A high level of literacy can promote the optimal use of mobile applications while also safeguarding against legal infringements. The issue of digital literacy, as discussed by Chasanah and Mardikaningsih (2023), poses unique challenges for societies increasingly reliant on mobile applications. Such literacy is essential for users to both understand and make wise use of technology. Isnaeni et al. (2023) stress the importance of literacy in preventing legal violations, including those pertaining to trademarks in online commerce.

Social media has become a strategic channel for marketing digital products and enhancing customer trust. Interaction through social media drives the growth of digital business by expanding promotional reach. The influence of social media on the promotion of digital businesses is significant. Infante and Mardikaningsih (2022) recognize social media as pivotal for business promotion in the online realm. Halizah et al. (2022) add that customer trust can be strengthened through the reputation of platforms, security features, and the quality of relationships, all of which can be enhanced by mobile applications.

Brand management and legal protection are interrelated aspects within the digital ecosystem. Firm regulatory frameworks regarding copyright and trademark law are necessary to protect businesses from legal risks in the digital sphere. Haryadi (2022) and Taan et al. (2021) emphasize the role of social media in building a robust brand image, which can influence consumers' purchase decisions. Zekos (2016) further asserts that regulations relating to copyright and trademarks in the online world must be continuously strengthened to prevent violations in digital applications.

Cross-sector synergy is key to optimizing the utilization of digital technology in mobile applications. The involvement of government, business actors, and society is required to actualize an inclusive and adaptive ecosystem. Ultimately, the optimal deployment of digital technology in mobile applications demands cross-sector collaboration. Iliev (2010) and Rahmanda and Benuf (2021) underscore the need for balanced regulations that support both security and efficiency without impeding innovation. Munir and Darmawan (2022) emphasize that user trust must remain a primary focus to foster an inclusive and sustainable digital ecosystem.

While advancements in digital technology have produced numerous benefits, these developments have also introduced new challenges—particularly regarding the liability of application developers for losses incurred by consumers (Sinambela & Darmawan, 2022; Anugroh et al., 2023). Abdullah and Ramadhan (2022) argue that the digital era necessitates more comprehensive consumer protection due to heightened vulnerability to rights violations.

Mobile applications, as digital products, frequently result in consumer losses owing to data breaches, system failures, or service disruption. Putri and Fahrozi (2021) identify data breaches as one of the primary risks, with such incidents leading to both financial and moral harm for consumers, while the responsibility of application developers is often unclear.

The rapid development of mobile application technology in recent years has outpaced the legal mechanisms for consumer protection, which continue to encounter multiple obstacles (Irfan & Negara, 2023). Mantri (2007) underscores the importance of specific regulations protecting consumers in electronic transactions; nonetheless, the implementation of such regulations often lags behind technological advances.

Monitoring mechanisms for the quality of mobile applications in Indonesia remain relatively weak. Consumer losses arising from mobile applications are also attributable to insufficient oversight of application development and distribution. Abu (2016) observes that many applications are released without rigorous testing, increasing the risk of system failures that harm consumers.

The low level of digital literacy within society further exacerbates the bargaining position of consumers. This vulnerability is intensified by the general lack of digital literacy among the populace. Wahyudi et al. (2021) observe that consumers frequently do not understand the terms and conditions they consent to when utilizing applications. This permits mobile application producers greater latitude to disclaim responsibility for losses suffered by consumers.

Privacy concerns have emerged as a primary issue in contemporary mobile application usage. Another pervasive problem is the lack of transparency in the management of consumer data by application producers (Baraja et al., 2023). Indriyani et al. (2017) assert that many application producers lack clear mechanisms for securing consumers' personal data, thereby creating the potential for serious privacy violations.

In the context of digital globalization, cross-border legal frameworks assume increasing significance. The liability of mobile application producers for consumer losses also confronts complex legal challenges at the international level. Kamelsh (2005) points out that, in many cases, the applicable legal jurisdiction is ambiguous, especially when application producers are based overseas. Such situations pose significant challenges for consumers seeking to assert their rights.

Consumer habits of indiscriminately downloading applications without paying attention to pertinent details further compound the incidence of loss. This issue is worsened by insufficient oversight regarding the quality of mobile applications. Rook (1987) notes that consumers frequently make impulsive purchases of applications, disregarding quality considerations. This behavior increases the risk of loss, particularly when applications fail to meet requisite safety standards.

Environmental and sustainability considerations are also often neglected in the digital application industry. Furthermore, the development of mobile applications frequently overlooks long-term sustainability issues. Camargo and Jabbour (2017) highlight that digital application management often fails to account for long-term impacts on both consumers and the environment.

The demand for more comprehensive regulation becomes increasingly urgent in tandem with technological developments. These challenges underscore the necessity for a more robust legal framework to protect mobile application consumers. Halizah et al. (2022) emphasize the vital importance of consumer trust in the digital domain. Losses stemming from mobile application usage can undermine such trust, thereby affecting the sustainability of the digital application industry.

Most research on the liability of mobile application producers has centered on technical aspects, such as system security and data management. However, scholarly analysis regarding the legal liability of producers for consumer losses remains limited. This study aims to address this gap by exploring the legal aspects of producer liability for mobile application losses in Indonesia.

This research contributes a new perspective by analyzing the liability of mobile application producers for consumer losses from a legal standpoint. The primary focus is on the legal implications of losses sustained by consumers—an area often overlooked in the Indonesian legal literature.

The objective of this study is to analyze the liability of mobile application producers for losses experienced by consumers. In addition, the study seeks to identify the legal implications of such liability within the prevailing Indonesian regulatory framework.

RESEARCH METHODS

This study employs a normative juridical research method, focusing on the analysis of regulations, legal doctrines, and relevant literature to examine the liability of mobile application producers for consumer losses. This approach was selected because the research does not involve primary data or interviews; rather, it relies on literature studies aimed at reinforcing normative aspects.

The data sources for this research consist of primary, secondary, and tertiary legal materials. Primary legal materials include pertinent regulations such as Law No. 8 of 1999 on Consumer Protection and Law No. 11 of 2008 on Electronic Information and Transactions (along with its amendments). Secondary legal materials encompass journals, articles, and books that address consumer protection in the digital era. Tertiary legal materials comprise legal dictionaries and other supporting documents.

Data collection techniques were conducted through a literature review. The literature search entailed gathering relevant regulations, academic publications, and documents discussing consumer protection issues in mobile applications. Relevant literature was classified thematically to facilitate analysis.

The validity of the data is ensured through cross-verification with prevailing regulations and cross-referencing among various legal doctrines. This approach guarantees that each finding is grounded in a robust legal basis and aligns with the scope of the research.

Data analysis was performed using a descriptive-analytical technique, delineating the existing legal conditions and analyzing them based on pertinent legal theories. This study seeks to provide a comprehensive overview of the liability of mobile application producers, both from the perspective of applicable regulations in Indonesia and from a broader normative perspective.

RESULTS AND DISCUSSIONS

The Legal Responsibility of Mobile Application Producers for Consumer Losses

Digital transformation in the contemporary era has positioned information and communication technology as an essential element within the economic, social, and cultural spheres of society. Innovations in mobile application development have facilitated the integration of digital services across various sectors, including commerce, finance, and public services. This phenomenon not only enhances efficiency but also redefines consumer needs and behaviors within the digital context. Consequently, mobile applications assume a strategic role as principal mediators in the relationship between consumers and producers within this emergent digital economy (Ramos, 2022). Such developments underscore the imperative for robust regulatory frameworks to ensure that the growing reliance on digital platforms is matched by adequate legal protections and the promotion of equitable and sustainable digital interactions.

As societal dependence on mobile applications increases, new challenges emerge in the domain of consumer protection—particularly regarding legal, ethical, and technical dimensions. Existing regulatory frameworks often prove insufficiently adaptive to accommodate the rapid advancements occurring in digital technology (Dryden, 2023). This situation gives rise to potential gaps between ideal consumer protection and actual implementation, especially concerning the protection of consumer rights and interests as central subjects in the digital economic ecosystem.

The complexity inherent in the relationships between application producers and consumers generates new spaces for the emergence of potential risks and losses originating from digital products. The diversity of business models, methods of distribution, and mechanisms for the collection and processing of data within mobile applications further complicate the determination of both the form and scope of producer liability (Cherep et al., 2022). Numerous cases of consumer loss associated with mobile applications—on both individual and collective scales—present significant challenges for Indonesia's prevailing legal system.

Globally, various jurisdictions have developed policies and standards for digital consumer protection that emphasize transparency, accountability, and data security. Regulatory harmonization across nations has become imperative in recognition of the transjurisdictional nature of mobile applications and their expansive user base. Indonesia, as a member of the global community, is consequently required to fortify its own consumer protection framework both through the adjustment of national regulations and enhanced supervision, as well as by advancing public education and digital literacy.

Beyond regulation, the role of application producers in maintaining public trust is also crucial to the sustainability of the digital ecosystem. Commitment to data protection, contract transparency, and clarity regarding legal liability must constitute the minimum standards upheld by every business actor. Failure to meet these standards may not only result in economic harm but also irreparably damage business reputation and undermine public trust in digital platforms as a whole.

Accordingly, an analysis of the liability of mobile application producers for consumer losses is highly pertinent in efforts to balance technological innovation with the protection of consumer rights. This study seeks to investigate various normative aspects and the practical implementation of regulations, specifically within the context of Indonesian consumer protection law. The findings and discussion presented herein are expected to contribute meaningfully to the strengthening of digital consumer protection law amid the rapid currents of mobile technological transformation.

The evolution of mobile technology has fundamentally transformed patterns of consumption and digital interaction within society. The increasing ease of access to mobile applications concomitantly elevates the risks of consumer loss, particularly in relation to data security and privacy. The liability of mobile application producers for consumer losses thus emerges as a complex legal issue, especially within the context of continual digital technological development. Law No. 8 of 1999 on Consumer Protection constitutes a fundamental legal basis governing consumer rights, including protection from losses caused by products or services. Article 19 of this statute provides that business actors are responsible for consumer losses arising from the use of the products they supply; however, the realization of this liability faces significant challenges in the digital age.

Mobile applications that lack adequate security measures or have systemic vulnerabilities can give rise to a range of problems for consumers. The risks of data loss, malware exposure, or financial detriment are concrete examples of the adverse implications stemming from inadequately protected applications. As digital products, mobile applications frequently cause losses due to security vulnerabilities or system defects. Putri and Fahrozi (2021) argue that application producers must bear responsibility if consumer data is compromised as a result of inadequate security measures. This responsibility extends to the provision of remediation mechanisms for affected consumers.

The intangible nature of mobile applications often complicates the practical application of producer liability in legal proceedings. The difficulties associated with pursuing claims are further exacerbated when application producers are domiciled in foreign jurisdictions and thereby elude the reach of national law. Frequently, the enforcement of producer liability is hindered by the unique characteristics of digital products as intangible goods. Kamelsh (2005) observes that digital products possess distinct traits compared to physical goods, thereby rendering traditional legal mechanisms inadequate for addressing consumer losses. For example, many application producers operate from foreign jurisdictions, making it difficult for consumers to assert legal claims and obtain remedies.

The lack of transparency by application providers in delivering information to consumers generates risks that are not fully comprehended by users. Numerous cases arise as a consequence of insufficient consumer education by providers regarding feature-related risks, security issues, and the broader impacts of application usage. Consumer losses stemming from mobile applications are frequently attributed to shortcomings in the provision of adequate information. Wahyudi et al. (2021) observe that consumers often do not fully understand the risks associated with application use due to the opacity of the information provided by producers. This raises critical questions concerning the extent to which producers may be held liable for consumers' failure to apprehend such risks (Gani et al., 2021).

Government policies and regulations serve as essential instruments in ensuring legal certainty for digital consumers. Harmonization between consumer protection regulations and those governing electronic transactions must be strengthened in order to clarify the responsibilities of application providers. Additionally, the duties of application providers are stipulated in Law No. 11 of 2008 concerning Electronic Information and Transactions (ITE Law). This

statute imposes obligations on application providers to guarantee the security and integrity of user data. The liability of mobile application producers for losses suffered by consumers is regulated within the broader framework of Indonesian law, particularly through Law No. 8 of 1999 on Consumer Protection and Law No. 11 of 2008 on Electronic Information and Transactions (ITE). These regulations form the legal basis governing the liability of mobile application producers for consumer losses in Indonesia.

Legal guarantees for the protection of consumers using mobile applications are explicitly stipulated in Law No. 8 of 1999 on Consumer Protection (UUPK). Through this regulatory regime, the state endeavors to provide legal certainty and security for consumers engaging in digital interactions, particularly as the use of mobile applications becomes increasingly pervasive in daily life. This legal context affirms that consumer protection is not limited to conventional products but also extends to digital products such as mobile applications. Consequently, the scope of legal protection has become more expansive and inclusive in line with technological advancements.

Specifically, the strict liability principle is enshrined in the UUPK as a primary effort to ensure that mobile application producers cannot disclaim their liability when the digital products they create cause harm to consumers. The implementation of this doctrine unequivocally establishes that producers remain accountable for damages, contamination, or any other losses arising from application usage, without the need to prove fault or negligence. This paradigm positions the consumer as a party deserving comprehensive protection, recognizing their limited access to and understanding of the technical aspects of digital products when compared to producers.

The role of Article 19 of the UUPK is central in regulating the legal relationship between business actors and consumers of mobile applications. This provision explicitly asserts that business actors are liable whenever consumers suffer losses resulting from the use of their products or services. The losses contemplated within this provision encompass not only physical damage to consumer devices and technical disruptions but also the loss of personal data as well as breaches of data privacy and confidentiality. Normative interpretation of this Article signifies the legislature's commitment to aligning consumer protection measures with the peculiarities of digital products, which are particularly susceptible to data misuse and privacy disputes.

From an implementation standpoint, the product liability principle embodied in the UUPK obliges producers to maintain the highest standards of safety and quality for all mobile applications released to the market. Even in instances where producers have implemented stringent supervision and testing mechanisms, liability remains attached for any consumer detriment incurred. The UUPK's mechanism for regressive liability aims to facilitate efficient dispute resolution by imposing a lighter evidentiary burden on the consumer. This is especially crucial in digital matters, where consumers often face substantial barriers in establishing evidence of damage or loss due to the complex and technically opaque nature of application systems.

With the enactment of the principle of strict liability under the Indonesian Consumer Protection Law (UUPK), Indonesia's legal system seeks to realize the governance of a digital ecosystem that is fairer and oriented toward consumer protection. The application of this principle is also expected to compel mobile application producers to assume greater responsibility with regard to user security, privacy, and comfort. Such a policy is not merely a means of imposing sanctions for violations, but also serves as a preventive instrument, incentivizing business actors to comply with protection standards and to foster consumer trust in the digital economy. Thus, guaranteeing consumer protection functions not only as a legal safeguard, but also forms the ethical foundation of modern digital business practices.

Regulation in the digital sector, particularly with respect to mobile applications, has evolved in response to the increasing complexity of electronic transactions over time. Personal data protection and digital security have emerged as key aspects in maintaining public trust in applications. Law No. 11 of 2008 concerning Electronic Information and Transactions (UU ITE) governs all matters related to electronic transactions, including those conducted via mobile applications. The UU ITE also provides protection to consumers in electronic transactions by regulating personal data security, protection against online fraud, and dispute resolution through electronic means. The law further stipulates the responsibilities of electronic service providers, including mobile application producers, who are accountable for ensuring the seamless and secure delivery of their services.

The quality and safety of applications are the full responsibility of producers as business actors in the digital sector. This aligns with the government's commitment to providing maximum protection for consumer losses within the digital sphere. Mobile application producers are required to ensure that their products are safe, function reliably, and do not harm consumers. Should damages arise from the use of their applications, producers may be held liable for compensation. Moreover, producers are obliged to protect users' personal data in accordance with prevailing regulations and must establish clear and transparent terms of service, delineating the scope of each party's responsibilities.

Losses arising from bugs, data theft, or device malfunction are the responsibility of application producers as part of the protection of consumer rights. Legal actions, such as civil lawsuits or reporting to relevant authorities, are available to consumers who consider themselves aggrieved. For instance, if a mobile application contains bugs that result in users' financial loss, the application producer may be subject to litigation. Should personal data be stolen or misused, the producer may be held liable for violations of the UU ITE. Similarly, if an application causes damage to user devices, the producer may be held accountable for such harm.

Consumer protection in the digital era occupies a central role in maintaining justice within the mobile application ecosystem. The demand for legal certainty has grown in tandem with the rapid expansion of the industry and widespread application use (Wulandari & Darmawan, 2022). Effective regulatory enforcement will safeguard consumer rights and foster public trust in the digital transformation process. Indonesian laws afford substantial protection for consumers utilizing mobile applications, requiring application producers to assume responsibility for ensuring their products are both safe and non-detrimental. In this way, consumers may use diverse mobile applications with greater confidence. Nevertheless, as Abdullah and Ramadhan (2022) note, oversight of the implementation of these laws remains weak, resulting in many producers neglecting their obligations.

Effective supervision is a critical factor in ensuring producer responsibility toward consumers. In the absence of a clear monitoring system, numerous applications circulate without adequate testing and certification. Poor coordination between supervisory agencies and producers also exacerbates the compromised quality of applications in the marketplace. Producer failures to protect consumers are often attributable to inadequate supervisory mechanisms. Abu (2016) demonstrates that many applications are launched without thorough testing, which heightens the risk of consumer losses owing to technical failures or security vulnerabilities.

The level of public awareness regarding the use of mobile applications strongly influences the efficacy of legal protection. Limited consumer education increases the risk that consumers will become entangled with unilateral clauses crafted by application producers. Users' low degree of critical scrutiny of application terms and policies leads to legal vulnerability. Consumer losses are further aggravated by deficient digital literacy. Frequently, consumers do not understand the terms and conditions of application use, which often contain clauses that waive producer liability for damages. As Indriyani et al. (2017) establish, many consumers are unaware that they have agreed to disadvantageous terms.

Corporate business strategies frequently exploit regulatory weaknesses to serve their own interests. Control over contract content or End User License Agreements (EULA) is often skewed in favor of producers, shielding them from legal risks. Such practices contravene the principles of consumer protection, which ought to be balanced. Furthermore, producers frequently exploit regulatory loopholes to evade responsibility. Laudon and Laudon (1998) emphasize that many technology companies design contract mechanisms that insulate them from liability. In Indonesia, such clauses often conflict with the principles enshrined in the Consumer Protection Law.

Strengthening the legal framework is essential to creating a just mobile application ecosystem for consumers. Synergy among regulation, law enforcement, and producers' awareness is required to ensure optimal protection. Statutory adjustments or updates must continuously be undertaken to keep pace with technological advancements and global business practices. Ultimately, the responsibility of mobile application producers necessitates a more robust legal framework to protect consumers. As Rosenthal et al. (2011) contend, clear and firm regulations can significantly enhance producer accountability. In this regard, legislative reforms such as the strengthening of the Draft Law on Personal Data Protection represent an important step toward bolstering consumer protection.

The Legal Implications of the Liability of Mobile Application Providers in Indonesia

The implementation of legal protection for mobile application consumers in Indonesia is intrinsically linked to the dynamics of regulatory enforcement. The safeguarding of consumer rights is closely associated with the effectiveness of the prevailing legal enforcement system. Ideally, legal policies that have been formulated should not only be normative in character but also implementable and readily accessible to consumers who perceive themselves as aggrieved. The legal implications concerning the liability of mobile application providers in Indonesia are highly contingent upon the application of existing regulations. Law No. 8 of 1999 on Consumer Protection provides a clear legal framework regarding producer liability; however, its implementation remains weak. This aligns with the findings of Mardikaningsih and Darmawan (2023), who assert that numerous violations of consumer rights go unaddressed by adequate legal measures. The weakness in the implementation of regulations governing consumer protection in the mobile application sector underscores the necessity for a more effective law enforcement mechanism to ensure that providers fulfill their obligations and that consumer rights are optimally protected. The lack of adequate legal responses to consumer rights violations in Indonesia highlights the urgent need to strengthen the law enforcement system, which would enhance the accountability of mobile application providers and provide more robust protection for consumers.

The issue of personal data security has emerged as a principal concern within the mobile application industry in the digital era. Existing regulatory frameworks have not yet comprehensively closed legal loopholes that may be exploited by irresponsible parties. Consistency and integration among various regulations pertaining to personal data protection are essential to safeguarding consumer interests. With regard to personal data protection, the Electronic Information and Transactions Law (UU ITE) constitutes the primary legal basis; however, its implementation frequently encounters technical challenges. Putri and Fahrozi (2021) observe that the absence of specific legislation governing personal data protection creates legal gaps that are exploited by application providers, thereby imposing significant risks on consumers, particularly in connection with data security. The lack of a dedicated personal data protection law in Indonesia results in legal lacunae that enable application providers to evade their responsibilities,

thereby exacerbating data security risks for consumers. Technical challenges in the application of the UU ITE further reinforce the urgency of developing a more comprehensive and specific regulatory framework for personal data protection to ensure the security of consumer data in the digital era.

The inherently global dynamics of the mobile application industry further emphasize the necessity of devising cross-jurisdictional legal regulatory strategies. Indonesian consumers face substantial limitations in pursuing legal recourse against application providers operating abroad in the event of rights violations. Harmonization between domestic law and international regulations is highly pertinent to afford protection to consumers in cross-border digital domains. Legal liability is further complicated by jurisdictional challenges in cases involving mobile applications developed by foreign entities. Kamelsh (2005) points out that, in cross-border cases, the applicable jurisdiction is often ambiguous territory. In Indonesia, consumers frequently experience difficulties asserting their rights because application providers are not subject to the national legal jurisdiction. Issues of jurisdiction in cross-border mobile application cases reveal grey areas in international law, often precluding Indonesian consumers from asserting their rights against foreign application providers. The absence of effective cross-border legal mechanisms creates significant barriers for Indonesian consumers in obtaining adequate legal protection, highlighting the critical need for international cooperation to address jurisdictional challenges within the mobile application industry.

The accountability of mobile application providers in Indonesia necessitates the strengthening of supervisory mechanisms by relevant institutions. Inadequate oversight weakens the position of consumers in seeking justice and may incentivize application providers to disregard their responsibilities. Clear legal certainty is crucial for the creation of a secure and equitable digital ecosystem for all users. The Indonesian legal framework also faces persistent challenges in ensuring provider accountability. Camargo and Jabbour (2017) have observed that provider accountability is frequently hindered by a lack of effective oversight mechanisms. In Indonesia, the enhancement of supervisory institutions, such as the Ministry of Communication and Information Technology, is an essential step in promoting accountability among application providers. The absence of effective supervisory mechanisms emerges as a principal obstacle to guaranteeing provider accountability in Indonesia, thereby underscoring the necessity of reinforcing the roles of supervisory institutions like the Ministry of Communication and Information Technology. Strengthening supervisory bodies in Indonesia constitutes a strategic move to ensure that application providers are held responsible for their products, ultimately creating a more transparent and secure digital environment for consumers.

In facing a highly dynamic digital era, the national legal framework must continuously adapt to advances in technology and innovations in mobile applications. The government's proactive stance in responding to new developments should be incorporated into responsive regulations that are harmonized with global trends. Legal harmonization with international standards will strengthen Indonesia's position in safeguarding consumer rights in the context of digital globalization. The legal implications of mobile application provider liability require a more proactive regulatory approach. As Solove (2004) highlights, regulation that is responsive to technological development may provide greater consumer protection. In Indonesia, the enhancement of digital regulation through harmonization with international standards is a critical measure to ensure consumer rights in the digital era. A proactive approach in designing legal frameworks that are responsive to technological advancements is necessary to bolster consumer protection, particularly through the harmonization of Indonesian digital regulations with more comprehensive international standards. The consolidation of digital regulations in Indonesia, achieved through adaptation to international standards, may serve as a strategic foundation to guarantee consumer rights and to foster a secure and globally competitive digital ecosystem.

Ensuring Access to Justice for Consumers in Digital Dispute Resolution

Digital transformation has fundamentally altered the patterns of legal relationships between consumers and mobile application providers. The need for responsive legal protection becomes increasingly urgent in parallel with the rapid expansion of digital transactions. This digital era presents new challenges in the mechanisms of dispute resolution between consumers and mobile application producers. From a legal perspective, the existence of the Consumer Protection Act and the Electronic Information and Transactions Act does indeed set forth consumer rights. However, practical implementation of access to justice remains fraught with obstacles, particularly when cases involve intricate digital aspects and cross-jurisdictional complexities.

Access to justice is a foundational principle in modern legal systems. Every individual is entitled to effective legal protection without discrimination, including in the digital sphere. One of the central issues faced by consumers concerns difficulties in accessing efficient and equitable dispute resolution mechanisms. Many consumers who have suffered losses are unaware of the proper channels or authorities to which they may report. While the district courts serve as the primary forum for consumer dispute resolution in Indonesia, the process is often regarded as slow, prohibitively expensive, and demanding of substantial legal knowledge.

Alternative dispute resolution (ADR) institutions represent a strategic solution for the efficient enforcement of consumer law. The ability of these institutions to adapt to technological developments is a critical prerequisite for responding to the dynamic nature of digital disputes. Consequently, the emergence of digitized ADR bodies, such as the Indonesian Consumer Dispute Settlement Agency (BPSK), offers a partial solution; yet, their capacity to address disputes

arising specifically from mobile application transactions remains quite limited. Numerous digital disputes cannot be resolved expeditiously due to insufficient technical understanding and the absence of procedural regulations that accommodate the unique characteristics of electronic transactions and evidentiary requirements.

Consumer disputes involving mobile applications frequently have cross-jurisdictional implications. The fragmented nature of digital jurisdiction complicates effective enforcement of national consumer protection laws (Wahyudi et al., 2023). Jurisdictional challenges are further compounded when mobile applications are operated by foreign entities, making it increasingly difficult for domestic consumers to obtain redress. Consumers often encounter End-User License Agreement (EULA) clauses obliging them to resolve disputes in the producer's home country or via international arbitration, thereby impeding the practical realization of their rights within the national legal system.

Legal innovations leveraging information technology have the potential to enhance the effectiveness of digital dispute resolution. Technology enables expeditious, cost-effective, and widely accessible online mediation processes. The development of Digital Dispute Resolution Centers (DDRC) in several countries demonstrates how technology facilitates online mediation and arbitration. However, such practices remain underdeveloped in Indonesia, underscoring the urgency of establishing analogous systems to accelerate, simplify, and reduce the costs of resolving digital disputes between consumers and application providers.

Electronic evidence is a critical element in digital disputes (Negara & Darmawan, 2023). The legal validity and evidentiary weight of electronic documents must be guaranteed to afford robust consumer protection. In this regard, the regulatory framework governing electronic evidence requires fortification. Many consumers struggle to prove losses or violations, as digital data is susceptible to forgery or unilateral deletion by application producers. Thus, strengthening the legalization of electronic documents and developing robust digital forensic audits are imperative to ensure that consumers can adequately vindicate their rights.

The principle of producer liability should be enshrined within clear and enforceable regulations applicable to the digital domain (Suwito et al., 2022). The efficacy of state oversight is a determining factor in preventing consumer rights violations by application providers. Legal pressure on mobile application providers to act responsibly must be complemented by oversight from digital authorities—such as the Ministry of Communication and Informatics (Kominfo) or OJK for fintech applications. Monitoring and publishing blacklists of non-compliant producers serve as effective instruments to induce compliance with consumer rights obligations.

Legal socialization should form the backbone of public education in the digital age (Fajar et al., 2024). Understanding grievance mechanisms enhances the capacity of consumers to independently advocate for their rights. Legal literacy regarding complaint procedures and remedies must be broadly disseminated to foster digitally and legally literate consumers. The government should provide an integrated, user-friendly online complaint portal, complete with a tracking system, automatic notifications, and simplified explanations of legal processes readily understandable to the public.

Regulatory reform is essential to synergize digital and national consumer protection (Rusianto et al., 2023). Regulatory harmonization forms the foundational bedrock of an adaptive legal system amidst technological disruption. Legal reform should be pursued to integrate digital consumer protection within the framework of national consumer law. Amendments to the Consumer Protection Act ought to explicitly address online dispute resolution, jurisdiction, admissibility of electronic evidence, and consumer rights to compensation from digital products, ensuring that legal justice is not outpaced by technological advances in mobile applications.

Digital access to justice is a key indicator of the success of the modern legal system. The presence of an adaptive legal ecosystem fosters public confidence in the use of digital applications. Accordingly, inclusive and adaptive access to justice for consumers in resolving digital disputes constitutes a vital pillar for legal enforcement in the era of mobile applications. Legal innovation, technological utilization, strengthened supervision, and regulatory modernization will fortify consumer rights protection and boost public trust in Indonesia's digital ecosystem.

CONCLUSIONS

The legal liability of mobile application providers for consumer losses is governed within the framework of Indonesian law, particularly through Law No. 8 of 1999 on Consumer Protection and Law No. 11 of 2008 on Electronic Information and Transactions (ITE). Nevertheless, the practical implementation of these regulations continues to encounter various obstacles. Application providers frequently circumvent their responsibilities by employing unfair contractual clauses, while consumers often lack an adequate understanding of their rights. Additionally, supervision over application providers' compliance with security standards and data protection remains weak, leaving consumers vulnerable to potential losses.

The legal implications pertaining to the liability of mobile application providers extend to complex jurisdictional challenges in cross-border cases, weaknesses in supervisory mechanisms, and the lack of specific regulation governing the protection of consumers' personal data. Under these circumstances, strengthening the national legal framework as well as harmonizing it with international standards constitute urgent necessities to enhance the accountability of mobile

application producers. The government must reinforce the national legal regime by enacting dedicated regulations on personal data protection and digital product liability. Such regulations should establish unequivocal provisions regarding the obligations of application providers to protect consumers from both direct and indirect harm.

Supervision over application providers must be enhanced through the establishment of more effective and transparent monitoring mechanisms. This includes regular assessments of the security and regulatory compliance of mobile applications, particularly with respect to the protection of consumer data. Furthermore, empowering consumers through digital literacy programs is essential to improve their awareness of consumer rights and the risks associated with mobile application usage. Increased public awareness will facilitate more informed decision-making by consumers when utilizing digital services.

Ensuring access to justice for consumers in the settlement of digital disputes necessitates adaptive legal system innovations, including regulatory reform, the adoption of online dispute resolution mechanisms, and the reinforcement of electronic evidence standards. Active participation from the government, regulatory bodies, and application providers is essential in constructing an effective legal ecosystem in which the protection of consumer rights and interests can be secured, even amidst the complexity of cross-jurisdictional digital transactions. Leveraging technology and fostering legal literacy within society are critical for achieving an inclusive, efficient, and equitable regime of consumer protection in the mobile application era, thereby sustaining public trust in the national digital ecosystem. Moreover, the government must promote regulatory harmonization with international standards to ensure that foreign-based application providers can also be held liable for losses experienced by Indonesian consumers. This approach will further strengthen consumer protection within an increasingly globalized digital environment.

Mobile application providers must also be encouraged to adopt principles of social responsibility in their product development strategies. This entails not only ensuring the safety and reliability of their applications but also comprehensively prioritizing and supporting the interests of consumers.

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