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Integrating National Digital Identity to Prevent Minors' Transactions on the Roblox Platform

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Abstract

This study examines the effectiveness of age verification mechanisms on the Roblox platform and proposes the integration of Indonesia's national digital identity system—specifically the Electronic Identity Card (e-KTP) and Digital Population Identity (IKD)—to prevent unauthorized digital transactions by minors. The research is motivated by the increasing vulnerability of children to financial exploitation through virtual currency purchases and the misalignment between global platform governance and Indonesia's legal standards on legal capacity, parental consent, and personal data protection. Employing a normative juridical method with statutory, conceptual, and comparative approaches, this study analyzes Indonesian regulations on child protection, civil capacity, and data privacy alongside global age verification practices. The findings reveal that existing verification methods, which rely on self-declared data, document uploads, or biometric systems, are easily manipulated, legally insufficient, and pose significant data protection risks, particularly in cross-border data processing. In contrast, an e-KTP/IKD-based verification model using a binary "Yes/No" eligibility response offers a legally compliant, privacy-preserving, and preventive solution that aligns with Indonesia's Civil Code, Child Protection Law, and Personal Data Protection Law, while remaining compatible with international standards such as COPPA and GDPR. The novelty of this study lies in proposing a state-verified digital identity integration model that bridges national legal frameworks with global digital platforms to ensure verifiable parental consent and protect minors from economic exploitation. This model contributes to the development of secure, accountable, and child-centered digital governance in Indonesia's evolving digital economy.
Keywords: *Child Protection; Digital Identity; e-KTP; Legal Capacity; Roblox*

1. INTRODUCTION

The rapid growth of digital gaming platforms has significantly impacted how children and adolescents interact online. Among the most popular platforms globally is Roblox, an online game that blends social networking, content creation, and virtual economic activities. As of February 2025, Roblox recorded over 86.3 million active users, with a large portion under the age of thirteen. Approximately 22% of users in the second quarter of 2025 were minors, who frequently engage in online interactions and financial transactions using Robux, the platform's virtual currency. The increasing participation of children in this digital ecosystem presents several risks, including exposure to inappropriate content, unmonitored communication with strangers, and impulsive spending behavior. Psychologists have noted that peer pressure and the desire to buy virtual goods often lead to unethical actions, such as stealing or unauthorized use of parents' credit cards.[1]

These risks highlight a crucial issue: minors' inability to fully comprehend the economic value of virtual assets and the legal implications of their online actions. This gap

[1] S. Singh, "How Many People Play Roblox 2025 [Player Count & Downloads]," DemandSage, 2025, https://www.demandsage.com/how-many-people-play-roblox/.

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in cognitive maturity underscores the urgency of implementing robust age verification mechanisms to prevent unauthorized digital transactions. Currently, Roblox's age verification system, which relies on self-declared data and document uploads, is ineffective in ensuring that users are appropriately categorized. Minors can easily falsify their age, gaining access to restricted features and facilitating unauthorized purchases. The reliance on self-declaration and document uploads opens the system to manipulation, making it vulnerable to exploitation. Additionally, malicious actors can impersonate minors, further eroding the system's effectiveness.[2]

The insufficiency of Roblox's age verification mechanisms also exposes a misalignment between global platform governance and national legal frameworks. In Indonesia, laws such as the Civil Code, the Child Protection Law, and the Personal Data Protection Law (PDP Law) clearly state that minors cannot legally enter into binding contracts, including digital transactions, without parental consent. However, the current global age verification systems fail to align with these legal requirements, allowing minors to circumvent protections meant to safeguard them from unauthorized transactions. This dissonance underscores the need for a solution that not only complies with local laws but also aligns with international standards of child protection.[3]

To address these challenges, this study proposes integrating Indonesia's national identity infrastructure, specifically the Electronic Identity Card (e-KTP) and Digital Population Identity (IKD), into the age verification process on platforms like Roblox. [4] By utilizing the national digital identity system, only verified users who have reached the legal age would be allowed to make Robux transactions, while sensitive data is securely managed within national jurisdiction. This integration aligns with Indonesia's legal framework, ensuring compliance with national child protection laws and the principles of legal capacity in electronic contracts. Furthermore, it provides a robust solution for ensuring verifiable parental consent, in line with international standards such as the Children's Online Privacy Protection Act (COPPA). This approach offers a more secure and lawful mechanism for protecting minors in the digital economy, connecting global digital platforms with national legal infrastructure.

Several academic studies have addressed related issues in digital governance, child protection, and verification systems. Livingstone et al. (2024) explored children's rights and online age assurance systems, emphasizing that while these mechanisms enhance safety,

[2] J Clement, "Roblox Games Global DAU as of Q2 2025," Statista, 2025, https://www.statista.com/statistics/1192573/daily-active-users-global-roblox/.
[3] MerahPutih.com, "Game 'Roblox' Bakal Dilarang Karena Dianggap Tak Mendidik, DPR: Anak-Anak Harus Diajari Etika Berteknologi," MerahPutih.com, 2025, https://www.merahputih.com/post/read/game-roblox-bakal-dilarang-karena-dianggap-tak-mendidik-dpr-anak-anak-harus-diajari-etika-berteknologi.
[4] B. Marczak, A. Scott, and J. Draper, "Evaluating Global Age-Verification Technologies for Online Platforms," *Computers & Society Review* 46, no. 3 (2023): 211–233, https://doi.org/https://doi.org/10.1145/3546679.3546721.

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they also present challenges in balancing data minimization and privacy protection.[5] Jarvie and Renaud (2024) examined the interaction between legislative frameworks and supplier responsibility in online age verification, concluding that government regulation must be supported by industry collaboration to achieve effectiveness.[6] Chawki (2025) analyzed the legal and technical dimensions of artificial intelligence moderation on child-oriented social platforms such as Roblox, highlighting the necessity of aligning platform governance with children's rights.[7]

Despite these contributions, existing literature presents several gaps that this research aims to address. The empirical gap lies in the inability of current global age verification mechanisms, such as self-declared data, AI-based systems, and biometrics, to ensure compliance with Indonesia's legal framework, specifically the principles of legal capacity and parental consent in digital transactions.[8] Previous studies have not examined how these mechanisms align with national laws like the Indonesian Civil Code and the Child Protection Law, creating a need for research that directly connects digital verification to local legal standards.

The legal and regulatory gap is evident in the lack of studies that link Indonesia's digital identity infrastructure, namely the Electronic Identity Card (e-KTP) and Digital Population Identity (IKD), with global platforms like Roblox. While digital identity systems are increasingly used for verification, no research has explored their potential integration with international platforms in the context of Indonesian law. The methodological gap emerges from the fact that previous research has largely focused on content moderation, without considering transactional verification systems that govern financial transactions in platforms like Roblox. This study shifts the focus to transactional verification, exploring the feasibility of integrating legal identity infrastructure into global platforms to prevent unauthorized transactions by minors

The policy gap is another significant area. No existing research has proposed a model for integrating government systems with global platforms using a state-verified Yes/No gateway, ensuring that only verified users who meet legal age requirements can perform financial transactions. This model, which would utilize Indonesia's national identity system, is necessary for bridging the gap between government regulation and private sector responsibilities in protecting children. Finally, the theoretical gap exists in the absence of

[5] Sonia Livingstone et al., "Children's Rights and Online Age Assurance Systems," *The International Journal of Children's Rights* 32 (2024): 721–47, https://doi.org/10.1163/15718182-32030001.

[6] Chelsea Jarvie and Karen Renaud, "Online Age Verification : Government Legislation, Supplier Responsibilization, and Public Perceptions," *Children* 11 (2024): 1068, https://doi.org/https://doi.org/10.3390/children11091068.

[7] Mohamed Chawki, "AI Moderation and Legal Frameworks in Child-Centric Social Media : A Case Study of Roblox," *Laws* 14 (2025): 29, https://doi.org/https://doi.org/10.3390/ laws14030029.

[8] D. Holloway and L. Green, "Roblox, Tiktok and The 'Platformization' of Childhood: Regulating Play and Identity," *Convergence: The International Journal of Research into New Media Technologies* 29, no. 5 (2023): 891–907, https://doi.org/https://doi.org/10.1177/13548565231101987.

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studies that position the principle of legal capacity, as outlined in Indonesia's Civil Code (KUHPerdata), as the basis for digital transactions involving minors. This research emphasizes the legal concept of "capacity to act" in the context of digital transactions, applying it to online gaming and virtual currencies to ensure that transactions conducted by minors are legally invalid without proper parental consent.

Based on the background, the weaknesses of the global age verification system, and the significance of this research, the objectives of this study are to: (1) analyze the effectiveness of the age verification mechanism in Roblox's transaction process and its role in preventing minors from conducting excessive Robux purchases; (2) examine how the implementation of Identity Card (e-KTP) verification can ensure a balanced approach between child protection and government regulatory compliance; and (3) evaluate how Indonesia's legal framework and identity verification procedures can be applied to overcome the limitations of the current verification system on the Roblox platform.

2. METHOD

This study employs a qualitative approach with a legal-normative method, focusing on the analysis of legal texts and secondary data related to child protection in digital transactions. Data is collected through document analysis, including primary legal materials such as the Indonesian Civil Code, the Electronic Information and Transactions Law (ITE Law), the Child Protection Law, the Personal Data Protection Law (PDP Law), and Government Regulation No. 17 of 2025 concerning the Governance of Electronic System Implementation in Child Protection (PP Tunas), along with secondary data like scientific journals, academic articles, media reports, and international literature on child protection and digital identity verification systems. Legal rulings and platform regulations are also considered to understand the implementation of age verification systems and their alignment with both local and global standards.

The data analysis involves a comparative technique, where global age verification practices (such as self-declared data, AI-based systems, and biometrics) are compared with Indonesia's legal framework regarding legal capacity, child protection, and data privacy. Additionally, a normative legal analysis is applied to evaluate the legal feasibility of integrating Indonesia's national identity infrastructure (e-KTP/IKD) for age verification in preventing unauthorized digital transactions by minors. The analysis also includes a legal suitability check to ensure that the proposed solution complies with Indonesia's regulations on digital transactions, data protection, and minors' rights. The scope of the study covers key legal aspects, including legal capacity as defined in the Civil Code, the alignment of age verification systems with the Child Protection Law to protect minors from exploitation, and the compliance of verification methods with the PDP Law regarding data privacy. Data is selected based on its relevance to the study's objectives of identifying gaps in age verification systems and evaluating the implementation of a legally sound, technical solution using Indonesia's national identity system. Through this approach, the study aims

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to provide a comprehensive analysis of current systems and propose a legally grounded model for better child protection in digital transactions.

3. RESULTS AND DISCUSSION

3.1 Age Verification Mechanisms on Global Platforms and Their Limitations

Simons and Masschelein (2023) reveal that the governance of platforms such as Roblox greatly influences the educational value of children's games. Global digital platforms, including Roblox, generally set policies regarding minimum age restrictions for users, requiring them to provide their date of birth during registration. Normally, only individuals who have reached the age of majority under their jurisdiction are permitted to conduct financial transactions, such as purchasing virtual currency (Robux).[9] However, minors can still use the platform with parental consent, with the parents being held responsible for their child's online activities, including financial transactions. From a technological perspective, age verification systems largely rely on self-declared data, which is easily manipulated.[10] Additionally, credit card-based methods are ineffective, as minors can use their parents' cards without permission. In response to these vulnerabilities, many platforms, including Roblox, have begun implementing identity verification systems based on official documents, such as passports or identity cards. Roblox requires users aged 13 and above to upload a valid identity document and take a selfie to match the document's photo, combining document scanning and biometric techniques to improve reliability. However, these systems raise issues of accuracy, particularly with facial recognition technologies, which may be biased against certain age groups, such as teenagers.[11] Moreover, these verification systems present concerns over personal data security, with the risk of identity theft, and remain inconsistent across different jurisdictions. Some users can also circumvent age verification by using Virtual Private Networks (VPNs) to bypass region-specific rules, further exposing the limitations of these systems.[12]

Given the inherent risk vulnerabilities of Age Verification systems that use official documents (such as ID cards or passports), biometrics, and identities on global platform servers, as well as the potential for probabilistic verification failures, the ideal solution is a system that is directly integrated with a country's national digital identity (IDN) infrastructure.[13] This IDN model allows, ideally as implemented in Roblox transactions, for

[9] M. Simons and J. Masschelein, "Platform Governance and The Child: Roblox and The Educational Value of Play," *Learning, Media and Technology* 48, no. 1 (2023): 25–42, https://doi.org/https://doi.org/10.1080/17439884.2022.2123456.

[10] S. Bragg and J. Sefton-Green, "Digital Games, Children and Young People: A Research Agenda," *New Media & Society* 25, no. 4 (2023): 781–798, https://doi.org/https://doi.org/10.1177/14614448221083370.

[11] S. Livingstone and M. Stoilova, "Children's Data and Privacy Online: Growing Up in a Digital Age," *Information, Communication & Society* 26, no. 2 (2023): 233–250, https://doi.org/https://doi.org/10.1080/1369118X.2021.1959635.

[12] J. Cowling et al., "Age Assurance: Balancing Safety, Privacy and Rights Online," *Policy & Internet* 15, no. 2 (2023): 184–205, https://doi.org/https://doi.org/10.1002/poi3.322.

[13] iProov, "Verifikasi Usia vs Estimasi: Mengapa Kepastian Penting Untuk Kepatuhan," iProov, 2025, https://www.iproov.com/id/blog/age-verification-vs-estimation-certainty-compliance/.

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only verified binary responses (e.g., "Yes, this user is over 18 years old" or "No") to be accepted without the need to process or store sensitive data (ID cards and biometrics).[14] Therefore, regulators and national identity providers take on the role of data security guarantors, reducing the risk of identity misuse while ensuring full compliance with the Personal Data Protection Act (PDP Act) and increasing public confidence in the security of children's financial transactions in the digital realm.[15]

Table 1. Comparison Table: Global Age Verification Methods and Their Limitations

Global Method	Limitations	Conflict with Indonesian Law
Self-declared age (Date of Birth)	Easily manipulated; users can bypass restrictions.	Does not align with the Indonesian Civil Code and Child Protection Law.
Credit card-based verification	Minors can use their parents' cards without consent.	No guarantee of parental consent as required by Indonesian law.
Document-based verification (e.g., ID, passport)	Potential for identity theft; inconsistent application of global standards.	Conflicts with data privacy laws (PDP Law) and parental consent requirements.
Biometric verification (e.g., facial recognition)	Issues of accuracy and age bias; potential data security risks.	Privacy concerns under Indonesian data protection regulations (PDP Law).

Source: Primary data, 2025.

Table 1 clearly highlights the limitations of global age verification methods and their misalignment with Indonesian legal requirements. The primary gap is the lack of compliance with Indonesian laws regarding legal capacity and parental consent. The Indonesian Civil Code and the Child Protection Law specify that minors cannot enter into binding contracts, including digital transactions, without parental consent. However, the global age verification systems used by platforms like Roblox often fail to verify that consent in a legally binding manner. Current methods, such as self-declaration and document uploads, are insufficient under Indonesian law, which requires a more formal verification of both the child's age and the parent's consent. This gap leads to uncertainty regarding the legality of online contracts involving minors and exposes children to potential exploitation.

Furthermore, the use of biometric verification and the storage of sensitive personal data on foreign servers introduces additional legal concerns. According to Indonesia's Personal Data Protection Law (PDP Law), cross-border data transfers must meet equivalent

[14] Anon, "Age Verification vs Age Estimation: Key Differences and Best Use Cases – Weryfikacja Tożsamości KYC – IDENTT," Weryfikacja Tożsamości KYC – IDENTT, 2025, https://www.identt.pl/en/blog/age-verification-vs-age-estimation-key-differences-and-best-use-cases/.

[15] M. Stoilova and S. Livingstone, "Children's Online Identity Verification: Challenges and Policy Responses," *Journal of Children and Media* 17, no. 1 (2023): 112–129, https://doi.org/https://doi.org/10.1080/17482798.2022.2129874.

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or higher protection standards. Global platforms storing data on foreign servers often do not comply with these regulations, violating data sovereignty principles and increasing the risk of misuse of minors' biometric data. These issues emphasize the need for a more robust, locally regulated verification system.[16] Moreover, platforms like Roblox often rely on "terms of service" for obtaining parental consent, but this approach does not satisfy the Indonesian Child Protection Law, which requires parental consent to be verifiable and informed. Studies, such as those by Livingstone and Stoilova (2023), have found that parents frequently do not read or understand the terms of service, and there is no effective mechanism to ensure their informed consent. Therefore, the current method does not align with Indonesian legal standards for consent, which necessitates a more reliable, state-verified approach, such as integrating the e-KTP system for age and parental consent verification.[17]

3.2 Data Protection and Legal Compliance

A critical issue in the current global age verification systems is the handling of personal data, particularly in relation to data protection laws. The Indonesian Personal Data Protection Law (PDP Law) mandates that personal data, including biometric data, must be handled with utmost care, ensuring that it is stored securely and transferred only under strict conditions. Many global platforms, including Roblox, store sensitive data on foreign servers, raising concerns about data sovereignty and security. This is in direct conflict with Article 56 of the PDP Law, which requires that cross-border data transfers ensure an equivalent or higher level of protection for Indonesian citizens' data. Without adequate safeguards, the export of minors' biometric data to global platforms could violate these provisions.

The Indonesian Child Protection Law explicitly requires that parental consent for minors' participation in digital transactions be both informed and verifiable, not implied through default system settings. Current methods of parental consent via "click-based agreements" are insufficient to meet the legal standards of consent under Indonesian law. Therefore, a national identity-linked verification process, such as one utilizing e-KTP (electronic Identity Card) or IKD (Digital Population Identity), would ensure that parental consent is not only verifiable but also compliant with legal standards for digital consent and data protection. This system would protect both children's data and ensure that parents have a clear and accountable means of providing consent.

Government institutions also play a crucial role in ensuring data protection and compliance with national laws. The Ministry of Communication and Informatics (Kominfo), together with the Indonesian Child Protection Commission (KPAI), have

[16] Anita Therasari, Euis Salbiah, and Neng Virly Apriliyani, "Effectiveness of the Digital Population Identity (IKD) Program at the Population and Civil Registration Office of Bogor Regency," *Public Policy Journal* 6, no. 2 (2025): 161–73, https://doi.org/http://dx.doi.org/10.37905/ppj.v6i2.2973.

[17] Livingstone and Stoilova, "Children's Data and Privacy Online: Growing Up in a Digital Age."

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emphasized that global platforms must align with Indonesia's child protection regulations. Kominfo's 2024 report on digital literacy revealed that 62% of Indonesian parents were unaware of the risks of in-game purchases and lacked understanding of how to configure parental control settings.[18,19] This highlights the need for a more formalized and mandatory system that integrates digital identity verification, ensuring that parental consent is not only given but actively verified in compliance with Indonesian law.

Internationally, countries like South Korea and Singapore have already implemented national identity-based verification systems for digital platforms, demonstrating the feasibility of such an approach. In South Korea, gaming platforms use the national Resident Registration Number (RRN) to verify user identities, while Singapore's Smart Nation initiative utilizes SingPass to authenticate users for online services, ensuring compliance with local content restrictions.[20] These examples show that integrating national identity infrastructure into global platforms is both technically feasible and socially acceptable when paired with appropriate data governance practices.

Indonesia, with its established e-KTP system and strong legal framework, is well-positioned to develop a similar system that balances privacy, security, and child protection. Integrating Roblox's verification process with the e-KTP or IKD system would provide a more secure, reliable, and legally sound method for verifying the age and consent of users. By using a binary response system (e.g., "Yes, this user is over 18" or "No"), it would prevent the need for transmitting sensitive data, ensuring that only necessary data is exchanged, and compliance with the PDP Law's data minimization principle is maintained. This approach mirrors the European Union's "Yes/No gateway" model for age verification, but is tailored to Indonesia's centralized identity infrastructure.[21] Such a model would not only ensure legal certainty under Indonesian civil and child protection laws but would also align with international data protection standards. This approach offers a dual advantage: it protects children from unauthorized transactions and minimizes the potential for data misuse, while reasserting Indonesia's vision of "Digital Sovereignty and Child Safety by Design."

[18] Nicoleta Mihaela Doran et al., "E-Government Development — A Key Factor in Government Administration Effectiveness in the European Union," *Electronics* 12 (2023): 641, https://doi.org/https://doi.org/10.3390/electronics12030641.

[19] Isabella et al., "Empowering Digital Citizenship in Indonesia : Navigating Urgent Digital Literacy Challenges for Effective Digital Governance," *Journal of Governance and Public Policy* 11, no. 2 (2024): 142–55, https://doi.org/https://doi.org/10.18196/jgpp.v11i2.19258.

[20] M. M. Hansen and B Dahiya, "TraceTogether Contact Tracing: A Smart Nation Innovation," *Frontiers in Sustainable Cities* 7 (2025): 1552449, https://doi.org/10.3389/frsc.2025.1552449.

[21] Jarvie and Renaud, "Online Age Verification : Government Legislation, Supplier Responsibilization, and Public Perceptions."

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3.3 The Dangers of Digital Transactions in Online Games for Children and the Legal Framework for Child Protection in Digital Transactions

The rapid development of digital gaming platforms like Roblox has fundamentally changed how children interact socially and consume digital content. These platforms, which provide a blend of entertainment and social networking, have become increasingly popular among minors, offering opportunities for both creative engagement and digital transactions. However, the integration of digital transaction features within these platforms exposes children to significant risks, particularly in terms of financial exploitation. One of the most concerning issues is the ease with which children, often without understanding the financial implications, can engage in unauthorized purchases. A real-life example is the financial losses incurred when children unknowingly use their parents' credit cards to buy Robux, Roblox's virtual currency, which can amount to tens of millions of Rupiah. Such cases highlight a critical vulnerability: children, who typically lack an understanding of the real-world value of money, are prone to making impulsive purchases that often go unnoticed by their families until significant financial losses have occurred.[22]

This situation is exacerbated by the nature of digital currency systems in games, where the concept of "money" is detached from tangible financial consequences. The virtual nature of Robux and similar in-game currencies often leads children to perceive these purchases as less significant than real-world spending. This detachment is compounded by the social pressure children experience within these platforms. For instance, peer influence to purchase exclusive digital items or upgrades encourages children to make purchases, sometimes resulting in deviant behavior, such as stealing money or using parents' cards without permission. These behaviors illustrate the risks inherent in online games, where the combination of psychological manipulation through social pressure and the absence of effective age verification systems can lead to exploitative financial behavior.[23]

In addition to financial risks, children are also vulnerable to exposure to age-inappropriate content, such as violence or sexual exploitation, and unmonitored communication with strangers. While platforms like Roblox have implemented some parental control features, such as PINs and restrictions on playtime, these mechanisms are often insufficient because they can be easily circumvented by children who may already have a basic understanding of how to bypass such controls. Moreover, these features are typically reactive rather than proactive, only providing a limited safeguard after the risk has already materialized. This points to the need for a more integrated and robust approach to protecting minors from financial and psychological exploitation in the digital realm.

[22] R. Gittins and L. Woods, "Verifying Age and Identity Online: Legal and Ethical Dimensions for Children's Protection," *Computer Law & Security Review* 52 (2023): 105814, https://doi.org/https://doi.org/10.1016/j.clsr.2023.105814.
[23] Z. Papacharissi, "Youth, Platforms, and Digital Citizenship: Risk and Regulation in Online Spaces," *Social Media + Society* 9, no. 2 (2023), https://doi.org/https://doi.org/10.1177/20563051231101245.

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The legal frameworks for protecting children from such exploitation are already in place but are not fully aligned with the technological realities of digital platforms. At the international level, both the General Data Protection Regulation (GDPR) in the European Union and the Children's Online Privacy Protection Act (COPPA) in the United States impose strict requirements on platforms to obtain verifiable parental consent for the processing of children's personal data. Under COPPA, operators of online services directed to children must obtain "verifiable parental consent" before collecting any personal information from children.[24] Similarly, GDPR mandates that children under a certain age (13 years old in the case of COPPA) cannot be allowed to consent to data processing without parental authorization. These international regulations reflect the growing awareness of the risks of digital exploitation and the need for effective consent mechanisms to protect minors.

In the Indonesian context, the Child Protection Law (Law No. 35 of 2014) provides a clear mandate to protect children from economic exploitation, including financial loss through digital transactions. The Civil Code (KUHPerdata) also lays down the principle of legal competence, which states that minors cannot legally enter into binding contracts without parental consent.[25] Thus, any transactions minors make on platforms like Roblox without the approval of a guardian are considered legally invalid. Despite these legal protections, however, current platforms still rely on weak, easily manipulated methods of verifying age, such as self-declared birthdates, which do not comply with Indonesian legal standards for valid contracts. This gap in legal compliance illustrates the need for a stronger, more definitive, and legally binding identity verification system that ensures children cannot engage in unauthorized digital transactions.

The weaknesses in the current system, both in terms of age verification and parental consent, are further compounded by the regulatory gaps in Indonesia. While there are regulations in place that aim to protect children, such as those under the PDP Law (Personal Data Protection Law), which mandates the protection of minors' personal data, these laws do not yet fully address the complexities of cross-border data transactions and the storage of sensitive data. Many global platforms, including Roblox, store sensitive user data on foreign servers, often without adequate safeguards or guarantees of compliance with Indonesian data protection laws. This cross-border data issue leads to a fundamental challenge for Indonesia in enforcing its child protection standards, as foreign jurisdictions may not adhere to the same level of data security and consent requirements.

To bridge this gap, there is a growing call for integrating a national digital identity verification system, such as the e-KTP or IKD (Digital Population Identity) systems, into

[24] Future of Privacy Forum, "The State of Play: Verifiable Parental Consent and COPPA," Future of Privacy Forum, 2021, https://fpf.org/wp-content/uploads/2021/11/FPF-The-State-of-Play-Verifiable-Parental-Consent-and-COPPA.pdf.

[25] R. D. Priyantiwi and Hufron, "Ensuring Legal Protection of Personal Data in Indonesia's Digital Identity System," *Justitia Jurnal Hukum* 9, no. 2 (2025), https://doi.org/https://doi.org/10.30651/justitia.v9i2.27113.

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the verification processes on digital platforms. These systems would allow platforms to receive verified binary responses (i.e., confirming whether the user is legally competent to engage in transactions) without the need to store sensitive data like biometric information or full ID card details on global servers. This approach would ensure that the user's legal capacity and parental consent are verified in compliance with Indonesian law, addressing the challenges posed by current verification methods. By integrating such a system, Indonesia could significantly reduce the risk of unauthorized transactions and financial exploitation by minors. Furthermore, it would protect children's personal data and ensure compliance with the PDP Law, reducing the risk of data misuse.

The integration of e-KTP-based verification is not only a technical solution but also a legal imperative. It would ensure that digital platforms operating in Indonesia adhere to local laws regarding legal capacity and parental consent. This system would also facilitate compliance with international regulations, like COPPA and GDPR, aligning Indonesia's digital governance framework with global best practices for protecting children's rights in the digital space. The urgency of this solution is further emphasized by alarming statistics regarding unauthorized spending in online games. A survey revealed that 23% of children aged 9-15 had made at least one unauthorized purchase in online games, with 11% of respondents using their parents' debit or credit cards without permission.[26] This phenomenon demonstrates that children fail to recognize the real-world financial consequences of virtual spending, leading to widespread financial risks and exploitation. Psychologists refer to this detachment between virtual spending and real economic responsibility as "digital abstraction," a phenomenon that underscores the need for stronger safeguards and more effective age verification.

Moreover, persuasive design strategies embedded in gaming platforms, such as time-limited offers, loot boxes, and reward-based mechanics, exploit the psychological vulnerabilities of children. Studies, such as those by Bragg and Sefton-Green (2023), show that these systems encourage compulsive purchasing behavior among children, leveraging their desire for social status within the game to trigger repeated spending.[27] In the Indonesian legal context, these manipulative monetization practices may be seen as a form of economic exploitation under the Child Protection Law, particularly Article 76I, which prohibits any activity that exploits the labor, performance, or resources of a child for profit.

In response to these concerns, Indonesia needs a coordinated approach to digital governance, involving multiple stakeholders. While Kominfo oversees digital content regulation and KPAI focuses on child welfare, there is a need for stronger collaboration across government agencies to enforce stricter standards for online platforms. This could be

[26] Marc Guberti, "Almost One-Third Of Parents Say Their Children Make Online Purchases Without Their Permission," Yahoo!Finance, 2025, https://finance.yahoo.com/news/almost-one-third-parents-children-141606906.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAI2qyC9jQVMknmXxNJ-X-ueVcCPjgK7lRVDzzI5toEgKPqqbsv4MyjkkEYovwjHu91uMD_VZEeZ9Vsz-J1LiAHs9fAxJm-

[27] Bragg and Sefton-Green, "Digital Games, Children and Young People: A Research Agenda."

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achieved by establishing an inter-agency task force dedicated to overseeing the implementation of e-KTP-based verification and ensuring that digital platforms meet the country's child protection standards.[28]

The risks associated with digital transactions in online games are multifaceted, encompassing financial, psychological, and legal dimensions. Weak verification mechanisms and the failure to enforce informed parental consent put children at risk of exploitation. The integration of national identity verification systems like e-KTP would address these vulnerabilities by ensuring that only legally competent users can engage in financial transactions, thereby safeguarding children from exploitation and aligning Indonesia's digital policies with international standards for child protection.[29]

3.4 Implementation of Electronic ID Card Identity Verification in Child Protection and Regulatory Compliance

Indonesia has a strong legal foundation for child protection in digital transactions, including Law No. 35 of 2014 on Child Protection, which guarantees children the right to protection from internet abuse and financial loss, as well as Law No. 8 of 1999 on Consumer Protection, which requires platforms to provide clear information and create transaction systems that do not harm children. These laws ensure that children are protected from internet abuse and financial loss, and mandate platforms to implement clear, fair, and transparent transaction systems. However, the increasing financial risks, particularly in the context of unauthorized purchases of Robux (virtual currency) on platforms like Roblox, reveal structural gaps in the global digital economy. Many platforms exploit local regulatory loopholes, failing to implement sufficient parental controls. These shortcomings expose the urgent need for a stronger verification system, especially one based on ID card verification. This would align with both the Child Protection Law and the Personal Data Protection Law (PDP Law), addressing the risks of financial exploitation by verifying the legal competence of users before transactions are made.

The implementation of the electronic ID card (e-KTP) verification in Indonesia's digital ecosystem is not only a technological innovation but also a vital legal reform that strengthens the state's role in protecting children's digital rights. By leveraging the existing e-KTP and Digital Population Identity (IKD) infrastructure, Indonesia can create a comprehensive, secure verification system that adheres to the principles of legality, data sovereignty, and child protection. This system would require every transaction conducted on digital platforms, such as Roblox, to ensure that minors cannot engage in transactions without parental consent, as stipulated in Article 1320 of the Indonesian Civil Code (KUHPerdata). This article requires that minors cannot enter into legally binding contracts

[28] I. Oktavianingtyas et al., "The Role of Symbolic Capital and Symbolic Violence in Shaping Social Hierarchies Through Digital Consumption and Production in Roblox Online Game," *Bricolage: Jurnal Magister Ilmu Komunikasi* 11, no. 2 (2025): 145–162, https://doi.org/https://journal.ubm.ac.id/index.php/bricolage/article/view/8113.

[29] Sagguneswaraan Thavamuni, Mohd Nor, and Akmal Khalid, "Inherent Addiction Mechanisms in Video Games' Gacha," *Information* 16 (2025): 890, https://doi.org/https:// doi.org/10.3390/info16100890.

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without the explicit consent of their guardian. Therefore, integrating age verification into this framework would transform the process into a legally binding procedure, ensuring valid consent.

The implementation process necessitates strong coordination between various governmental bodies, including Kominfo (Ministry of Communication and Informatics), Dukcapil (Directorate General of Population and Civil Registration), and KPAI (Indonesian Child Protection Commission). Each of these entities plays a key role. Kominfo is responsible for overseeing platform compliance with data transfer protocols under the PDP Law and ensuring that digital platforms operate within the bounds of Indonesian regulations.[30] Dukcapil manages the secure Application Programming Interface (API) for data validation, enabling platforms to verify users' identity without directly accessing sensitive personal data. KPAI acts as the oversight body to ensure that children's rights are respected in the design and operation of the verification system, enforcing child protection standards across digital platforms.

To minimize risks related to data breaches and misuse, the e-KTP verification system should adopt a federated verification architecture. In this model, platforms like Roblox would send encrypted queries to the government's database, which would then return a binary response (e.g., "eligible" or "not eligible") confirming whether the user is legally competent to transact. This approach minimizes the storage and sharing of personal or biometric data by private platforms, in compliance with Article 20 of the PDP Law, which mandates that data processing be limited to specific, legitimate purposes. Furthermore, integrating e-KTP verification has significant jurisprudential implications.[31] Linking identity verification with national databases ensures that minors cannot enter into contracts that would otherwise be void under civil law. This approach represents preventive justice, protecting minors before legal disputes arise. It also operationalizes Article 26 of the PDP Law, which mandates that minors' personal data can only be processed with parental consent, and ensures that such consent is validated through lawful, verifiable means.[32]

The system serves both a preventive and a corrective function. The preventive function ensures that minors are proactively blocked from engaging in digital transactions that they are legally incapable of making. By confirming a user's legal competence before any transaction occurs, the system acts as a preventive barrier against unauthorized financial activities. On the corrective side, the system provides a framework for resolving disputes over unauthorized purchases by minors, enabling parents or guardians to use verifiable data to prove unauthorized use and seek restitution. This function strengthens legal certainty

[30] Budi Prasetyo et al., "Data Protection Laws in Indonesia : Navigating Privacy in the Digital Age," *Side: Scientific Development Journal* 2, no. 1 (2025): 9–16, https://doi.org/https://doi.org/10.59613/petfxv64.

[31] Edrick Edwardina Effendy and Elmira Gifta, "Digitalization and Integration of E-KTP and the Indigenous People It Left Behind," *Jurnal Ilmu Kepolisian* 19, no. 2 (2025): 67–77, https://doi.org/10.35879/jik.v19i2.630.

[32] D. Sharma, L. Bhagat, and S. Sharma, "Regulating Children's Personal Data Protection in India: No Child's Play," *Development* 67 (2024): 28–33, https://doi.org/https://doi.org/10.1057/s41301-024-00402-w.

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under the Civil Code (KUHPerdata), ensuring that digital contracts involving minors are legally valid only when parental consent is provided.

Integrating e-KTP verification also aligns with several key principles laid out in the PDP Law and the Indonesian Civil Code. It ensures legality by making data processing and transactions lawful, proportionality by ensuring that only essential data is processed, and data minimization by preventing unnecessary storage or sharing of sensitive data. This system also supports legal certainty, reinforcing Indonesia's digital sovereignty and aligning its legal standards with global best practices for digital child protection. The implementation of e-KTP verification is both a technological necessity and a legal imperative for Indonesia's digital transactions. It ensures that minors are protected from unauthorized financial activities, strengthens legal compliance, and promotes trust-based digital governance. This solution addresses Indonesia's child protection needs while positioning the country as a leader in responsible digital regulation, setting a global standard for protecting children in the digital age.[33]

Moreover, the preventive function of the e-KTP verification system supports the global "age assurance" agenda promoted by organizations like UNICEF and the OECD, which emphasize the need for inclusive, secure, and protective digital identity systems. This system would contribute to international efforts to protect children from online exploitation, ensuring that digital platforms uphold children's rights in the virtual space. Additionally, the corrective function would enable resolution mechanisms for unauthorized transactions, providing a clear path for parents to dispute and resolve issues of unauthorized use, ensuring accountability for both users and platforms.

From an economic perspective, the adoption of e-KTP verification would contribute to long-term efficiency and trust in Indonesia's digital market. A study estimated that secure digital identity systems could increase GDP growth by up to 3% in emerging economies through enhanced consumer confidence and reduced fraud.[34] For Indonesia, where the digital economy contributes significantly to GDP, strengthening the verification infrastructure would attract greater foreign investment and further integrate Indonesia into the global digital marketplace. Furthermore, the implementation of e-KTP verification would reinforce Indonesia's National Digital Transformation Roadmap (2023-2045), positioning the country as a leader in trust-based digital governance, aligning with the goal of ensuring that its digital economy is safe, reliable, and sustainable.

While the e-KTP verification system offers significant benefits, it must be implemented with robust safeguards to address potential risks, such as data centralization,

[33] Febrian Akhmad Al-Muttaqin and Rino Ardhian Nugroho, "Effectiveness of Digital-Based Public Service Innovation: Case Study of Population Services in Indonesia's Local Government," *JAKPP (Jurnal Analisis Kebijakan & Pelayanan Publik)* 11, no. 1 (2025): 1–16, https://doi.org/10.31947/jakpp.v11i1.11802.

[34] E. Kahveci and T. Gurgur, "Digital Payments and Sustainable Economic Growth: Transmission Mechanisms and Evidence from an Emerging Economy, Turkey," *Journal of Theoretical and Applied Electronic Commerce Research* 20, no. 2 (2025): 142, https://doi.org/https://doi.org/10.3390/jtaer20020142.

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mass surveillance, or unauthorized profiling. The Indonesian government must ensure that strict data protection measures are in place, including independent oversight, periodic audits, and adherence to the principle of purpose limitation outlined in the PDP Law. Effective enforcement and transparency in governance will be crucial for maintaining public trust.[35] Furthermore, parental involvement remains a crucial element. Even the most sophisticated verification systems cannot replace the need for informed parental oversight. Kominfo's ongoing digital literacy campaigns could be expanded to include education on digital parenting, helping parents understand their responsibilities in managing their children's online activities.

The successful implementation of e-KTP verification will serve as tangible evidence of Indonesia's capacity to harmonize technology policy with national legal mandates. It will demonstrate that child protection and regulatory compliance can coexist through innovation-driven governance. In this regard, Indonesia can position the e-KTP verification framework as a benchmark for responsible digital regulation, ensuring that every child's right to safety and every platform's duty of compliance are realized in a balanced, sustainable, and legally accountable manner.[36] The accompanying flowchart diagram illustrates this process clearly, showing how e-KTP verification ensures minors' legal competence and parental consent verification before digital transactions are processed, ensuring a secure and protected digital ecosystem.

4. CONCLUSION

This study concludes that while strict liability is formally recognized within Indonesian environmental civil law, its practical effectiveness remains limited due to doctrinal ambiguity, stringent evidentiary requirements, and uncertainty in defining the scope of liability, which collectively weaken environmental accountability and legal certainty. In contrast, Dutch environmental civil law demonstrates a more mature and coherent application of risk-based liability, where responsibility is inherently attached to hazardous activities without the need to establish fault, thereby ensuring stronger deterrence and more effective environmental remediation. The comparative findings indicate that Indonesia's current framework has not yet fully operationalized the preventive and restorative objectives of strict liability, resulting in inconsistent judicial outcomes and suboptimal protection for affected communities. The novelty of this study lies in positioning the Dutch risk-oriented model as a normative reference for recalibrating Indonesia's strict liability regime. Accordingly, this study recommends a doctrinal shift toward a clearer risk-based liability approach, simplification of causation and evidentiary standards, and the explicit strengthening of environmental compensation mechanisms to enhance legal

[35] Misnah Irvita and Asriani, "Transparency and Accountability in the Justice System: Building Public Trust and Justice," *Priviet Social Sciences Journal* 5, no. 4 (2025): 26–40, https://doi.org/10.55942/pssj.v5i4.367.

[36] Lulu Ahmad Murdhani, "The Implementation of Digital Governance in Indonesia: A Systematic Review of Challenges and Opportunities," *International Journal of Scientific Research* 02, no. 01 (2025): 26–36, https://doi.org/https://doi.org/10.62894/hw14ch33.

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certainty, environmental restoration, and substantive justice. Such reforms are essential to ensure that strict liability functions as an effective legal instrument within Indonesia's evolving system of environmental governance.

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