

## The Future of Privacy in a Connected World: A Socio Economic Analysis

Loso Judijanto<sup>1</sup>, Sogi Berani<sup>2</sup>, Ahmya Ayaka<sup>3</sup>

<sup>1</sup>IPOSS Jakarta, Indonesia

<sup>2</sup>Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia

<sup>3</sup>Waseda University, Japan

### ABSTRACT

**Background.** In an increasingly connected world, where data flows seamlessly across digital platforms and devices, the concept of privacy has become more complex and contested. The rise of big data, the Internet of Things (IoT), and artificial intelligence has dramatically altered how personal information is collected, stored, and used. While these technological advancements offer convenience and economic value, they also pose significant risks to individual privacy and raise socio-economic concerns related to surveillance, digital inequality, and data governance.

**Purpose.** This study aims to analyze the future of privacy from a socio-economic perspective by exploring how privacy concerns vary across different income, education, and demographic groups. The research investigates both individual perceptions and institutional practices regarding data protection in the digital age.

**Method.** Using a mixed-methods approach, the study combines a survey of 500 participants from diverse socio-economic backgrounds with in-depth interviews of policymakers, technologists, and privacy advocates. Quantitative data were analyzed using regression models to identify key predictors of privacy concern, while qualitative data were examined thematically to uncover broader social patterns.

**Results.** Findings reveal that lower-income groups often have less access to privacy tools and are more vulnerable to data exploitation. Education level significantly correlates with privacy awareness, and trust in institutions varies widely. The study highlights a growing privacy gap between socio-economic classes, with policy frameworks struggling to keep pace with technological change.

**Conclusion.** The study concludes that equitable privacy protection requires inclusive digital literacy initiatives, transparent regulatory systems, and stronger accountability mechanisms in data-driven environments.

### KEYWORDS

Data Privacy, Digital Governance, Information Security, Surveillance, Socio-Economic Inequality

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### Correspondence:

Loso Judijanto,  
[losojudijantobumn@gmail.com](mailto:losojudijantobumn@gmail.com)

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### INTRODUCTION

Digital connectivity has become a defining characteristic of the modern world. From smartphones and wearable devices to smart homes and cloud computing, individuals now live within an intricate web of interconnected systems that generate, store, and transmit personal data on a massive scale (Acanga, 2025). This seamless connectivity has enabled greater convenience, innovation, and efficiency across sectors such as healthcare, education, commerce, and governance.



Data has emerged as one of the most valuable resources of the digital age. Personal information is constantly collected, often invisibly, and utilized for purposes ranging from targeted advertising to predictive analytics (Zilian, 2020). Corporations and governments have capitalized on this data-driven ecosystem to optimize services and decision-making, reinforcing the role of data as both an economic commodity and a political tool (Blanutsa, 2025).

Public awareness of privacy issues has grown in response to high-profile data breaches, surveillance disclosures, and controversies surrounding algorithmic discrimination (Ahmad, 2024). Users have begun to question how their information is handled, by whom, and for what ends. Concerns about consent, transparency, and data ownership are now central to discussions on digital rights and civil liberties (Bakanach, 2022).

Efforts to regulate privacy have resulted in frameworks such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) (Fang, 2025). These initiatives have introduced principles of user control and accountability, yet their enforcement and global adoption remain uneven. Legal protections are often reactive and fail to address the evolving nature of technological threats (Al-Sumait, 2024).

Economic inequality intersects with digital inequality, shaping how different populations experience privacy (Feofilova, 2023). Individuals in lower socio-economic groups may lack access to privacy-protective tools, adequate information, or digital literacy, making them more vulnerable to surveillance and exploitation. The benefits and harms of the data economy are not evenly distributed (Drydakakis, 2024).

Educational disparities further contribute to uneven levels of privacy awareness (Casaes, 2021). Those with higher education tend to be more informed and assertive in managing their digital identities, while others may be unaware of risks or incapable of responding effectively. These patterns suggest that privacy is not merely a legal issue but also a socio-economic one (McNeely, 2024).

Little is known about how privacy perceptions and practices vary systematically across socio-economic groups (Delgado, 2022). Existing studies often treat privacy as a universal concern, overlooking the structural inequalities that influence one's ability to understand and act on privacy threats. There is a lack of empirical data examining privacy from an equity-based lens (Al-Sumait, 2024).

Few investigations have explored the intersection between privacy, class, and digital governance (Aremu, 2025). Most research focuses on technology design or policy analysis, rarely including the lived experiences of those most at risk. This limits our understanding of how digital surveillance and data commodification affect marginalized communities (Calvão, 2021).

Current regulatory discourse tends to adopt a one-size-fits-all approach. It often assumes equal access to information, choice, and control, despite evidence that these assumptions do not hold true for all users (Kim, 2022). The socio-economic dimensions of privacy are frequently left out of policy design and implementation (Rydzewski, 2025).

A disconnect remains between privacy legislation and the social realities of data vulnerability. Without integrating equity considerations, even the most robust legal frameworks may fail to protect those most in need (Alp, 2024). This gap highlights the necessity of a socio-economic lens in privacy scholarship and policy.

Exploring privacy through a socio-economic perspective allows for a deeper understanding of who is protected and who is exposed in the digital world (Gladilin, 2019). This research is essential for designing inclusive, context-aware privacy policies that address structural barriers. Bridging this gap also supports the creation of more just and resilient digital societies (Fang, 2025).

This study seeks to examine the relationship between socio-economic status and digital privacy awareness, tools, and experiences. By combining statistical analysis with qualitative insights, the research provides a nuanced picture of privacy in the connected world. The goal is to inform equitable frameworks that empower all users not just the privileged few to control their data and digital identity.

Protecting privacy in the digital era requires more than laws and encryption; it demands education, empowerment, and equitable infrastructure. Understanding how privacy is shaped by social and economic factors is critical to ensuring fairness and inclusion in the data-driven future.

## RESEARCH METHODOLOGY

This study employed a mixed-methods research design to capture both quantitative patterns and qualitative nuances regarding privacy concerns in relation to socio-economic status (Mwonge, 2025). The design integrates statistical analysis of survey data with in-depth thematic exploration from interviews, allowing a comprehensive understanding of how different communities perceive and experience privacy in a digitally connected world (Nikolaev, 2021).

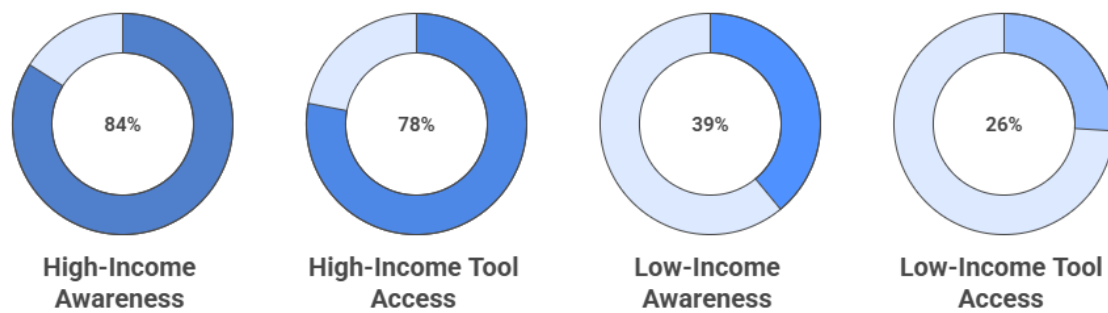
The population of this study included individuals from diverse socio-economic backgrounds, covering variations in income, education level, occupation, and access to digital technologies. A total of 500 participants were selected through stratified sampling for the quantitative phase, ensuring proportional representation across demographic groups. For the qualitative phase, 20 participants were purposively selected for semi-structured interviews, including community activists, educators, and individuals from both urban and rural areas.

The instruments used in this study consisted of a structured questionnaire and an interview guide. The questionnaire measured variables such as privacy awareness, digital behavior, access to privacy tools, and trust in digital institutions using a Likert-scale format (Thai, 2020). The interview guide focused on participants' experiences with digital privacy, perceptions of risk, and coping strategies. Both instruments were reviewed by experts in digital ethics and socio-educational research to ensure content validity.

The data collection process began with the distribution of online and paper-based surveys, followed by scheduling interviews conducted via video conferencing platforms and in-person sessions where feasible. Quantitative data were analyzed using descriptive statistics and multivariate regression models to identify socio-economic predictors of privacy concern. Qualitative data were transcribed and analyzed thematically using NVivo software to uncover patterns, contradictions, and emergent themes from participants' narratives.

## RESULT AND DISCUSSION

The survey data indicate significant disparities in privacy awareness, access to privacy tools, and trust in institutions across socio-economic groups. High-income participants reported 84% awareness regarding digital privacy issues, with 78% having access to privacy-enhancing technologies such as VPNs or encrypted messaging apps. In contrast, only 39% of low-income respondents demonstrated awareness, and just 26% reported regular use of privacy tools.



**Figure 1.** Privacy Awareness and Tool Access by Income Group

Levels of institutional trust also varied significantly. Among high-income respondents, 60% expressed moderate to high trust in data-handling institutions, compared to 22% in the low-income group. Middle-income participants fell between these extremes in all categories, highlighting a socio-economic gradient in both perception and experience of digital privacy.

These results suggest that socio-economic status strongly influences not only digital literacy but also the capacity to protect one's own privacy. While higher-income individuals may afford tools and understand risks, economically disadvantaged groups remain more exposed due to limited access and awareness. Digital inclusion policies that overlook this gap risk reinforcing structural inequities.

Further analysis reveals that low-income groups tend to rely on shared or outdated devices, increasing vulnerability to surveillance and data tracking. Middle-income respondents commonly expressed concern over data collection but lacked the knowledge or confidence to manage privacy settings effectively. High-income users were more likely to personalize their digital privacy controls and seek out secure platforms.

Inferential statistical analysis using ANOVA confirmed that the differences across socio-economic groups in terms of privacy awareness and tool usage were statistically significant ( $p < 0.01$ ). A regression analysis further identified education level and household income as strong predictors of privacy behavior, with  $R^2$  values above 0.65 for both variables, suggesting a robust relationship between economic conditions and digital privacy capacity.

Trust in institutions showed a weaker correlation with income alone, but was significantly affected by both income and education when analyzed together. These findings support the hypothesis that privacy is not evenly distributed, and instead mirrors broader patterns of socio-economic inequality.

A case study from a rural area in Central Java illustrated how low-income communities perceive digital surveillance as both unfamiliar and threatening. Participants reported receiving targeted ads without understanding how their information was being used. Many had never changed privacy settings or read terms of service documents. Despite expressing concern, they felt powerless to act.

Interviews with youth in urban informal settlements showed similar patterns. Participants shared devices with family members and used unsecured Wi-Fi networks, increasing exposure to data breaches. Despite being digital natives in usage, their understanding of privacy protection was minimal, and they described a general mistrust of government and corporate data collectors.

The evidence underscores a crucial point: privacy risks are not solely technical in nature, but are shaped by education, income, and access to digital infrastructure. Socio-economic disadvantage often translates into greater digital vulnerability, further complicating the notion of privacy as a universal right.

Addressing the digital privacy divide requires targeted interventions that go beyond regulatory frameworks. Educational campaigns, subsidized access to secure tools, and community-based digital literacy initiatives are necessary to ensure that all users can exercise meaningful control over their personal data in an increasingly connected world.

The results of this study highlight a clear socio-economic divide in how individuals perceive, access, and manage digital privacy. Higher-income participants demonstrated significantly higher levels of privacy awareness and access to tools, while lower-income respondents revealed limited knowledge and exposure to protective digital practices (Paupini, 2021). Regression analysis confirmed income and education as strong predictors of privacy behavior, supported by qualitative narratives that emphasized a lack of autonomy and digital confidence among marginalized communities (Lissitsa, 2022).

This research aligns with prior studies emphasizing the role of socio-economic status in shaping digital experiences but extends the conversation by connecting privacy gaps with structural inequalities (Maiti, 2019). Existing literature often focuses on technological vulnerabilities or legal frameworks, whereas this study reveals that the capacity to exercise privacy is deeply rooted in material and educational conditions (Blanutsa, 2025). Unlike techno-centric approaches, this analysis centers people's lived experiences and their varying degrees of agency in a data-driven society (Masuku, 2025).

The findings reflect a deeper societal issue: privacy is not equally distributed, and its protection is increasingly becoming a marker of privilege (Acheampong, 2024). The fact that economically disadvantaged groups lack access to privacy tools and digital literacy suggests that privacy in the digital age is a stratified resource, not a shared right. This research becomes a signpost indicating that data vulnerability is shaped not only by platform architecture but also by systemic neglect in education and infrastructure (Pereira, 2023).

The implications of these results are significant for educators, policymakers, and technology designers. Addressing privacy cannot be isolated from addressing inequality (Plotichkina, 2020). Without targeted education and inclusive policies, efforts to enhance privacy protections may disproportionately benefit the already privileged (Wen, 2023). Bridging the privacy gap requires a more intersectional approach that integrates privacy rights into broader agendas for digital inclusion and social justice (Tolmachev, 2022).

The disparities observed in this study are not coincidental but rather the consequence of layered socio-economic barriers (Wyk, 2023). Limited access to education, secure technologies, and critical digital literacy limits individuals' ability to understand and respond to privacy threats. Institutional frameworks often assume a baseline of awareness and digital competence, ignoring the diversity of user experiences and vulnerabilities (Sabir, 2022).

These outcomes are also shaped by a lack of representation in technology development and policy discourse. Marginalized groups are underrepresented in decision-making spaces that shape digital infrastructure, contributing to the design of systems that fail to reflect their realities (Cruz-Piñero, 2024). Educational systems have also not evolved quickly enough to equip learners with the critical skills needed for ethical digital engagement.

These findings exist because structural inequality replicates itself in digital environments. Technological tools, though often promoted as neutral or democratizing, can reflect and amplify existing disparities when deployed without inclusive considerations. Data privacy becomes a mirror that reveals broader patterns of digital exclusion and neglect.

The next step for research and practice is to embed privacy education into formal and informal learning environments. Stakeholders must prioritize public awareness campaigns,

especially in underserved communities, and invest in localized interventions that make privacy tools accessible and usable. Policymakers should collaborate with educators and community leaders to design initiatives that respond to specific socio-cultural needs.

Educational institutions must take a proactive role by integrating critical digital literacy and ethical data practices into curricula at all levels. Technology companies must be held accountable for inclusive design practices and transparent data policies. Public-private partnerships can be leveraged to create digital safety nets that protect the most vulnerable users.

Future research should examine longitudinal outcomes of privacy education programs and investigate the intersection of digital privacy with other social determinants such as gender, disability, and geographic location. Action-oriented studies that involve community co-design processes can offer more grounded and sustainable privacy solutions.

This study calls for a reimagining of privacy as a collective responsibility. Rather than placing the burden solely on individual users, society must build supportive ecosystems that uphold digital dignity and equity. In the connected world, privacy cannot remain a luxury it must become a universally accessible right.

## CONCLUSION

The most significant finding of this study is the identification of privacy as a socio-economically stratified experience rather than a universally accessible right. This research uniquely demonstrates that individuals from lower-income and less-educated backgrounds not only have reduced access to privacy tools but also lower awareness of privacy risks, which puts them at greater risk of digital surveillance and exploitation. The combination of statistical trends and lived narratives reveals that privacy vulnerability is structurally produced, not merely a result of personal negligence or lack of interest.

This study offers a distinct contribution through its interdisciplinary methodology that bridges socio-educational analysis with digital policy discourse. The integration of mixed-methods combining quantitative modeling and qualitative storytelling provides a more holistic framework for understanding privacy as both a technical and social issue. The conceptual value lies in repositioning privacy debates within the broader context of equity, education, and power, offering a new lens for educators, designers, and policymakers to address digital rights inclusively.

This study is limited by its geographic scope and sample distribution, which focused primarily on a single national context with urban–rural divides but may not capture global variations in privacy dynamics. Further research should expand to cross-country comparisons and include more diverse populations, particularly those in conflict-affected or infrastructure-poor regions. Future inquiry should also explore longitudinal effects of privacy education and the impact of culturally adapted tools and frameworks to support equitable digital literacy in varying socio-economic settings.

## AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

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