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Privacy Loss and Digital Surveillance in Smart City Governance: Urban Citizens' Narratives from Bandung

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ABSTRACT

This study examines urban citizens' narratives of privacy loss amid the implementation of smart city initiatives and the expanding use of big data in Indonesia. While smart cities are promoted as solutions for improving public service efficiency and urban governance, they simultaneously intensify data collection practices that raise serious concerns regarding citizen privacy and democratic participation. This research aims to explore how urban residents interpret experiences of data collection, perceive the erosion of privacy, and relate these experiences to the practice of digital democracy. Employing a qualitative case study approach, the study draws on in-depth, semi-structured interviews with six purposively selected residents of Bandung City who actively engage with technology-based public services. The data were analyzed using narrative analysis to identify recurring themes and meanings within participants' lived experiences. The findings reveal several key issues, including fragmented awareness of data governance, information asymmetry between citizens and authorities, passive acceptance of surveillance practices, and a paradox between convenience and data sovereignty. Moreover, the study identifies the emergence of digital resignation and self-censorship, which potentially weaken the quality of the public sphere and democratic participation. These findings indicate that smart city development tends to prioritize technological efficiency over the protection of citizen rights, thereby reproducing unequal power relations in data governance. The study recommends a shift toward a rights-based smart city model that emphasizes transparency, citizen participation, digital literacy, and robust data protection mechanisms to ensure that technological innovation aligns with the principles of privacy protection and digital democracy.

Keywords: Big Data, Digital Democracy, Smart City, Privacy, Surveillance, Urban Governance

INTRODUCTION

In recent years, several major cities in Indonesia have begun adopting the smart city concept as part of their urban development strategies. Through the use of digital technology, public service applications, surveillance camera systems, and big data processing, smart cities are projected to improve service efficiency, accelerate decision-making, and create more responsive urban governance. In practice, this concept is often positioned as a manifestation of urban progress and modernization, aligned with the government's digital transformation agenda.

However, to realize a "smart" city, local governments and technology partners need to collect and manage vast amounts of citizen data. This data covers various aspects of daily life, from mobility and public service usage habits to citizens' digital preferences and activities. This massive and continuous data collection raises significant privacy issues, particularly when citizens are not fully aware of how their data is collected, stored, and used. In this context, personal data becomes not only a technical instrument for city management but also part of the power relations between the state, technology, and citizens (Zuboff, 2019).

The issue of privacy is closely linked to digital democracy. Digital democracy is not only about using technology to increase participation or transparency, but also about protecting citizens' fundamental rights in the digital space, including the right to privacy and individual autonomy. When smart city practices lead to the normalization of surveillance in everyday life, there is a risk of reducing citizens' sense of security in expressing themselves and participating in public spaces, both online and offline. This condition can impact the quality of digital democracy, as citizens who feel constantly monitored tend to be more passive and cautious in expressing their opinions (Hintz, Dencik, & Wahl-Jorgensen, 2019).

Numerous studies on smart cities in Indonesia and Asia tend to focus on policy aspects, technological innovation, and digital government

performance. These studies generally assess smart city success from an institutional perspective, such as improved public services or the integration of technology systems. However, this approach often fails to adequately reflect the voices of citizens, who directly experience the impacts of smart city technology implementation. Citizens' experiences, feelings, and perspectives regarding data collection and potential privacy losses are still relatively rarely the primary focus of studies (Prasetyo & Irwansyah, 2020).

These limitations highlight a research gap, particularly in understanding smart cities from the perspective of urban residents. Citizens are often positioned as service users or data sources, rather than as subjects with experience and critical assessment of the monitoring practices they experience. Yet, listening to citizens' narratives is crucial for assessing whether smart city development truly aligns with the principles of digital democracy or creates new inequalities in the relationship between technology and citizen rights (Couldry & Mejias, 2019).

Based on this background, this study focuses on the experiences and narratives of residents living in major Indonesian cities regarding data collection practices in smart city implementation. This research seeks to understand how residents interpret the loss of privacy, their awareness of the data collection practices, and how these experiences influence their attitudes toward technology and digital democracy.

Based on the description above, the research questions are as follows:

1. How do urban residents interpret their experiences of data collection and loss of privacy in the context of smart city implementation in Indonesia?
2. How are these experiences perceived by residents in relation to privacy rights and digital democracy practices?

In line with the research problem formulation, this study aims to:

1. Explore the narratives and experiences of urban residents regarding data collection practices and the potential loss of privacy in smart cities.

2. Analyze the implications of these experiences on their understanding of privacy rights and digital democracy.

RESEARCH METHOD

This study employs a qualitative approach using a case study research design to examine urban citizens' narratives of privacy loss amid the implementation of smart city initiatives and big data practices in Bandung City, Indonesia. A qualitative case study was selected because this approach enables an in-depth exploration of subjective experiences, perceptions, and meanings constructed by citizens regarding surveillance, data collection, and digital governance in their everyday lives (Yin, 2017). This approach allows the research to uncover how individuals interpret privacy, surveillance, and democratic participation within the socio-political context of smart city governance.

The primary data were collected through in-depth semi-structured interviews with six purposively selected urban residents of Bandung City. The number of participants was determined based on data saturation considerations, where recurring themes and narratives had become consistently identifiable across interviews (Guest, Bunce, & Johnson, 2006). The participants were selected using purposive sampling techniques based on several criteria: residing in Bandung City, being at least 18 years old, and having experience in using technology-based public services or digital urban platforms related to smart city implementation. There are six (6) urban residents was chosen as participants. Secondary data were obtained from smart city policy documents, official local government reports, academic literature, and relevant media publications.

Data collection was conducted through semi-structured interviews to explore participants' experiences, perceptions, and reflections regarding privacy, surveillance practices, and digital governance. Interviews were conducted both offline and online, recorded with participant consent, and

transcribed verbatim for analysis. Considering that this study addresses issues related to personal privacy and surveillance, research ethics were strictly observed throughout the study (Miller, et. al. 2012). All participants provided informed consent prior to the interviews, were assured of anonymity through the use of pseudonyms, and were informed of their right to withdraw from the research at any stage. In addition, all interview data were securely stored and used exclusively for academic purposes to ensure participant confidentiality and data protection.

The data were analyzed using thematic narrative analysis, which focuses on identifying recurring themes, meanings, and narrative structures within participants' stories and lived experiences (Riessman, 2008). The analytical process involved several stages: first, interview transcripts were repeatedly read to achieve data familiarization; second, open coding was conducted to identify significant statements and recurring issues; third, codes were categorized into broader thematic patterns related to privacy loss, surveillance, digital resignation, and democratic participation; fourth, participants' narratives were organized and interpreted in relation to the theoretical frameworks of surveillance capitalism, public sphere theory, and platform governance (Creswell & Poth, 2018). The findings are presented in descriptive-narrative form to demonstrate the relationship between individual experiences and broader smart city governance practices. This analytical approach enables the study to critically examine how citizens construct meanings around privacy and surveillance within contemporary digital urban life.

RESULT AND DISCUSSION

The findings reveal several interconnected themes regarding urban citizens' experiences of privacy and surveillance within Bandung's smart city environment. Participants generally demonstrated limited understanding of how their personal data are collected, processed, and governed, despite being

aware of the increasing presence of digital monitoring technologies in everyday urban life. The study also identifies experiences of passive acceptance toward surveillance practices, tensions between service convenience and data sovereignty, as well as the emergence of self-censorship and digital resignation. These empirical findings illustrate how smart city governance may reshape citizens' perceptions of privacy, participation, and democratic engagement in the digital era. The following discussion elaborates these themes through participants' narratives and their relation to broader debates on surveillance capitalism, public sphere transformation, and platform governance.

Table 1. Participant Profiles and Dominant Experiential Themes

No.	Pseudonym	Age	Occupation	Dominant Experiential Theme	Key Quote (Represented)
1	Rama	28	Freelance Designer	Illusory Awareness and Absence of Transparency	"I know my data is taken, but for what and who manages it, it's like a fog."
2	Bima	35	Small Business Owner	Passive Object in Surveillance System	"We are like raw material being processed. Movement, transactions, even complaints, everything is recorded without us being able to demand clear accountability."
3	Sari	32	Teacher	Digital Resignation as a Form of Adaptation	"At first it was uncomfortable, but eventually you accept it. It's considered a logical consequence of living in a so-called 'smart' city."
4	Dedi	45	Private Employee	Dilemma Between Convenience and Data Sovereignty	"Public reporting apps are very helpful, but why must the requirement be to grant access to so much personal data that seems irrelevant?"
5	Citra	37	Environmental Activist	Chilling Effect and Self-Censorship	"There is hesitation to openly convey criticism on digital platforms. Worried about being labeled a 'troublemaker' or having my activism data used for other purposes."

6	Angga	30	Technology Developer	Algorithmic Opacity and Absence of Platform Accountability	"The system runs like a black box. We input a complaint, get a ticket number, then the backend process is unclear. There is no empowering feedback loop."

Source: Primary Research Data, processed (2025)

The research findings crystallize into several interrelated major themes. First, the theme of fragmented awareness and information asymmetry emerges. All participants were aware of the presence of data-gathering technologies such as surveillance cameras (CCTV) and mandatory applications for public services. However, this awareness was not accompanied by a comprehensive understanding of the data lifecycle, from the purpose of collection, storage periods, to the entities authorized to access it. As expressed by Rama, awareness of monitoring does not automatically translate into knowledge about data governance. This condition creates a deep information gap between system managers and citizens as data subjects, a form of asymmetry that is precisely the foundation of surveillance capitalism operations according to Zuboff (2019). Citizens are in a position of knowing their data is taken but lack the capacity to trace or control its flow and utilization, thereby solidifying their position as a vulnerable party.

Second, the findings reveal citizens' experiences as passive subjects within surveillance networks. Participant narratives are laden with depictions of themselves as objectified. Bima, for example, described himself as "raw material" in the data industry process. This experience reflects the process of datafication, where human life experiences mobility, transactions, interactions are reduced to data points that can be capitalized. In the smart city context, this process often occurs without meaningful and informative consent mechanisms. Consent is given out of coercion and ceremony, as told by Sari, in order to access basic services. Consequently, individual autonomy over personal data is eroded, and the power relation between city administrators and citizens becomes increasingly unequal. Citizens are no longer merely

service users but more as data resources that are continuously extracted.

Third, in response to the above conditions, the phenomenon of digital resignation emerges. Instead of offering overt resistance or protest, the majority of participants showed a form of passive and pragmatic acceptance. As expressed by Sari, initial discomfort gradually turned into acceptance because it was considered the price to pay for urban modernity and convenience. This resignation is not a form of genuine consent but an adaptation strategy against a system perceived as too large and complex to challenge. This phenomenon confirms the findings of Biesaga et al. (2023) regarding the normalization of surveillance, where continuous exposure to monitoring systems dulls sensitivity and encourages the internalization of surveillance logic as an inevitability. Such resignation is dangerous for the democratic climate because it stifles the potential for public critique and allows surveillance infrastructures to develop without rigorous democratic scrutiny.

Fourth, this study finds the existence of a paradox between convenience and privacy experienced personally by citizens. On one hand, participants acknowledged the tangible benefits of city service digitization: time efficiency, ease of access, and transparency of certain procedures. Dedi, for instance, greatly appreciated the convenience of reporting facility damage without having to queue. However, on the other hand, they questioned the necessity and proportionality of the data requested. Requests for access to real-time location, contact lists, or family data for simple services raise suspicion. This paradox highlights the failure of the design philosophy underlying many smart city platforms: they are optimized for data extraction and bureaucratic efficiency, not for building trust or protecting citizens' private spheres.

Fifth, and this is the most crucial finding for digital democracy, is the emergence of the chilling effect and self-censorship. For politically aware participants like Citra, the smart city environment perceived as full of

surveillance encourages excessive caution in expression. Concerns about negative labeling or misuse of activism data limit their participation in digital public spaces. This directly corrodes the public sphere required by Habermas (1989) a space where citizens can engage in rational-critical discourse without fear. When citizens censor themselves, the quality and diversity of public discourse shrink. Furthermore, as complained by Angga, opacity in platform governance exacerbates the problem. The unclear processes, lack of informative feedback, and non-dialogical algorithms turn citizen-state interactions into one-way, non-transparent processes, thereby weakening governance accountability.

Discussion of these findings in light of theory and policy implications reveals several fundamental issues. The narratives of information asymmetry and passive subjectivity among Bandung citizens are empirical manifestations of the logic of Surveillance Capitalism (Zuboff, 2019). However, this study provides a unique contextualization: the main actor is often the local government, not global platform corporations. The extraction of citizen data is framed within narratives of public service and governance efficiency, making it more difficult to criticize politically. This creates a variant of state-facilitated surveillance capitalism, where the logic of data extraction is legitimized by public administration goals, yet still results in a significant concentration of informational power in the hands of system managers.

The findings of resignation and the chilling effect provide strong empirical evidence for theoretical concerns about the narrowing of the public sphere. The smart city environment, as experienced by Citra, creates conditions that are not ideal for free public deliberation. When citizens feel watched, they tend to withdraw or moderate their political expressions, which in turn weakens the social control function over power. The policy implication is clear: smart city development must explicitly integrate and protect digital spaces for fearless expression and social criticism. Without this, urban digital transformation risks producing citizens who are more apathetic and politically

passive.

The convenience-privacy paradox and platform opacity raised by Dedi and Angga highlight the failure of the Platform Governance model applied in the governmental context. These public service platforms are designed as one-way service channels, not as participatory democratic infrastructure. Their focus is on extractive efficiency (taking citizen data to optimize services), not on transparency, accountability, or citizen empowerment. This creates an unequal relationship, akin to the data colonialism relationship proposed by Couldry and Mejias (2019), where citizen experiences are exploited as resources for governance legitimacy and efficiency, with minimal return in the form of openness or control.

Therefore, this discussion points to an urgent need for a policy paradigm shift from a technocratic smart city to a rights-based smart city. Operational policy recommendations that can be derived include: (1) Mandatory inclusive and open Privacy Impact Assessments for every new city technology project; (2) Development of a City Transparency Dashboard that visualizes how citizen data is collected and used, along with easily accessible privacy policies; (3) Integration of critical digital literacy encompassing data rights into public campaign curricula; (4) Establishment of permanent participatory design forums involving citizens in the design and evaluation of city digital services; and (5) Strengthening independent and accessible local data protection oversight institutions to handle citizen complaints.

Overall, this research demonstrates that the success of a smart city should not be measured solely by technological indices or administrative efficiency, but must be viewed through the lens of its impact on citizen autonomy, privacy, and democratic participation. The stories from Bandung reveal the gap between technological promise and everyday reality, a gap filled with uncertainty, resignation, and caution. Bridging this gap requires a commitment to redesigning our digital urban future with principles of data justice, transparency, and citizen sovereignty as its foundation.

CONCLUSION

This research explores the narratives and experiences of Bandung City residents regarding data collection practices and perceptions of privacy loss within the context of smart city implementation. Through in-depth interviews with six purposively selected participants, this study successfully identified the complex dynamics between citizen participation in digital spaces, surveillance practices, and technology-based urban governance.

The main findings of this research demonstrate that smart city implementation in Bandung produces five critical conditions with implications for citizen privacy rights and digital democracy. **First**, there exists a significant information gap between system managers and citizens as data subjects, where awareness of data collection is not accompanied by comprehensive understanding of the data lifecycle. **Second**, citizens experience a process of objectification within surveillance networks, where their lives are reduced to data points that can be capitalized without meaningful consent mechanisms. **Third**, the phenomenon of digital resignation emerges as a pragmatic adaptation strategy toward a system perceived as too large to challenge, which actually endangers the democratic climate by stifling the potential for public critique. **Fourth**, citizens experience a paradox between the convenience of digital services and concerns over the proportionality of data requests, indicating a failure in platform design philosophy that prioritizes data extraction over building trust. Fifth, and most crucial for digital democracy, is the emergence of chilling effect and self-censorship that erodes the public space necessary for rational-critical discourse without fear.

These narratives constitute empirical manifestations of Surveillance Capitalism logic within the local government context, where citizen data extraction is legitimized through narratives of public service and governance efficiency. This condition creates a variant of state-facilitated surveillance capitalism that produces significant concentration of informational power in the hands of system managers. The findings on resignation and chilling effect

provide strong empirical evidence regarding the narrowing of public space in smart city environments, which potentially produces citizens who are more apathetic and politically passive.

The gap between technological promise and everyday reality of citizens is filled with uncertainty, resignation, and excessive caution. This demonstrates that smart city success cannot be measured solely by technological indices or administrative efficiency, but must be viewed through its impact on citizen autonomy, privacy, and democratic participation. Smart city implementation that prioritizes technological efficiency over citizen rights protection tends to reproduce unequal power relations in data governance and potentially weakens the quality of digital democracy.

This research confirms the urgent need for a paradigm shift in policy from technocratic smart cities toward rights-based smart cities. Without commitment to redesigning the digital urban future with principles of data justice, transparency, and citizen sovereignty as its foundation, smart cities risk becoming surveillance instruments that legitimize control without adequate democratic accountability.

These findings underline the urgent need for a paradigm shift from technocratic smart city governance toward a rights-based smart city model that places citizen privacy, transparency, and democratic participation at the center of digital urban development. Local governments should strengthen legal and institutional frameworks for personal data protection by integrating privacy-by-design principles into smart city projects, establishing transparent data governance mechanisms, and ensuring public access to understandable information regarding how citizen data are collected, processed, and shared. In addition, smart city governance should move beyond top-down technological approaches by involving citizens more actively in the design, evaluation, and oversight of digital urban services through participatory forums and citizen-centered platform governance. Greater algorithmic transparency, meaningful consent mechanisms, and stronger citizen control

over personal data are essential to reduce information asymmetry and reinforce public trust in digital governance systems. At the broader societal level, strengthening critical digital literacy, civil society engagement, and independent public oversight is equally important to ensure that technological innovation does not undermine democratic values and citizen autonomy. Future studies are also encouraged to expand comparative and longitudinal research on smart cities across different urban contexts in Indonesia in order to better understand the evolving relationship between surveillance, data governance, and digital democracy. Ultimately, smart city success should not be measured solely through technological efficiency and administrative performance, but through its ability to protect citizen rights, sustain democratic participation, and promote data justice within increasingly digitalized urban environments.

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