

Understanding Gen Y & Z Preferences for Smart Homes: What's the Challenge? A Thematic Analysis of Developers and End-Users in Smart Cities

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Abstract

The rise of smart cities has accelerated the development of smart homes; however, adoption among Generation Y and Z remains inconsistent despite their position as the most digitally connected demographics. This study explores the preferences and challenges associated with implementing smart home technologies that meet the expectations of Gen Y and Z. Adopting a thematic analysis approach, the research integrates findings from field observations and in-depth interviews with eight key stakeholders, including developers, property managers, and Gen Y/Z homeowners, in smart city housing projects across the Jabodetabek area, Indonesia. The analysis identifies major challenges such as perceived high costs, privacy concerns, limited awareness, mismatches between design and user needs, and uneven digital literacy. These findings are critically compared with existing literature to highlight persistent gaps between technological offerings and actual user readiness. This study contributes practical recommendations for developers and policymakers, while also providing a theoretical foundation for future research on smart home adoption behavior among digital-native generations.

Keywords: Digital Technology Adoption, Smart Homes, Generation Y And Z, Smart Cities, User Preferences, Housing Innovation, Smart Home Challenges

1. Introduction

1.1 Background

The rapid evolution of smart city initiatives has reshaped the landscape of urban development and introduced new expectations for residential living through the integration of smart home technologies (Eremia et al., 2017; Monzon, 2015). Smart homes, defined as digitally enhanced, sensor-driven, and automated living environments, have been positioned as key enablers of efficiency, sustainability, and user-centered convenience in the 21st century (Orlowski & Romanowska, 2019). These technological innovations align closely with the aspirations of

modern urban consumers; however, patterns of adoption among Generation Y (Millennials) and Generation Z remain varied and inconsistent despite their reputation as digitally immersed cohorts (Chan & Hu, 2023; Adeshola & Adepoju, 2024).

Although Gen Y and Z are often presumed to possess advanced digital readiness, empirical studies suggest that digital nativeness does not automatically equate to confidence, comfort, or sustained engagement with complex smart home systems (Firat, 2025; Bitzenbauer, 2023). Technology Acceptance Model (TAM) research shows that perceived usefulness and perceived ease of use significantly influence adoption behavior, including in smart home contexts (Davis, 1989; Park, 2024). At the same time, self-efficacy, defined as one's belief in their capability to perform technological tasks, plays a critical psychological role in determining whether young users are willing to operate, customize, or troubleshoot smart systems (Bandura, 1997; Schunk & DiBenedetto, 2021). High self-efficacy has been associated with stronger motivation, improved problem-solving, and greater persistence in managing digital environments, making it a central variable in understanding smart home adoption among younger generations (Brown et al., 2012; Yentür, 2023).

The Indonesian setting presents a compelling context for this inquiry. The Jabodetabek metropolitan region, as one of Southeast Asia's most dynamic urban clusters, is undergoing rapid digitization aligned with national smart city blueprints (Eremia et al., 2017; Monzon, 2015). Despite this progress, evidence indicates persistent gaps between technological innovations introduced by developers and the actual readiness, preferences, and digital literacy levels of end-users (Nurhadi et al., 2025; Yusriani & Patiro, 2025). Many Gen Y and Z homeowners in Indonesia express enthusiasm toward smart living concepts, but they also report concerns related to affordability, privacy risks, data governance, and the mismatch between advertised features and daily usability (Chan & Hu, 2023; Grøtan et al., 2019). These concerns reflect broader anxieties shared globally, particularly regarding generative AI integration within personal spaces, where issues of surveillance and psychological fatigue become more pronounced (Park, 2024; Adeshola & Adepoju, 2024).

Importantly, the smart home ecosystem does not only affect functional aspects of living but also intersects with socio-psychological needs, especially creativity, productivity, and emotional well-being among younger generations. Creativity channeling, defined as the capacity to express, develop, and apply creative ideas through conducive environments, is increasingly recognized as a crucial developmental priority for Gen Y and Z in Indonesia's digital economy (Grøtan et al., 2019; Webster et al., 2021). Research on digital behavior shows that young individuals thrive in environments that facilitate idea generation, personal innovation, and collaborative creativity, which are often supported by adaptive technologies, customizable digital tools, and mentally stimulating spaces (Brown et al., 2012; Schunk & DiBenedetto, 2021). Smart homes, when designed intentionally, can serve as creativity-enhancing environments by offering integrated tools for learning, remote work, artistic production, and self-expression (Firat, 2025; Adeshola & Adepoju, 2024). However, when poorly implemented, these systems can produce cognitive overload, disrupt attention, or generate frustration, ultimately inhibiting creativity rather than enabling it (Chan & Hu, 2023; Grøtan et al., 2019).

For Gen Y and Z in Indonesia, many of whom juggle hybrid work, entrepreneurial pursuits, content creation, and academic commitments, the ability to channel creativity within their living space becomes an essential factor shaping satisfaction with smart home technologies (Brown et al., 2012; Webster et al., 2021). Studies on youth well-being and digital literacy highlight that

creative autonomy plays a significant role in mitigating stress, fostering intrinsic motivation, and supporting mental resilience (Kamila & Ramadhani, 2024; Yulianti et al., 2021). Smart homes that fail to align with these psychological needs may inadvertently limit opportunities for self-driven innovation, which is vital to Indonesia's young workforce navigating increasingly digitalized industries (Nurhadi et al., 2025; Park, 2024). Thus, understanding how smart home environments can better accommodate creativity workflows, digital content development, or skill-building activities is central to designing future-ready residential ecosystems.

Despite the urgency of this issue, existing literature remains heavily skewed toward engineering, architectural, or cost-benefit perspectives, with fewer studies exploring the lived experiences of young smart home residents and the viewpoints of developers simultaneously (Bitzenbauer, 2023; Bouih et al., 2021). Qualitative research is particularly valuable in this domain because it captures nuanced tensions between expectations and realities, revealing insights into daily interactions, frustrations, and adaptive behaviors that quantitative methods often overlook (Braun & Clarke, 2019; Ritchie & Lewis, 2003). Tools such as in-depth interviews, field observations, and focus group discussions enable researchers to uncover the meanings that young users attach to smart living features, including how they integrate them into routines related to work, study, entertainment, or creativity (Basnet, 2018; Charmaz, 2006).

Responding to this gap, the present study adopts a reflexive thematic analysis approach to examine the preferences, expectations, and challenges surrounding smart home adoption among Gen Y and Z in Indonesian smart city contexts.

Furthermore, understanding Gen Y and Z preferences for smart homes is critically significant for ensuring sustainable business growth within the property and technology sectors, as developers increasingly rely on long-term user engagement to sustain competitive advantage in smart city ecosystems (Eremia et al., 2017; Orłowski & Romanowska, 2019). The ability of developers to design homes that genuinely reflect young users' digital readiness, creativity needs, and psychological comfort directly influences market adoption, customer retention, and the financial viability of smart housing investments (Davis, 1989; Park, 2024). As Indonesia accelerates its transition toward sustainable and innovation-driven urban development, aligning smart home functionalities with youth expectations becomes essential not only for supporting environmental goals but also for maintaining a resilient and future-oriented property industry (Monzon, 2015; Nurhadi et al., 2025). In this sense, the significance of this study extends beyond consumer analysis and contributes to a broader discourse on sustainable smart city business models, where user-centered design, digital trust, and creativity-enabling infrastructures serve as foundations for long-term urban competitiveness and socioeconomic resilience (Firat, 2025; Yusriani & Patirol, 2025).

1.2 Research Questions

Through interviews with eight key stakeholders, including developers, property managers, and Gen Y/Z homeowners, the research seeks to address two central questions:

1. What preferences shape Generation Y and Z expectations for smart homes in smart city developments?
2. What challenges do developers and end-users face in aligning technological offerings with the everyday needs, literacy levels, and creativity aspirations of younger residents?

By synthesizing stakeholder perspectives with contemporary theoretical frameworks, including self-efficacy theory, digital readiness models, emotional well-being research, and technology acceptance frameworks, this study contributes to a holistic understanding of smart home adoption among digital-native Indonesians. The findings are expected to support developers in creating more user-centered smart living environments, assist policymakers in designing inclusive urban technology strategies, and provide scholars with an expanded conceptual foundation for future research in the intersection of smart cities, youth creativity, and digital behavior.

2. Literature Review

2.1 Smart Cities and Smart Home Technologies

The emergence of smart cities has introduced a transformative approach to urban development, integrating digital technologies, data-driven systems, and automation to enhance quality of life and environmental sustainability (Eremia et al., 2017; Monzon, 2015). Smart homes, as a core component of smart cities, leverage interconnected devices, sensors, and AI-supported applications to create efficient and responsive domestic environments (Orlowski & Romanowska, 2019). These homes are designed to optimize energy consumption, enhance security, automate daily tasks, and promote eco-friendly behavior, making them central to the larger smart city vision (Eremia et al., 2017). As urban populations expand and digital infrastructure becomes more sophisticated, the integration of smart homes is increasingly positioned as both a technological necessity and a sustainable residential innovation (Monzon, 2015; Orlowski & Romanowska, 2019).

2.2 Technology Adoption Among Generation Y and Z

Generation Y and Z, often described as digital natives, are assumed to possess high comfort levels with emerging technologies; however, research shows that actual adoption behaviors remain varied and influenced by contextual factors (Chan & Hu, 2023; Adeshola & Adepoju, 2024). Studies highlight that although younger generations frequently interact with digital tools, they still evaluate new technologies based on perceived usefulness, perceived ease of use, and relevance to daily routines, consistent with the Technology Acceptance Model (Davis, 1989; Park, 2024). Furthermore, Gen Y and Z demonstrate heightened awareness of data privacy, ethical implications of AI, and digital fatigue, concerns that significantly shape their attitudes toward smart living environments (Chan & Hu, 2023; Park, 2024). Their adoption decisions are therefore multidimensional, involving cognitive, emotional, and practical considerations.

2.3 Self-Efficacy, Digital Literacy, and User Readiness

Self-efficacy plays a central role in technology engagement, particularly in systems that require learning, adaptation, or troubleshooting (Bandura, 1997; Schunk & DiBenedetto, 2021). High levels of self-efficacy correlate with increased motivation, persistence, and confidence in operating complex digital systems, making it a key predictor of smart home adoption (Brown et al., 2012; Yentür, 2023). Digital literacy further influences readiness by determining how well individuals understand system functions, security features, and digital troubleshooting, which can differ widely among users even within the same generational cohort (Nurhadi et al., 2025; Yulianti et al., 2021). Research on mental health and academic performance among young users suggests that digital overload or low technological clarity can lead to stress, reduced performance, and avoidance behavior (Grøtan et al., 2019; Kamila & Ramadhani, 2024). These findings highlight that user readiness must be assessed holistically, involving technical,

psychological, and behavioral components.

2.4 Creativity Channeling in Digital Living Environments

Creativity has become a critical capability for Gen Y and Z, particularly as digital economies reward innovation, content creation, and entrepreneurial pursuits (Grøtan et al., 2019; Webster et al., 2021). Smart homes offer significant potential to support creativity by providing flexible spaces, customizable digital tools, continuous connectivity, and environments conducive to learning, artistic expression, and remote collaboration (Firat, 2025; Adeshola & Adepoju, 2024). Research in digital behavior demonstrates that conducive environments can stimulate idea generation, enhance intrinsic motivation, and support sustained engagement with personal or professional projects (Schunk & DiBenedetto, 2021; Brown et al., 2012). However, studies also indicate that poorly designed systems, characterized by complexity, interruptions, or excessive monitoring, may hinder creativity and produce cognitive overload (Chan & Hu, 2023; Grøtan et al., 2019). For Indonesian youth who often balance work, learning, and digital entrepreneurship, creativity channeling is not merely a personal preference but a necessity for productivity and well-being.

2.5 Challenges in Smart Home Adoption

Despite technological advances, several barriers continue to hinder smart home adoption among younger generations. Perceived cost remains a major concern, as smart devices and integrated systems are often viewed as expensive or financially inaccessible (Chan & Hu, 2023; Adeshola & Adepoju, 2024). Privacy and data security risks also generate hesitation, especially as AI-enabled devices collect sensitive behavioral information (Park, 2024; Grøtan et al., 2019). Studies show that users experience anxiety when they feel monitored or when system transparency is unclear (Chan & Hu, 2023). Additionally, mismatches between developer-designed features and user expectations can result in dissatisfaction, particularly when technologies fail to support daily routines, cultural habits, or creative workflows (Nurhadi et al., 2025; Bitzenbauer, 2023). Uneven digital literacy and varying levels of technological self-efficacy further complicate adoption patterns, making it necessary for developers to integrate more user-friendly and adaptable systems (Bandura, 1997; Yulianti et al., 2021).

2.6 Research Gap in This Study

Although existing studies have explored aspects of digital literacy, user acceptance, and technological innovation, limited attention has been given to the intersection of smart homes, youth creativity, and lived experiences within emerging smart city contexts (Chan & Hu, 2023; Bitzenbauer, 2023). Few studies simultaneously analyze the perspectives of both developers and end-users, leading to a lack of comprehensive understanding of how design intentions align, or misalign, with real user needs (Bouih et al., 2021; Nurhadi et al., 2025). Moreover, research on smart homes in Indonesia has primarily focused on infrastructure readiness rather than on psychosocial factors such as creativity channeling, digital trust, and self-efficacy, which are essential for understanding young residents' adoption behaviors (Grøtan et al., 2019; Schunk & DiBenedetto, 2021). This study addresses these gaps by providing an integrated thematic analysis of preferences and challenges experienced by Gen Y/Z stakeholders in smart city housing, offering meaningful insights for sustainable development, user-centered design, and future smart home research.

3. Research Method

3.1 Research Approach

This study adopts a qualitative research approach to explore the complex preferences, expectations, and challenges experienced by Generation Y and Z in smart home adoption within smart city environments, which aligns with recommendations that qualitative methods are ideal for capturing meaning, perceptions, and lived experiences (Ritchie & Lewis, 2003; Charmaz, 2006). A qualitative approach allows researchers to observe technological behaviors, emotional responses, and creativity-related needs that may not be fully captured in quantitative models (Braun & Clarke, 2019; Basnet, 2018). This approach is suitable for understanding the nuanced interaction between technology, self-efficacy, digital literacy, and creativity channeling among young urban populations (Bandura, 1997; Schunk & DiBenedetto, 2021).

3.2 Research Design

The research employs a reflexive thematic analysis design, which is considered effective for identifying patterns, user expectations, and cross-stakeholder insights in technology adoption contexts (Braun & Clarke, 2019). Reflexive thematic analysis enables in-depth interpretation of both explicit and latent meanings found in participants' narratives, especially when examining sensitive topics such as privacy concerns, digital trust, and psychological readiness for smart home technologies (Chan & Hu, 2023; Park, 2024). This design is aligned with the need to understand how environment, technology, and psychosocial factors intersect in shaping smart home adoption behavior, particularly for Gen Y and Z whose digital lifestyles are strongly influenced by self-efficacy and creativity processes (Brown et al., 2012; Grøtan et al., 2019).

3.3 Research Data

The study draws on qualitative data gathered from semi-structured interviews, field observations, and supplementary documents from smart housing projects in the Jabodetabek area. Such multi-source data collection enhances comprehensiveness and contextual accuracy, consistent with Creswell and Creswell's (2018) emphasis on triangulation for methodological robustness. The use of interviews allows exploration of personal experiences and emotional dimensions, while field observations provide insight into the alignment between smart home infrastructure and actual user interactions (Basnet, 2018; Charmaz, 2006). Additional contextual documents from developers support understanding of design intentions, sustainability considerations, and business motivations behind smart home offerings (Eremia et al., 2017; Orłowski & Romanowska, 2019).

3.4 Participants and Sampling

Participants consist of eight key stakeholders: smart home developers, property managers, and Gen Y/Z homeowners living or investing in smart city housing developments in Jabodetabek. This sampling strategy aligns with purposeful sampling techniques recommended for qualitative inquiry where information-rich cases are prioritized (Ritchie & Lewis, 2003; Creswell & Creswell, 2018). Engaging multiple stakeholder groups provides triangulated insights into design challenges, user readiness, and creativity-related expectations (Braun & Clarke, 2019). The inclusion of Gen Y and Z users is essential, as these cohorts are directly affected by issues of digital self-efficacy, technology acceptance, and creativity channeling (Schunk & DiBenedetto, 2021; Webster et al., 2021).

3.5 Data Collection Procedures

Semi-structured interviews were conducted using flexible prompts designed to encourage deep

reflection and open discussion, consistent with best practices in qualitative interviewing (Ritchie & Lewis, 2003; Charmaz, 2006). Interviews explored themes such as technological usability, privacy concerns, digital literacy, creative work routines, sustainability expectations, and perceived barriers to adoption (Chan & Hu, 2023; Grøtan et al., 2019). Complementary field observations focused on the physical layout of smart homes, digital interfaces, automation features, and user–technology interaction patterns (Eremia et al., 2017). This multimodal data collection approach strengthens contextual validity and aligns with qualitative research traditions emphasizing depth and interpretive richness (Basnet, 2018; Braun & Clarke, 2019).

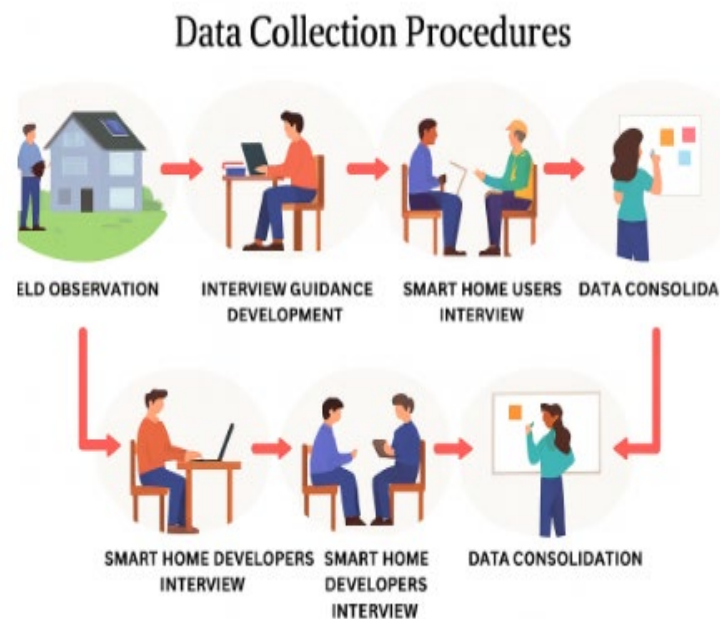


Figure 1. Data Collection Procedures

Source: Authors' Fieldwork, 2025

3.6 Data Analysis Reflexive Thematic Analysis

Data were analyzed using the six-phase reflexive thematic analysis framework proposed by Braun and Clarke (2019), involving familiarization, coding, theme development, theme review, theme refinement, and reporting. This analytical strategy enables identification of complex patterns across participants, especially themes related to technology adoption, creativity needs, psychological readiness, and sustainability expectations (Davis, 1989; Brown et al., 2012). Reflexive thematic analysis is particularly suited for studies examining perceptions of digital ecosystems because it allows researchers to interpret how individual beliefs, self-efficacy, and emotional experiences shape interactions with technology (Bandura, 1997; Schunk & DiBenedetto, 2021). Themes were continuously compared with existing literature to ensure theoretical coherence and to situate findings within broader smart city and digital behavior frameworks (Orlowski & Romanowska, 2019; Park, 2024).

3.7 Trustworthiness of the Study

To enhance trustworthiness, this study applied credibility, dependability, confirmability, and transferability procedures consistent with qualitative research standards (Ritchie & Lewis, 2003; Braun & Clarke, 2019). Credibility was strengthened through data triangulation across

interviews, observations, and documents (Creswell & Creswell, 2018). Dependability was supported by maintaining detailed field notes and an audit trail documenting decisions throughout data analysis (Charmaz, 2006). Confirmability was ensured by reflexive journaling and cross-checking interpretations with co-researchers to minimize personal bias (Basnet, 2018). Transferability was enhanced by providing rich contextual descriptions of smart city housing environments in Jabodetabek, enabling readers to assess relevance to other settings (Eremia et al., 2017; Monzon, 2015). These measures collectively support the robustness and academic rigor of the study.

4. Findings and Discussions

Before discussing the four major themes, it is essential to present the demographic profile and roles of the eight key stakeholders who participated in the study. Their characteristics provide important contextual grounding for understanding the dynamics of IoT-based smart home adoption among Generation Y and Z in Jabodetabek.

4.1 Participant Demographics and Stakeholder Profiles

The study involved eight stakeholders, purposively selected to represent both the *supply side* (developers and property managers) and the *demand side* (Gen Y and Gen Z smart home users). This dual perspective is consistent with qualitative recommendations emphasizing the importance of capturing multi-actor viewpoints in technology adoption research (Ritchie & Lewis, 2003; Creswell & Creswell, 2018). All eight participants lived, worked, or managed operations in the smart city housing clusters of the Jabodetabek metropolitan area.

Stakeholder Overview

1. Two Smart Home Developers (Developers A & B). Both developers had more than five years of experience designing smart housing units integrating IoT systems such as motion sensors, smart CCTV, automated lighting, and digital access gates. Their work focused on marketable smart home features aligned with commercial trends in Indonesia's urban real estate sector. They represent the technological supply chain perspective and the design decision-making process (Eremia et al., 2017; Monzon, 2015).
2. One Property Manager (Manager C). This stakeholder was responsible for day-to-day operational maintenance of IoT infrastructures in a smart housing cluster, including troubleshooting resident complaints, coordinating repairs, and monitoring system uptime. Property managers play a critical bridging role between developers' design intentions and residents' lived experiences (Orlowski & Romanowska, 2019).
3. Two Gen Y Homeowners (Users D & E). Both Gen Y respondents were in their early, mid 30s, married, and combining hybrid work arrangements involving remote work, household responsibilities, and small-scale businesses. Although digitally competent, they expressed varied levels of IoT comfort, consistent with findings on uneven digital literacy among young adults (Grøtan et al., 2019; Yulianti et al., 2021).
4. Three Gen Z Residents or Renters (Users F, G & H). The Gen Z participants ranged from early 20s to mid-20s, either students or young professionals, with strong engagement in content creation, freelancing, and gig-economy work. They represent digital natives with heightened sensitivity to privacy, cybersecurity, and convenience, attitudes documented in contemporary AI and IoT literature (Chan & Hu, 2023; Park,

2024).



image 2a.

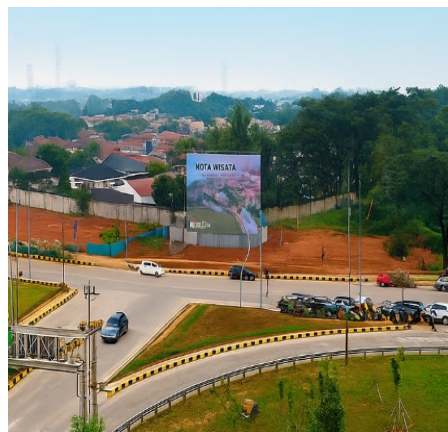


image 2b.

Figure 2a, 2b. Main access road leading to the IoT-integrated smart home complex in the Jabodetabek smart city cluster.

Source: The images document the surrounding infrastructure development, connectivity routes, and the urban–suburban transition areas relevant to residents’ mobility and daily accessibility (Documentation by Authors, 2025).



image 3a.



image 3b.

Figure 3a-3b. Potential Customers Visiting Developer Site and Marketing Official During Construction

Figure 3a-3b. Ongoing construction and developer site visitation in the smart home area. These photos document the interactions between potential smart home buyers and the developer's marketing representative, illustrating early-phase evaluations of residential architecture and planned IoT system installations. The visual evidence provides contextual support for understanding the design-implementation gaps highlighted in the findings.

(Documentation by Authors, 2025)

Key Characteristics Across Groups

Across all participants, several patterns emerged:

- High exposure to IoT devices (smart lamps, Wi-Fi locks, smart speakers, CCTV, and automation hubs).
- Varying levels of digital self-efficacy, from confident users to individuals who preferred manual systems, reflecting the psychological role of self-efficacy in technology usage (Bandura, 1997; Schunk & DiBenedetto, 2021).

- A strong desire for creative, productive, and flexible living spaces, particularly among Gen Z who rely on home environments to support study, work, and online content creation (Webster et al., 2021).
- Differing interpretations of “smart home convenience”, where some valued automation while others prioritized minimalism and privacy.

This demographic context reinforces the importance of examining IoT smart homes through both behavioral and technological lenses, as adoption is strongly shaped by user background, needs, and motivations (Davis, 1989; Brown et al., 2012; Rock et al., 2024).

4.2 Discussions

Overall, the findings of this study illustrate that the adoption of IoT-based smart home technologies among Generation Y and Z in the Jabodetabek smart city context is shaped by a complex interplay of technological, psychological, behavioral, and environmental factors. The four themes collectively highlight that adoption readiness cannot be assumed merely based on generational digital nativeness, a conclusion that aligns with global research suggesting that familiarity with digital devices does not automatically translate into confidence or sustained engagement with more sophisticated IoT systems (Chan & Hu, 2023; Bitzenbauer, 2023).

First, the mismatch between IoT features designed by developers and actual user needs emphasizes the importance of *user-centered design* in smart home development. Developers tend to prioritize technologically attractive or commercially competitive features, such as smart CCTV, automated lighting, and gate access systems, yet these innovations do not consistently address users' lifestyle priorities, cultural routines, or daily workflows (Orlowski & Romanowska, 2019; Monzon, 2015). This pattern reflects long-standing critiques within the smart city literature, which warn that digitally enriched infrastructures may fail when they are not grounded in genuine user experience or contextual realities (Eremia et al., 2017). As shown in this study, even seemingly simple features such as smart lighting near pool areas or digital neighborhood gates may malfunction or produce inconvenience when environmental and human factors are not adequately considered. Developers often emphasize visually appealing “showcase technology” in their marketing campaigns, shaping user expectations in ways that do not always reflect real functional needs (Harisandi et al., 2025).

Second, the themes confirm that digital literacy and self-efficacy remain critical determinants of technology acceptance. Consistent with Bandura's (1997) conceptualization of self-efficacy and the predictive strength of TAM (Davis, 1989), users with higher technological confidence demonstrated more proactive engagement with IoT systems. Many users, particularly Gen Z, also expressed feelings of digital fatigue and anxiety when dealing with multi-step IoT configurations, indicating that psychological strain can reduce technology engagement (Grøtan et al., 2019). However, the presence of Gen Y participants who preferred manual household operations, such as washing, cooking, or appliance usage, shows that personal habits and cognitive comfort shape technology adoption behavior as powerfully as technological capability. Meanwhile, Gen Z's heightened security concerns align with global patterns of AI-related distrust and digital surveillance anxieties (Park, 2024). These findings reinforce the necessity of designing IoT systems that are not only functionally seamless but also psychologically reassuring and transparent.

Third, the study reveals persistent discrepancies between developer assumptions and users' lived experiences, a gap noted in prior qualitative inquiries on digital infrastructure (Ritchie &

Lewis, 2003; Nurhadi et al., 2025). Developers, constrained by time, budgets, and market pressures, tend to prioritize features that appeal visually or commercially rather than those that ensure long-term usability or sustainability (Bouih et al., 2021). Several mismatches occurred because developers did not conduct systematic task or job analyses of how residents actually interact with household technologies, leading to features that were misaligned with daily routines (Konz, 1989). Users, however, face the burden of maintaining device compatibility, updating firmware, troubleshooting malfunctions, and adapting routines to suit system behaviors, all tasks that require digital resilience and technological adaptability. This friction raises concerns about long-term sustainability and cost-effectiveness, as IoT systems that are underutilized or abandoned contribute to wasted energy, reduced quality of life, and unsustainable smart city operations (Eremia et al., 2017; Rock et al., 2024).

Fourth, the theme on creativity channeling expands the discussion beyond conventional technology adoption models by illustrating how living environments shape psychological well-being and creative productivity. When IoT systems become complicated or malfunction, users report increased stress levels, reinforcing the importance of supportive environments for maintaining well-being in digitally mediated households (Kamila & Ramadhani, 2024). Gen Y and Z participants in this research, notably those engaged in freelancing, digital entrepreneurship, hybrid work, or academic projects, emphasized the need for IoT features that support concentration, stable connectivity, adaptive lighting, and emotional comfort. This aligns with literature showing that conducive digital environments enhance creative performance, reduce stress, and foster intrinsic motivation (Schunk & DiBenedetto, 2021; Brown et al., 2012). When smart homes fail to provide such support, creative output is hindered, which contradicts the expectation that technology-rich environments inherently promote innovation (Webster et al., 2021). Thus, future IoT smart home design must integrate creativity-oriented considerations, ensuring that smart city housing supports the evolving modes of learning, working, and self-expression embraced by younger generations.

Finally, the synthesis of all themes suggests that sustainable smart home development requires a paradigm shift from technology-first design to human-centered, psychologically aware, creativity-supportive, and culturally contextualized IoT ecosystems. For Indonesia's smart city agenda to succeed, developers must collaborate more closely with residents, conduct empathetic field testing, and integrate adaptive IoT interfaces that accommodate diverse digital literacy levels. Policymakers, meanwhile, must emphasize digital literacy programs, cybersecurity regulations, and the promotion of ethical AI-integrated IoT systems to address the concerns of younger generations (Adeshola & Adepoju, 2024; Yusriani & Patirol, 2025).

By capturing the lived realities of Gen Y and Z residents, this study contributes to a deeper understanding of how smart homes can evolve from technologically impressive spaces into sustainable, creative, emotionally healthy, and future-ready living environments that truly reflect the aspirations of Indonesia's urban youth.



image 4a.

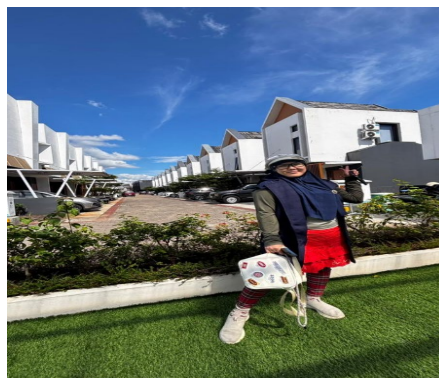


image 4b.

Figure 4a-4b. Interview Visit with Gen Y/Z Homeowners

Figure 4a, 4b. Field visit to a Gen Y/Z homeowner during the qualitative interview session. These images illustrate the residential environment in which users interact with IoT devices and automation features, providing contextual insight into digital literacy, self-efficacy, and everyday usability challenges identified in the study.

Source: Documentation by Authors, 2025.



image 5a.



image 5b.

Figure 5a-5b. Smart Home Cluster Facilities and Community Environment
Figure 5a-5b. Public facilities within the smart home cluster, including recreational and

shared community spaces. These settings are integral components of the broader smart city ecosystem and influence young residents' preferences related to creativity, productivity, family activities, and digital lifestyle compatibility.

Source: Documentation by Authors, 2025.

Despite offering modern IoT-enabled residential features and visually appealing community spaces, many smart home clusters in Jabodetabek are located on the suburban periphery, where land availability allows developers to build larger integrated housing projects. While this provides opportunities for more spacious layouts and recreational facilities, several Gen Y/Z participants expressed concerns about the increased transportation costs and commuting burdens associated with living far from central business districts. In many cases, daily travel between home and workplace required one to two hours of driving or motorcycling each way, resulting in higher fuel expenses, longer travel times, and reduced work-life balance. These insights highlight an important socio-economic tension within Indonesia's smart city development, namely, that digital lifestyle compatibility must also be matched with accessible urban mobility and sustainable commuting infrastructure to fully support younger residents' aspirations for productivity and well-being.

Managerial Implications

The findings carry several managerial implications for developers, property managers, technology vendors, and policymakers involved in smart home and smart city development. First, developers must shift from technology-driven design toward *user-centered ecosystem design* by prioritizing IoT features that align with residents' real needs for simplicity, privacy, energy efficiency, and creativity-enhancing home environments. This includes providing intuitive interfaces, improving onboarding materials, and ensuring that IoT devices are interoperable, easily configurable, and regularly updated (Davis, 1989; Schunk & DiBenedetto, 2021). Second, property managers and marketing teams should invest in continuous resident education, digital literacy facilitation, and responsive technical support systems to improve user satisfaction and long-term adoption. Third, policymakers should address the commuting and mobility challenges identified in suburban smart home clusters by integrating smart transportation planning and affordable mobility solutions to ensure sustainable urban-suburban connectivity. Strengthening user assistance and providing responsive support systems are essential, as supportive environments have been shown to reduce uncertainty and improve psychological readiness toward technology use (Gunarto et al., 2024; Rekart et al., 2019). Together, these measures can help create a more inclusive, psychologically supportive, and economically viable smart home ecosystem for younger generations navigating an increasingly digital lifestyle.

Research Limitations

Despite its contributions, this study has several limitations. First, the sample size, eight purposively selected stakeholders, limits the generalizability of the findings, although this is typical of qualitative inquiry focused on depth rather than breadth (Ritchie & Lewis, 2003). Second, field observations were conducted in selected Jabodetabek smart home clusters that may not represent the full diversity of smart housing typologies across Indonesia. Third, the study relied on self-reported experiences which may be influenced by subjective interpretations and momentary impressions of IoT usage. Finally, the rapid evolution of smart home technologies and AI-driven automation systems means that user expectations, system usability,

and market characteristics may continue to change, requiring ongoing research updates to capture emerging trends.

Directions for Future Research

Future studies could expand the scope by examining smart home adoption across multiple regions in Indonesia or Southeast Asia to compare socio-cultural expectations and infrastructure variations. Quantitative follow-up studies using TAM, UTAUT, or self-efficacy scales could test the broader applicability of the themes identified here. Researchers may also explore psychological dimensions such as digital fatigue, AI trust, environmental sustainability behaviors, and creativity performance more deeply, particularly among Gen Z digital workers and student populations. Finally, future research should investigate the integration of smart mobility systems, such as EV charging, shared autonomous vehicles, and AI-based traffic routing, into suburban smart home ecosystems to better understand how commuting challenges shape digital lifestyle decisions.

5. Conclusion

This study provides a comprehensive thematic analysis of IoT-based smart home adoption among Generation Y and Z within the Jabodetabek smart city region. The findings reveal four overarching themes: mismatches between developer-designed IoT features and user expectations; varying levels of digital literacy and self-efficacy; gaps between design intentions and lived residential experiences; and the growing importance of creativity-supportive home environments for younger digital-native residents. These insights underscore that smart home adoption is shaped not only by technological availability but also by psychological readiness, usability alignment, and socio-economic conditions, including commuting burdens and urban mobility infrastructure.

By emphasizing human-centered, emotionally supportive, and contextually relevant design principles, this study contributes to the advancement of sustainable smart city development. The results also offer actionable pathways for developers, policymakers, and researchers committed to improving Indonesia's future smart home ecosystems and supporting the lifestyles of emerging generations in an increasingly digital society.

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