

Smart City Development In Indonesia: Opportunities And Challenges

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Abstract. *The Smart City concept has become a global trend aimed at improving citizens' quality of life and increasing the efficiency of urban management. A Smart City represents the integration of digital technologies to optimize the delivery and efficiency of urban services. While many cities in Indonesia can develop smart cities, they still face various challenges. This study examines the opportunities and challenges of Smart City development in Indonesia. This study explores the opportunities and challenges of Smart City development in Indonesia. This research is a descriptive study with a qualitative approach. Data were collected through a literature review and interviews with experts in the field of Smart City. The results show that the opportunities for implementing Smart City in Indonesia include improving urban management efficiency, enhancing the quality of life, and increasing cities' competitiveness. However, several challenges remain, including limited technological infrastructure, a shortage of skilled human resources, and weak coordination among government agencies. This study is expected to contribute to Smart City development in many Indonesian cities by encouraging investment in technological infrastructure, strengthening human resource capacity, and improving coordination among government institutions.*

Keywords: Challenges, Development, Indonesia, Opportunities, Smart City

INTRODUCTION

Smart city development has become a global trend in improving urban governance through digital technology and innovative public services. In Indonesia, the smart city concept continues to grow due to rapid urbanization, increasing demand for efficient and sustainable services, and government initiatives such as the “100 Smart City Movement,” which promotes technology integration in governance, transportation, economy, and environmental management (Lockwood, 2020). A smart city utilizes information and communication technology (ICT), IoT, and real-time data systems to improve urban efficiency, public services, and citizens' quality of life. However, smart city development in Indonesia still faces challenges such as unequal digital infrastructure, limited human resource capacity, and regional governance readiness (Julinaldi et al., 2025).

Indonesia faces various urban challenges due to rapid urbanization, including traffic congestion, environmental problems, and inefficient public services. Smart city development provides opportunities to improve urban efficiency, transparency, economic growth, and sustainability through ICT integration, smart governance, and digital public services supported by national initiatives such as the “100 Smart City Movement” (Sulistyaningsih et al., 2023). However, smart city implementation in Indonesia still faces challenges such as unequal digital infrastructure, cybersecurity risks, limited financial resources, and

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disparities in digital literacy. Therefore, strong collaboration among government, private sector, academia, and communities is essential to support sustainable and effective smart city development.

Smart city development in Indonesia provides significant opportunities through rapid digital transformation, strong government initiatives, and the increasing adoption of technologies such as IoT, Artificial Intelligence (AI), cloud computing, and big data analytics. These opportunities can enhance public service efficiency, stimulate economic growth, encourage innovation, and support sustainable urban development. However, the implementation of smart cities in Indonesia also faces several important challenges, including unequal digital infrastructure, limited digital skills and human capital, fragmented governance, and concerns regarding cybersecurity and data privacy. In addition, high investment costs and the need for sustainable collaboration among stakeholders remain major barriers to effective smart city development (Julinaldi et al., 2025).

The expected outcomes of smart city development are the creation of smarter, more efficient, sustainable, and citizen-centered cities through the integration of digital technology and intelligent governance systems. Smart city initiatives are expected to improve public service quality, enhance government transparency, support data-driven decision making, and increase urban operational efficiency. Furthermore, smart city development is expected to promote economic growth, technological innovation, environmental sustainability, and community participation. Through the implementation of technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), big data, and cloud computing, smart cities can create safer, more inclusive, resilient, and competitive urban environments in the digital era.

The smart city ecosystem plays an important role in supporting smart city development in Indonesia through the integration of technology, governance, infrastructure, human capital, and sustainability. A strong smart city ecosystem enables collaboration among government, private sector, academia, and communities to improve public services, economic growth, environmental sustainability, and citizens' quality of life (Kociuba et al., 2023).

Previous research related to smart city development in Indonesia has been conducted by several researchers. In their research on the concept of smart city development in Indonesia, Viola & Fitrianto, (2022) demonstrated that accelerated digitalization efforts have successfully driven the implementation of the smart city concept in Indonesia. Research from Judijanto and Santoso (2025), which discusses the implementation of the Smart City concept in Indonesia, is growing, focusing on the use of information and communication technology to improve the efficiency of public services and the quality of life of urban communities. In this research, the focus is on the opportunities and challenges in developing smart cities in Indonesia. The study is also linked to the role of the smart city ecosystem and expected outcomes in the development of smart cities in Indonesia.

This study aims to examine the development of smart cities in Indonesia, with a focus on emphasizing opportunities and challenges. The objectives of the study to be achieved are:

- (1) Conducting an Analysis of the Driving Factors for Smart City Development,
- (2) Analyze the opportunities and challenges for smart city development in Indonesia,
- (3) Analysis of expected outcomes from smart city development in Indonesia,
- (4) Examining the role of the smart city ecosystem in developing smart cities in Indonesia.

This study is expected to contribute to Smart City development in many Indonesian cities by encouraging investment in technological infrastructure, strengthening human resource capacity, and improving coordination among government institutions. The conceptual framework created in this study is also a novelty of this research.

LITERATURE REVIEW

Smart City Concept

The concept of a Smart City has evolved from a technology-oriented perspective into a socio-technical ecosystem emphasizing the integration of technology, governance, and community participation. The success of a Smart City is no longer measured solely by technological sophistication, but also by how effectively these technologies improve citizens' quality of life sustainably. Furthermore, smart cities are

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increasingly viewed as socio-technical systems that integrate citizens, governance, and technology for sustainable urban development (Hollands, 2008).

In general, the Smart City ecosystem is supported by several interconnected dimensions, including:

- 1) Smart Governance for transparent and effective public services,
 - 2) Smart Economy for strengthening the digital economy,
 - 3) Smart Mobility for intelligent transportation systems,
 - 4) Smart Environment for sustainable environmental management,
 - 5) Smart Living for improving healthcare and public safety, and
 - 6) Smart People for enhancing public participation and digital literacy.
- These dimensions form the foundation of Smart City development in many countries, including Indonesia.

Smart City Development Drivers

Smart city development is primarily driven by government commitment, digital transformation policies, and rapid technological advancement. Technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), cloud computing, and big data analytics enable cities to improve public services, urban management, and sustainability. In addition, rapid urbanization and increasing demands for efficient governance encourage governments to accelerate smart city implementation strategies (Albino et al., 2015; Bibri & Krogstie, 2017).

Economic and social factors also significantly influence smart city development. The growth of the digital economy, public-private partnerships, and technology investment strengthens smart city ecosystems and innovation capacity. Furthermore, citizen participation and the presence of a technology-oriented young population support digital adoption and collaborative governance. Previous studies indicate that synergy among government, industry, academia, and society is essential to achieving sustainable and inclusive smart cities (Nam & Pardo, 2011; Anthopoulos, 2017).

Opportunities in Smart City Development

Smart city development offers significant opportunities to improve urban efficiency, sustainability, and quality of life through the integration of digital technologies. Technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), big data analytics, and cloud computing enable governments to optimize public services, transportation systems, energy management, and urban infrastructure. In addition, smart city initiatives encourage innovation and digital transformation that support economic growth and more responsive governance systems (Bibri & Krogstie, 2017).

Smart cities also create opportunities for stronger collaboration among government, private sector, academia, and communities in building sustainable urban ecosystems. The growth of the digital economy, increasing technology investments, and expanding public-private partnerships accelerate innovation and infrastructure development. Furthermore, citizen participation through digital platforms enhances transparency, public engagement, and inclusive decision-making processes. Previous studies highlight that smart city initiatives can promote environmental sustainability, social inclusion, and long-term urban resilience (Mora et al., 2019).

Challenges in Smart City Development

Despite the growing adoption of smart city initiatives, many cities still face significant challenges in implementation. One of the major issues is the digital divide and unequal infrastructure development, particularly between urban and rural areas. Limited internet access, inadequate digital infrastructure, and high implementation costs hinder the effectiveness of smart city programs. In addition, data security and privacy risks have become critical concerns due to the increasing use of digital platforms and interconnected technologies (Bibri & Krogstie, 2017; Anthopoulos, 2017).

Another important challenge is related to governance and human capital readiness. Fragmented regulations, weak inter-agency coordination, and limited digital skills among public officials and citizens often reduce the efficiency of smart city implementation. Furthermore, sustainable funding and stakeholder collaboration remain difficult in many developing countries, including Indonesia. Previous studies

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emphasize that successful smart city development requires integrated governance, strong institutional capacity, and active collaboration among government, industry, academia, and society (Mora et al., 2019).

Smart City Ecosystem

A smart city ecosystem refers to an integrated system involving technology, governance, infrastructure, human capital, and sustainability to support intelligent urban development (Kociuba et al., 2023). The ecosystem is built through the interaction between governments, private sectors, academia, communities, and digital platforms that collectively enhance public services, urban efficiency, and innovation capacity. Technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), cloud computing, and big data play important roles in enabling real-time data integration and smart decision-making processes (Nam & Pardo, 2011; Bibri & Krogstie, 2017).

In addition, the smart city ecosystem emphasizes collaboration and continuous information exchange among stakeholders to achieve sustainable urban development. Effective governance, digital infrastructure readiness, citizen participation, and environmental sustainability are considered key components of a successful ecosystem. Previous studies highlight that strong coordination among stakeholders can improve urban resilience, economic growth, service transparency, and quality of life within smart cities (Anthopoulos, 2017; Mora et al., 2019). In general, the Smart City ecosystem is supported by several interconnected dimensions, including:

- (1) Smart Governance for transparent and effective public services,
- (2) Smart Economy for strengthening the digital economy,
- (3) Smart Mobility for intelligent transportation systems,
- (4) Smart Environment for sustainable environmental management,
- (5) Smart Living for improving healthcare and public safety, and
- (6) Smart People for enhancing public participation and digital literacy. These dimensions form the foundation of the Smart City Ecosystem in many countries, including Indonesia. An overview of the Smart City Ecosystem is shown in Figure 1.



FIGURE 1: Smart City Ecosystem

Expected Outcomes from Smart City Development

Smart city development improves urban quality of life through the integration of digital technologies and sustainable governance. Technologies such as IoT, AI, and big data enhance the efficiency of public services, transportation, healthcare, and infrastructure while supporting transparency and data-driven governance. In addition, smart cities promote economic growth, environmental sustainability, innovation, investment opportunities, and citizen participation in creating resilient urban communities.

Conceptual Framework

This study assumes that there are driving factors influencing smart city development in Indonesia. The perspectives on opportunities and challenges in smart city development in Indonesia will then influence the expected outcomes.

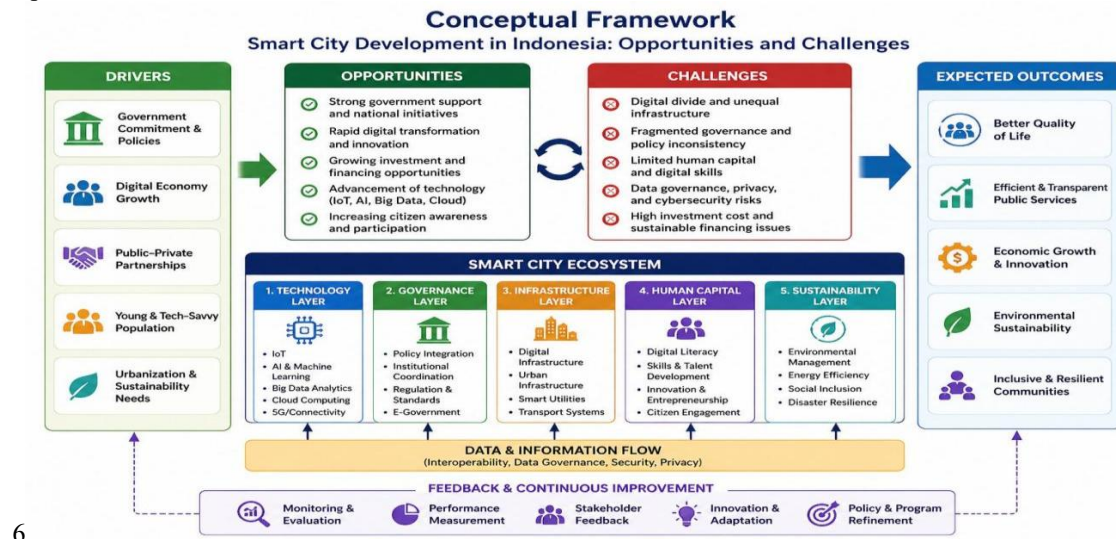


FIGURE 2: Conceptual Framework of Smart City Development in Indonesia: Opportunities and Challenges

This conceptual framework, as shown in Figure 2, illustrates a model for smart city development in Indonesia, with an emphasis on opportunities and challenges. Several key driving factors, including government commitment and policies, digital economic growth, public-private partnerships, a young, tech-savvy population, and the need for urbanization and sustainability, strongly influence smart city development. These elements collectively play a crucial role in accelerating the transformation toward smarter and more sustainable cities (Myeong, 2018). These driving factors are used as a basis for studying the opportunities and challenges of smart city development. The opportunities for developing smart cities in Indonesia include: strong government support and national initiatives: Toward 100 Smart Cities in Indonesia Program (Herdiyanti et al., 2019), Rapid digital transformation and innovation, growing investment and financing opportunities (Sulistyaningsih et al., 2023), Advancement of Technology: IoT, AI, Big Data, Cloud (Latif et al., 2023), and increasing citizen awareness and participation (Darmawan, 2022). Furthermore, the challenges in developing smart cities in Indonesia include: the digital divide and unequal infrastructure (Aditya et al., 2023), limited human capital and digital skills (Isabela & Agustian, 2023), data governance, privacy, and cybersecurity risks (Alam et al., 2025), and high investment costs and sustainable financing issues (Thaker, 2023). Finally, the results of the opportunities and challenges will have an impact on the expected outcomes of smart city development in Indonesia, in the form of better quality of life for communities (Priambudi, 2019) (Lim et al., 2024), efficient public service (Viola & Fitrianto, 2022), economic growth and innovation, environmental sustainability (Alfarizi et al., 2025), and inclusive and resilient communities (Lestari et al., 2026). A smart city ecosystem is an integrated system that combines technology, governance, infrastructure, human capital, and sustainability to support intelligent urban development (Aldegheishem, 2023). The ecosystem is built through the interaction between governments, private sectors, academia, communities, and digital platforms that collectively enhance public services, urban efficiency, and innovation capacity. Regarding Data & Information Flow, all layers are connected through data and information flows that prioritize interoperability, security, privacy, and data governance. On the other hand, continuous feedback and improvement in smart city development are carried out continuously through monitoring and evaluation, performance measurement, and stakeholder feedback, as well as policy innovation and adaptation.

Overall, the figure illustrates that successful smart city development in Indonesia depends on the integrated synergy between technology, governance, infrastructure, human resources, and sustainability, supported by data-driven approaches and collaboration among multiple stakeholders.

METHODS

Research Design

This study adopts a qualitative descriptive approach to explore the opportunities and challenges of smart city development in Indonesia. A qualitative design is appropriate because the research seeks to understand complex socio-technical phenomena involving governance, technology, and community dynamics within specific contextual settings. Qualitative methods are widely used in smart city research to capture multidimensional interactions and policy implications that cannot be fully explained through quantitative measures alone (Creswell & Creswell, 2023).

In addition, this study employs a multiple-case study strategy, allowing comparative analysis across different urban contexts in Indonesia. Case study approaches are particularly useful for examining contemporary phenomena in real-life contexts, especially when the boundaries between the phenomenon and its context are not clearly defined.

Data Collection and Analysis Technique

All collected secondary data were analyzed using thematic analysis to identify major patterns related to Smart City development dynamics. The analysis process was conducted systematically, beginning with data familiarization, initial coding, theme identification, and finally, the synthesis of findings into a comprehensive academic narrative (Rachmawati & Rohmah, 2025).

To maintain analytical consistency, this study applies four analytical constructs:

1. Driving factors for Smart City Development,
2. Opportunities and Challenges in Smart City Development
3. Smart City Ecosystem, and
4. Expected Outcomes from Smart City Development.

RESULTS AND DISCUSSION

Results of Analysis of Driving Factors for Smart City Development

Several major factors drive smart city development, including strong government commitment and policies, rapid digital economic growth, public–private partnerships, a young technology-oriented and tech-savvy population, and urbanization and sustainability needs.

Government commitment and supportive policies are essential driving factors for smart city development because they provide strategic guidance, regulatory frameworks, financial support, and stakeholder coordination for digital transformation initiatives. Strong governmental support also promotes infrastructure expansion, technology adoption, public service innovation, and sustainable urban governance, which are crucial for the effective implementation of smart city programs. Digital economic growth becomes a key driving factor for smart city development because it increases technology adoption, digital innovation, investment opportunities, and the demand for efficient and integrated urban services. Public–private partnerships become a key driving factor for smart city development because they combine government support with private-sector innovation, technology, expertise, and investment to accelerate sustainable urban transformation. A young, technology-oriented, and tech-savvy population becomes a key driving factor for smart city development, which can accelerate digital adoption, innovation, and active participation in smart urban services and technologies. Finally, urbanization and sustainability needs become key driving factors for smart city development because growing urban populations require efficient, sustainable, and technology-based solutions to improve infrastructure, public services, and environmental management.

The analysis of driving factors is important in identifying the opportunities and challenges of smart city development because it helps policymakers and stakeholders understand the main elements influencing

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implementation, supports effective decision-making, and enables the development of sustainable and inclusive smart city strategies.

Opportunity Analysis for Smart City Development in Indonesia

Understanding the opportunity analysis for smart city development in Indonesia is important because it helps identify strategic potentials, technological advantages, and collaborative opportunities that can support sustainable, efficient, and inclusive urban development.

TABLE 1. Opportunity Analysis for Smart City Development in Indonesia

No	Opportunity for Smart City Development	Analysis
1	Strong government support and national initiatives	Strong government support through national initiatives such as Gerakan Menuju 100 Smart City provides significant opportunities to accelerate digital infrastructure development, improve public services, and strengthen collaboration among stakeholders in smart city implementation across Indonesia
2	Rapid digital transformation and innovation	Rapid digital transformation and innovation create significant opportunities for smart city development in Indonesia by improving urban efficiency, enhancing digital public services, and accelerating the adoption of advanced technologies such as IoT, AI, and big data
3	Growing investment and financing opportunities	Growing investment and financing opportunities support smart city development in Indonesia by enabling infrastructure expansion, technological innovation, and the implementation of sustainable urban development projects.
4	Advancement of technology: IoT, AI, Big Data, Cloud	Advancements in technologies such as IoT, AI, big data, and cloud computing create major opportunities for smart city development by enabling data-driven decision-making, efficient urban management, and integrated digital public services.
5	Increasing citizen awareness and participation	Increasing citizen awareness and participation creates opportunities for smart city development by encouraging community engagement, digital collaboration, and more responsive and inclusive urban governance.

Challenges Analysis for Smart City Development in Indonesia

Challenges analysis for Smart City development in Indonesia highlights several major issues that hinder the effective implementation of smart cities. The results of this challenge analysis are in Table 2.

TABLE 2. Challenges Analysis for Smart City Development in Indonesia

No	Challenges for Smart City Development	Analysis
1	Digital divide and unequal infrastructure	The digital divide and unequal infrastructure remain major challenges for smart city development in Indonesia because disparities in internet access, technology availability, and

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No	Challenges for Smart City Development	Analysis
		digital readiness limit inclusive and effective implementation across regions.
2	Fragmented governance and policy inconsistency	Fragmented governance and policy inconsistency become major challenges for smart city development in Indonesia because weak coordination and differing regulations among institutions can hinder integrated and effective implementation.
3	Limited human capital and digital skills	Limited human capital and digital skills pose significant challenges to smart city development in Indonesia because they reduce technological readiness, innovation capacity, and the effective use of digital systems and services.
4	Data governance, privacy, and cybersecurity risks	Data governance, privacy, and cybersecurity risks are major challenges for smart city development in Indonesia because weak data protection and cyber resilience can threaten public trust, digital security, and the reliability of smart city systems.
5	High Investment cost and sustainable financing issues	High investment costs and sustainable financing issues become major challenges for smart city development in Indonesia because large-scale digital infrastructure and technology implementation require substantial long-term funding and financial sustainability.

Multiple Case Study Findings: Smart City Implementation in Jakarta, Bandung, and Surabaya

1. Jakarta

Jakarta demonstrates strong Smart City implementation through the integration of digital governance and large-scale urban management systems. The city introduced the Jakarta Smart City platform, which integrates public services, transportation monitoring, flood management, and citizen reporting systems into a centralized digital ecosystem. Applications such as JAKI (Jakarta Kini) allow citizens to access government services, report problems, and receive real-time information. The findings indicate that Jakarta has improved service efficiency and public participation through data driven governance. However, challenges remain in managing traffic congestion, population density, and maintaining data privacy and cybersecurity.

2. Bandung

Bandung is recognized as one of Indonesia's leading cities in digital innovation and citizen-centered Smart City initiatives. The city developed the **Bandung Command Center**, which integrates real-time monitoring systems for traffic, public services, and emergency response. Bandung also promotes innovation through collaboration with universities, startups, and technology communities. The results show that Bandung successfully increased public engagement and encouraged digital transformation through creative approaches. Nevertheless, infrastructure limitations and the need for continuous digital literacy improvement remain important challenges.

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3. Surabaya

Surabaya demonstrates successful Smart City implementation through efficient public service management and sustainable urban development. The city utilizes digital systems for waste management, public administration, transportation services, and environmental monitoring. Through integrated e-government services and smart infrastructure, Surabaya has improved service accessibility and operational efficiency. The findings suggest that Surabaya achieved positive outcomes in environmental management and citizen satisfaction. However, maintaining technological sustainability and ensuring equal access to digital services remain challenges for future development.

Discussion

Indonesia has significant opportunities for smart city development through government support, digital transformation, and the adoption of technologies such as IoT, AI, big data, and cloud computing. Initiatives like the Movement Towards 100 Smart Cities program support improvements in public services, transportation, and digital governance. However, challenges such as unequal infrastructure, limited funding, cybersecurity risks, low digital literacy, and weak stakeholder coordination still hinder effective implementation.

The smart city development ecosystem plays an important role in supporting integrated and sustainable urban development through collaboration among government, private sectors, academia, communities, and digital technology providers. This ecosystem enables innovation, improves public services, strengthens digital governance, and enhances the effectiveness of smart city implementation in Indonesia. This study is limited by its reliance on secondary data and literature analysis, which may not fully capture the practical implementation and regional differences of smart city development in Indonesia.

Expected Outcomes from Smart City Development

Expected outcomes of smart city development include improving quality of life, enhancing governance efficiency, and promoting environmental and economic sustainability in urban areas. Some of the main expected outcomes of smart city development are shown in Table 3.

TABLE 3. Expected Outcomes Analysis from Smart City Development

No	Expected Outcomes	Analysis
1	Better Quality of Life	The expected outcome is that the development of smart cities will improve the quality of life of the community through faster, easier, and more efficient public services.
2	Efficient and Transparent Public Service	The expected outcome is that the development of smart cities will increase the effectiveness and transparency of digital-based government services (e-government).
3	Economic Growth and Innovation	The expected outcome is that smart city development will encourage digital economic growth, investment, entrepreneurship, and technological innovation.
4	Environmental and Sustainability	The expected outcome is that the development of smart cities will support more environmentally friendly and sustainable management of energy, transportation, and resources.
5	Inclusive and Resilience Communities	The expected outcome is that smart city development will provide benefits to society in an inclusive manner and strengthen city

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No	Expected Outcomes	Analysis
		resilience to disasters, climate change, cybersecurity, and social threats.

Overall, smart city development aims to create urban areas that are intelligent, inclusive, secure, efficient, innovative, and sustainable.

CONCLUSIONS

Summary of Findings

Smart city development in Indonesia has significant potential to improve public services, urban governance, economic growth, and sustainability through digital technology and innovation. Government programs such as the Movement Towards 100 Smart Cities initiative, supported by IoT, AI, and big data, have accelerated smart city implementation in many regions.

However, several challenges remain, including unequal digital infrastructure, cybersecurity risks, limited funding, and low digital literacy. Differences in regional readiness and regulatory coordination also affect the effectiveness of smart city implementation.

Overall, smart city development can support the creation of more efficient and sustainable cities in Indonesia. Strengthening infrastructure, digital literacy, cybersecurity, and stakeholder collaboration is essential to ensure inclusive and long-term benefits.

Strategic Recommendations

The government should strengthen digital infrastructure, cybersecurity systems, and digital governance to support effective and secure smart city development across Indonesia. Improving digital literacy and human resource capacity is also important to increase public participation and technological readiness.

Furthermore, stronger collaboration among government, academia, the private sector, communities, and media is essential to encourage innovation and sustainable urban development. Future smart city policies should emphasize inclusivity, sustainability, and data-driven decision-making to build resilient and citizen-oriented cities.

References

- Aditya, T., Ningrum, S., Nurasa, H., & Irawati, I. (2023). Heliyon Community Needs for The Digital Divide on The Smart City Policy. *Heliyon*, 9(8), e18932. <https://doi.org/10.1016/j.heliyon.2023.e18932>
- Alam, R. G. G., Faruq, A., & Effendy, M. (2025). Cybersecurity Management Strategies for Smart Cities in Indonesia : Cultural Factors and Implementation Challenges. *KINETIK*, 10(3), 1–10.
- Aldegheishem, A. (2023). Smart Cities: Assessing the Progress of Smart Cities in Saudi Arabia. *Smart Cities 2*, 6, 1958–1972.
- Alfarizi, M., Sari, R. K., Arifian, R., & Directorate, P. (2025). Determinants of Smart-Circular Economy Integration in the Creation of Quality of Life and SDGs Empowerment in Indonesia : PLS-SEM Modeling Study. *JBPE Journal of Business and Political Economy*, 7(1), 15–46.
- Creswell, J. W., & Creswell, J. D. (2023). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. In *SAGE Publications, Inc* (Sixth Edition). SAGE Publications Asia-Pacific Pte. Ltd. <https://medium.com/@arifwicaksanaa/pengertian-use-case-a7e576e1b6bf>
- Darmawan, A. D. (2022). Elemen Kunci Pendorong Partisipasi Masyarakat sebagai Fondasi Kebijakan Smart City : Suatu kajian pustaka sistematis. *Jurnal Kependudukan Indonesia*, 17(1), 105–124. <https://doi.org/10.14203/jki.v17i1.714>
- Herdiyanti, A., Hapsari, P. S., Susanto, T. D., Herdiyanti, A., Hapsari, P. S., & Susanto, T. D. (2019). Modelling Smart Governance Performance to Support Smart City Programs in Indonesia. *Procedia Computer Science*, 161, 367–377. <https://doi.org/10.1016/j.procs.2019.11.135>
- Isabela, I., & Agustian, E. (2023). Implementing Digital Literacy Policies and the Challenges of Towards a Smart City in Palembang City. *Journal of Governance and Local Politics (JGLP)*, 5(2), 122–132.
- Julinaldi, J., Buang, I. N., Ade, M., & Harahap, K. (2025). Smart City System Review : Challenges and

Perbanas International Conference on Economics, Business, Management, Accounting and IT
(PROFICIENT) 2026

“Integrity-Driven Innovation: Reimagining Business, Finance, and Digital Transformation for Sustainable Impact”

Proceedings of the Perbanas International Seminar on Economics, Business, Management, Accounting and IT
[June 2026] [ISSN 3047-0951]

- Opportunities for Implementation in Urban Areas. *Journal of Renewable Engineering*, 2(3), 19–26.
- Kociuba, D., Sagan, M., & Kociuba, W. (2023). Toward the Smart City Ecosystem Model. *Energies*, 16.
- Latif, I. R., Ikhsan, I., Hajad, V., Akbar, A., Afrijal, A., & Saputra, I. M. (2023). Unleashing The Power Of Big Data: The Phenomenon Behind Indonesia’s Smart City Policy Implementation. *KYBERNOLOGY: Journal of Government Studies*, 3(2), 129–143.
- Lestari, F., Amelia, D., Karenina, A., Mahesa, A., & Dorodjatoen, H. (2026). Urban transformation towards a smart city: The ecosystem of Tangerang LIVE. *Urban Governance*, February. <https://doi.org/10.1016/j.ugj.2026.02.001>
- Lim, Y., Edelenbos, J., & Gianoli, A. (2024). Urban Governance: What is the impact of smart city development ? Empirical evidence from a Smart City Impact Index. *Urban Governance*, 4(November 2023), 47–55. <https://doi.org/10.1016/j.ugj.2023.11.003>
- Lockwood, F. (2020). Bristol’s Smart City Agenda : vision, strategy, challenges and implementation. *IET Smart Cities Journal*, 2(4), 208–214. <https://doi.org/10.1049/iet-smc.2020.0063>
- Mora, L., Deakin, M., & Reid, A. (2019). Strategic principles for smart city development: A multiple case study analysis of European best practices. *Technological Forecasting and Social Change*, 142, 70–97.
- Myeong, S. (2018). *A Study on Determinant Factors in Smart City Development : An Analytic Hierarchy Process Analysis*. <https://doi.org/10.3390/su10082606>
- Priambudi, B. N. (2019). An Indicator Concept For Measuring The quality of life in Kampung Kota Communities In The “ Smart City.” *Jurnal Pengembangan Kota*, 7(2), 128–135. <https://doi.org/10.14710/jpk.7.2.128-135>
- Rachmawati, R., & Rohmah, A. A. (2025). Risk Mapping Using GIS and City Analysis at Nanga Pinoh West: Navigating Diversity of the Smart Initiatives in Indonesia, Kalimantan Area. *Indonesian Journal of Geography*, 54(3), 191–199. <https://doi.org/DOI: : 10.22146/ijg.97840>
- Sulistyaningsih, T., Purnama, R. A., & Kulsum, U. (2023). Smart City Policy : Strategy and Implementation to Realize Smart Urban Governance in Indonesia. *Journal of Governance and Public Policy*, 10(2), 105–117.
- Thaker, M. A. B. M. T. (2023). The Behavioral Intention of Citizens to Finance Smart City Development in Indonesia through Civic Crowdfunding. *Global Review of Islamic Economics and Business*, 11(2), 73–88.
- Viola, H. A., & Fitrianto, A. R. (2022). Policy: The Strategy Smart City Development Concepts in Indonesia. *Journal of Public Policy*, 8(1), 1–10. <https://doi.org/https://doi.org/10.35308/jpp.v8i1.4468>