

Research Article

Smart City Pontianak: Analysis of the Implementation and Impact of Smart City Policies on Public Service

Yulius Yohanes*

Faculty of Social and Political Sciences, University of Tanjungpura Pontianak, Pontianak, Indonesia

Abstract.

This article analyzes the implementation of Smart City policies in Pontianak and their impact on public services. The primary objective of this study is to understand the extent to which the adoption of the Smart City concept has contributed to enhancing the quality of public services and identifying the challenges faced. This research is academically and practically significant, especially for mid-sized cities in Indonesia seeking to adopt Smart City as a solution to complex urban problems. The methodology used involves a qualitative case study approach, collecting primary data through interviews and direct observations, and secondary data from government documents. The findings reveal improvements in service efficiency in some sectors, despite challenges such as infrastructure limitations and the digital divide. In conclusion, the study offers critical insights on enhancing Smart City implementation in Pontianak to support more inclusive and efficient public services. Practical implications include policy recommendations for improving technological infrastructure and implementing digital literacy programs for the community.

Keywords: smart city, public service, administrative efficiency

Corresponding Author: Yulius Yohanes; email: yulius.yohanes@fisip.untan.ac.id

Published: 18 February 2025

Publishing services provided by Knowledge E

© Yulius Yohanes. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the 2024 AAPA-EROPA-AGPA-IAPA Joint Conference Committee.

1. Introduction

The concept of Smart City has emerged as a new paradigm in urban development and management in the digital era [1]. A Smart City is defined as the application of information and communication technology (ICT) aimed at improving the quality and efficiency of urban services, reducing operational costs and resource consumption, and enhancing interaction between the government and its citizens. This concept presents an innovative solution to address increasingly complex urban challenges such as traffic congestion, environmental pollution, and inefficiencies in public services, which are common complaints among urban residents. Globally, many cities have implemented this concept as a key strategy to create more sustainable and efficient urban environments.



Amid rapid urbanization, implementing Smart City becomes particularly crucial for cities facing unique challenges, such as Pontianak. As the capital city of West Kalimantan Province, with an area of 107.82 km² and a projected population of 658,243 in 2022 [2] Pontianak encounters critical challenges requiring innovative urban management. Known as the “Equator City” due to its location on the equator, Pontianak holds significant potential for economic and tourism development. However, challenges such as limited infrastructure, rapid urbanization, and the need for efficient public services make the Smart City concept a relevant option for implementation.

Previous literature has largely focused on Smart City implementation in major cities in developed countries [3], with little attention paid to its application in mid-sized cities in Indonesia, such as Pontianak. This study aims to fill this gap by identifying and analyzing the challenges, opportunities, and impacts of Smart City policies on the quality of public services in such a uniquely dynamic mid-sized city.

The implementation of Smart City in Pontianak is driven by national regulations such as Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE). This regulation provides a legal framework for local governments to implement electronic systems to enhance the quality of public services. The SPBE encourages the use of technology to enable faster, more transparent, and accountable services. In Pontianak, this regulation serves as a reference for designing various Smart City initiatives that have been underway since 2019. The Pontianak City Government has allocated 5% of its total regional budget (APBD) to support Smart City programs, reflecting its commitment to the city’s digital transformation Pontianak Regional Finance and Asset Management Agency, 2023.

Despite its significant potential, Pontianak faces pressing urban problems. Rapid urbanization, with an average population growth of 1.8% annually over the past five years, continues to strain the city’s limited infrastructure. Furthermore, increasing public demand for fast and efficient services is evident from a 15% rise in complaints over the past year [4]. Additional challenges include frequent traffic congestion affecting 30% of major roads during peak hours (Pontianak Transportation Office, 2023) and environmental issues such as daily per capita waste production reaching 0.7 kg, exceeding the national average [4]. According to the Public Satisfaction Survey, only 65% of residents express satisfaction with existing public services, highlighting the need for service quality improvements.

2. Methods

This study uses a qualitative approach with a case study design to understand the implementation of Smart City in Pontianak City. Primary data was collected through in-depth interviews with government officials, residents, and business actors, as well as direct observations at various Smart City implementation locations. Meanwhile, secondary data is obtained from official documents such as government annual reports and city statistics. The analysis methods used include thematic analysis to find the main patterns and themes of the collected data. Primary data on people's knowledge and experience about Smart Cities are extracted from the results of interviews and other supporting documents. The use of a combination of primary and secondary data allows for a more comprehensive analysis of the challenges and impacts of Smart City implementation in Pontianak.

3. Results and Discussion

3.1. Implementation of Smart City Policy in Pontianak

This study found that the implementation of Smart City in Pontianak has a unique pattern, which is influenced by local characteristics and priority policies of the city government. Interviews with government officials revealed that the initiative began with a focus on several key areas, most notably improving administrative efficiency and improving basic public services. This discovery contributes to the broader literature by showing how a gradual approach in developing Smart Cities can be an effective strategy in medium-sized cities [5].

Even so, this implementation is inseparable from significant challenges. The main obstacle is found in the limitations of infrastructure, especially in suburban areas, which are obstacles in efforts to equalize access. In addition, observations in the field revealed a striking digital divide among various community groups [6]. These results enrich the literature by providing insight that the digital divide is a challenge that often occurs in developing cities that seek to adopt high technology.

However, the study also identifies the factors that support success that contribute to the implementation process. The strong commitment of the city's leadership and close collaboration with various stakeholders, such as local universities and the private sector, emerged as key elements driving the Smart City initiative [7]. These findings add

new insights to the literature on the importance of multistakeholder collaboration in the successful implementation of Smart Cities in medium-sized cities.

3.2. Impact on Public Services

The analysis of the impact of Smart City implementation on the quality of public services produced various interesting findings. Interviews with service users at Public Service Malls showed an increase in positive perceptions of service efficiency, especially in terms of reducing document processing time [8]. These results show that Smart Cities have the potential to improve administrative efficiency, which is an important contribution to the literature on the application of technology in public services.

However, the study also found that not all service sectors experienced the same increase. Observations show that there is variation in service adaptation, where some services face a fairly high learning curve. This phenomenon provides a deeper view of the challenges of technological adaptation in the public sector especially related to the readiness of the workforce and society in the face of technological changes [9]. The level of public satisfaction with digital public services in Pontianak also shows variation. Younger residents tend to appreciate the ease of digital access, while older age groups have difficulty adapting to the new system. These findings expand the literature on technology adoption by demonstrating the importance of an inclusive approach to technology adoption that engages different user demographics.

3.3. Comparison with Other Cities

This study also compares the implementation of Smart City in Pontianak with other cities in Indonesia to get a more comprehensive perspective. The results of interviews with national Smart City experts revealed that Pontianak's approach has its own uniqueness, especially in adapting technology to overcome specific geographical challenges. For example, technology-based flood management initiatives in Pontianak are seen as innovative solutions that have not been widely implemented in other cities.

Through benchmarking, it was found that Pontianak has advantages in several areas, but still faces challenges in the development of smart grids and energy management, which are more advanced in several major cities in Java. These findings add insight to the literature by showing that each city has a Smart City strategy tailored to its local

needs and challenges. In addition, this study reveals variations in community participation towards Smart City initiatives in Pontianak, with significant differences between community groups and urban areas. This variation provides additional insight into the literature on the importance of understanding social dynamics in the implementation of Smart Cities, as well as the need for adaptive communication strategies to accommodate participation from all segments of society.

4. Conclusion

This study concludes that the implementation of the Smart City policy in Pontianak shows positive developments, although it is still faced with several significant challenges. First, the Smart City initiative has succeeded in improving the efficiency of government administration and the quality of basic public services, which contributes to the government's efforts to create more transparent and accountable services. However, the main challenges faced include limited infrastructure, especially in suburban areas, as well as the still conspicuous digital divide among various community groups. These limitations hinder equal access to public services, so that some groups of people, especially the elderly, have difficulty adopting new technologies. This shows the need for more attention from the government to develop digital literacy programs that target all levels of society. From a collaboration perspective, the strong commitment of the city leadership and good cooperation with various stakeholders, including the private sector and universities, are very important success supporting factors. This collaboration provides opportunities for innovation and development of solutions that are more relevant to the local context.

The practical implications of these findings underscore the need for increased investment in technology infrastructure in underserved areas, as well as the development of education and training programs to improve people's digital literacy. In addition, periodic evaluations of Smart City initiatives are also highly recommended to ensure that the programs implemented can meet the needs of the community effectively.

The limitations of this study include a limited sample size and the potential for response bias, which can affect the generalization of results. Further research is suggested to explore the long-term impact of Smart City implementation, as well as to assess the factors influencing technology adoption in different communities. Thus, it is hoped that this research can provide deeper insights into the implementation of Smart

Cities in medium-sized cities and help formulate more effective strategies to improve the quality of life of the community.

References

- [1] Nam T, Pardo TA. (2011). Conceptualizing smart city with dimensions of technology, people, and institutions. *Proceedings of the 12th Annual International Digital Government Research Conference: Digital Government Innovation in Challenging Times*. <https://doi.org/10.1145/2037556.2037602>.
- [2] Badan Pusat Statistik Kota Pontianak. *Kota Pontianak Dalam Angka 2022*. BPS Kota Pontianak; 2022.
- [3] Hidayat, A. (2020). Implementasi smart city dalam peningkatan pelayanan publik di Indonesia. *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu dan Praktek Administrasi*, 17(1), 69-86. .
- [4] Pemerintah Kota Pontianak. (2023). *Rencana Pembangunan Jangka Menengah Daerah (RPJMD) Kota Pontianak 2020-2024*. Pemkot Pontianak. Perera, C.,.
- [5] Firmanyah HS, Supangkat SH, Arman AA, Adhitya R. Smart city readiness model based on Technology-Organization-Environment (TOE) framework and its effect on adoption decision. *Journal of ICT Research and Applications*. 2017;11(3):324–34.
- [6] Albino V, Berardi U, Dangelico RM. Smart cities: Definitions, dimensions, performance, and initiatives. *J Urban Technol*. 2015;22(1):3–21.
- [7] Nugraha RA, Fatimah YA. The implementation of Garuda Smart City Framework for smart city readiness mapping in Indonesia. *J Asia Pac Stud*. 2018;4(2):169–76.
- [8] Yigitcanlar T, Kamruzzaman M, Buys L, Ioppolo G, Sabatini-Marques J, da Costa EM, et al. Understanding ‘smart cities’: intertwining development drivers with desired outcomes in a multidimensional framework. *Cities*. 2018;81:145–1.
- [9] Angelidou M. Smart city policies: A spatial approach. *Cities*. 2014;41:S3–11.