

GOVERNING SMART CITIES: AN ANALYSIS OF GOVERNANCE AND SUSTAINABILITY OF SMART CITY INITIATIVES IN CIMAHI CITY

Naufal Aji Satria

Universitas Gadjah Mada, Indonesia

Email: naufalajisatria@ugm.ac.id

Abstract

This article analyzes the governance and sustainability of smart city initiatives in Cimahi City from a public policy perspective. The main issue studied is the extent to which smart city development in medium-sized cities can be sustainable and institutionalized within the local government system. The purpose of this paper is to examine the smart city initiatives in Cimahi City through the lens of smart city governance, governance policy services (GPS), policy implementation, institutionalization, and policy sustainability. The methods used include descriptive qualitative studies based on the analysis of policy documents, local government performance reports, and relevant literature reviews. The results of the study show that Cimahi City has experienced significant progress in digital governance, as reflected in the achievement of high Smart City Index and SPBE Index scores, as well as the development of integrated digital services. However, the sustainability of smart city initiatives still faces challenges in terms of collaboration across non-governmental actors, strengthening policy institutionalization, and ensuring the consistency of long-term regulatory and budgetary support. This article concludes that the sustainability of smart cities in Cimahi City is largely determined by the ability of local governments to integrate digital initiatives into collaborative, coordinated, and long-term oriented governance.

Keyword: smart city, governance, policy sustainability, local government, cimahi city

INTRODUCTION

In the last five years, the concept of a smart city has developed as a strategic approach in urban governance that emphasizes the integration of digital technology, public policy, and the institutional capacity of local governments to improve the quality of public services, government efficiency, and the competitiveness of cities in a sustainable manner (Meijer & Bolívar, 2021). This development marks a shift in the smart city paradigm from a purely technocratic and technology-oriented approach to the process of governing smart cities—namely, how the government plays an active role in directing, coordinating, and controlling digital transformation within the framework of complex and dynamic local governance (Tomor et al., 2021). From this perspective, smart cities are understood not only as technological innovation projects but as an integral part of governance and public policy (Almulhim & Yigitcanlar, 2025; Bellini et al., 2022; Kaiser, 2024; Nastjuk et al., 2022).

The urban governance literature shows that the main challenge in smart city development lies in the weak process of institutionalizing digital policies into an established and sustainable governance system (Pierre, 2021). Many smart city initiatives have not been fully integrated into the structure, procedures, and routines of local government organizations. Landgren (2021) explained that a number of smart city programs are run as temporary organizations—project-based initiatives with a temporary structure that are highly dependent on short-term funding support. As a result, the sustainability of smart cities becomes vulnerable when political, administrative, and project resource support expires, making it difficult to sustain programs in the long term (Höjer & Wangel, 2021).

This condition is becoming increasingly relevant in the context of medium-sized cities in Indonesia, including Cimahi City, which generally face fiscal limitations and

bureaucratic capacity challenges compared to large metropolitan cities (Pratama & Nugroho, 2022). However, Cimahi City has a strategic advantage in smart city development due to its position as part of the Greater Bandung metropolitan area, which is economically and spatially integrated. This integration allows for synergy in cross-regional development (Rukmana, 2023). Additionally, Cimahi is known for its relatively developed manufacturing industry, creative economy, and information technology and animation sectors, which have the potential to become important assets in supporting the development of smart cities based on local innovation and the digital economy (Rahmawati et al., 2024).

The implementation of smart cities in Cimahi City is reflected in the 2023–2026 Cimahi City Communication and Information Office Regional Apparatus Strategic Plan, which emphasizes that smart city development is focused on strengthening e-government as the main foundation for the realization of smart governance. The Cimahi City Government has shown significant progress in implementing smart city initiatives through the achievement of nationally measurable digital governance performance. In 2023, the Cimahi City Smart City Index reached a value of 3.51, placing the city in 4th place nationally and 2nd in West Java Province. This reflects the strengthening of digital-based governance and public services (PPID Cimahi City Government).

Additionally, the achievement of the Cimahi City Electronic-Based Government System Index (SPBE) in 2024, with a score of 4.15 and the “Very Good” predicate, indicates a relatively high level of digital government maturity. The implementation of smart cities is also realized through the development of various applications and digital service portals, such as the PolaKami Portal, PoladKami, and the Mantap WhatsApp service channel, which support public services and government administration. The existence of the Smart City Portal and the Cimahi City One Data Portal further strengthens the foundation of smart cities through the provision of integrated, open, and data-driven regional development services and data (Cimahi Smart City Portal, 2025).

The primary objectives of this study are: (1) to analyze smart city governance in Cimahi City through the lens of smart city governance theory, examining coordination structures, actor relationships, and decision-making processes; (2) to evaluate the interconnectedness of governance, policy, and service dimensions using the GPS framework; (3) to assess the extent of policy implementation and institutionalization of smart city initiatives within local government structures; (4) to analyze factors affecting the long-term sustainability of smart city policies; and (5) to generate evidence-based recommendations for strengthening smart city governance and sustainability. The research contributes theoretically by extending and integrating existing frameworks in the context of Indonesian medium-sized cities, and practically by providing insights for policymakers, practitioners, and other local governments seeking to develop sustainable smart city initiatives.

RESEARCH METHODS

This study uses a descriptive qualitative approach, which is an approach commonly used in the study of public administration and public policy to understand in depth the processes, practices, and dynamics of governance in certain contexts. This approach was chosen because the study does not aim to test quantitative hypotheses or measure the relationship between variables statistically, but rather focuses on analyzing and interpreting the governance and sustainability of smart city initiatives in Cimahi City based on relevant conceptual frameworks. The descriptive qualitative approach allows

researchers to explore the phenomenon of public policy contextually by emphasizing the meaning, process, and interaction between actors involved in policy implementation. Through this approach, the research is able to present a comprehensive and systematic empirical picture of how smart cities are developed and managed within the scope of local government (Creswell & Poth, 2018).

The data collection technique in this study was carried out through document analysis. The documents analyzed include local government policy documents, regional apparatus strategic plans, government performance reports, and relevant national indices such as the Smart City Index and the Electronic-Based Government System Index (SPBE). In addition, this research also utilizes various official local government publications and digital service portals related to the implementation of smart cities in Cimahi City. Document analysis was chosen because policy documents are the main data source that represents policy orientation, development priorities, institutional capacity, and local governance patterns. In the context of public policy research, documents are not only understood as a source of administrative information, but also as policy guidelines that reflect the values, interests, and policy directions of local governments (O'Leary, 2017; Prior, 2016).

RESULTS AND DISCUSSION

Smart City Governance and Sustainability in Cimahi City in the Perspective of Smart City Governance

The concept of smart city governance emphasizes that the development of smart cities is not solely determined by the level of digital technology usage, but by how the government manages the relationships between actors, policies, and decision-making processes in a collaborative, transparent, and accountable manner (Meijer & Bolívar, 2016). In this perspective, technology is positioned as part of a broader governance mechanism, not just a technical tool to improve the efficiency of public services. Smart city governance requires the institutional capacity of local governments to coordinate various interests and ensure that digital transformation aligns with regional development goals.

In line with this, Ansell and Gash (2008), through the theory of collaborative governance, explain that the success of complex public policies, including smart city policies, is highly dependent on collaboration between the government, the private sector, and the community in a joint decision-making forum. Collaboration includes not only policy implementation, but also the involvement of non-governmental actors in the process of formulating, implementing, and evaluating policies. In the context of local government, smart city governance is an important analytical framework to assess the extent to which smart city initiatives are managed inclusively, coordinated across regional apparatus organizations, and able to support the long-term sustainability of public policies.

The development of smart cities in Cimahi City shows that digital technology has been positioned as part of the local governance mechanism, not just as a technical instrument for public services (Meijer & Bolívar, 2016). This is reflected in the institutional structure that places the Cimahi City Communication and Information Service as the main coordinator for the implementation of smart cities across regional apparatus organizations (OPD). This coordinating role demonstrates the existence of a formal governance structure designed to ensure policy integration and consistency in smart city implementation at the regional level (PPID Cimahi City, 2023).

However, previous research confirms that strong smart city governance is not only determined by the existence of formal government structures and internal coordination but also requires the more substantive involvement of non-governmental actors in the decision-making process (Ansell & Gash, 2008). The author's argument aligns with these findings, as in the context of Cimahi City, community involvement still tends to be positioned as users of digital services, rather than as strategic partners in the formulation and development of smart city policies. This condition shows that the collaborative aspect of smart city governance still needs to be strengthened to align with the principles of inclusive and participatory smart city governance.

One of the concrete examples that Cimahi City has adopted digital technology as part of the local governance mechanism is the use of CCTV services to support the government's supervision, control, and decision-making functions. The existence of this service demonstrates that digital technology is not only used for public services but also as an instrument to support more responsive and data-driven governance.



Figure 1. CCTV Services in Urban Areas
Source : smartcity.cimahikota.go.id

Based on the image above, it shows the CCTV service infrastructure developed by the Cimahi City Government as part of the smart city. From the perspective of smart city governance, the existence of CCTV functions as an instrument of city monitoring and control that supports data-based decision-making by local governments. This service not only represents the use of technology, but also reflects the pattern of coordination between government actors in the management of security, order, and urban mobility.

Smart City Governance and Sustainability in Cimahi City in the Perspective of Governance Policy Services (GPS)

Governance Policy Services (GPS) was developed by Kwak and Lee (2022) to explain the sustainability of smart cities through the interconnected relationships between governance, public policy, and the services generated. In this framework, governance refers to the institutional structure, leadership, and coordination of actors in the implementation of smart cities. In this theory, policy is related to the integration of smart city initiatives into development policies and formal regulations, while services reflect the sustainability and quality of digital-based public services that are perceived by the community. The Governance Policy Services (GPS) framework emphasizes that the

sustainability of smart cities can only be achieved if there is a consistent linkage between governance, policies, and public services (Kwak & Lee, 2022).

In the context of Cimahi City, the governance dimension in the framework of Governance Policy Services (GPS) is reflected through coordination efforts across regional apparatus organizations (OPD) in the management and implementation of smart cities. This coordination is an important element because smart city development cannot be carried out sectorally, but requires the integration of roles between regional apparatus in planning, implementing, and evaluating digital policies. The governance dimension emphasizes the role of local governments as the main actor in directing, coordinating, and controlling digital transformation to be in line with overall regional development goals.

The policy service dimension can be seen from the integration of smart cities into digital transformation policies and regional Electronic-Based Government Systems (SPBE). The integration shows that smart cities are not positioned as separate initiatives, but rather as part of a broader digital governance policy framework. The existence of these policies and regulations provides a normative basis for the implementation of smart cities, as well as an important instrument to ensure policy consistency across sectors and the sustainability of programs in the medium to long term. Meanwhile, the services dimension is realized through the development of various public service applications and portals that are used directly by the community.

The existence of digital service portals and applications is the most tangible manifestation of a smart city because it is in direct contact with the needs of residents in accessing public services more easily, quickly, and transparently (Smart City Cimahi Portal, 2024). One of the concrete forms of the Cimahi City government's initiative in the use of digital technology is the development of the Cimahi Smart City application, which integrates various public services into one centralized platform to increase the effectiveness and efficiency of services.

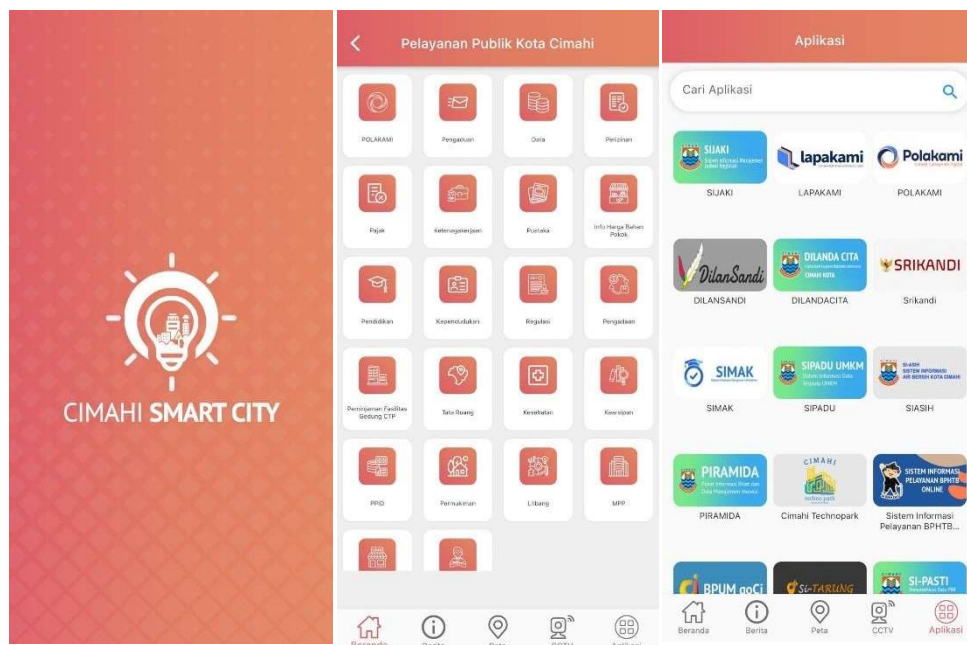


Figure 2. Cimahi *Smart City Application*
Source : smartcity.cimahikota.go.id

Smart City Governance and Sustainability in Cimahi City in the Perspective of Policy Implementation & Institutionalization

Policy implementation theory explains that the success of public policy is not only determined by the quality of policy formulation, in its development Peters (2015) research emphasizes the importance of *policy institutionalization*, which is the process in which policies are integrated into the structure, procedures, and routines of government organizations so that they do not depend on certain individuals or political contexts. Uninstitutionalized policies tend to be fragile, stallable, and dependent on project support or interim leadership. In the context of *smart cities*, this theory is relevant to analyze whether digital initiatives have become part of the local government system or are still being implemented as sectoral programs that are vulnerable to policy changes and resource limitations.

The success of *smart city policies* is greatly influenced by the process of implementation and institutionalization in government organizations. *Policy implementation theory* explains that public policies often face failures due to weak coordination and fragmentation of implementing actors (Pressman & Wildavsky, 1973). However, the theory of institutionalization emphasizes that policies will only be sustainable if they have become part of the structure, procedures, and routines of government organizations (Peters, 2015). Previous research has shown that many *smart city* initiatives stop when they are not formally institutionalized (Mukhtar, 2021). The author's argument agrees with the findings because without strong institutionalization, *smart cities* in Cimahi City risk depending on certain leadership or projects rather than on an established system of government.

Sustainability of Smart City in Cimahi City in the Perspective of Sustainability Policy

The concept of policy sustainability refers to the ability of a policy to survive and continue to produce impacts in the long term, beyond project cycles, changes in political leadership, and administrative dynamics (Peters, 2015). In line with this, the opinion of Howlett (2019) emphasizes that the sustainability of policies is not only determined by the success of initial implementation, but by the degree of institutionalization of policies into the system of government, including regulatory support, consistent budgets, and organizational capacity

The sustainability of smart cities as a public policy can be analyzed through the concept of policy sustainability which emphasizes the ability of a policy to survive and continue to produce impacts in the long term, beyond the project cycle, changes in political leadership, and administrative dynamics of government (Peters, 2015). In this context, policy sustainability requires that smart city policies are not understood as short-term innovation programs or just technology-based projects, but must be consistently integrated into regional development planning, budgeting, and local government regulatory frameworks. Such integration is an important prerequisite for smart city initiatives to operate sustainably and not rely on political support or temporary resources.

The achievement of the Smart City Index and the Electronic-Based Government System Index (SPBE) which are relatively high in a region are often used as indicators of the success of digital transformation and the consistency of local government policies in the development of smart cities. These indices reflect the level of maturity of digital governance, the quality of technology-based public services, and the readiness of government institutions in managing digital innovation. However, previous research confirms that the achievement of the performance index does not automatically guarantee

the sustainability of policies in the long term (Howlett, 2019). Performance indicators generally emphasize more on short-term results and outputs, so they are not yet able to fully capture the structural and institutional dimensions of policy sustainability.

CONCLUSION

Based on the discussion above, it can be concluded that the development of smart cities in Cimahi City has progressed towards a smart city governance process characterized by the strengthening of digital governance, policy integration, and the provision of technology-based public services. The analysis using the perspective of smart city governance reveals that the existence of digital infrastructure, such as CCTV and command centers, has functioned as an instrument for decision-making and city control, although the aspect of collaboration with non-governmental actors still needs to be strengthened.

Through the Governance Policy Services (GPS) framework, it was found that the dimension of digital services in Cimahi City is relatively growing, but the sustainability of smart city initiatives is highly dependent on strengthening the dimensions of governance and policies so that they do not operate sectorally. Furthermore, the perspective of policy implementation and institutionalization emphasizes that the sustainability of smart cities requires stronger integration into the structure, procedures, and routines of local government organizations, so they do not depend on specific projects or leadership.

Meanwhile, the high achievements of the Smart City Index and the SPBE Index reflect progress in digital performance, but they do not fully guarantee policy sustainability without regulatory support and long-term budget commitments. Thus, the sustainability of smart cities in Cimahi City is largely determined by the ability of local governments to institutionalize digital initiatives into a collaborative, integrated, and long-term oriented government system.

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