



Strengthening Policy Capacity for Smart City Emergency Response: Insights from the Cirebon Siaga 112 Program

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ARTICLE INFORMATION	A B S T R A C T
Received: Mei 19, 2025 Revised: October 02, 2025 Available online: October 09, 2025	The concept of a smart city emphasizes the utilization of information and communication technology to enhance public service efficiency and citizen well-being. This study examines the policy capacity of the Cirebon Siaga 112 Program, an emergency response service under the Cirebon City Communication, Informatics, and Statistics Office, within the framework of smart city development. The research employs a qualitative approach with data collected through interviews, observations, and documentation studies. Findings reveal that the program demonstrates analytical capacity through easy public access and the use of supporting tools, while reliability is reflected in the presence of clear service standards and officer accuracy. Responsiveness is visible in the program's ability to address citizen complaints swiftly, whereas guarantees are provided through legal assurance and cost transparency. Empathy is also a core element, shown in officers' commitment to serve without discrimination. However, challenges remain in operational aspects, particularly the lack of extensive socialization due to limited budget allocation, which reduces public awareness and engagement. Politically, socialization has been conducted via social media, yet its coverage remains limited. The study concludes that strengthening inter-agency coordination, expanding socialization, enhancing technology, and providing strict sanctions against misuse are essential to optimize the Cirebon Siaga 112 Program and ensure alignment with smart city principles.
KEYWORDS	
Policy Capacity, Smart City, Emergency Response, Public Services	
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INTRODUCTION

The Smart City concept is an innovative approach to city planning and management that integrates digital technology to effectively and efficiently maintain and manage urban ecosystems (shariatpour et al., 2022; Yeh, 2024). Its primary goal is to improve the quality of public services, optimize resource utilization, and enhance public welfare through fast, accessible, and inclusive services for everyone, anytime, and anywhere (Díez, 2017; Jumalia Mannayong, 2024; Seon & Klein, 2021). In practice, a Smart City encompasses more than just technological aspects; it also reflects how public policies are developed and implemented to address community needs in a sustainable and participatory manner (Castelnuovo et al., 2016; Leorke & Wyatt, 2019; Putra & Van Der Knaap, 2019; Setiawan et al., 2024).

The Cirebon City Government has responded to this challenge by initiating the implementation of an Electronic-Based Government System (SPBE), as outlined in Cirebon Mayoral Decree No. 555.05/Kep 262-DKIS/2017 concerning the Establishment of the Cirebon City Smart City Council and Decree No. 555.05/Kep 263-DKIS/2017 concerning the Smart City Implementation Team. One of the flagship programs born from this initiative is Cirebon Siaga 112, a digital-based emergency service aimed at improving the effectiveness of emergency response, such as fires, accidents, security disturbances, and public health issues. This service is managed by the Cirebon City Communication, Informatics, and Statistics Agency (DKIS) and is expected to become an integral part of the region's modern public service system (Fathnur Rohman & Yuniardi, 2024; Pusparani & Rianto, 2021).

However, in its implementation, the Cirebon Siaga 112 program faces several serious challenges that hinder its Effectiveness. These include a lack of public awareness and low public participation, a high number of fake calls (prank calls and

ghost calls) that disrupt service operations, and suboptimal coordination between Regional Apparatus Organizations (OPDs) in handling incoming reports. This complexity highlights challenges in public policy, particularly related to the capacity of local governments to manage technology-based services effectively and sustainably (Fathnur Rohman & Yuniardi, 2024; Lips, 2019; Supriyanto, 2016).

However, the implementation of the Cirebon Siaga 112 program still has many problems. Of course, it is an obstacle to providing effective service quality, because it can be complex and involves various elements so that it takes a long time. This study attempts to analyze policy capacity in the development of smart cities in the Cirebon 112 program. According to Wu et al., (2015) policy capacity is the result of a combination of skills and resources at each level. Howlett (2015) argues that all governments need a large number of officials with a little analytical capacity, which is defined as the ability to access and apply technical and scientific knowledge and analytical techniques if they want to be able to design and implement policies efficiently and cost-effectively. The three dimensions of policy capacity according to Brenton et al., (2023) & Peters (2015) are: 1). Analytical Capacity, 2) Political Capacity and 3) Operational Capacity.

Policy capacity in Smart City implementation. A study by Halimatusa'Dia et al., (2024) evaluated the effectiveness of Cirebon Siaga 112 and highlighted operational constraints and minimal public outreach. Nugroho & Septiana (2022) examined the capacity of local government in Samarinda City, which is still considered moderate, particularly in terms of human resources and infrastructure. Tan et al., (2021) in an international literature review, emphasized the importance of analytical, political, and operational capacity in Smart City governance in developing countries. Hidayat (2021) examined the citizen reporting system

in Makassar and found low service effectiveness due to weak digital literacy and suboptimal coordination between agencies.

Meanwhile, [Fricker et al., \(2024\)](#) emphasized the importance of data utilization and public participation to increase the legitimacy and effectiveness of digital policies in the context of Smart Cities in Switzerland. This study aims to analyze the policy capacity of the Cirebon City Government in developing a Smart City, focusing on the implementation of the Cirebon Siaga I12 program. The theoretical framework used refers to the concept developed by [Wu et al., \(2015\)](#) which divides policy capacity into three main dimensions: analytical capacity, political capacity, and operational capacity. Using this approach, the study seeks to assess the extent to which resources, expertise, and cross-sectoral coordination have been mobilized to support the overall success of the Smart City program.

Academically, this study offers a significant contribution because it fills a gap in studies that have focused more on the technical aspects of Smart City rather than policy approaches. In the Indonesian context, particularly at the local government level, studies assessing Smart City implementation from a policy capacity perspective are rare. The uniqueness of this study also lies in the case study of the Cirebon Siaga II2 program, which has received regional recognition by representing Indonesia at the 2022 ASEAN ICT Awards (AICTA) through its innovative panic button feature.

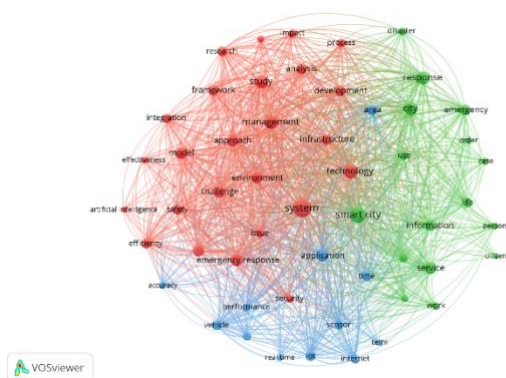


Figure 1: Previous Research Map
Sources: Vosviewer Aplikasi (2025)

VOSviewer analysis shows that research on smart cities forms three main clusters: the conceptual-managerial cluster, the public service and emergency response cluster, and the technology and implementation cluster. Keywords such as system, smart city, and application serve as the main links between the clusters, indicating that the success of innovative city development depends heavily on the integration of management concepts, technology utilization, and its application in improving public services and emergency response.

This strengthens the strategic value of the research, not only at the local or national level, but also from an international perspective regarding digital-based public service management.

Based on this background, the research question addressed in this study is: "How is policy capacity developed in the implementation of the Smart City program in Cirebon Siaga II2?" This formulation will be the primary focus of the analysis, evaluating the strengths and weaknesses of the Cirebon City Government's policy capacity and providing recommendations for improving the governance of similar programs in the future.

METHOD

This research uses a qualitative approach grounded in an interpretive paradigm to understand meaningful social realities (Neuman et al., 2011). This approach was chosen because it allows for in-depth analysis of the context of the phenomenon under study, particularly in understanding the implementation and dynamics of the Cirebon Siaga II2 program as an information technology-based emergency response service.

The research was conducted at the Cirebon City Communication, Informatics, and Statistics Office, the primary agency responsible for the Cirebon Siaga II2 program. Ten staff members directly involved in the program's operations and management participated in the study. Informants were selected purposively, taking into account their direct involvement and experience in program implementation, ensuring relevant and in-depth data.

Data collection was conducted through semi-structured interviews, allowing flexibility in exploring informants' experiences and perspectives. Interviews were conducted either face-to-face or via video call, depending on the availability and preferences of each informant. Interview guidelines were developed with open-ended questions to explore various aspects of informants' perceptions and experiences of the Cirebon Siaga 112 program.

In addition, researchers conducted participant observation by going directly into the field to observe work processes and interactions between staff and service users. During the observation process, researchers recorded detailed notes on various situations, interactions, and responses that emerged within the program's work environment. These observations aimed to capture the empirical reality of operational dynamics occurring in the field. Documentation studies were also conducted by analyzing reports, standard operating procedures (SOPs), and other supporting documents related to the Cirebon Siaga 112 program to enrich the context and strengthen the findings.

The data obtained were analyzed using the interactive analysis model by Miles (2016) which includes four main stages: data collection, data condensation, data presentation, and drawing and verifying conclusions. This process was repeated to ensure that the data interpretation accurately reflected the reality observed and conveyed by the informants. To ensure the validity and reliability of the data, source triangulation was conducted, comparing information obtained from interviews, observations, and documents. Furthermore, researchers also cross-checked with informants to confirm preliminary findings, ensuring that the final interpretation was based on the consistency of data from various sources.

To strengthen the theoretical framework, this study draws on relevant international literature, such as [Comfort, \(2007\)](#) study on crisis management and inter-agency coordination, and [Meijer \(2016\)](#) study on e-governance innovation and technology-based public services. The addition of references from reputable international journals is expected to increase academic relevance and broaden the analytical perspective of the Cirebon Siaga 112 program.

RESULTS AND DISCUSSION

Cirebon City is one of the cities that has the desire to innovate in the field of communication, until the establishment of the Cirebon City Communication, Informatics, and Statistics Office on December 27, 2016. With the establishment of this agency, it

is expected to be a forum for information and technology services that can help advance the image of Cirebon City itself, and can facilitate all forms of problems from each of its citizens. The Cirebon City Communication, Informatics and Statistics Office was established based on Cirebon City Regional Regulation No. 7 of 2016 concerning the Establishment and Composition of Cirebon City Regional Apparatus. The duties, functions, and work procedures of the Cirebon City Communication, Informatics and Statistics Office are in Mayor Regulation No. 59 of 2016. Over time, Cirebon with the existing leading sector has developed existing innovations in the form of developing a smart city in the Cirebon Siaga 112 program. The discussion related to policy capacity in developing a smart city in the Cirebon Siaga 112 program can be seen as follows:

Analytical Capacity

This study examines the quality of public services through a case study of the Cirebon Siaga 112 program using the RATER (Responsiveness, Assurance, Tangibles, Empathy, and Reliability) model. Public service quality is a key aspect frequently highlighted by the public regarding the performance of government institutions, and its success is reflected in the performance indicators of the Regional Medium-Term Development Plan (RPJMD), particularly in the context of service improvement. Based on observations and interviews, access to the Cirebon Siaga 112 service was adequate as simply dialing 112 connects the public directly to the service center, demonstrating its effectiveness in terms of ease of access. However, in terms of reliability, namely the organization's ability to provide consistent and reliable services, shortcomings were still identified, particularly in service standards, which were not fully optimized due to complaints regarding time efficiency and staff discipline.

Furthermore, responsiveness was also deemed suboptimal, as there were still public complaints regarding slow response times during emergencies. These findings align with research by [Tang et al., \(2020\)](#), which states that responsiveness is a key element in emergency services, and when it is not met, it will directly impact user satisfaction. On the other hand, the assurance aspect was deemed quite good, as there was a guarantee of legality and clear regulations in the implementation of this program. However, the guarantee of services for the wider public was deemed suboptimal, as the protection provided only covered people with mental disorders, thus the meaning of "public" was not fully accommodated.

Regarding tangibles, or physical evidence of service quality, it was found that the infrastructure and facilities supporting this program were suboptimal, particularly in terms of meeting environmental standards and supporting facilities. This demonstrates a gap between public expectations and the reality of the service, which, according to [Zeithaml \(2018\)](#), significantly impacts perceptions of overall service quality. The most striking aspect is empathy, namely the service's concern and attention to user needs. In this case, the program is only applicable in Cirebon City, while residents in Cirebon Regency must access a different application (LAPOR) that does not guarantee a 24-hour resolution. This demonstrates a misalignment between the program's name and its service coverage, indirectly creating inequities in service delivery across regions. These findings reinforce the argument of [Alolayyan et al., \(2018\)](#) that regional inclusiveness significantly influences positive perceptions of public service quality.

Overall, this study demonstrates that despite several advantages in terms of accessibility and legal guarantees, the Cirebon Siaga 112 program still faces serious challenges in terms of tangibility, responsiveness, empathy, and reliability. This is an essential contribution to the public service literature, particularly in the context of local emergency services, which have not been widely discussed in international journals.

Operational Capacity

In the context of Smart City implementation, particularly through the Cirebon Siaga 112 program under the supervision of the Cirebon City Communications, Informatics, and Statistics Office, a number of significant operational obstacles were identified that hampered the program's effectiveness. One key factor was the lack of public outreach. This resulted in a lack of public understanding of the function and benefits of the 112 service. Interviews indicated that this lack of outreach activities was due to budget constraints from the local government. However, according to [Gil-Garcia et al., \(2016\)](#), in their study on innovative city governance, the success of technology-based programs depends not only on digital infrastructure but also on public participation and awareness, which can only be achieved through ongoing and strategic outreach. Without this approach, the program may fail to be entirely accepted by service users.

Furthermore, the emergence of prank calls and ghost calls has seriously disrupted the operation of this emergency service. This indicates that some members of the public lack digital literacy and the maturity to utilize technology-based public services. This condition aligns with the findings of [De Guimarães et al., \(2020\)](#), who stated that social and cultural factors can be significant obstacles to the adoption of innovative city systems, especially in developing countries. As a result, emergency services become inefficient because they have to filter out irrelevant calls, which, of course, interferes with the handling of truly critical cases.

Another obstacle identified was doubts about the program's effectiveness, which was not caused by a complete system failure, but rather by technical and managerial constraints such as a lack of coordination between agencies in handling cases, signal interference in the Call Taker system, and limited human resource (HR) capacity within the relevant Regional Apparatus Organizations (OPD). This demonstrates that smart city implementation requires solid cross-sector coordination, in line with the digital government integration model proposed by [Janssen et al., \(2017\)](#), which emphasizes the importance of interoperability and human resource capability as key pillars of a successful digital public service system. In the context of Cirebon, these weaknesses in coordination and infrastructure highlight the importance of strengthening institutional capacity and developing human resources to ensure the sustainability and effectiveness of the emergency services program.

These findings demonstrate that the implementation of Smart City programs such as Cirebon Siaga 112 cannot simply rely on technological sophistication, but must also be supported by a balanced socio-technical approach, which takes into account human factors, organizational culture, and community dynamics. By linking the results of this study to international literature, this research makes a significant contribution to enriching the academic discourse on the challenges of implementing digital public services in developing urban areas, which to date have received little attention in global smart city studies.

Political Capacity: Cirebon City Government's Efforts to Resolve Problems

In response to various obstacles in the implementation of the Cirebon Siaga I12 program, the Cirebon City Communications, Informatics, and Statistics Office has undertaken a number of strategic efforts to improve the quality of digital-based public services. One key step is through program socialization via social media, particularly Instagram, by displaying documentation of emergency case resolutions. This aims to build public trust and demonstrate the program's tangible performance. This approach aligns with the findings of Angelidou (2017) who stated that social media in the context of a smart city can be an effective tool for building engagement and strengthening citizen participation in government digital services.

Types of Efforts and Their Objectives in Improving Public Services I12

Type of Effort	Objective
Socialization via Instagram	Increasing public awareness and trust
Communication via WhatsApp Group	Accelerating coordination in report handling
Introduction to I12 service alerts	Preventing prank calls and ghost calls
Providing case resolution options	Providing flexibility in handling issues
Collaboration across regional government agencies	Synergy between agencies for sustainability

Source: Processed by researchers (2025)

Furthermore, internal communication strategies between agencies were strengthened through the use of WhatsApp groups as a hotline for case coordination. This approach reflects the agile governance model, enabling rapid response in service delivery (Janssen & van der Voort, 2016). Although informal, the use of digital communication platforms such as WhatsApp has been shown to improve coordination efficiency in the public sector in developing countries. Another step taken was the provision of a special introductory message to incoming calls to the I12 service, which included a warning regarding sanctions for prank calls and ghost calls. This was a preventative measure designed to reduce service misuse. This effort reflected the principles of behavioral public administration, where simple yet targeted public communication strategies can change public behavior when interacting with public services (Grimmelikhuijsen & Knies, 2012).

Furthermore, the government also provided more structured case resolution options, a form of service innovation to encourage public involvement in the problem-solving process. Finally, service quality was also improved by strengthening synergy across regional government agencies (OPD), aimed at creating harmony between agencies in carrying out their respective functions. This reinforces the importance of collaborative governance in the implementation of digital public services (Ansell & Gash, 2008), where program success is determined mainly by effective coordination and cooperation between institutions.

These findings demonstrate that despite persistent structural and technical barriers, the Cirebon City Government has adopted a number of innovative practices to overcome these obstacles and strengthen public trust in the Cirebon Siaga I12 service. The contribution of this research lies in uncovering technology-based

and collaborative practices that can serve as a reference for other cities in the context of developing a smart city based on local needs.

CONCLUSION

The Cirebon Siaga I12 program demonstrates strong policy capacity across several critical dimensions for emergency services within an innovative city framework. Analytically, the program facilitates access and effective use of tools, while its reliability is reinforced by clear service standards and the accuracy of personnel. Responsiveness is also evident in the program's ability to respond quickly to citizen complaints. Guarantees of legality and transparency of costs further strengthen public trust, and empathy is demonstrated through non-discriminatory service and respect for every report received.

However, operational limitations, particularly the lack of outreach due to a limited budget, hinder widespread public awareness and participation. Political communication efforts through social media have been implemented, but a broader and more inclusive strategy is needed for optimal impact. These findings emphasize the importance of inter-agency coordination, technological advancement, human resource development, and the enforcement of strict sanctions against misuse to optimize program performance.

This study has limitations due to its qualitative nature, with data sources from local informants, so the results may not be generalizable to other contexts. The focus on a single region also limits understanding of broader dynamics at the regional or national level. Therefore, future research is recommended to use a mixed-methods approach that combines quantitative and qualitative data for a more comprehensive evaluation. Comparative studies across cities and longitudinal research can also provide deeper insights into the sustainability and adaptation of emergency service programs within the evolving innovative city ecosystem.

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