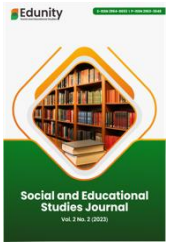
Edunity

Volume 4 Number 7, July 2025
p- ISSN 2963-3648 e-ISSN 2964-8653



Implementation of E-Government Policies Through the Citizen Relation Management (CRM) Information System in Support of Government Governance in of the Special Region Jakarta

Mohammad Rizki Adhari Jusal, Nurliah Nurdin, Muhadam Labolo, Rosmery Elsye
Institut Pemerintahan Dalam Negeri, Indonesia
Email: DIP.10.626@ipdn.ac.id, nurliahnurdin@ipdn.co.id, muhadam@ipdn.ac.id, rosmery_elsye@ipdn.ac.id

ABSTRACT

This research aims to identify why e-government policies implemented through the Citizen Relation Management (CRM) information system have not been fully effective and to develop an improved implementation model to enhance public service delivery. Using the policy implementation theory by Knill and Tosun (2020), the study employs a qualitative, descriptive approach with data collected through interviews, observations, and documentation. Findings reveal several obstacles to optimal implementation. First, inappropriate policy instruments operate within a complex environment, compounded by insufficient stakeholder support and inadequate sustainability efforts. Additionally, policy design suffers from ambiguity and overlapping regulations, hindering clear guidance. Institutional design weaknesses are seen in unclear task divisions and limited community roles in oversight, while administrative capacity constraints stem from insufficient human and financial resources, particularly a shortage of health workers. Social acceptance is low due to limited public engagement with social media, poor involvement in policy communication, and dissatisfaction with program benefit distribution. To address these challenges, the study proposes an implementation model integrating key elements of policy instruments, policy design, control structures, institutional design, administrative capacity, and social acceptance. Central to this model is sustainability, positioned as the core factor that unifies and strengthens the overall effectiveness of CRM policy implementation. This integrated approach offers a pathway to optimize e-government services and improve public sector responsiveness through the CRM system.

Keywords: Policy Implementation, Citizen Relation Management (CRM), Governance

INTRODUCTION

Along with technological developments, many countries are competing to utilize information and communication technology (ICT) systems to improve effective and efficient governance (Abdul-Samad & Kulandaisamy, 2022; Naik, 2018; Rimmington et al., 2015; Sahamir et al., 2021; Speed et al., 2020). With population growth, challenges such as the availability of energy, water, and sanitation become increasingly urgent. Information technology enables the integration of society through online systems, creating the concept of a *smart city* (Arfiansyah & Han, 2020; Aziz & Achmad Djunaedi, 2022; Cheng et al., 2022; Goldsmith & Crawford, 2014; Prabowo et al., 2023). Technologies such as big data, cloud computing, and machine learning play crucial roles in the implementation of smart cities. Big

data supports real-time analysis for improved decision-making; cloud computing offers flexible infrastructure; and machine learning aids in predicting issues such as congestion. Blockchain technology enhances transparency and security, reducing the risk of corruption.

The *smart city* is a planning concept that integrates all aspects of urban life to improve citizens' quality of life. Its six primary dimensions include smart economy, smart environment, educated society, smart living, mobility, and governance (Caesarina & Saubari, 2019; Pereira et al., 2017; Rahmatullah et al., 2020). Cities like Singapore, Dubai, and London have adopted this concept, while in Indonesia, Jakarta, Surabaya, and other cities are pioneers in its implementation.

The *smart city* concept originated with the digital city introduced in Amsterdam in 1994, influencing cities worldwide. Urban planners began incorporating technology into governance to address community needs and enhance government services (Malodia et al., 2021; Mensah et al., 2022; of Economic & Affairs, 2022; Organização das Nações unidas, 2014). Digital information applications facilitate efficient two-way communication between government and citizens, increasing public trust through information transparency. The Internet of Things (IoT) is a key component, enabling data control and exchange via connected devices—for example, managing street lighting in Barcelona and smart waste systems in Singapore—thus improving urban efficiency and safety.

The "Top 50 Smart City Governments Rankings" by Eden Strategy Institute ranked Bandung 28th, demonstrating its international competitiveness in smart city implementation. The Bandung City Government integrates social media and operates the digital platform *Bandung Smart City Sadayana*, which facilitates public service access through applications like the Bandung Command Center. This app allows citizens to report city problems, which are analyzed using big data and machine learning to support better decision-making. IoT technology is also applied for real-time water and energy management.

Jakarta faces significant challenges due to urbanization and community complexity. To advance as a *smart city*, Jakarta deploys ICT, including big data analytics, cloud computing, and IoT sensors monitoring air quality and traffic. Despite progress, gaps remain in strategic planning and infrastructure. The smart city transition is a unique process shaped by each city's maturity and particular challenges. With appropriate solutions, Jakarta aims to improve living standards and responsibly manage resources.

Jakarta has adopted innovative technologies to address urban problems, including intelligent transportation systems that manage traffic and public transit through CCTV, sensors, and mobile apps. The smart grid concept and renewable energy technologies, such as solar panels, support energy sustainability. In health, e-health systems enable online consultations via telemedicine. To enhance responsiveness to public issues, Jakarta introduced a *Citizen Relations Management* (CRM) system in 2015, enabling citizens to report problems via app or website, improving complaint handling efficiency. Thirteen complaint channels integrate with CRM, including the JAKI app, the primary tool for residents to report issues. In 2023, 98.1% of reports were resolved, demonstrating CRM's effectiveness. However, challenges persist, such as limited public awareness of CRM applications and the need to improve government response speed. CRM implementation is expected to minimize urban problems and advance Jakarta's smart city transformation in the era of the industrial revolution 4.0.

Based on Presidential Instruction No. 3 of 2003, Indonesia's e-governance development aims to achieve good governance that enhances public services democratically, transparently,

and accountably. This requires understanding and cooperation among state institutions through efficient information and communication systems. E-government is expected to reach multiple sectors, particularly information and communication, to make Jakarta a modern city effectively utilizing ICT. The initiative's objectives encompass six aspects: Smart Government, Smart People, Smart Economy, Smart Mobility, Smart Environment, and Smart Living, all intended to improve Jakartans' quality of life and serve as a model for smart city implementation. Nonetheless, challenges remain in implementing e-government policies, especially via the CRM system.

Previous research by Yulianto and Ambarsari (2022) found that while tangibles, responsiveness, and assurance dimensions were satisfactory, reliability and empathy were deficient. Key obstacles included limited public understanding of the CRM application, inadequate infrastructure, and geographical challenges (researchgate.net). Although insightful, this study lacks comprehensive analysis of technical factors such as CRM response speed and broader strategic challenges in large urban contexts. Similarly, a recent study by Paramita et al. (2025) identified improvements in complaint responsiveness, public participation, and information access (researchgate.net). However, findings remain general due to insufficient empirical data and limited analysis of factors like technological readiness, infrastructure quality, and digital literacy in metropolises like Jakarta.

This research aims to identify inhibiting and supporting factors and reconstruct the CRM implementation model. The results are expected to provide both theoretical and practical contributions to government science and to serve as a reference for further research on e-government and governance in Jakarta.

RESEARCH METHOD

This research used a qualitative approach, which encompasses methods and techniques that cannot be quantified. Qualitative research aimed to present descriptive data in the form of written words or information gathered from observed individuals or actors. It was designed to reveal the descriptive richness of information about what people did, felt, and experienced in relation to the research focus. Unlike quantitative research, which emphasizes numerical data and statistical generalization, qualitative research focused on interpreting meaning, ensuring data validity, and gaining an in-depth understanding of phenomena.

Based on the research problem and objectives, this study employed a descriptive qualitative research design to describe, analyze, and evaluate phenomena as they occurred in their real-world context. The approach was applied to examine and assess the implementation of the *Citizen Relationship Management* (CRM) applications and the strategies of the DKI Jakarta Provincial Government in achieving the Smart City initiative.

Data were collected through in-depth interviews with stakeholders involved in CRM implementation, field observations of CRM operations within Jakarta's smart city services, and documentation from government reports, policy documents, and related online platforms. These methods ensured data validity through cross-verification and triangulation. Data analysis involved content and thematic analysis, which included organizing data into categories, coding key themes, and interpreting patterns related to the challenges and supporting factors of CRM implementation. A comparative analysis was also conducted to evaluate CRM strategies against best practices from other smart cities. This approach provided an in-depth understanding of the social and technical dynamics influencing the success of Jakarta's Smart

City initiatives while offering practical insights to improve CRM effectiveness and foster greater public engagement.

RESULT AND DISCUSSION

The Implementation of E-government Policy through the Citizen Relation Management (CRM) Information System in Supporting Governance in DKI Jakarta Province has not been running optimally

The analysis is needed to identify the main themes that affect the success in the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province. In addition, the analysis is carried out to show the gaps and weaknesses of existing policies so that policy improvements based on data and evidence can be needed. This analysis is also the basis for the formation of a new model for the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province as well as providing policy recommendations for all stakeholders. The interviews were conducted between October 2024 – January 2025.

1) Choice of Policy Instrument

The concept of choice of policy instruments discussed by Knill and Tosun refers to the selection among the various tools or mechanisms that policymakers can use to achieve their policy objectives. The selection of policy instruments is influenced by several factors, including the nature of the policy problem, the political and institutional context, and the expected resistance or acceptance by target groups and other stakeholders.

In the context of the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province, the choice of policy instruments reflects two crucial aspects: the accuracy of the choice of instruments and the ease of implementation of instruments. First, the accuracy of the choice of instruments refers to how effective the chosen policy instrument is in addressing specific problems, in this case the governance of public complaints. These instruments must be appropriate for local contexts, stakeholder support, and sustainability. Second, ease of implementation relates to how easily a policy instrument can be applied in practice, including factors such as the complexity of implementation and policy and regulatory support. The instrument must be not only theoretically effective but also feasible and feasible and feasible under local conditions.

2) Policy Design

Policy design according to Knill and Tosun is a complex process that involves a variety of actors and factors and requires a deep understanding of the political, institutional, and social dynamics that influence public policymaking. The goal is to create policies that are not only efficient in achieving their goals, but also politically and socially acceptable.

Policy design in the implementation of e-government policies through the Citizen Relation Management (CRM) information system in supporting governance in DKI Jakarta Province consists of clarity of objectives and procedures as well as the number of program changes. Clarity of objectives and procedures in policy design ensures that all parties involved understand what needs to be achieved and how to achieve it. This helps in the coordination of actions and reduces the possibility of misunderstandings or inconsistencies in execution. While the number of program changes refers to how much policy overlap occurs in each policy implementation. Good policy design anticipates adaptive expansion

based on dynamic feedback and outcomes, but excessive change can signal problems in the initial design or instability in policy priorities.

3) Structure Control Structure

The control structure according to Christoph Knill and Jale Tosun refers to a regulatory framework, monitoring and evaluation system, and accountability mechanisms that direct the behavior of actors involved in the implementation process. This structure is important to maintain the direction and integrity of policy initiatives as they move from the formulation stage to implementation and evaluation.

Formal oversight by legislatures and supervisory bodies

In the context of monitoring the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province, the control structure is divided into two main sub-indicators: formal supervision and informal supervision. Formal oversight involves formal institutions such as the legislature and supervisory bodies that have the authority to oversee the policy implementation process. This sub-indicator consists of two main components, namely delegation of authority and internal coordination and supervision. This delegation of authority involves a process in which power and responsibilities are delegated from one level of government to a lower level or from the central to the regions. It aims to bring the decision-making process closer to specific local situations and conditions, allowing policies to be more tailored to the needs of the community. Meanwhile, internal coordination and supervision focus on internal mechanisms used by government agencies to ensure that each unit or department works efficiently and effectively in accordance with the policy objectives that have been set. This includes daily monitoring of activities as well as periodic evaluations of the results achieved.

In the framework of policy supervision, the clarity of the job description is an important basis that ensures that the delegation of authority runs effectively and accountably, especially in the implementation of e-government policies through the Citizen Relation Management (CRM) information system in supporting governance in DKI Jakarta Province. A clear job description not only outlines the duties and responsibilities of each individual and work unit, but also forms the foundation for clarity, efficiency, and effectiveness in the execution of tasks.

Informal supervision by the community

Informal supervision by the community is a form of supervision that is carried out non-officially, outside of institutional or formal mechanisms, such as that carried out by the legislature or government supervisory agencies. This supervision includes participation, criticism, input, and social control carried out by residents independently or through the community.

Informal supervision occurs through community participation and feedback mechanisms that arise from social groups or individuals who are not members of the formal structure of government. These sub-indicators include periodic monitoring and community participation. Periodic monitoring is a monitoring and evaluation process carried out by the community or non-governmental organizations on policy implementation. It allows the public to regularly assess the effectiveness and efficiency of policies and provide constructive suggestions and criticism.

Community participation refers to the active involvement of the community in the policy implementation process, both in planning, implementation, and evaluation. This

participation not only increases transparency and accountability in the implementation of policies but also ensures that the policies are more relevant and accepted by the communities concerned. Each of these elements synergizes to create a comprehensive and effective supervisory system, supporting collective and sustainable efforts in the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province.

Forms of informal supervision by the community in the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province. Submission of complaints and aspirations: (1) The people of DKI Jakarta can directly submit complaints, complaints, or aspirations related to public services through the CRM platform, either through mobile applications, websites, or official social media channels owned by the provincial government. (2) This supervision is direct and real-time, where residents play an active role as supervisors of the public services received.

Institutional Design

Institutional design according to Christoph Knill and Jale Tosun refers to the formation of structures and rules in political and organizational systems that shape the behavior of actors and policy outcomes. Knill and Tosun also discuss the role of institutions in policymaking, suggesting that policymaking can be seen as a strategy to solve social problems through the use of institutions, as well as the process of modifying those institutions to fit the objectives. They argue that policy institutions serve to reduce the complexity inherent in the policy-making process.

To strengthen the implementation of the e-government policy of the Citizen Relations Management (CRM) information system in DKI Jakarta Province, institutional design plays a crucial role because it determines the structure and work mechanism of the institutions responsible for the implementation of policies. This indicator is divided into two main sub-indicators: the number of implementing organizations and internal and inter-organizational coordination. The number of implementing organizations highlights the importance of the structure and number of organizations involved in policy implementation. A key element of this sub-indicator is efficient structure and procedures.

An efficient structure within an organization emphasizes the importance of an organizational design with minimal redundancy to maximize efficiency, ensuring that each unit has a clear role and sufficient resources to carry out its duties. Accordingly, efficient procedures must be implemented to optimize output and performance, with clear and easy-to-follow work procedures, allowing tasks to be carried out systematically and measurably. This combination of clear structure and effective procedures is key to achieving high operational efficiency in an organization. Internal and interorganizational coordination focuses on how organizations interact and cooperate with each other in the context of policy implementation. The main components of these sub-indicators are a clear division of duties and functions, the importance of having a clear division of duties and functions among the various units and organizations involved in the implementation of the policy. This clear division ensures that there is no overlap of functions that could lead to inefficiencies and conflicts between units. Through the synergy between efficient structures and sustainable adaptation, institutional design in DKI Jakarta Province seeks to create a solid foundation to achieve the goal of implementing the e-

government policy of the Citizen Relation Management (CRM) information system in DKI Jakarta Province.

1. Number of implementing organizations
   In dealing with the complex challenges of implementing the e-government policy of the Citizen Relation Management (CRM) information system in DKI Jakarta Province, efficient structures and procedures in institutional design are the main key. A well-designed structure allows for a smooth flow of communication, clear distribution of tasks, and fast and precise decision-making, while efficient procedures guarantee that activities run smoothly and in accordance with established standards.
2. Internal and inter-organizational coordination
   Internal coordination refers to the synergy between units or parts within a government agency (for example, between fields in the Jakarta Communication, Informatics, and Statistics Office), which is responsible for the management and operationalization of the CRM system. Internal Coordination Aspects:
   a. Clear division of tasks:
      1) Each field/unit, such as the ICT Infrastructure Sector, Public Service Sector, and Data Management Sector, has specific roles and duties in supporting the CRM system.
      2) The assignment of frontliner officers, admins, and CRM operators is carried out clearly according to the SOP.
   b. Regular meetings and evaluations:
      1) Periodic coordination meetings are held to discuss technical obstacles, evaluate system performance, and update CRM features according to the needs of the community and technological developments.
      2) Regular internal monitoring and evaluation to ensure that the response to residents' reports runs on time.
   c. Effective information flow:
      1) The management of information flow and the completion of reports is carried out systematically and documented.
      2) Every incoming complaint is recorded, forwarded to the relevant unit, and reported on the progress of its handling periodically.

Coordination between organizations includes synergy between various agencies or related institutions within the DKI Jakarta Provincial Government, as well as with external partners (BUMD, sub-districts, RT/RW, or even application developer vendors). Aspects of coordination between organizations:

a. Collaboration with related SKPDs
   1) The Communication and Informatics Service collaborates with other Regional Apparatus Organizations (OPD) such as the Environment Agency, the Transportation Service, the Pamong Praja Police Unit, and others in following up on community reports that come in through CRM.
   2) Each report is coordinated according to its field. For example, waste reports go to the Environment Agency, traffic jam reports to the Transportation Agency.
b. Information system integration:
   1) CRM is integrated with other information systems such as JAKI (Jakarta Kini) and the Smart City dashboard so that data and complaint handling can run integrated across agencies.

2) The exchange of data and information between organizations is carried out with a mutually agreed data security protocol.

c. Coordination with the administrative region:
   1) The involvement of sub-districts, sub-districts, and RT/RW in handling complaints to ensure direct response in the field.
   2) Strengthening the communication network between the Provincial Government, sub-districts, and sub-districts through WhatsApp groups, internal applications, and coordination forums.

d. Cooperation with external parties:
   1) The Provincial Government collaborates with application developer vendors, IT infrastructure providers, and non-governmental organizations (NGOs) to educate and socialize the use of CRM.
   2) Strengthening the role of Jakarta Smart City as the main management unit of CRM, which acts as a bridge between agencies and external partners.

Institutional design for the implementation of e-government policies for Citizen Relation Management (CRM) information systems in DKI Jakarta Province. Focusing on efficient structures and procedures, involving supporting OPDs, and cross-sector collaboration. This approach includes cooperation with academic institutions and innovative programs that demonstrate Jakarta Province's commitment to sustainable and adaptive solutions in addressing public complaint problems to improve governance through the implementation of the e-government policy of the Citizen Relation Management (CRM) information system in Jakarta Province.

Administrative Capacity

Administrative capabilities according to Knill and Tosun are diverse concepts and can be measured and operationalized in a variety of ways, depending on the specific context and function of the administrative entity being reviewed. This may involve assessing the structural dimensions of executive capacity, such as staff, spending, centralization of authority, and coordination mechanisms. In addition, the administrative style, which is the informal routine and standard operating procedures of public administration, can reflect the administrative capabilities of an organization and its influence on policymaking.

In order to strengthen the implementation of the e-government policy of the Citizen Relations Management (CRM) information system in DKI Jakarta Province, institutional design plays a crucial role because it determines the structure and work mechanism of the institutions responsible for the implementation of policies. This indicator is divided into two main sub-indicators: the number of implementing organizations and internal and inter-organizational coordination. The number of implementing organizations highlights the importance of the structure and number of organizations involved in policy implementation. A key element of this sub-indicator is efficient structure and procedures.

An efficient structure within an organization emphasizes the importance of an organizational design with minimal redundancy to maximize efficiency, ensuring that each unit has a clear role and sufficient resources to carry out its duties. Accordingly, efficient procedures must be implemented to optimize output and performance, with clear and easy-to-follow work procedures, allowing tasks to be carried out systematically and measurably. This combination of clear structure and effective procedures is key to achieving high operational efficiency in an organization. Internal and interorganizational coordination focuses on how organizations

interact and cooperate with each other in the context of policy implementation. The main components of these sub-indicators are a clear division of duties and functions, the importance of having a clear division of duties and functions among the various units and organizations involved in the implementation of the policy. This clear division ensures that there is no overlap of functions that could lead to inefficiencies and conflicts between units. Through the synergy between efficient structures and sustainable adaptation, institutional design in DKI Jakarta Province seeks to create a solid foundation to achieve the goal of implementing the e-government policy of the Citizen Relation Management (CRM) information system in DKI Jakarta Province.

In dealing with the complex challenges of implementing the e-government policy of the Citizen Relation Management (CRM) information system in DKI Jakarta Province, efficient structures and procedures in institutional design are the main key. A well-designed structure allows for a smooth flow of communication, clear distribution of tasks, and fast and precise decision-making, while efficient procedures guarantee that activities run smoothly and in accordance with established standards.

Social Acceptance

Social Revenue refers to the extent to which the community and related parties support and accept the implementation of policies. High levels of social acceptance can speed up and simplify implementation, while a lack of public support can hinder the process and effectiveness of policies.

In the context of the implementation of e-government policies through the Citizen Relation Management (CRM) information system in supporting governance in DKI Jakarta Province, social acceptance indicators play a key role, with sub-indicators of the level of benefit obtained by the community and community involvement in policy implementation. The level of benefit obtained by the community measures the direct benefits felt by the community from the implementation of the policy. Equitable distribution of benefits focuses on the equitable and equitable distribution of policy benefits among all groups of people, ensuring there is no discrimination or exclusion in the receipt of benefits from the policies implemented.

The use of social media describes the use of social media platforms to raise awareness, disseminate information, and public discussion about policy. Social media is becoming an important tool for measuring and improving policy benefits, enabling two-way interaction between government and society. Community involvement in policy implementation emphasizes the importance of active community participation in the policy implementation process. Policy socialization is a process that involves activities to inform and educate the public about the policies to be implemented, facilitating public understanding of the policy's objectives, benefits, and procedures, while policy communication is an ongoing way for the government to interact with the public to get feedback and maintain transparency, which is vital in improving, adjusting, and strengthening public support for policies aforementioned.

Community participation refers to the active involvement of the community in the policy implementation process, both in planning, implementation, and evaluation. This participation not only increases transparency and accountability in the implementation of policies but also ensures that the policies are more relevant and accepted by the communities concerned. Each of these elements synergizes to create a comprehensive and effective supervisory system, supporting collective and sustainable efforts in the implementation of e-

government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province.

The level of benefit obtained by the community

The Level of Benefit Obtained by the Community from the Implementation of CRM in DKI Jakarta:

a. Easier and faster access to public services
   1) Through the CRM system, the people of DKI Jakarta can easily submit complaints, complaints, or aspirations related to public services online through the government's official application, website, or social media channels.
   2) The reporting process becomes more practical, there is no need to come directly to the government office, thus saving time, costs, and people's labor.
b. Increased government transparency and accountability
   1) The public can monitor the status of complaint handling directly through the tracking feature in the CRM application.
   2) Every complaint that comes in will be recorded and documented, so there is little chance of complaints being ignored. This encourages the government to be more accountable in responding to and completing reports.
c. Faster and more measurable government response
   1) With the CRM system, the government has a more structured and automated workflow in handling public complaints.
   2) The response time to complaints is shorter because reports can be directly forwarded to the relevant agencies without convoluted bureaucracy.
d. Improving the quality of public services
   1) Through feedback provided by residents, the government can evaluate and improve services on an ongoing basis.
   2) The pattern of incoming complaints can be used as analytical material and a basis for decision-making for improving public service policies and programs.
e. Increase community participation and awareness
   1) CRM opens up space for active public participation in supervising, assessing, and providing input on government performance.
   2) The level of public concern for environmental, infrastructure, security, and other public service issues is increasing as the reporting and follow-up process becomes easier and more transparent.

Community involvement in policy implementation

Public participation in policy implementation is a process in which citizens actively participate in the implementation, supervision, and evaluation of policies implemented by the government, so that the policies are effective, efficient, and in accordance with public needs.

According to Arnstein (1969), community involvement can be classified into various levels known as Arnstein's Ladder of Participation, ranging from the lowest (manipulation and therapy) to the highest (community control).

In general, forms of community involvement in policy implementation include the following forms:

a) Informational participation, the public only receives information about government policies without being able to influence government decisions or actions directly.

b) Consultative participation, the public is asked for opinions or input before or during the implementation of the policy, but the final decision remains in the hands of the government.
c) Collaborative participation, the community is actively involved in the policy implementation process, including in operational decision-making and technical implementation.
d) Delegative participation, the government delegates most of the authority to implement policies to certain communities or groups of people.
e) Independent participation/community control, the community is fully in control of decision-making and policy implementation with minimal supervision from the government.

e-government Policy Implementation Model through Citizen Relation Management (CRM) Information System in supporting public services

Modeling of Concept-Indicators in NVivo 14

In an academic context, NVivo is a qualitative data analysis software that facilitates an in-depth understanding of the data collected, from collection to analysis. The following will explain the steps of the modeling process in NVivo, starting from theoretical understanding to model validation.

Theoretical Understanding

In qualitative research, theory serves as the foundation that guides the entire research process. Understanding the theory in depth is a crucial first step in the modeling process using NVivo. Theory assists researchers in identifying indicators and concepts that are relevant to the study area. To apply the theory effectively, the researcher first dives into the existing literature, understands various theoretical approaches, and determines how the theory can be applied in the context of his research.

In the context of this study, the researcher used the theory of determinants of policy implementation according to Knill and Tosun. According to Knill and Tosun, the effectiveness of implementing policies is influenced by six (6) key factors, namely:

a) Choice of Policy Instruments: This concerns the choice of tools or methods used by policymakers to achieve the set objectives. These tools can be laws, regulations, incentives, or educational campaigns. The success of a policy often depends on the selection of the right instrument for the specific situation and purpose.
b) Policy Design: This aspect refers to how a policy is formulated, including the determination of goals, targets, and ways to achieve them. An effective design will clarify the roles and responsibilities of each party involved, while a less effective design can lead to confusion and uncertainty.
c) Control Structure: Relating to the system used to monitor and evaluate the implementation of policies. A good oversight structure will ensure policies are executed as planned, while deficiencies in oversight can lead to violations or non-compliance.
d) Institutional Design: This concerns the structure and mechanisms of the institutions involved in the implementation of policies. This includes the division of tasks, coordination between institutions, and the distribution of resources. Good institutional design helps policy implementation run smoothly, while poor design can create obstacles.
e) Administrative Capacity: This factor relates to the ability of administrative implementers, such as bureaucracy or implementing agencies, to implement policies. This includes the

expertise, knowledge, resources, and technology they have. Without sufficient administrative capabilities, policy implementation can face obstacles.

f) Acceptance by the Community: This relates to the level of support and acceptance of the policy by the community and stakeholders. High social acceptance helps to facilitate and facilitate implementation, while a lack of support from the public can hinder the process and effectiveness of policies.

A solid theoretical understanding is also important to ensure that the interpretation of the data does not deviate from the relevant theoretical context. This ensures that the research is on the right track and that the results obtained are credible in the context of the chosen theory.

Data Collection

Data collection is a crucial step in any qualitative research. The methods used in this study were interviews, observations, Focus Group Discussions (FGD), and Documentation. Once the data is collected, the next step is to import this data into NVivo. NVivo supports a wide range of data formats, including interview transcripts, field notes, and written documents. This import process allows researchers to organize their data in a systematic manner, making it easy to access and analyze further. In this context, the researcher imported research data in the form of interview transcripts and FGDs that had been conducted. Here, the data can be sorted, annotated, and analyzed to uncover patterns and themes that emerge from the data. The importance of importing data correctly cannot be underestimated, as it forms the basis of the analysis that will be carried out using the various features of NVivo.

Initial Reading and Initial Coding

Once the data has been successfully imported into NVivo, the next step is initial reading and initial encoding. This stage involves identifying indicators in the data that correspond to the concept of the chosen theory. In addition, researchers must be open to the possibility of new indicators that may not be covered by existing theories.

The process of reading the initials allows the researcher to gain an initial understanding of the data. This includes identifying words, phrases, or segments of text that seem important or relevant to the research question. In the context of this study, the researcher looked for segments in the interview transcript that talked about, among others, "Rapid Community Response", and "policy implementation".

Next, the initial coding is done in NVivo. Researchers create codes based on existing theories and add new codes based on indicators found in the data. This process allows researchers to organize their data based on relevant themes, patterns, or concepts. This initial coding is crucial because it forms the basis of further analysis. This allows researchers to group data into relevant categories, making it easier to discover relationships and patterns in the data. This process also allows researchers to remain flexible and responsive to the data, ensuring that their interpretations remain accurate and relevant to the data collected.

Figure 1. Coding Based on Knill and Tosun Theory

Concept Formation

After the initial coding stage, the researcher moved on to concept formation. This stage involves grouping the relevant indicators to form a broader concept, which can be based on theories or new findings from the data. The formation of this concept is important for understanding and explaining data in a broader context.

In NVivo, this process is done by organizing the associated codes into 'Nodes'. Nodes are categories or containers used to collect and store data related to a particular theme, concept, or idea. This grouping process allows researchers to see how certain indicators come together and form a larger pattern. This is important in determining whether the data supports or challenges existing theories, or whether any new concepts emerge from the data.

The formation of this concept is not only important for the organization of data, but also for the development of a deeper theoretical understanding of the topic being studied. This allows researchers to build a rich and multidimensional understanding, thus paving the way for deeper interpretation and analysis.

Figure 2. Concepts Based on Themes and Sub-Themes

Model and Framework Creation

The next step is the creation of a model or framework. This stage involves integrating concepts from theories and new concepts emerging from the data, forming a comprehensive and coherent model. The creation of this model is important because it allows researchers to combine theory with empirical findings from the data, creating a unique framework for their research. These models can be used to explain the phenomenon being studied, predict patterns or trends, or even develop new theories. In an academic context, this model can also be an important tool for communicating with the scientific community about research findings and implications.

Model Refinement

Once the initial model is created, the next process is the refinement of the model. This stage involves adjusting and refining the model based on further comparison with data, theory, and deep reflection. This refinement of the model is important to ensure that it is accurate and reflects the data and theory appropriately. This refinement process allows researchers to improve the quality and accuracy of the models. It also allows researchers to reconsider certain

aspects of the research, and ensure that conclusions are based on the most comprehensive and reflective analysis of the available data.

Validation

The final step in the modeling process is validation. This stage is important to ensure that the model is consistent with theory and data. This validation process helps in confirming that the interpretations and inferences drawn from the data are accurate and justifiable.

Policy Implementation Model

Thematic analysis using NVivo that the researcher has conducted, the researcher then develops a model for the implementation of e-government policies through the Citizen Relation Management (CRM) information system in supporting governance in DKI Jakarta Province. The consideration of the preparation of a policy implementation model is because the conditions for the implementation of e-government policies through the Citizen Relations Management (CRM) information system in supporting governance in DKI Jakarta Province have not been optimally implemented, so it needs to be optimized.

To design the model, the researcher used a model conceptindicator approach using NVivo as a qualitative analysis tool. The next stage in designing a policy implementation model is modeling by combining the results of thematic analysis with theories or concepts related to research topics such as government theory, public policy implementation, and health development. In the final stage, the policy implementation model is validated by triangulation of various sources from experts, journals, and documents that can strengthen the justification of the model designed to support governance in DKI Jakarta Province for the implementation of e-government policies through the Citizen Relations Management (CRM) information system. Based on the explanation above, the following is a policy implementation model, namely:

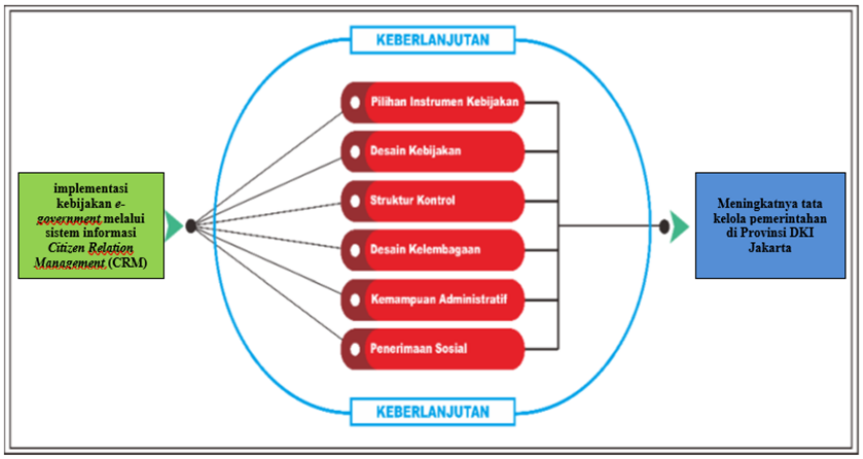


Figure 3. Policy Implementation Optimization Model

As a model, the dimensions in the model include the choice of policy instruments, policy design, institutional design, oversight, administrative capability, acceptability, and sustainability. Furthermore, these dimensions are outlined as follows:

1. Choice of Policy Instruments

   The choice of policy instrument is an important decision in the public policy-making process. A policy instrument is a tool or mechanism used by the government to achieve

certain policy objectives. The choice of these instruments is very diverse and can include regulations, fiscal incentives, subsidies, information campaigns, and public education.

a. Accuracy of Instrument Selection: Accuracy of instrument selection refers to the extent to which the selected instrument is in accordance with policy objectives and is able to effectively address the identified problems. This means that the instrument is designed taking into account the specific context, needs, and characteristics of the target population. The right instrument is one that can deliver the desired results in a relatively short time and with significant impact.
b. Ease of Instrument Implementation: The ease of implementation of instruments includes practical aspects that affect the ability of policymakers to implement the instrument effectively in the field. This involves consideration of available resources (such as manpower, funds, and infrastructure), administrative capacity, and supporting legal and regulatory frameworks. Instruments that are easy to implement are those that have clear implementation procedures, can be run with existing resources, and are accepted and supported by stakeholders.

2. Policy Design

According to Knill and Tosun, policy design includes the process of formulating and developing public policies that are systematic and structured, taking into account various factors to ensure that the policy is effective and can be implemented properly. Policy design involves several key elements that policymakers should pay attention to: clarity of objectives and procedures and the number of program changes.

a) Clarity of objectives and procedures: Clarity of objectives and procedures in policy design is a crucial factor in ensuring that the policy is effective and can be implemented properly. Clarity of purpose refers to the extent to which policy objectives are formulated in a specific and easy-to-understand manner, which is critical to providing clear direction for policymakers and implementers and facilitating the evaluation of policy outcomes. The clarity of the procedure, on the other hand, ensures that the steps to achieve those goals are outlined in detail and easy to follow. Clear procedures provide concrete operational guidance for policy implementers, reduce confusion and uncertainty, and ensure that each stage of implementation can be properly monitored and evaluated.
b) Number of Program Changes: The number of program changes in a policy design indicates the frequency and magnitude of modifications made during implementation. Programs that undergo frequent changes can signal that the initial policy is immature or stable, which can interfere with implementation and reduce effectiveness. However, some changes may be required to adapt the policy to field conditions or correct deficiencies that arise during implementation. A good policy should be stable enough to provide certainty to implementers and beneficiaries, but also flexible enough to make necessary adjustments based on evaluation and feedback. Thus, moderate and reasoned program changes reflect a balance between stability and adaptation, ensuring that policies remain effective and responsive to needs on the ground.

3. Control Structure

The control structure in the context of Knill and Tosun refers to the mechanisms and procedures used to monitor and direct the implementation of public policies to ensure that policy objectives are achieved effectively and efficiently. This control structure includes internal and external oversight, involving various actors and institutions that have a role in evaluating the performance of policies and their implementation. Internal oversight is

carried out by entities within the implementing organization itself, such as internal audit units or oversight committees, which are tasked with ensuring compliance with established procedures and standards. External oversight, on the other hand, is carried out by parties outside the implementing organization, such as independent oversight bodies, external auditors, or legislative bodies, which provide objective assessments and ensure public accountability. A good control structure should have a clear reporting system, effective feedback mechanisms, and procedures to address deviations or failures in policy implementation. Thus, a strong and comprehensive control structure is essential to improve transparency, accountability, and effectiveness of public policy implementation.

a. Formal oversight by legislatures and supervisory bodies: Formal oversight by legislatures and supervisory bodies includes oversight mechanisms formally regulated by laws and regulations. The legislature has an important role in monitoring the implementation of public policies through various tools, such as audits, hearings, and annual reports. They ensure that policies are implemented in accordance with the approved objectives and budgets. In addition, supervisory bodies such as inspectorates or independent audit bodies have the responsibility to conduct performance and compliance evaluations with operational standards and identify irregularities or fraud. This formal oversight provides assurance that there is accountability and transparency in the implementation of public policies, and provides mechanisms for law enforcement and policy improvement.
b. Informal oversight by the community: Informal oversight by the community includes the active participation of citizens in monitoring and evaluating the implementation of public policies. The community can play a role in various ways, such as through social media, community forums, non-governmental organizations, or through direct reporting mechanisms such as hotlines or online platforms. This supervision is often more flexible and quick in responding to issues that arise in the field, because the community directly feels the impact of the policies implemented. Public participation in oversight also increases government transparency and accountability, as the government is encouraged to be more responsive and responsible to citizens' needs and complaints. This informal oversight allows for constructive feedback and community-based solutions that can help improve the effectiveness of policy implementation.

4. Institutional Design

Institutional design refers to the organizational arrangements and structures and mechanisms necessary to support the implementation of public policies. This includes defining the roles and responsibilities of the various agencies or organizations involved, as well as how they interact and coordinate to achieve policy objectives. Good institutional design ensures that policies can be implemented effectively, efficiently, and in accordance with the goals that have been set.

a. Number of implementing organizations: The number of implementing organizations refers to the number of entities or institutions involved in the implementation of policies. This indicator is important because the number of organizations involved can affect the complexity of policy implementation. If the number of implementing organizations is small, coordination can be easier and policy implementation can be more efficient, but it may reduce specialization and capacity in handling various aspects of policy. Conversely, involving more organizations can increase capacity and expertise in handling various aspects of policy, but it can also add complexity in terms of coordination and

communication. Therefore, determining the right number of implementing organizations is key to achieving a balance between efficiency and effectiveness.

b. Internal and inter-organizational coordination: Internal and inter-organizational coordination refers to the mechanisms and processes used to ensure that all organizations involved in policy implementation work synergistically and in a coordinated manner. Internal coordination includes processes and procedures within the implementing organization itself, ensuring all parts of the organization are working toward a common goal through effective communication and clear division of tasks. Meanwhile, coordination between organizations involves mechanisms to ensure that the various organizations involved work in harmony, which may include coordination committees, regular meetings, and information sharing systems. Good coordination is essential to avoid duplication of effort, waste of resources, and conflict, all of which can hinder the achievement of policy objectives.

5. Administrative Abilities

Administrative ability refers to the ability and resources possessed by a government organization or institution to design, implement, and evaluate public policies effectively. These capabilities cover various aspects, including human resources, financial resources, infrastructure, and administrative systems and procedures that support the implementation of government tasks.

a. Resource availability: refers to the extent to which the necessary resources, whether human, financial, or material, are available to support policy implementation. Human resources include a sufficient number of staff with the appropriate qualifications and skills to carry out the required tasks. Financial resources include a sufficient budget to finance programs and operational activities. Material resources include equipment, technology, and infrastructure that support policy implementation. Without adequate resource availability, organizations will have difficulty executing policies effectively and efficiently.

b. Resource adequacy: refers to how sufficient resources are available to meet the needs required in policy implementation. This means not only owning resources, but also ensuring that the quantity and quality of those resources are sufficient to complete the task and achieve policy objectives. For example, having skilled staff alone is not enough if the number of staff is insufficient to handle the volume of work at hand. Similarly, the available budget should be sufficient to cover all costs associated with the implementation of the policy, including unexpected costs. Resource sufficiency ensures that organizations not only have access to resources, but also that they can fully support policy implementation.

c. Appropriateness of resource use: refers to how available resources are used effectively and efficiently to achieve policy objectives. This involves the proper allocation of resources according to priorities and needs, as well as good management to minimize waste and ensure that each resource is used optimally. For example, proper training to improve staff skills, budget allocation that suits the needs of the program, and efficient use of technology to support operations. Resource utilization appropriateness also includes periodic monitoring and evaluation to ensure that resources are being used in the most effective way and adjusting resource utilization strategies based on the results of those evaluations.

6. Social Acceptance

Resource utilization appropriateness refers to how the available resources are used effectively and efficiently to achieve policy objectives. This involves the proper allocation of resources according to priorities and needs, as well as good management to minimize waste and ensure that each resource is used optimally. For example, proper training to improve staff skills, budget allocation that suits the needs of the program, and efficient use of technology to support operations. Resource utilization appropriateness also includes periodic monitoring and evaluation to ensure that resources are being used in the most effective way and adjusting resource utilization strategies based on the results of those evaluations.

a. The level of benefit obtained by the community refers to the extent to which public policies provide real and relevant benefits to the communities that are the target of the policy. This includes the direct and indirect positive impacts felt by the community as a result of the implementation of the policy. Policies that provide significant benefits tend to be more accepted and supported by the community. These benefits can be in the form of improved quality of life, access to better public services, reduced cost burdens, or improved social and economic conditions.
b. Community involvement in policy implementation includes the active participation of the community in various stages of policy implementation, from planning, implementation, to evaluation. This involvement can be in the form of participation in decision-making, program implementation, or providing feedback and evaluation of policies implemented. Community involvement increases a sense of ownership and responsibility for policies, thereby encouraging support and compliance with those policies. In addition, community participation can help ensure that the policy is appropriate to local needs and conditions, as well as improve the effectiveness and efficiency of policy implementation. Concrete examples of community engagement are through public consultation forums, community working groups, or satisfaction surveys that involve citizens in policy assessment and improvement. Active and constructive involvement of the community can strengthen the legitimacy of policies and increase the success of their implementation.

7. Sustainability

Sustainability in the context of public policy implementation refers to the development of strategies and actions that ensure that policies not only meet current needs without sacrificing the ability of future generations to meet their needs. This concept integrates three main dimensions: economic, social, and environmental, which is often referred to as the triple bottom line. Sustainability ensures that economic development takes place without damaging the natural environment and while promoting social justice.

CONCLUSION

This study concluded that e-government policies implemented through the *Citizen Relations Management* (CRM) information system have not operated optimally due to factors such as an imprecise choice of policy instruments within a complex policy environment, lack of stakeholder support, unclear and overlapping policy design, limited community supervision, ambiguous institutional roles, low administrative capacity—including insufficient human and financial resources—and low social acceptance characterized by limited social media use, poor engagement in policy communication, and dissatisfaction with benefit distribution. To address these issues, the study proposed a Policy Implementation Optimization Model that integrates

six factors from Knill and Tosun—policy instruments, policy design, control structure, institutional design, administrative capacity, and social acceptance—along with sustainability as a critical, integrating seventh factor. Future research is recommended to focus on strengthening stakeholder collaboration, enhancing digital literacy among citizens, and establishing continuous policy evaluation mechanisms to support effective CRM implementation and sustainable governance improvements in Jakarta.

BIBLIOGRAPHY

Abdul-Samad, Z., & Kulandaisamy, P. P. (2022). Cost Management for Information and Communication Technology Projects. *Journal of Engineering, Project, and Production Management*, *12*(2). https://doi.org/10.32738/JEPPM-2022-0015

Arfiansyah, D., & Han, H. (2020). Bandung Smart City: The digital revolution for a sustainable future. *Handbook of Smart Cities*, 1–27.

Aziz, M. A., & Achmad Djunaedi. (2022). Tahapan Perkembangan Kota Makassar menuju Smart City Tahun 2015-2020. *Jurnal Sinar Manajemen*, *9*(2). https://doi.org/10.56338/jsm.v9i2.2446

Caesarina, H. M., & Saubari, N. (2019). PERAN RUANG TERBUKA HIJAU DALAM PERENCANAAN KOTA SEBAGAI POTENSI PEMBENTUK SMART CITY. *Jukung (Jurnal Teknik Lingkungan)*, *5*(1). https://doi.org/10.20527/jukung.v5i1.6202

Cheng, Z., Wang, L., & Zhang, Y. (2022). Does smart city policy promote urban green and low-carbon development? *Journal of Cleaner Production*, *379*, 134780.

Goldsmith, S., & Crawford, S. (2014). *The responsive city: Engaging communities through data-smart governance*. John Wiley & Sons.

Malodia, S., Dhir, A., Mishra, M., & Bhatti, Z. A. (2021). Future of e-Government: An integrated conceptual framework. *Technological Forecasting and Social Change*, *173*. https://doi.org/10.1016/j.techfore.2021.121102

Mensah, I. K., Zeng, G., & Mwakapesa, D. S. (2022). Understanding the drivers of the public value of e-government: Validation of a public value e-government adoption model. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.962615

Naik, S. (2018). To Study the Benefits of Information Communication Technology Adoption in Construction Project Management. *International Journal for Research in Applied Science and Engineering Technology*, *6*(5). https://doi.org/10.22214/ijraset.2018.5016

of Economic, U. N. D., & Affairs, S. (2022). *E-Government Survey 2022*. https://publicadministration.un.org/en/

Organização das Nações unidas. (2014). E-Government Survey: e-Government for the Future We Want. In *United Nations*.

Pereira, G. V., Macadar, M. A., Luciano, E. M., & Testa, M. G. (2017). Delivering public value through open government data initiatives in a Smart City context. *Information Systems Frontiers*, *19*, 213–229.

Prabowo, O. M., Mulyana, E., Nugraha, I. G. B. B., & Supangkat, S. H. (2023). Cognitive City Platform as Digital Public Infrastructure for Developing a Smart, Sustainable and Resilient City in Indonesia. *IEEE Access*, *11*, 120157–120178.

Rahmatullah, A. F., Purnomo, E. P., & Kasiwi, A. N. (2020). Rencana Pembangunan Jangka Menengah Daerah Kota Jambi 2013-2018 Sudahkah Memasukkan Pentingnya Konsep Smart City. *Moderat: Jurnal Ilmiah Ilmu Pemerintahan*, *6*(1).

Rimmington, A., Dickens, G., & Pasquire, C. (2015). Impact of Information and Communication Technology (ICT) on construction projects. *Organization, Technology & Management in Construction: An International Journal*, *7*(3). https://doi.org/10.5592/otmcj.2015.3.4

Sahamir, S. R., Ismail, N. A. A., Rooshdi, R. R. R. M., & Zainordin, Z. M. (2021). Barriers Impeding the Adoption of Information and Communication Technology (ICT) in Construction Project Management. *International Journal of Integrated Engineering*, *13*(5). https://doi.org/10.30880/IJIE.2021.13.05.022

Speed, H., Dose, L., Learning, D., Lell, M. M., & Kachelrieß, M. (2020). *Recent and Upcoming Technological Developments in Computed Tomography*. *55*(1). https://doi.org/10.1097/RLI.0000000000000601