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Access Rights Policy and Population Data Utilization: Evidence from the Population and Civil Registration Office of Depok City, West Java Province

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Abstract

Background: *NIK*-based population data access rights implementation is one of the challenges of strategic governance in Indonesia's digital transformation agenda. *Permendagri* No. 17 of 2023 has declared that such structured data-sharing is implemented through Cooperation Agreements (*PKS*), but empirical study on how *Disdukcapil* at the regional level navigates the gap between regulatory mandates and operational realities remains elusive.
Objective: This study aims to examine the implementation of population data access rights using *NIK*-based policy at Depok City *Disdukcapil*, along with its challenges and management strategies.
Methods: A descriptive qualitative approach with a constructivist paradigm was used, which included interviews, field observations, and literature review, followed by data reduction, triangulation, and presentation of the information obtained using NVivo 11 Plus.
Results: The findings reveal that the optimization of population data utilization across various public service sectors remains uneven. Furthermore, there is a declining trend in the implementation of data access rights and a lack of understanding regarding the access mechanisms. Despite these issues, the policy implementation operates through structured digital governance, regulation-based frameworks, and cross-institutional collaboration, which enhances service effectiveness, time efficiency, data accuracy, and the precision of government programs. However, obstacles such as limited human resources, infrastructure constraints, inter-agency (OPD) coordination gaps, and technical and regulatory challenges persist. As a result of this study, the researcher formulates the ANYA-COCO (Affected, Negotiated, Yield, Authority – Collaborative-Controlled) model as a framework for policy implementation. This model aims to strengthen adaptive digital governance, data literacy, cross-agency coordination, and performance-based monitoring to ensure that population data utilization access becomes more effective and efficient.
Conclusion: Adaptive digital governance, improvement of data literacy, coordination and synchronization across government agencies based on three levels, and monitoring based on performance indicators are recommended to ensure that *NIK*-based population data access utilization can be more responsive, safe, and sustainable. This research offers practical policy recommendations that can be replicated across similar *Disdukcapil* offices in the country.

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INTRODUCTION

Policy implementation is a tactical phase of the public policy cycle as it essentially determines whether those objectives drafted in the planning stage translate into successful or unsuccessful outcomes. No matter how well-designed, a policy will not change anything if it is implemented inconsistently and poorly. Public administration is instrumental in translating policies into concrete impacts that can be felt by the community, including health, education, infrastructure development, social security, and environmental protection sectors, all of which are oriented toward public welfare (El-Taliawi & Van Der Wal, 2019). Implementation in these sectors matters because it is directly tied to the public experiencing the services offered, service system quality improvement, and government legitimacy enhancement.

Modern governance operates on the premise that actors need to work together, and it has become increasingly clear that government is no longer the sole provider of public services. The private sector, civil society organizations, and local communities should work together synergistically to ensure the efficient and sustainable use of public resources. Success in the implementation of policies is highly dependent on coordination, communication between organizations, and joint commitment to public goals (Alwi et al., 2019; Sopia Rukmana S et al., 2019). Consequently, the implementation of policy must be conceptualized as a multifaceted process shaped by structure, actors, resources, and the nature of change in the policy environment.

Population administration is a fundamental sector because it is directly related to the fulfillment of citizens' civil rights. Population data is used as the basis for issuing identity documents, planning development references, budget allocation, democratic development, and law enforcement. Article 58 paragraph (4) of Law Number 24 of 2013 emphasizes that population data can be utilized for the strategic interests of the state. This strategic value is reinforced by the development of information technology that drives the transformation toward data-based governance, making the optimization of population data utilization an urgent need to support the effectiveness, efficiency, and accountability of public services.

Technical regulations regarding the utilization of population data are outlined in Permendagri Number 17 of 2023, as an amendment to Permendagri Number 102 of 2019, which establishes the mechanism for granting access rights through a Cooperation Agreement (PKS) with Disdukcapil. The access rights granted enable regional apparatus and legal entities to utilize data linked to the Population Identification Number (NIK) for public services and sectoral policies, while ensuring that the referenced population data remains accurate, valid, and secure particularly in the verification of service recipients, the determination of general allocation fund calculation components, and tax effort measurements.

Dynamics at the implementation level are mixed. Of the 4,163 regional agencies applying for access rights, data use remains concentrated in fewer fields and even within those sectors, integration of population data has yet to extend across all public sectors. Moreover, all PKS at the Depok Disdukcapil have expired and have not been renewed, posing problems for implementation sustainability as well as cooperation management. Furthermore, limited familiarity with access rights mechanisms and personal data protection regulations presents another challenge, as high rates of digital fraud suggest literacy and oversight gaps, underscoring security and public education as critical components of policy implementation. The core governance challenge this study explores is not whether NIK-based data sharing happens, but rather under what institutional conditions it works well, what structural and actor-level obstacles inhibit its realization, and how adaptive strategies help Disdukcapil offices sustain compliant, secure, and cross-sectorally integrated access systems for population-related data. Considering that all PKS at the Depok Disdukcapil have lapsed without being renewed and, as such, a de facto gap exists between the regulatory requirement for each of the institutions and their operation, these questions are particularly urgent (Oria).

Research on the differences between policy formulation and implementation suggests that poor communication, lack of organizational capacity, short funding cycles, and scarce resources may hinder the process. According to Kondolele et al. (2025), weak communication and limited coordination among actors can obstruct the translation of policies into concrete actions, as unclear messages and ineffective stakeholder interaction often lead to misunderstandings in

implementation. Similarly, compliance and resource allocation are affected by stakeholder engagemen, while financial constraints and human resource limitations often hinder effectiveness (Zuo & Zhong, 2020). The utilization of demographic data has proven to enhance the accuracy, efficiency, and quality of decision-making (Arnaboldi & Azzone, 2020; Goyal et al., 2022), although the adoption of data-driven policies still faces system fragmentation, technological limitations, a lack of skilled human resources, and issues of privacy and information security (Shah et al., 2021).

Policy implementation studies use various analytical models, such as those of Edwards, Grindle, and Mazmanian and Sabatier, each with its own advantages and limitations in explaining the complexity of implementation (Mubarok et al., 2020). This research integrates Grindle (2017) theory to understand the interaction between policy content and the implementation of NIK-based data access rights. Empirical studies on implementation at the regional level, particularly at Disdukcapil Depok, are still limited and require further in-depth analysis (Hossin et al., 2023). Therefore, this research aims to analyze the implementation model, identify inhibiting factors, and formulate strategies to address implementation challenges, using a descriptive qualitative approach to obtain a comprehensive understanding and theoretical as well as practical contributions to the governance of population data utilization in the region. This study aims to: (1) map the implementation model of NIK-based population data access rights at Depok City Disdukcapil; (2) elaborate on institutional, actor-level, and technical barriers that impede effective implementation; and (3) examine how management strategies are developed in response to these barriers within the existing regulatory and resource environment.

METHOD

This study is a qualitative descriptive study that describes and explains the implementation of the population data access rights policy at the Disdukcapil of Depok City. The qualitative approach was selected as it provides sufficient ways of understanding processes, experiences, and non-numerical data such as text and images (Chatzopoulou, 2023). It relies on primary data as the main source of analysis, including more than a dozen in-depth interviews with informants directly involved in policy implementation, audio recordings for information fidelity, and field observations (U. Sekaran, 2016). The secondary data, taken from administrative documents, electronic archives, agency profiles, and relevant prior reports and research Azwar (2016), serves as supplementary evidence to support the findings.

The research was conducted at the Disdukcapil of Depok City, located at Jl. Margonda No. 54, Pancoran Mas, Depok City, West Java, with the interview location adjusted according to the informants' availability. Informants were purposively selected based on their roles and involvement in policy implementation, consisting of key informants (Head of the Department), primary informants (Head of the Cooperation and Public Relations Division), and supporting informants from data user partners, in accordance with qualitative research classification. Recruitment was conducted through non-probability sampling, considering the relevance and capacity of the informants.

Table 1. Research Informants Data

No	Informant	Number
1	Director of Regional Population Data Integration, Ministry of Home Affairs	1 Person
2	Head of Region II Team, Directorate of Population Data Integration	1 Person
3	Deputy Head of Region II, Directorate of Population Data Integration	1 Person
4	Head of Population and Civil Registration Office, Depok City	1 Person
5	Secretary of Population and Civil Registration Office, Depok City	1 Person
6	Head of Data Utilization and Innovation Services Division	1 Person
7	Head of Data Utilization Section	1 Person
8	Administration and Bureau Staff, Population and Civil Registration Office, Depok City	1 Person
9	Head of Manpower Office, Depok City	1 Person
10	Head of Personnel and Human Resource Development Agency, Depok City	1 Person
11	Head of Investment and One-Stop Integrated Service Office, Depok City	1 Person

Source: Research data processing, 2025

This research collected data using observation, interviews, and literature study to ensure the completeness and accuracy of information. Observations were conducted directly on the archives, processing and authentication systems, the physical and digital conditions of the documents, as well as the supporting facilities for electronic archive management at the Disdukcapil of Depok City. In-depth interviews were conducted in an unstructured and semi-structured manner to obtain exploratory yet focused information regarding the experiences, views, and ideas of informants related to policy implementation. A literature review was used to strengthen the theoretical foundation and analysis of field findings.

After the data were collected, data analysis was carried out through three main stages: data reduction by summarizing, sorting, and focusing on relevant information; then presenting the data in the form of a structured narrative so that the relationships between findings could be understood; and finally drawing conclusions through interpretation, consistency testing, and adjustment with the research problem formulation and objectives to produce valid and meaningful conclusions.

To ensure data validity (trustworthiness), this study applied four criteria of Lincoln et al. (1985): credibility, transferability, dependability, and confirmability. Credibility was established through member checking returning preliminary findings to key informants for verification and prolonged engagement at the research site. Triangulation was applied at three levels: source triangulation (comparing perspectives from policymakers, primary informants, and supporting informants); method triangulation (cross-validating interview data with field observations and document analysis); and theory triangulation (interpreting findings against Grindle's content-and-context framework alongside Edwards III's communication-resources-disposition-bureaucracy model). Data from all sources were managed, coded, and thematically analyzed using NVivo software, which facilitated systematic thematic coding.

RESULTS AND DISCUSSION

Results

Model for Implementing the Policy on Utilizing Access Rights to Population Data Based on NIK

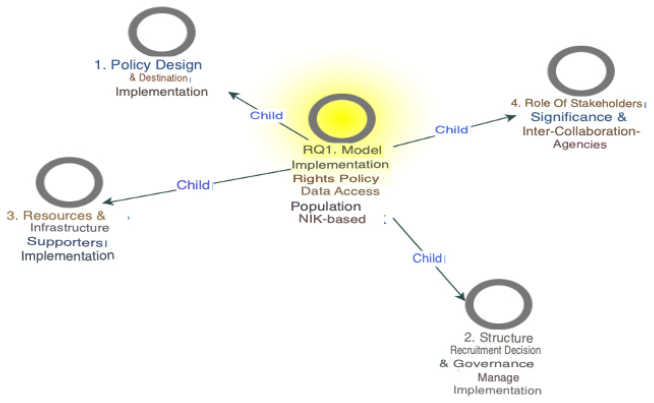

Figure 1. Explore Diagram of Research Objective 1

The Explore Diagram for the first research objective (Figure 1) indicates that in implementing the policy on utilization of population data access rights based on NIK at the Disdukcapil of Depok City, four main inter-relational components can be inferred: policy design and implementation objectives, execution governance, resources and infrastructure, and role of stakeholders through inter-agency collaboration.

A total of 161 references across data sources were captured in NVivo; the majority of these fell within Policy Design and Implementation Goals (n = 52), followed by Decision-Making Structure and Implementation Governance (n = 48), Stakeholder Roles and Inter-Agency Collaboration (n = 43), and Supporting Resources and Infrastructure (n = 18) subthemes. This means that the coherence of the policy direction, governance mechanisms, inter-agency collaboration, and preparedness at the resource level together constitute a systemic and bundled implementation model.

The disparity of coded references thus depicts a structural reality in the policy implementation: that cognitive and organizational investment in understanding why a policy

exists (design and objectives) and how decisions are made (governance) are consistently prioritized over resource readiness, indicating normative compliance is often prioritized over development of operational capacity in Indonesia's Disdukcapil context. Such a pattern aligns with Grindle's content and context implementation framework, which argues that policy content alone underestimates the contextual factors namely, availability of resources and cross-agency power relations that ultimately shape street-level implementation success or failure.

1. Policy Design and Implementation Objectives

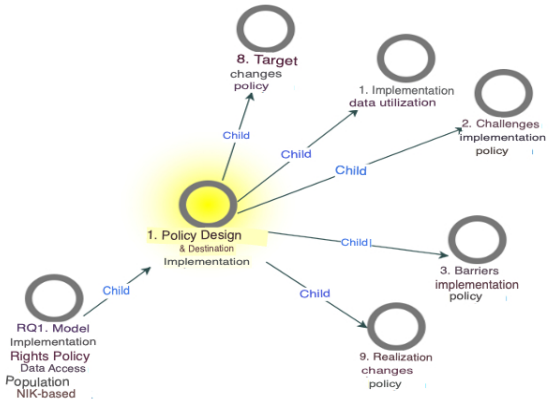

Figure 2. Explore Diagram Sub Theme of Policy Design and Implementation Goals

The Explore Diagram that elaborates on the subtheme of Policy Design and Implementation Goals reflects that policies about granting population data access rights based on NIK generate five interrelated thematic derivatives, namely: implementing population data utilization; further aspects pertaining to policy challenges and obstacles; change targets; and a realization of policy changes. The figure emphasizes the fact that policy design is the starting point on which implementation trajectory, dynamics of emerging obstacles, and adaptation and change achievements depend. The structure of the inter-theme relationships shows that the effectiveness of the policy is greatly determined by the accuracy of the initial design and the organization's ability to conduct continuous evaluation and improvement.

Figure 3. Word Cloud of the Subtheme Policy Design and Implementation Goals

The word cloud in the subtheme Policy Design and Implementation Goals shows the dominance of the words "utilization", "population", "access", "improvement", and "integration", indicating a primary focus on optimizing data usage through expanded access and integration of administrative systems. The emergence of the terms "socialization", "coordination," "security", and "infrastructure" illustrates the importance of organizational capacity support, technology, and inter-agency communication in implementing policies, while the words "change" and "realization" reflect an orientation toward digital transformation to enhance public service efficiency.

The deepening of these findings is then reinforced through the presentation of the interview results from the informants. The interview results show that the implementation of utilizing NIK-based population data access rights in Depok City is generally going well, although the perceptions of each category of informants differ. Policymaker Nuraeni emphasized the importance of compliance with regulations, while primary informants such as Nazir, Yusup, Lail,

and Meidi highlighted operational effectiveness, system integration, and inter-departmental coordination. Triangulation informants, Drajat and Taufik, assessed the direct benefits on the acceleration of public services and the verification of new employee data. The challenges faced include meeting security standards such as ISO 27001, low digital literacy, limited human resources and infrastructure, and the adjustment of new service procedures. Obstacles arise from the complexity of bureaucracy, the closed network of the Web Portal system, and the need for additional coordination. Although some changes and efficiency improvements have been observed, the realization of data utilization has not yet been fully optimal, indicating that policy implementation is still in a transitional phase requiring continuous adjustments.

2. Decision-Making Structure & Implementation Governance

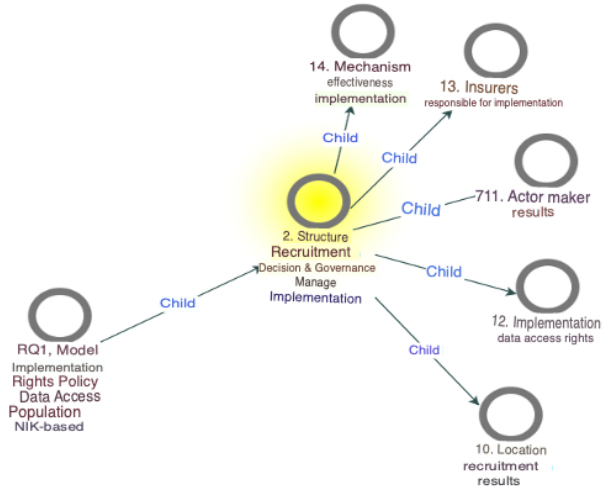

Figure 4. Explore Diagram of the Sub-theme of Decision-Making Structure and Governance

Figure Exploring Diagram at the Sub-Theme of Decision-Making Structure and Governance Implementation depicted NIK-based data access rights implementation which involves interrelation actors who make decision, implementor, operational mechanism, effectiveness of its implementation, and location where it takes place from strategic level to technical level. The diagram clearly illustrates the separation of roles and structured coordination from all levels, that enables policy implementation to be aligned with regulatory processes, performance targets and public service procedures whilst providing a visual presentation of the integrated overall governance architecture prior to more detailed thematic discussions.

Figure 5. Word Cloud of the Sub-theme on Decision-Making Structure

The word cloud in this sub-theme shows the dominance of the words "head," "department," "disdukcapil," "implementation," and "policy," which emphasize the central role of the Head of the Disdukcapil Department in the decision-making process and the strong internal structure in the implementation of population data access rights based on NIK. The second part of the informants' thematic cluster addressed concerns raised from technical governance to cross-sector coordination and enforceability of implementers involved in delivering secure and sustainable data-based public services, as corroborated by some findings from the interviews.

The outcomes of the interviews reveal that there is a hierarchical structure in decision-making on the one hand and a collaborative arrangement in decision-making on the other, with Disdukcapil as controller at the regional level, plus Ditjen Dukcapil as national regulator, so that it cannot be centralized in one party; therefore, there will not be an abuse of power. Decision-making actors and parties responsible for implementation include the Head of the Department, structural officials, technical teams, and data-using OPDs, who operate in accordance with the regulations of Permendagri 102/2019 and 17/2023 as well as the SOP PKS Data Utilization. The implementation of data access rights is deemed to be running well, with utilization by regional apparatus working together and delegating tasks to relevant fields for verification and operational services. The effectiveness of implementation is maintained through periodic evaluations, performance indicators, supervision, reporting, and feedback from OPD and service users, ensuring that policy governance is coordinated, accountable, and responsive to public service needs, as conveyed by informants such as Nuraeni, Nazir, Meidi, Taufik, Yusup, and Satria.

3. Resources & Infrastructure Supporting Implementation

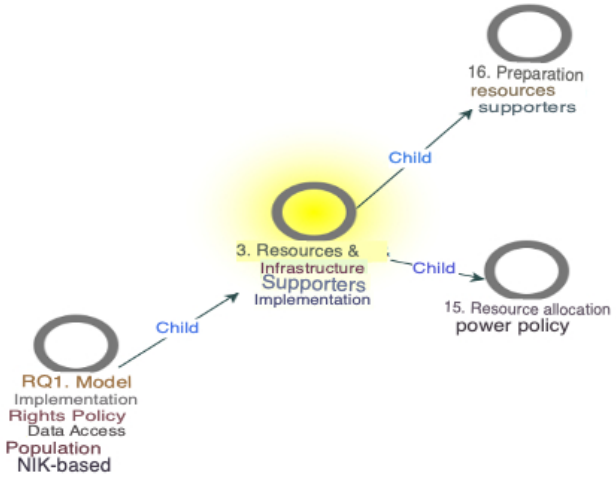

Figure 6. Explore Diagram sub-theme Resources & Supporting Infrastructure for Implementation

Explore Diagram in Figure 6 shows that the sub-theme "Resources & Supporting Infrastructure for Implementation" is an important foundation in the implementation model of the NIK-based data access rights policy, with connections to two main aspects, namely policy resource allocation and supporting resource preparation. The diagram emphasizes that the success of implementation is influenced by the availability of budget, human resource competence, technological infrastructure, and adequate facilities, as well as by strategic planning such as training, procurement, and organizational structuring before the policy is executed. The connectivity between elements shows that resource readiness from the planning stage to the operational stage is the main support for the effectiveness of implementation in the field.

Figure 7. Word Cloud of the Subtheme Resources and Infrastructure

4. Supporting the Implementation of the NIK-Based Population Data Access Policy

The word cloud in Figure 7 shows that the subtheme Resources & Infrastructure Supporting Implementation is dominated by words such as "human resources," "technology,"

"network," "budget," and "information," which emphasize the dependence of NIK-based data access implementation on human resource competence, budget support, and adequate infrastructure and information technology systems. The emergence of terms such as "training," "infrastructure," and "selection" also highlights the importance of strengthening the capacity of personnel and the planned management of facilities and infrastructure to ensure that policy implementation adheres to operational standards.

In-depth analysis through interviews with informants in the following section shows that the allocation and preparation of resources are key factors in the implementation of NIK-based population data access rights in the City of Depok. The policymaker (Nuraeni) emphasized that human resources, closed networks, and infrastructure are the main resources that must be allocated appropriately to ensure the smoothness of services. The main informant (Meidi) explained in detail that the allocation includes human resources, IT infrastructure, security systems, supporting facilities, budget, and the necessary information, and all these needs are planned through needs analysis, annual planning (RKA/DPA), budget preparation, and the selection of experts to ensure competence and operational readiness. Meanwhile, triangulation informants (Taufik and Satria) highlighted operational aspects, such as the role of operators, internet network management, and technical training through socialization to ensure data utilization can proceed safely and effectively according to procedures. These findings emphasize that the systematic readiness of human resources, infrastructure, and supporting facilities is the main foundation for the sustainable implementation of policies.

5. The Role of Stakeholders & Inter-Agency Collaboration

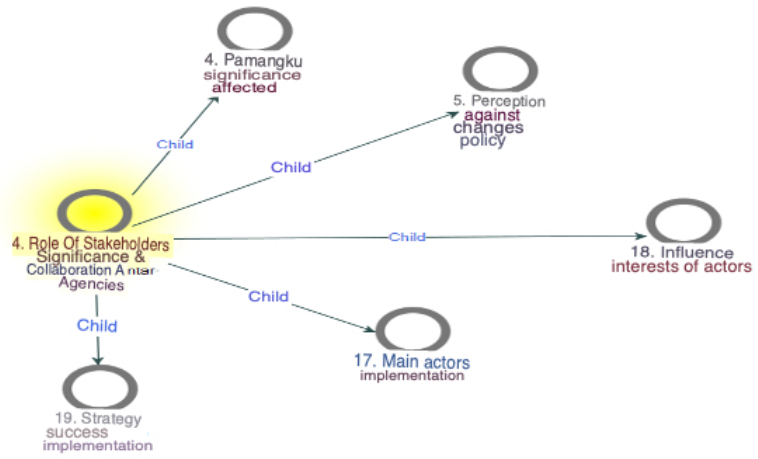

Figure 8. Diagram of Stakeholder Roles and Inter-Agency

Collaboration in the Implementation of NIK-Based Population Data Access Policy The sub-theme of Stakeholder Roles and Inter-Agency Collaboration emphasizes that the implementation of NIK-based population data access rights relies on the synergy of actors across levels, starting from the Directorate General of Dukcapil of the Ministry of Home Affairs as the authority granting access rights and maintaining regulatory standards, the Depok City Dukcapil as the coordinator and facilitator of implementation, to regional data users such as the Social Service, Health Office, Regional General Hospital, Regional Personnel and Human Resources Development Agency, and the Women's Empowerment and Child Protection Agency, who integrate data into public services. The success of the policy is determined by internal and external coordination, infrastructure readiness, adherence to security standards such as ISO 27001 and SOP PKS, as well as a joint commitment to overcoming technical and bureaucratic obstacles, so that the implementation runs as a collaborative effort based on interconnected and complementary governance.

Through interviews, the in-depth findings indicate that the dominant actors in implementing the NIK-based population data access policy at Disdukcapil of Depok City are situated from top leadership to operational staff who work together. The statement in the primary source from one of the policymakers (Drajat) explained that the Head of Department is regarded as the jawara in a Hornerian sense to depict his controlling role; this is further supported by

another primary source from another informant (Meidi), who mentioned the Secretary of Department, Head of Division and Section, and officers/staff as referred to as belonging more to the implementer agency, while the triangulation informant (Satria) confirmed that employees directly involved in implementation were also important.

The testing of data validity, supported by the legal basis of local governance in Depok City as well as the interests of both external and internal actors, constitutes a significant influence on the effectiveness of services and the achievement of performance targets that have been set (Nuraeni, Risma). The strategy for successful implementation includes cross-OPD coordination, effective communication, inter-agency collaboration, the use of digital technology, enhancement of human resource capacity, and regular performance-based evaluations (Meidi, Satria, Drajat). The impact of the policy is felt by the community, local government, the business sector, and internal organizations, with a generally positive perception toward the improvement of service efficiency, program targeting accuracy, and data integration, although an adaptive attitude is needed to adjust to policy changes (Lail, Meidi, Taufik).

Factors Hindering the Implementation of Data Access Utilization Policy

The visualization of the data access utilization policy implementation model based on NIK through the Explore Diagram is used to display the interconnections between the main elements of the NVivo analysis results, including regulations, technological infrastructure, access granting processes, operational mechanisms, and public service outputs.

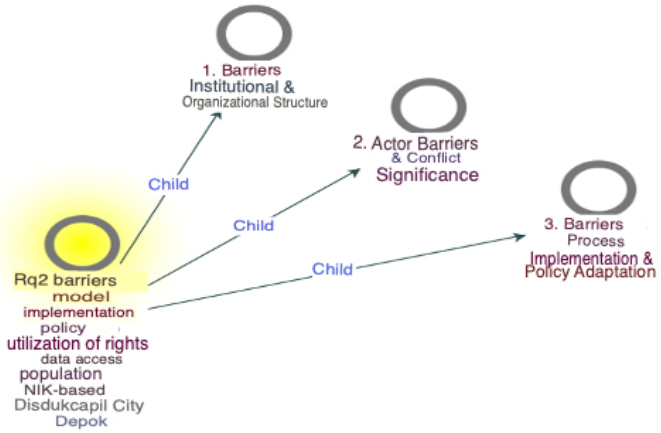

Figure 9. Explore Research Objective Diagram – 2

The Exploratory Research Objective Diagram 2 shows that the barriers to implementing the policy of utilizing population data access rights based on NIK at the Disdukcapil of Depok City are divided into three overlapping clusters: institutional and organizational structure barriers (including bureaucratic complexity, ISO security standards, budget limitations, and central-regional synchronization), actor and interest barriers (differences in priorities, digital literacy, and data needs between OPDs), and process and policy adaptation barriers (access approval mechanisms, portal technical constraints, and the need for continuous evaluation). The analysis of barriers in NVivo (coverage: 0.94; number of references: institutional barriers, 43; process and adaptation barriers, 25; actor dynamics and conflicts of interest, 17) reveals that these implementation challenges are multidimensional, containing structural, relational, and procedural dimensions, meaning they require an integrated approach to address the significant implications in each dimension through coordinated actions by related actors.

1. Institutional Barriers & Organizational Structure

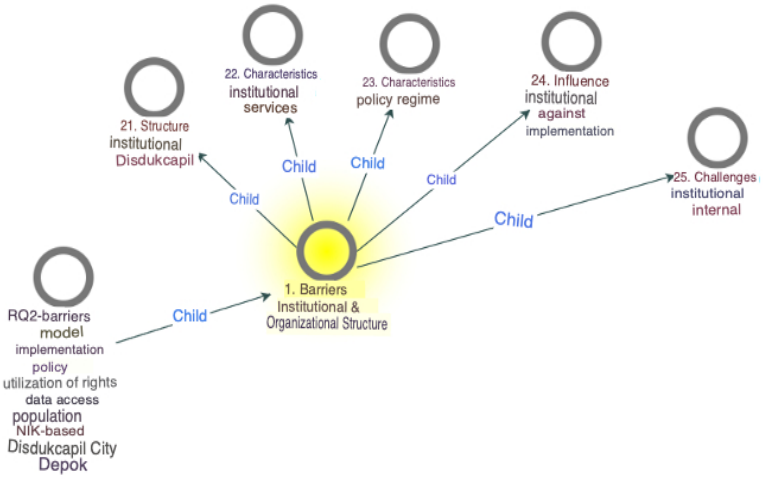

Figure 10. Explore Diagram of the sub-theme Institutional & Organizational Structure Barriers

The output of the grouping and exploratory diagram on sub-theme 1 in Institutional and Organizational Structure Barriers above shows that issues of organizational structure and inter-department coordination, under systemic regulatory pressures including service security standards (security standards, internal constraints: low budget, resistance to change, bureaucratic complexity, professional human resource gaps, and SOP consistency) are related to the transition from old bureaucratic practices to new approaches. All of these are intertwined and result in a systemic barrier to implementing, running, and delivering quality services.

Finally, as shown in the word cloud in Figure 11, our finding that implementation barriers are nested in structural and institutional dimensions is evidenced by a high prevalence of words such as "policy," "institutional," "implementation," and "structure," indicating how strongly bureaucratic patterns, regulatory dictates, and organizational design structure policy enactment within their jurisdiction. Meanwhile, words such as "field," "coordination," "leadership," "tasks," and even "access" indicate that weaknesses lie in work mechanisms, decision-making processes, and the relationship between units; hence, poor coordination and an uneven distribution of tasks can cause inconsistencies in implementation, as well as barriers to service delivery.

Figure 11. Sub-theme word cloud

The appearance of the words "budget," "efficiency," "implementation," and "security" in the word cloud emphasizes that institutional barriers are also related to resource limitations, institutional efficiency, and the fulfillment of information security and digital infrastructure standards. This visualization confirms that issues of organizational structure, cross-sector coordination, and budgetary support are central to the second research objective, reflecting the complexity of bureaucracy and the challenges of comprehensive policy implementation.

2. Actor Barriers & Conflicts of Interest

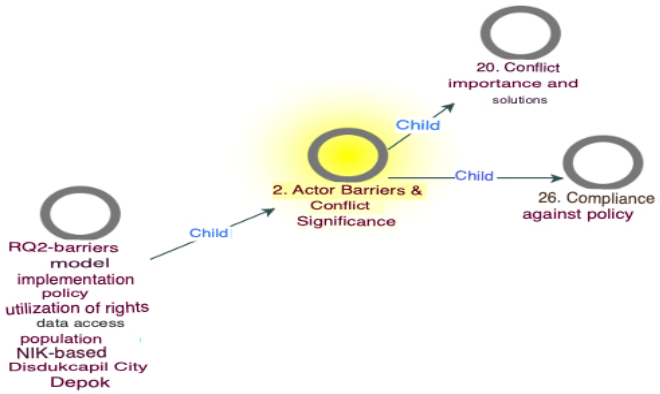

Figure 12. Explore diagram sub-theme Actor Barriers and Conflicts of Interest

The Explore Diagram on the subtheme Actor Barriers & Conflicts of Interest shows that the constraints in implementing the NIK-based data access policy are also influenced by inter-actor dynamics, particularly conflicts of interest and the level of compliance with regulations. These two aspects are interconnected and affect the synchronization of implementation as well as the uneven compliance with SOPs and PKS, thereby slowing down the implementation process and hindering the smooth utilization of population data.

Figure 13. Word cloud of the sub-theme Actor Barriers and Conflicts of Interest

The word cloud of the sub-theme Actor Barriers & Conflicts of Interest emphasizes that the main issues lie in the tug-of-war of interests, differences in policy interpretation, and the level of compliance and supervision in the utilization of data access rights. The dominance of words such as "interests," "conflict," "evaluation," and "supervision" indicates relational and normative obstacles, not merely technical ones, and even suggests the potential risk of moral hazard if control is not optimal. This visualization reinforces that the dynamics of actors and compliance are crucial factors influencing the smooth implementation of NIK-based policies at the Disdukcapil of Depok City.

In-depth findings through interviews show that the institutional structure of the Disdukcapil of Depok City places the PIAK Division as the main technical executor in the management, processing, and granting of population data access rights, with coordination from leadership to operational staff (Lail, Meidi, Nural). The characteristics of the service institutional framework emphasize the use of online systems, strict regulations, service efficiency, data security, SOP formalities, unit specialization, as well as a clear hierarchy and operational decentralization (Lail, Meidi, Satria). The policy regime of Depok City is characterized by legal compliance with digitalization and data integration, political stability, efficient administration, technological support, and commitment from regional leaders (Lail, Meidi, Nuraeni). Institutional factors influence implementation through reliable information systems, human resource professionalism, regulatory compliance, inter-unit coordination, and structured accountability, while specialized fields and an understanding of the function of data utilization support the effectiveness of execution (Lail, Meidi, Nuraeni).

Internal barriers consist of the low level of inter-unit coordination and current infrastructure readiness, security (information assurance) standards compliance requirements, complex bureaucratic gaps, limited human resources and budget, resistance to change in organizational culture and processes, including obstacles in achieving ISO 27001 certification in some regional government units (Lail, Meidi, Nuraeni). The interview synthesis shows that these issues of institutional and organizational structure are mainly around internal governance, bureaucratic complexity, hierarchical division of tasks, and cross-sectoral as well as inter-agency coordination. Though the PIAK Sector and online systems provided digital structures and regulations, a visible gap in implementation was still observed, including synchronization limitations, the technical capacity of human resources required for standard operations, and budgetary support. As such, the coordination and necessary advancements in technical capabilities, along with the organizational adaptation required by digitalization and data security, still remain.

3. Barriers to Implementation Processes & Policy Adaptation

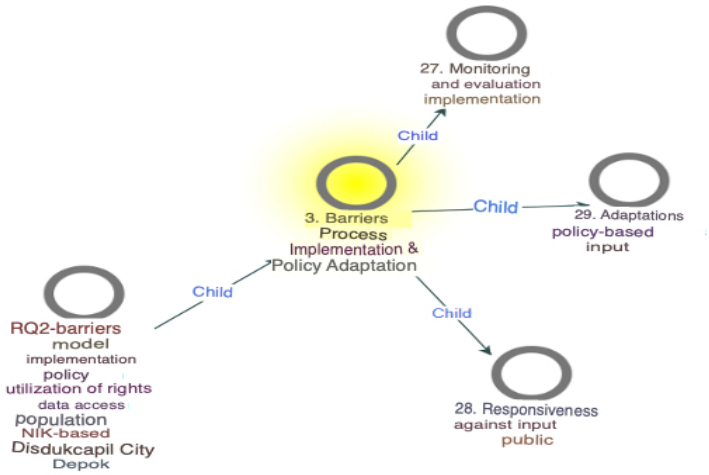

Figure 14. Explore Diagram Sub-theme Barriers to Policy Implementation and Adaptation Process

The Explore Diagram in Figure 14 shows that the barriers to the policy implementation and adaptation process stem from the suboptimal cycle of monitoring, feedback, and policy adjustment. The three main elements of monitoring and evaluation, responsiveness to public input, and evaluation-based adaptation are interconnected in determining the effectiveness of implementation. The main obstacle lies in the inconsistent strengthening of feedback mechanisms, which means that policy updates have not been fully able to keep up with the dynamics of community needs and regional apparatus.

Figure 15. Word Cloud of the sub-theme of obstacles in the process and policy adaptation

The word cloud in this sub-theme emphasizes that the process of policy implementation and adaptation relies on service evaluation and responses to public input. The dominance of words such as input, community, services, evaluation, policy, and supervision indicates that the dynamics of utilizing NIK-based data access rights are closely related to the organization's ability to accommodate public needs sustainably. The emergence of terms such as public satisfaction, verification, service improvement, complaints, and innovation indicates that public voice drives the refinement of policies and service systems; thus, the success of implementation is determined by the consistency of the evaluation, feedback, and policy adjustment cycle.

The results of in-depth interviews determine that monitoring and evaluating the implementation of population data access rights policies at the Disdukcapil of Depok City are carried out comprehensively, covering legal, technical, and supervisory aspects to ensure accountability and data security (Lail, Meidi, Nuraeni). At the heart of responsiveness to public input is controlling community complaints related to service nuances and access, data security, regional agency requests for data synchronization, and extension of PKS. Service digitization, extended operational hours, mobile services, simplification of document procedures, and the development of application innovations and cross-sector socialization serve as input-based policy adaptations to ensure that policies remain relevant and responsive to user needs (Lail, Meidi, Nazir, Nural, Risma, Satria).

These findings further demonstrate that while monitoring and evaluation are holistically designed through performance indicators and control mechanisms, their operationalization varies significantly across implementing units, particularly in satisfaction surveys, cross-sectional assessments of line departments, and complaints follow-ups. Even now, responses to public input regarding the need for easier digital access, service flow, data security, and other technical demands are stymied by security policy or current system constraints. Policy adaptation has focused on digitalization, service innovation, and data security strengthening, but has not fully capitalized on the rigor of the monitoring-feedback-follow-up cycle. The challenge lies in the weak policy feedback loop; thus, strengthening the governance of performance evaluation–based public bureaucratic responsiveness and service innovation will improve implementation effectiveness in Depok City.

Strategies for Facing Challenges and Implementation Obstacles

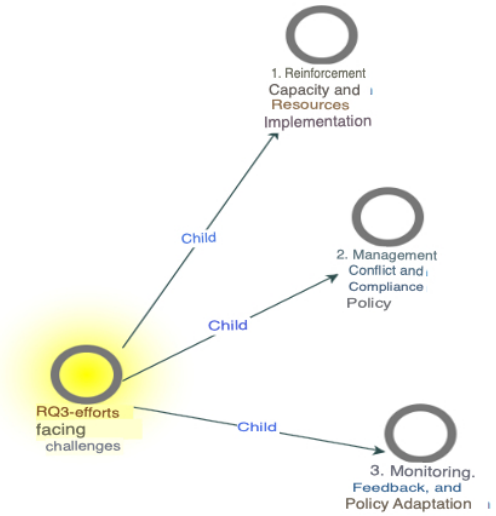

Figure 16. Explore Diagram of Research Objective - 3

The Explore Diagram of Research Objective 3 explains the strategy to overcome barriers to applying that policy on the use of NIK-based data access rights at Disdukcapil of Depok City, which consists of three integrated themes: enhancing implementation capacity and resources; managing conflict and compliance with policy; and monitoring, feedback, and policy adjustments. This strategy consists of supply-side material and human resources, compliance and conflict handling, and continual assessment to ensure the policy stays on the public agenda; hence,

successful implementation relies greatly on concurrent alignment in performance across these three specific areas.

The NVivo analysis results show a dominance in capacity and resource strengthening (34 references), followed by monitoring and policy adaptation (25 references), and conflict and compliance management (17 references), which emphasize that the strategy to face challenges is comprehensive, adaptive, and collaborative, with capacity strengthening as the main foundation for the effectiveness and legitimacy of policy implementation in Depok City.

1. Strengthening Capacity and Resource Implementation

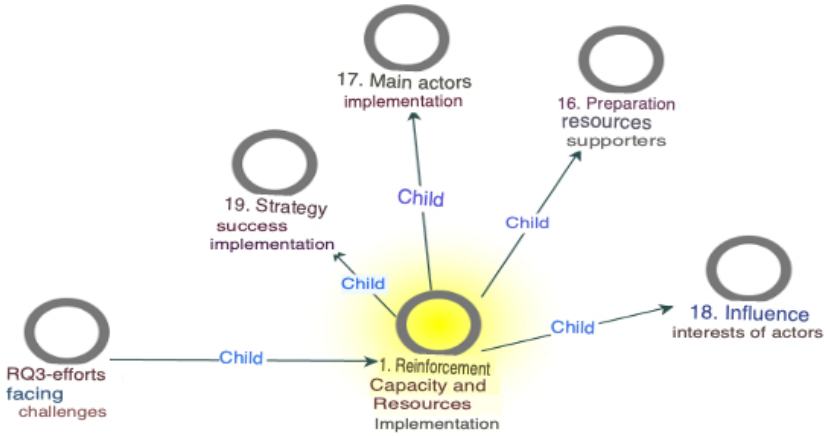

Figure 17. Explore Diagram of Capacity Strengthening and Resource Implementation

Explore Diagram Figure 17 emphasizes that the success of addressing the challenges of implementing population data access rights at the Disdukcapil of Depok City depends on strengthening institutional capacity, human resource readiness, resource allocation, actor coordination, and integrated management of differing interests to ensure that evaluation-based strategies run effectively.

Figure 18. Word cloud of the sub-theme Capacity Strengthening and Resource Implementation

The word cloud of the sub-theme Capacity Strengthening and Resource Implementation emphasizes that the effectiveness of the implementation of population data utilization policies at the Disdukcapil of Depok City depends on “policy,” “implementation,” “utilization,” “program,” “head,” “field,” “population,” “training,” “coordination,” “improvement,” “resources,” “budget,” and “activities,” reflecting the importance of resource readiness, structural leadership, cross-unit collaboration, and continuous improvement of processes and operational policies.

2. Conflict Management and Policy Compliance

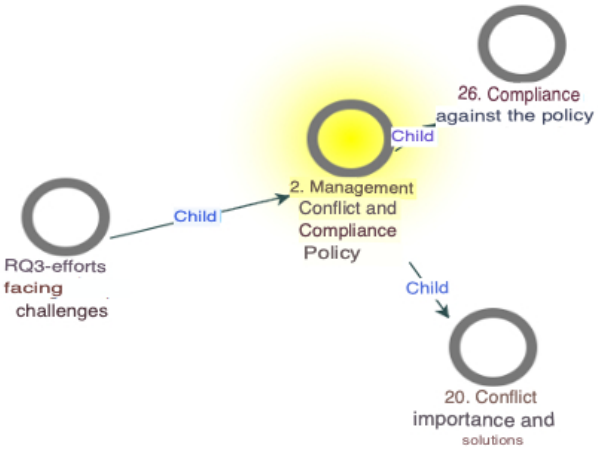

Figure 19. Explore Diagram Sub Theme of Conflict Management and Policy Compliance

Explore the Diagram of the sub-theme Conflict Management and Policy Compliance highlights: "The success of implementing population data access rights is contingent on both managing 'conflicts of interest' and 'policy compliance'; that conflicts between actors are resolved through regulatory frameworks, while compliance is maintained through SOPs [standard operating procedures], periodic evaluations, internal supervision and reporting", with emphasis that "the effectiveness of implementation is not technical only – it requires consistent and accountable actor governance.

Figure 20. Word Cloud Analysis Results of the Subtheme Conflict Management and Policy Compliance

The word cloud visualization of the subtheme Conflict Management and Policy Compliance reveals prominent terms including "interests," "conflict," "evaluation," "supervision," and "compliance" as well as "policy," indicating that an actor with different priorities than its own poses more significant issues, stressing the need for mechanisms to exert control over policy implementation in order to align actions with regulations. The introduction of the words "regulation" and "supervision" puts compliance with regulations as the basis of implementation integrity, while also emphasizing the need for ongoing evaluation to address interest dynamics in population data service practices.

3. Monitoring, Feedback, and Policy Adaptation

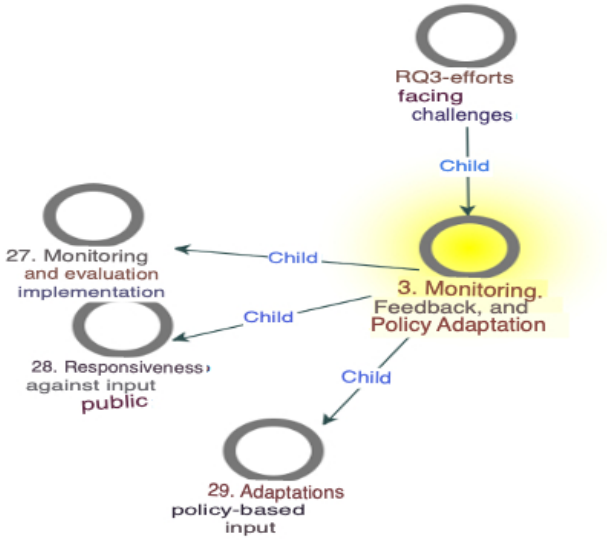

Figure 21. Diagram of the Sub-Theme Monitoring, Feedback, and Policy Adaptation in the Implementation of Utilizing NIK-Based Population Data Access Rights

The strengths of supervision, feedback and adaptation in the implementation of sub-Thematic "Monitoring, Feedback, and Policy Adaptation" Based On NIK Population Data Access Rights above are one form of implementation challenges that must be faced by the Depok City Disdukcapil which ensures that Residents ' Rights To Access Population Data Base onNIK are relevant and responsive through increased supervision or monitoring', adequate feedback mechanisms, as well as policies that continue to adapt. Monitoring through performance evaluations, service indicators, coordination meetings and reports; while input from the community and regional apparatus is collected from complaints, surveys, forums, technical communication to be translated into policy improvements (for example: refining service flows, strengthening data security, expanding online applications services or mobile services) and simplify documents so that policies can be implemented dynamically as needed by users.

Figure 22. Word Cloud of the Subtheme Monitoring, Feedback, and Policy Adaptation in the Implementation of Utilizing Population Data Access Rights

Word Cloud Visualization on the Subtheme Monitoring, Feedback And Policy Adaptation To Highlight Responsiveness To Public Input Of The Implementation of Population Data Access Rights Based On NIK At Disdukcapil Depok CityBased on NIK Images The prevalence of words like input, evaluation, service, community, access and satisfaction shows that the process of feedback loops is essential for enhancing processes and security around data while continuing to keep the public satisfied. Thus, this visualization supports the interview findings that monitoring and adapting policies based on public input are the main strategies in overcoming implementation barriers.

Discussion

Analysis of the Implementation Model of the Utilization of Population Data Access Rights Based on NIK at the Population and Civil Registration Office of Depok City

The implementation model of the utilization of population data access rights based on NIK at the Population and Civil Registration Office of Depok City has a governance pattern that is systematic and regulation-based, executed through a hierarchical bureaucratic mechanism. An organizational structure, clearly demarcated authority, and standardized procedures operate to ensure that any data access process is a formal operation conducted under supervision. This is compatible with research on how the bureaucratic structure adapts and coordinates policy implementation (Fauji et al., 2025). This model is collaborative-controlled in nature collaborative in terms of seeking cooperation, but also normatively and procedurally controlled and as such risks being bureaucratically inflexible without sufficient consideration for inter-agency needs.

Through the content-and-context framework applied to the Depok implementation assessed according to Grindle, there appeared to be somewhat distinct, clear policy contents specific change objectives established under Permendagri No. 17/2023 alongside explicit beneficiaries and implementers in the form of the PIAK Division entrenched within an extremely challenging context for implementation owing to conflicting OPD interests fueling ownership disputes, insufficient resource disbursement, and heterogeneous agency power relations between Disdukcapil and other data-utilizing entities with disparate access (Soemartono et al., 2023). This content-context tension in which what works in terms of regulatory design features and practices is generally strong but not fully implementable because individual and organizational characteristics have preemptively minimized their relevance is a form of the Grindle (2017) implementation paradox: sound policies have foundered for lack of addressing context variables in policy discourses.

The control of technology through the Population Administration Information System (SIAK) ensures accountability and transparency, as well as the accurate verification of NIK-based data to support service effectiveness, thereby reducing the space for misuse. Infrastructure readiness and human resource capacity form the foundation upon which digital policies succeed. The digital skills gap and the reluctance to move away from manual systems are two areas that represent significant hurdles. Hence, the sustainability of the implementation model is contingent upon strengthening technical capacities, continuous training, and a resilient organizational culture.

Inter-agency collaboration through Cooperation Agreements (PKS) plays a strategic role in the integration of policies and the legal and controlled exchange of data, reflecting the principles of collaborative governance with communication and coordination as key success factors (Sumarno, 2025). The effectiveness of collaboration depends on strategic communication so that the utilization of NIK-based data is substantively integrated, addressing the potential fragmentation of institutions and the weaknesses of both vertical and horizontal coordination (Kurnia & Yusran, 2025). Political support, bureaucratic commitment, and public socialization are determinants of legitimacy, coordination stability, and public trust in the security and objectives of data utilization (Yuliana & Anita, 2026). Thus, the collaborative-controlled model in Depok emphasizes the synergy between bureaucratic structure, technology, resources, disposition, and communication with the strengthening of governance capacity and innovation to address the challenges of fragmentation and digital transformation (Fauji et al., 2025).

From the Edwards III (1980) perspective, four implementation variables interact in the Depok case: (1) Communication while regulatory requirements are clearly transmitted top-down from Ditjen Dukcapil, horizontal communication among OPDs about NIK data utilization remains fragmented, explaining the uneven adoption; (2) Resources the gap between the data-sharing mandate and the actual human resource capacity and infrastructure readiness at the regional level constitutes the primary implementation bottleneck identified in this study; (3) Disposition the commitment of Disdukcapil leadership as implementation controller is a critical positive factor, though dispositional heterogeneity among OPD heads creates compliance inconsistencies; and (4) Bureaucratic Structure the hierarchical decision-making structure through the PIAK Division ensures procedural accountability but introduces rigidity that slows adaptive responses

to emerging technical and regulatory challenges.

Analysis of Factors Hindering the Implementation of NIK-Based Population Data Access Rights Utilization Policy

This policy on NIK-based population data access rights faces barriers arising from five multidimensional problems structural, technical, and cultural at the Population and Civil Registration Office of Depok City. From a human resources perspective, a shortage of staff and inadequate skills to operate information systems and monitor data security represent significant setbacks. These findings are also relevant to Tukan & Rahmadanita (2023), who discovered that the pelaksanaan of digital identity policies necessarily refers to the adequacy of personnel readiness and competence, together with Nurhadi et al. As underscored by Kingdon, one aspect of policy effectiveness is the prompt responsiveness of implementers. As the disparities in OPDs' digital literacy levels, low rates of training, and shallow understanding of technology indicate, human resource capacity most significantly precedes NIK-based policies.

Structural challenges can be as evident as bureaucratic rigidity and reliance on top-down governance. As Mansien (2020) remarks, conflicts of authority and an inclination toward centralization can hinder the application of population administration policies; this is evident in the protracted approval of access rights. Additionally, as revealed by Ardani & Cahyani (2022), weak coordination and sectoral ego, fragmentation, and non-digitization between agencies reveal institutional integration challenges (Maulidya & Rozikin, 2022). Translating this condition into actionable terms, the challenge is to strengthen collaborative governance so that policy implementation does not proceed on an inadequate basis.

Along with the technical challenges, dependence on digital infrastructure and interconnected systems such as SIAK increases the risks of network difficulties, server capacity limits, and compatibility challenges. While infrastructure readiness is a common issue in the implementation of e-government, digital technology has been adopted by different parts of the government at varying rates. These barriers to cross-regional data integration and standardized data management add yet another layer of importance concerning the harmonization of information systems. Unless there is an adequate level of infrastructure capability interoperable and stable digital-oriented policies of this kind will not be optimally effective.

These bottlenecks include regulatory issues and communication of policy, which only add another layer of complexity. Darmanto & Zaini (2020) found that implementation is hampered by insufficient knowledge of personal data protection regulations, whereas Soemartono et al. (2023) state that differing understandings and lack of coordination are among the obstacles to NIK integration. Moreover, policy sustainability is also jeopardized by inconsistencies in standard operating procedures (SOPs) undermining its success and budget constraints impeding the implementation of electronic-based government systems.

Analysis of Strategies to Address Challenges and Obstacles in Implementing the Policy on Utilizing NIK-Based Population Data Access Rights

The solution strategy for this NIK-based data access rights policy, led by the Depok City Population and Civil Registration Office in addressing obstacles to implementation, is based on horizontal synergy, strengthening of apparatus capacity, and digital system optimization. This idea is in line with the theory of collaborative governance, which holds that collaboration among actors is a condition of successful public policy. In this context, collaboration entails not merely the joining of responsibilities and accountability, but the reshaping of institutional spaces to formulate a governance network that steers policy implementation from the foundational elements that sustain it.

What makes this study unique is the contextualized application of Grindle's content-and-context model to NIK-based digital governance at the sub-national level a context where high complexity from decentralized public administration and the specificity of technical inputs for digital identity infrastructure management coexist. Despite previous applications of Grindle's framework for general public service delivery or national-level digital initiatives, it remains unclear how well this framework explains implementation dynamics at the nexus between population administration digitalization and cross-agency data governance (Hossin et al., 2023; Mubarok et al., 2020). It is also a theoretically important result that, in an NIK-based policy systems context, governance structure and clarity of decision explain the variance in effective

implementation to a lesser degree than resource availability, thereby suggesting a marginal return of institutional design over incremental resourcing: meaning that governance reform should be prioritized above, and not merely alongside, digital ecosystem investment in comparable data-rich yet institutionally underdeveloped regions. This insight provides a generalizable analytical frame for examining how digital population administration will be governed in the future across Indonesia's 514 districts and cities.

PKS mechanisms and technical communication forums primarily function as pillars that reinforce inter-agency coordination while also reducing fragmentation and sectoral ego (Ardani & Cahyani, 2022). The linear nature of accountability chains underscores the significance of multi-relational accountability in collaborative governance, which could serve as a consideration for reconciling regulation within One Data Indonesia (Maulidya & Rozikin, 2022; Susniwati & Zamili, 2022). Through systematic coordination, the adoption of NIK-based policies can become more simultaneous, lawful, and practical lessening administrative and operational limitations.

Developing the capacity of human resources forms the key strategy to address challenges with respect to digital literacy and technical competence. Artha Wibawa (2025) argued that operator training is one of the significant factors in data utilization, and Gunawan (2022) conducted a study indicating that success in data utilization is determined by the integrity of officials. These strategies include not only technical training and continuous mentoring but also professional development, ensuring that policy implementation is not merely limited in administrative terms but is also able to optimize the fundamental elements of the digital system.

The adjustment of the digital system is carried out through continuous monitoring and evaluation for service responsiveness and effectiveness, as well as to strengthen the security and access control of data between agencies. Trust-based governance networks, joint IT management, and transparent communication with the public are all part of this strategy to increase the legitimacy of policies (Soemartono et al., 2023; Wimmer et al., 2020). To sum up, the Depok approach embodies a distinct combination of regulatory strengthening, human resource capacity, institutional interaction, information security, and adaptive digital innovation in terms of the long-term institutional capacity-building and sustainability of NIK-based data governance in Indonesia.

The implementation of the policy on population data access rights utilization at the Department of Population and Civil Registration of Depok City is carried out through a derivative policy approach, namely the translation of central government regulations into regional technical instruments. This implementation is realized through a structured governance mechanism, including the preparation of Cooperation Agreements (PKS), verification processes involving the Legal Bureau and the Ministry of Home Affairs, as well as the application of strict technical guidelines. The implementation model refers to the theory of Merilee S. Grindle, which emphasizes that the success of implementation is determined by the content of policy and the context of implementation.

In terms of policy content, the implementation covers target group interests, policy benefits, system transformation toward data integration, decision-making authority, program execution, and the resources involved. The implementation process highly depends on the technical capacity of government personnel and compliance with technical guidelines, including the use of Non-Disclosure Agreements (NDA), access audits, and limitations on the daily quota of National Identification Number (NIK) access. Meanwhile, from the perspective of the implementation context, the policy is influenced by inter-agency power dynamics, bureaucratic characteristics, actor compliance, and the ability to coordinate across sectors.

This research proposes a new implementation model called ANYA-COCO (Affected, Negotiated, Yield, Authority – Collaborative-Controlled). The ANYA framework represents affected interests, negotiation processes among actors, policy outcomes, and the authority and resources supporting implementation. Meanwhile, COCO functions as a control mechanism through collaboration that remains regulated by legal frameworks, technological systems, and data security instruments. This model emphasizes the balance between inter-agency collaboration and strict legal and information technology controls.

In practice, the implementation is supported by a clear bureaucratic structure, the utilization of the Population Administration Information System (SIAK), and inter-agency Cooperation Agreements (PKS). The success of implementation is influenced by human resource

capacity, the commitment of government personnel, support from regional leaders, inter-sectoral communication, and public socialization. However, challenges such as bureaucratic rigidity, resistance to digital transformation, institutional fragmentation, and limited human resource competencies remain obstacles that need to be addressed.

Overall, the ANYA-COCO model demonstrates that the implementation of the population data utilization policy in Depok City represents a collaborative-controlled model that combines cross-sector collaboration with normative control based on regulations and technology. This model is considered capable of strengthening public data governance, improving accountability and data security, and has the potential to become a best practice for the implementation of population data policies in other regions.

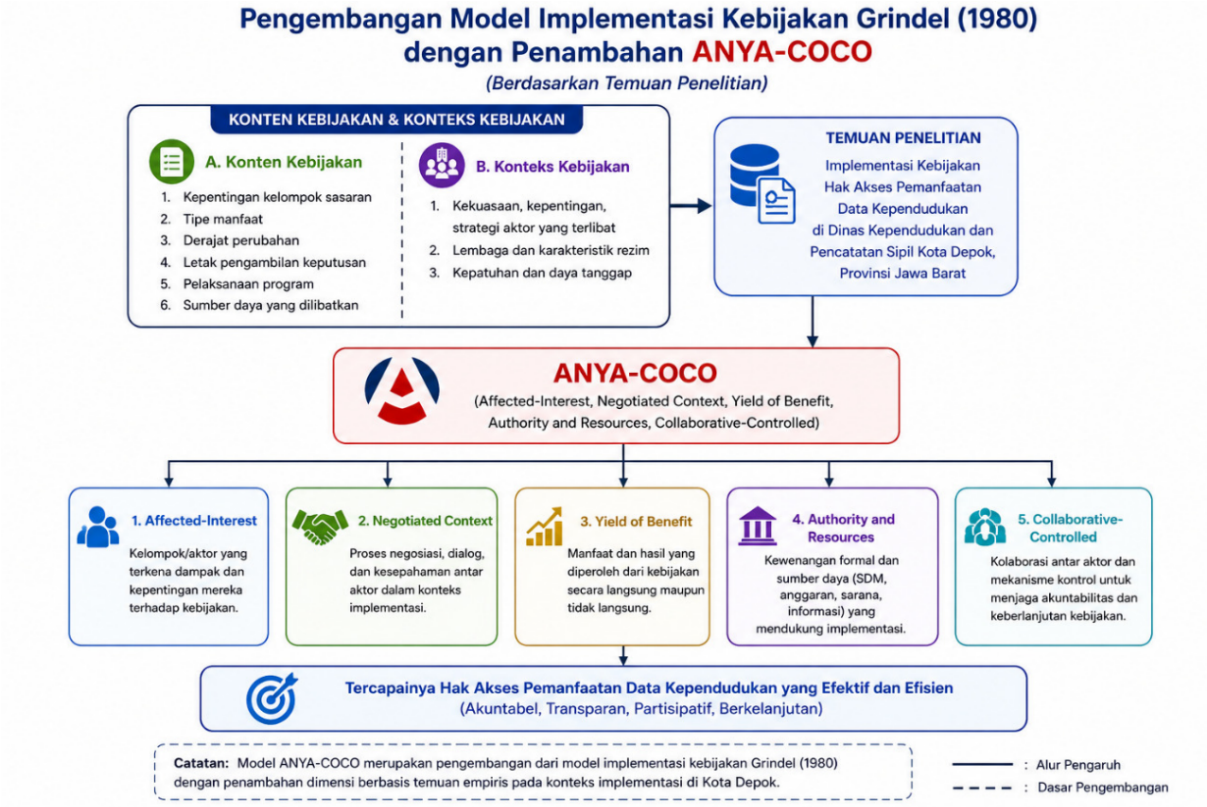

Figure 23. ANYA-COCO Model

CONCLUSION

The research resulting in the implementation model provides a description of the initiative for community data access rights based on NIK through structured digital service governance, regulatory-based, and organized mechanisms, with decision-making at the leadership level and operations carried out by the PIAK Division with relevant operators. These approaches also assist in improving public service delivery, saving time, increasing the number of data checkpoints, and helping to target government programs more effectively. Yet limited human resource capacity, infrastructure and budget scarcities, less-than-ideal interagency coordination, and technical and security standard constraints continue to inhibit policy implementation. The fact that policies are only as effective as the digital systems that support them—systems dependent on organizational readiness, governance consistency, institutional integration, and advanced levels of data literacy is underscored by these results. Adaptive population data management that is integrated and accountable requires all four areas of focus: internal capacity building, cross-agency process alignment, sustainable digital innovations, and leadership commitment to their implementation. In relation to the wider literature on digital public administration in developing countries, this research offers empirical evidence for the hypothesis that locally convened governance structures anchored in local rules and regulations designed at whole-of-society levels can navigate intricate data-sharing arrangements even in resource-poor states and across institutional silos an important counter-narrative to deterministic technology-

readiness frameworks that privilege infrastructure over institutions.

This implementation model is conceptually explained through Grindle's framework, which emphasizes two main dimensions: policy content and implementation context. In practice, the success of implementation is largely determined by the interests of affected parties, the benefits generated, the degree of desired change, the location of decision-making, program implementers, and the resources utilized—all of which interact with the context of power, actor interests, institutional characteristics, and the level of implementer compliance. From this synthesis, this study developed the innovative ANYA-COCO model (Affected, Negotiated, Yield, Authority – Collaborative-Controlled), an implementation model that emphasizes that the use of population data must occur collaboratively, yet remain strictly controlled by authorities, regulations, and technical oversight systems. Thus, the ANYA-COCO model serves as a conceptual contribution demonstrating that effective population data governance can only be achieved through a balance between inter-agency collaboration and strong normative control.

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AUTHOR CONTRIBUTION STATEMENT

Zefanya Yosua Jocom is the sole author of this manuscript. She was responsible for the entire research process, including the conception and design of the study, data collection, data analysis, interpretation of the results, and writing of the manuscript.

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