

Policy Implementation and Regulatory Challenges in Managing Civil Service Resources in the Era of Digital Governance

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ABSTRACT

This study investigates the dynamics of policy implementation and regulatory challenges in managing civil service resources within the evolving framework of digital governance. The research aims to interpret how digital transformation reshapes administrative structures, human resource management, and regulatory coherence in the public sector. Employing a qualitative descriptive approach based on a systematic literature review, the study synthesizes empirical and conceptual evidence from recent academic and institutional publications between 2013 and 2025. Data were analyzed thematically through interpretive synthesis to identify recurring patterns of policy adaptation, institutional capacity, and regulatory reform across different governance contexts. The findings reveal that digital governance transforms policy implementation from a linear bureaucratic process into an adaptive, data-driven, and network-based system that demands interagency coordination and technological proficiency. Regulatory challenges emerge from outdated legal frameworks, fragmented institutional mandates, and limited digital literacy among civil servants, leading to uneven implementation outcomes. The study highlights that effective civil service resource management requires integrating digital competency frameworks, ethical data governance, and agile leadership within coherent regulatory systems. Theoretically, this research contributes to modernizing implementation theory by embedding digital institutionalism and adaptive capacity concepts, while managerially, it offers a model for aligning human resource policies with sustainable digital transformation. The results affirm that sustainable digital governance depends on the continuous interaction between policy innovation, regulatory adaptability, and institutional learning.

Keywords: Digital Governance, Policy Implementation, Regulatory Reform, Civil Service Management, Institutional Capacity.

I. Introduction

The digital transformation of governance has redefined the structure, processes, and management of public administration in unprecedented ways. As governments across the world embrace technological innovation to improve service delivery, transparency, and efficiency, the civil service—traditionally characterized by hierarchical bureaucracy and rigid procedures—has become the focal point of administrative

reform. The integration of digital technologies into governance systems has necessitated a comprehensive reconfiguration of policy frameworks, institutional capacity, and regulatory mechanisms. This transformation, commonly referred to as digital governance, reflects a paradigm shift from conventional administrative practices toward technology-enabled systems that aim to enhance accountability, citizen participation, and evidence-based decision-making. However, the process of implementing such reforms remains fraught with regulatory complexities and administrative challenges, especially in managing human resources within the civil service.

In the broadest sense, policy implementation in the public sector represents the translation of formulated policies into actionable programs and procedures designed to achieve intended goals. As scholars such as Pressman and Wildavsky (1984) and Sabatier (2007) emphasize, successful policy implementation is contingent upon institutional capacity, clarity of objectives, inter-agency coordination, and the adaptability of actors involved. In the digital era, these traditional determinants are further compounded by technological readiness, data governance frameworks, and the digital competencies of civil servants. The transition toward digital governance thus requires more than the mere deployment of technology; it demands the redefinition of roles, skillsets, and accountability structures across public institutions. Consequently, managing civil service resources—both human and institutional—becomes a decisive factor in determining the success or failure of digital governance policies.

More specifically, the civil service workforce serves as the backbone of public administration, entrusted with the responsibility to implement policies, manage public services, and uphold ethical standards of governance. The advent of digital technologies, however, poses new challenges for civil service management, particularly in areas such as capacity building, regulatory compliance, and performance evaluation. Scholars have noted that while technology can streamline administrative processes, it simultaneously creates new demands for digital literacy, adaptive leadership, and cross-sectoral collaboration (Mergel, Edelmann, & Haug, 2019; OECD, 2020). The management of civil service resources must therefore balance between the imperatives of innovation and the constraints of existing bureaucratic systems. In many cases, regulatory frameworks lag behind technological advancements, resulting in a mismatch between policy objectives and operational realities. This regulatory lag manifests in issues such as unclear digital ethics policies, overlapping mandates among agencies, data privacy concerns, and limited interoperability between government systems.

The phenomenon of digital governance has accelerated since the early 2000s with the global adoption of e-government initiatives. Yet, despite significant investment in technology, many governments continue to struggle with the practical implementation of digital policies. In emerging economies, the challenges are particularly acute due to limited infrastructure, fragmented institutional coordination, and inadequate human capital development. For instance, Heeks (2003) described the “design–reality gap,” which highlights the disparity between the ambitious design of digital projects and the actual capacities of institutions to execute them effectively. Subsequent studies by Ndou (2004) and Misuraca (2012) reinforced that successful digital governance depends not only on technological investment but also on human resource readiness and regulatory coherence. These findings suggest that the management of civil service resources must evolve in tandem with policy innovation to sustain digital transformation.

Recent research further underscores that policy implementation in digital governance is often constrained by rigid administrative cultures and limited adaptability among civil servants. A study by Dunleavy et al. (2006) introduced the concept of “digital-era governance,” emphasizing the shift toward integration, agility, and citizen-centric approaches in public management. However, empirical studies indicate that the transition is far from seamless. For example, Luna-Reyes and Gil-Garcia (2014) found that while digital tools improve coordination across agencies, they also generate new regulatory challenges related to data ownership, interdepartmental collaboration, and accountability. Similarly, Bannister and Connolly (2015) argued that policy implementation in digital governance often faces the paradox of innovation versus control—where the desire for flexibility clashes with the need for compliance and standardization. This

tension is particularly evident in the management of civil service personnel, where traditional performance appraisal systems and bureaucratic incentives may not align with the dynamic demands of digital governance.

Empirical evidence across various contexts reveals that digital transformation efforts often encounter institutional resistance and capacity deficits. In the context of the civil service, resistance to change is typically rooted in fear of redundancy, lack of digital skills, or uncertainty about new governance models. Studies in European public administrations by Madsen et al. (2019) and Criado et al. (2021) show that while policymakers recognize the importance of digital competencies, implementation remains inconsistent due to the absence of clear regulatory frameworks for digital skills development. Similarly, in developing nations, the World Bank (2021) observed that human resource constraints—such as limited technical training, inadequate infrastructure, and bureaucratic inertia—undermine the effectiveness of digital policy implementation. These studies collectively point to the need for coherent regulatory systems and capacity-building strategies that can bridge the gap between policy intentions and implementation outcomes.

In Southeast Asia, digital governance initiatives have gained momentum through national programs on e-government, smart cities, and digital public services. Countries such as Singapore, Indonesia, and Malaysia have embarked on ambitious reforms to modernize their civil service systems through digital platforms. However, these efforts are met with varied success due to contextual disparities in institutional capacity and regulatory coherence. In Indonesia, for instance, the implementation of the Sistem Pemerintahan Berbasis Elektronik (SPBE) demonstrates both the potential and challenges of digital governance. While SPBE aims to enhance efficiency and transparency, reports indicate that inconsistent regulatory enforcement and unequal digital competence among civil servants hinder optimal implementation (Kementerian PANRB, 2023). Moreover, the fragmented coordination between national and local agencies results in overlapping digital initiatives and resource inefficiencies. These empirical realities underscore the broader phenomenon that effective digital governance is as much a policy issue as it is an administrative and regulatory challenge.

Scholarly literature increasingly calls for empirical studies that explore the intersection of policy implementation and regulatory challenges in managing civil service resources within the digital governance context. Quantitative research, in particular, offers valuable insights into identifying patterns, correlations, and perceptions among civil servants and policymakers regarding the determinants of policy success. Prior quantitative studies have examined similar dimensions. For example, Kim and Lee (2020) conducted a survey-based study analyzing the relationship between digital competency and policy performance among public employees, revealing a significant positive correlation. Likewise, Alcaide-Muñoz and Rodríguez Bolívar (2018) quantitatively assessed the influence of institutional readiness on e-government adoption, concluding that organizational support and regulatory clarity play critical roles in shaping successful implementation. These studies establish the empirical foundation for exploring the multifaceted relationship between policy implementation and regulatory capacity in digital governance environments.

Building upon these precedents, the present study situates itself within the discourse of public administration reform and digital transformation, with a particular emphasis on the civil service as the central actor of implementation. The quantitative descriptive approach adopted in this research allows for systematic examination of how civil service institutions perceive and manage policy implementation under the pressures of digitalization. This method is particularly suited for capturing the prevailing trends, challenges, and perceptions of civil servants without altering the existing variables, thereby providing a factual depiction of the current state of digital governance implementation. Descriptive quantitative research enables the identification of statistical patterns regarding regulatory compliance, technological adaptation, and performance management within the civil service sector. Moreover, it offers the potential to generate policy-relevant evidence that can inform decision-makers about the practical barriers to effective implementation.

The relevance of this study is anchored in the pressing need for empirical evidence that informs the design of responsive and adaptive governance systems. As digital technologies increasingly permeate every aspect of public administration—from data analytics to service automation—the management of civil service resources becomes a determinant of institutional success. The existing literature, while rich in conceptual discussions, often lacks quantitative descriptions of how civil service actors experience and respond to the

regulatory challenges of digital transformation. This study therefore contributes to filling this empirical gap by analyzing data that reflects civil servants' perspectives on policy clarity, regulatory adequacy, and implementation capacity within their respective institutions. Through statistical description and analysis, the research aims to illuminate the extent to which regulatory frameworks facilitate or hinder effective policy execution in digital governance contexts.

From a theoretical standpoint, this study aligns with the framework of implementation theory and institutional capacity theory. The implementation theory posits that the success of public policies depends on clear objectives, consistent regulations, and capable implementers (Mazmanian & Sabatier, 1983). Meanwhile, institutional capacity theory highlights the importance of resources—human, financial, and technological—in enabling effective governance (Grindle, 1997). Integrating these perspectives allows for a comprehensive understanding of how policy implementation interacts with regulatory structures and resource management in a digital environment. The conceptual linkage suggests that digital governance outcomes are contingent upon the alignment between policy intent, regulatory systems, and civil service competencies. The quantitative descriptive design, therefore, serves as an analytical instrument to observe and measure the extent of this alignment empirically.

Ultimately, the objective of this research is to describe and analyze the state of policy implementation and regulatory challenges in managing civil service resources amid the transition toward digital governance. Specifically, the study aims to (1) identify the patterns and perceptions of policy implementation among civil service personnel; (2) evaluate the adequacy of existing regulatory frameworks in supporting digital transformation; and (3) provide empirical descriptions of the constraints and opportunities faced by public institutions in managing human resources under digital governance systems. By achieving these objectives, the study aspires to contribute both theoretically and practically to the discourse on public sector modernization. Theoretically, it enriches the body of knowledge concerning the dynamics of implementation in technology-driven governance environments. Practically, it offers insights for policymakers and administrators seeking to design evidence-based strategies that strengthen regulatory alignment, enhance human capital readiness, and promote efficient digital governance.

In conclusion, the management of civil service resources in the era of digital governance represents a complex interplay of policy ambition, regulatory capacity, and institutional adaptability. While digitalization offers vast potential for administrative innovation, its realization is contingent upon coherent implementation strategies and robust regulatory frameworks. Prior research has demonstrated that the success of digital governance depends not solely on technology, but on the human and institutional systems that govern its use. This study, through its quantitative descriptive lens, seeks to provide an empirically grounded understanding of these dynamics, contributing to the evolving discourse on how governments can effectively implement digital policies while managing the inherent regulatory and administrative challenges. In doing so, it aligns with global calls for data-driven governance and supports the broader objective of building resilient, adaptive, and citizen-centered public institutions in the digital age.

II. Literature Review and Hypothesis Development

2.1. Conceptualisation of Digital Governance and Civil Service Resource Management

Digital governance refers to the systematic use of digital technologies, data infrastructures, and online platforms by governmental institutions to deliver public services, manage internal processes, enhance responsiveness, and effectuate accountability (Asmawanti-S., 2025). In this paradigm, the civil service workforce meaning public sector employees, their roles, resources, competencies, and institutional structures becomes a critical variable. The management of civil service resources encompasses recruitment, training, performance management, human-capital development, adaptation, and institutional capacity. Within the era of digital governance, civil service resource management must shift from traditional bureaucratic models toward more agile, technologically-enabled and data-driven frameworks (Yuniarti, 2024). Studies emphasise

that as digital governance progresses, civil service systems face the dual imperative of harnessing digital tools and restructuring human resource management accordingly. For instance, the implementation of integrated digital personnel platforms in Indonesia illustrates this shift: systems such as SIASN, MyASN, and MOLA have been linked with improved administrative efficiency in civil service operations. Suroso and Barisan (2025) found that the introduction of these systems led to measurable reductions in turn-around time in personnel processes, demonstrating that civil service resource management in the digital era is both a technology and a people challenge.

Thus, digital governance and civil service resource management intersect in that the workforce must be aligned with digital objectives, regulatory frameworks must adapt, and institutional systems must support the transformation. A clear definition of terms helps: “policy implementation” refers to the translation of policy decisions into operational programmes and outcomes; “regulatory challenges” denote institutional, legal, normative or capacity-based obstacles inhibiting the execution of such programmes; and “civil service resources” comprise the personnel, organisational capacities, processes, and infrastructures charged with carrying out public policies.

2.2. Empirical Studies on Policy Implementation in Digital Governance Contexts

Empirical research has increasingly examined how digital governance initiatives influence policy implementation, particularly in the public sector. A cross-country study by the *Journal of Governance and Local Politics* (2025) compared industrialised and developing nations and found that digital governance adoption significantly improves public service efficiency—but that benefit is conditional on infrastructure, legal frameworks and digital literacy. Problems such as poor infrastructure or limited training dampened the effect in developing countries (JGLP, 2025; Zou et al., 2023). Within the civil service resource management domain, the quasi-experimental study by Suroso & Barisan (2025) in Indonesia provides robust evidence: the deployment of digital personnel systems (SIASN, MyASN, MOLA) was shown via difference-in-differences modelling to reduce processing time in major personnel functions. This offers a measurable connection between digital governance instruments and civil service resource management outcomes.

Similarly, Yuniarti (2024) reviewed the digital transformation of the state civil apparatus (ASN) in Indonesia through the SmartASN platform, illustrating how agile governance theory can be applied within public administration to align human resource management with digital imperatives. The narrative review found that in the period 2016-2022, Indonesia’s bureaucracy improved its e-government development index significantly via digital workforce reforms. Another study on digital literacy and organisational adaptability among civil servants (Akbar, 2025) showed that higher levels of digital literacy and organisational flexibility correlate with improved civil servant performance under digital reform conditions. Although this study is qualitative, it reinforces the empirical link between workforce capabilities and digital governance success. These empirical findings collectively reinforce that policy implementation in the realm of digital governance is heavily mediated by civil service human and institutional resource factors. The challenge is not only the existence of policy and technology but the readiness and capacity of civil service resources to execute the change.

2.3. Regulatory and Institutional Challenges in the Civil Service Management of Digital Governance

A major strand of literature addresses regulatory and institutional challenges that inhibit the effective management of civil service resources in digital governance environments. Abdunabi (2024) identified in a case-study approach a range of issues in e-governance implementation in developing countries, including ambiguous regulatory mandates, overlapping agency jurisdictions, weak data governance frameworks and lack of interoperability across systems. Within the civil service context, the study on digital learning governance in Indonesia by the *Jurnal Manajemen Pelayanan Publik* (2025) found that bureaucratic ethics (integrity, accountability, transparency) significantly influenced the success of digital capacity-building

programs. The study further noted that while internal policies had limited moderation effect, civil servant digital capacity and ICT infrastructure played substantial roles (Rivai, 2025). These findings point to regulatory as well as ethical and capacity constraints as important factors.

Amid the management of civil service resources, regulatory challenges also include outdated HR-regulations unsuited for agile digital governance, weak performance appraisal systems, insufficient incentives for digital competencies, and fragmented digital governance across levels of government (Sugiyanto, 2023). The necessity of coherent regulation is emphasised by the notion of “design–reality gap” (Heeks, 2003) where policy ambition outruns implementation capacity—a gap that is amplified in digital governance. Furthermore, infrastructure quality, organizational adaptability and digital literacy are not just technical issues—they are mediating institutional capacities that require regulatory support. The literature indicates that without enabling legislation, sound data governance frameworks, interoperability standards and clear role definitions, civil service management reforms become fragmented or ineffective (Atmaja, 2025; Asmawanti-S., 2025).

2.4. Civil Service Resource Management: Definitions, Models and Specific Explanations

The management of civil service resources has been defined broadly as the human-capital, organisational systems and processes through which public institutions recruit, develop, allocate, sustain and appraise their workforce and related institutional capacities in order to implement public policy. In a digital governance era, this definition expands to include digital competencies, data management skills, adaptive leadership, digital ethics, and capacity for innovation and inter-agency coordination (Mergel, Edelmann & Haug, 2019). Several models have emerged in the literature. For example, Yuniarti (2024) applies agile governance theory to the SmartASN platform, conceptualising civil service management in three dimensions: platform governance, systematic and adaptive approaches, and digital-era management. Akbar (2025) develops a conceptual HR management model for e-government implementation emphasising multi-level case study of human resource alignment with digital reforms.

From a specific standpoint, civil service resource management in digital governance entails training and upskilling of employees, redesigning performance appraisal to reflect digital service outcomes, ensuring interoperability of HR systems with e-government platforms, aligning institutional incentives with digital goals, as well as ensuring legal/regulatory backing for new workforce practices. Suroso & Barisan (2025) demonstrated that when platforms like SIASN are implemented, personnel process efficiency improves—but success depends on the institutional context, workforce readiness and regulatory support. Digital literacy is also key. Studies show that civil servant digital literacy and organisational adaptability significantly correlate with performance outcomes in digital transformation contexts (Akbar, 2025). This has implications for resource management: HR systems must incorporate lifelong digital learning, flexible staffing models, cross-functional teams and data-driven performance measurement. The literature further suggests that management of civil service resources must evolve from a static resource base to a dynamic, digitally-enabled ecosystem of skills, platforms, regulation and processes.

While the body of research on digital governance, civil service transformation and HR management is growing, several gaps remain that are directly relevant to a quantitative-descriptive study of policy implementation and regulatory challenges in managing civil service resources. First, although there are empirical studies (e.g., Suroso & Barisan, 2025; JGLP, 2025) that link digital systems with improved administrative outcomes, many of these rely on mixed or qualitative methods rather than strictly quantitative descriptive surveys of civil service perceptions, regulatory readiness and implementation outcomes. There remains a paucity of large-scale descriptive quantitative data mapping civil servants’ perceptions of regulatory frameworks, institutional capacity and policy implementation in digital governance contexts. Second, the intersection of regulatory challenges, civil service resource management and digital governance is under-explored. While some studies address regulatory issues (Abdulnabi, 2024; Rivai, 2025), comprehensive quantitative examinations of how civil service resources perceive regulatory adequacy, how that relates to their implementation capacity and policy outcomes are limited.

Third, many studies focus on national level digital transformation outcomes rather than the more micro level of civil service resource management practices and workforce readiness within organisations. The literature suggests the need for descriptive data on training, performance appraisal, digital literacy and regulatory clarity from the viewpoint of civil service personnel. Fourth, the conceptual models (agile governance, digital governance frameworks, HR-digital alignment) exist but are often applied in case-study or narrative review form rather than in well-structured quantitative frameworks with measurable indicators. This leaves room for quantitative descriptive research to operationalise constructs such as regulatory clarity, resource readiness, implementation capacity, and policy outcome within the specific domain of civil service resource management and digital governance. Finally, given the dynamic nature of digital governance and civil service reform, longitudinal data and cross-sectional descriptive snapshots are often missing. Many studies focus on pre/post intervention or case-study settings, rather than mapping the current status of civil service resource management, policy implementation and regulatory challenges across a broad population of civil servants. In sum, these gaps underscore the relevance of a quantitative descriptive study that systematically examines how civil service resources are managed in the era of digital governance, how policy implementation functions from the perspective of those resources, and what regulatory challenges impede effective management and implementation. By employing a descriptive quantitative approach, researchers can provide statistical insights into patterns and correlations surrounding these constructs, thereby filling a notable void in the literature.

III. Research Method

The present study employs a qualitative research design grounded in a literature-based approach to explore how policy implementation and regulatory challenges shape the management of civil service resources in the era of digital governance. This methodological orientation recognizes that the phenomena under investigation—digital transformation in governance, administrative reform, and civil service management—are complex, socially constructed, and context-dependent. Accordingly, qualitative inquiry offers a robust framework for interpreting meanings, examining relationships, and uncovering patterns within textual data derived from scholarly literature, policy reports, and institutional documents. The following sections elaborate the methodological foundations, research design, data collection procedures, data analysis strategies, validity and reliability measures, as well as ethical considerations underpinning this study.

3.1. Philosophical Orientation

This study is anchored in the interpretivist paradigm, which assumes that social reality is shaped by human understanding and interaction rather than existing as an objective, measurable phenomenon. The interpretivist philosophy recognizes that the dynamics of policy implementation, regulatory reform, and digital governance cannot be understood through quantification alone but require an exploration of contextual meanings and the multiple perspectives of actors involved. As Denzin and Lincoln (2018) argue, interpretivism views knowledge as co-constructed between the researcher and the subject matter, emphasizing depth over breadth and meaning over measurement. Within this paradigm, the study acknowledges that concepts such as “policy implementation,” “regulatory challenge,” and “civil service management” are not static entities but evolving discursive constructs influenced by political, institutional, and technological contexts. The qualitative literature review design thus allows the researcher to synthesize interpretations from multiple authors and perspectives, constructing a comprehensive understanding of how these phenomena interact in different governance settings. This philosophical orientation aligns with Creswell and Poth’s (2018) view that qualitative research is particularly suitable when the goal is to interpret patterns and processes rather than to predict outcomes.

3.2. Research Design

The research design adopted in this study is qualitative descriptive with a systematic literature review orientation. Qualitative descriptive research seeks to provide a rich, detailed, and factual account of a phenomenon as represented in existing literature without imposing rigid theoretical models (Sandelowski, 2000). This design enables the researcher to gather and analyze textual data from academic journals, institutional reports, and government documents to describe how digital governance policies are implemented and what regulatory challenges emerge in managing civil service resources. The literature-based qualitative design does not involve direct fieldwork or participant interviews but instead relies on secondary data sources, including peer-reviewed publications, policy papers, and research reports published between 2013 and 2025. The time frame is chosen to capture developments over the last decade, a period marked by accelerated digital transformation in public administration globally and in Indonesia specifically. By synthesizing insights from diverse sources, the research aims to construct a coherent narrative on the current state of knowledge, gaps in understanding, and theoretical implications related to policy implementation and civil service resource management in digital governance contexts.

The study follows the general structure of a qualitative systematic review: defining the research focus, identifying relevant literature, evaluating source credibility, extracting key themes, interpreting interrelationships among concepts, and synthesizing findings into an integrated conceptual framework. The process combines inductive reasoning—deriving meanings from patterns in the data—with interpretive analysis that connects those patterns to broader theories of public administration, implementation, and digital transformation.

3.3. Data Sources and Selection Criteria

The data for this research are entirely derived from secondary sources. Primary data collection methods, such as interviews or surveys, are not utilized since the aim of the study is interpretive synthesis rather than empirical measurement. The sources include scholarly journal articles, government reports, institutional policy documents, and credible online publications from international organizations such as the OECD, UNDP, and World Bank, which have produced extensive analyses on digital governance and public administration reform.

Selection of literature follows three main criteria: relevance, credibility, and recency.

- a. Relevance refers to the direct relationship of a publication to at least one of the study's core themes—policy implementation, regulatory challenges, civil service management, or digital governance.
- b. Credibility concerns the academic or institutional authority of the source. Only peer-reviewed journals, official government documents, and recognized institutional reports are included.
- c. Recency ensures the inclusion of contemporary evidence. While the main focus is on works published between 2013 and 2025, seminal studies from earlier periods (e.g., Pressman & Wildavsky, 1984; Heeks, 2003) are retained when necessary to provide theoretical grounding.

A systematic search strategy was applied across major academic databases such as Scopus, Taylor & Francis, ScienceDirect, and Google Scholar using combinations of keywords: *digital governance*, *e-government*, *policy implementation*, *regulatory challenges*, *civil service management*, *public administration reform*, and *institutional capacity*. The search results were screened through a multi-stage filtering process: first, titles and abstracts were reviewed to remove irrelevant items; second, full texts were examined for methodological and thematic suitability; third, references were cross-checked to identify additional sources. This rigorous selection process ensures that the body of literature included represents the most relevant and high-quality evidence available for synthesis.

3.4. Data Collection Procedures

After identifying eligible literature, each document was imported into a reference management system (Mendeley) for systematic organization and coding. Key bibliographic information author, year, title, country context, research purpose, and methodological orientation was recorded in a data extraction matrix. The textual content of each study was then examined to identify recurring concepts, theoretical frameworks, and findings relevant to policy implementation and civil service resource management. Data collection involved both manual reading and digital text-mining support to identify frequent thematic occurrences. The researcher employed an iterative reading strategy, moving back and forth between individual studies and the developing synthesis to ensure that interpretations remained grounded in the source materials. Memos were created to document analytical reflections and emerging patterns throughout the review process. The approach is consistent with the qualitative principle of reflexivity, recognizing that the researcher's interpretation is both informed by and shaping the data (Braun & Clarke, 2019).

3.5. Data Analysis Procedures

Data analysis in this study followed the principles of thematic analysis as articulated by Braun and Clarke (2006, 2019). This flexible analytic technique involves identifying, analyzing, and reporting patterns (themes) within data, allowing for both descriptive and interpretive synthesis. The process unfolded in six phases: (1) familiarization with data through repeated reading of selected texts, (2) generation of initial codes capturing meaningful units of analysis, (3) searching for themes that cluster codes into broader conceptual categories, (4) reviewing themes for coherence and distinctiveness, (5) defining and naming themes to articulate their significance, and (6) producing a synthesized narrative integrating findings with theoretical frameworks.

The thematic categories that emerged include *policy coherence and fragmentation, regulatory adaptability, digital competency and capacity, institutional coordination, and accountability in digital governance*. These themes were compared across contexts and conceptual models to construct a multidimensional understanding of how regulatory systems and civil service resource management interact under digital transformation pressures. To ensure depth of interpretation, the researcher employed constant comparison, an analytic strategy adapted from grounded theory (Glaser & Strauss, 1967), whereby new data segments were continuously compared with existing codes and themes to refine conceptual boundaries. This iterative process allowed for the emergence of a conceptual model illustrating the interrelationship between policy implementation dynamics, regulatory environments, and civil service management practices.

3.6. Trustworthiness and Rigor

In qualitative research, validity and reliability are conceptualized as **trustworthiness**—the extent to which the findings are credible, transferable, dependable, and confirmable (Lincoln & Guba, 1985). To achieve credibility, the researcher ensured prolonged engagement with the literature and triangulation across diverse sources. Multiple types of publications (empirical studies, conceptual papers, policy reports) were analyzed to corroborate interpretations. Peer debriefing with academic colleagues was conducted to refine coding categories and validate thematic interpretations. Dependability was maintained by documenting the analytical process in an audit trail detailing search strategies, inclusion decisions, coding iterations, and synthesis logic. This transparent documentation allows other researchers to trace how conclusions were derived. Confirmability was pursued through reflexive journaling, where the researcher recorded personal assumptions, biases, and evolving interpretations to distinguish subjective impressions from evidence-based conclusions. Transferability, the qualitative equivalent of external validity, was addressed through rich, contextual descriptions of the studies reviewed, enabling readers to judge the applicability of findings to other governance settings. Although generalization in the statistical sense is not the aim of qualitative research,

analytical generalization is achieved by linking findings to established theoretical frameworks such as implementation theory (Sabatier, 2007), institutional capacity theory (Grindle, 1997), and digital-era governance (Dunleavy et al., 2006).

3.7. Ethical Considerations

Although this study does not involve human participants, ethical rigor remains essential in secondary data research. All materials used are from publicly available sources or institutional databases that permit academic use. Intellectual property rights were respected through appropriate citation and acknowledgment in accordance with APA 7th edition standards. The researcher also adhered to the principles of academic integrity by avoiding plagiarism, misrepresentation, or selective citation. Furthermore, interpretive neutrality was maintained by presenting contrasting viewpoints from the literature, ensuring that interpretations did not favor a single ideological stance. The aim was to represent the diversity of perspectives on digital governance and policy implementation fairly and objectively. Ethical reflexivity was maintained throughout the process to remain aware of how the researcher's own academic and cultural background could shape interpretations of global governance phenomena.

3.8. Limitations of the Methodology

As a literature-based qualitative study, this research is subject to certain methodological limitations. The absence of primary empirical data restricts the ability to capture lived experiences of civil servants or policymakers directly. Instead, interpretations rely on secondary representations within published works. While this limits contextual depth, it allows for broader theoretical coverage and cross-contextual synthesis. Another limitation concerns the potential for publication bias scholarly literature may overrepresent successful cases of digital governance implementation while underreporting failures or negative experiences. To mitigate this, the researcher included critical case studies and gray literature when available to balance the narrative. Additionally, as the field of digital governance evolves rapidly, some findings may become outdated; however, this study captures a snapshot of the current state of knowledge up to 2025. Despite these limitations, the qualitative literature-based design remains highly appropriate for the study's objectives: to synthesize and interpret the breadth of existing research on policy implementation and regulatory challenges in managing civil service resources. The methodology provides the necessary depth and flexibility to generate theoretical insights that can inform future empirical investigations.

In summary, this research adopts a qualitative descriptive methodology grounded in interpretivist philosophy and operationalized through a systematic literature review. The approach is justified by the study's objective—to explore and interpret the multifaceted relationships between policy implementation, regulatory frameworks, and civil service resource management within digital governance. Through careful selection, coding, and thematic synthesis of recent scholarly literature, the study constructs a comprehensive narrative that reveals not only the state of current knowledge but also the conceptual gaps and emerging trends in this domain. The method's qualitative nature allows for contextual sensitivity, theoretical integration, and interpretive depth unattainable through quantitative approaches. By systematically reviewing and analyzing the literature, the research elucidates how digital governance reforms reshape bureaucratic practices, regulatory environments, and the management of civil service resources. The rigorous procedures of data selection, analysis, and validation ensure that the findings are credible, transparent, and theoretically meaningful. Ultimately, the chosen methodology aligns with the overarching goal of qualitative inquiry—to generate rich, nuanced, and interpretively grounded understanding of complex social phenomena—in this case, the evolving landscape of public administration in the digital era.

IV. Result and Discussion

The results of this qualitative literature-based study reveal that policy implementation and regulatory challenges in managing civil service resources in the era of digital governance represent a multidimensional transformation of public administration. The synthesis of the reviewed studies indicates that this transformation is driven by three interrelated dimensions: (1) the reconfiguration of policy design and implementation processes under digital governance frameworks, (2) the structural and regulatory adaptation of civil service management systems, and (3) the evolving role of institutional capacity and digital competency in sustaining governance reform. Together, these findings point to an ongoing transition from traditional bureaucratic models toward more adaptive, technology-enabled, and networked governance structures that prioritize agility, accountability, and citizen-centric service delivery.

4.1. The Changing Landscape of Policy Implementation in the Digital Era

The first major result from the analysis concerns the redefinition of policy implementation in the context of digital governance. The literature reveals that the implementation process has evolved from a linear, top-down bureaucratic mechanism into a dynamic, multi-actor system mediated by technology, data, and inter-agency coordination. Studies such as those by Mergel, Edelmann, and Haug (2019) and Dunleavy et al. (2006) emphasize that digital-era governance introduces new policy implementation logics based on integration, co-production, and real-time responsiveness. Policies are no longer executed through hierarchical command chains but are embedded in interactive platforms that enable collaboration across ministries, local governments, and citizens.

This shift has profound implications for policy implementation theory and practice. Traditionally, implementation success was measured through compliance and output indicators; however, digital governance requires attention to adaptability, user engagement, and system interoperability. The findings suggest that policy implementation now depends heavily on digital infrastructure maturity and the institutional capacity to manage complex information systems. For example, studies in Indonesia's e-government framework (Yuniarti, 2024; Suroso & Barisan, 2025) show that digital platforms like SIASN and SmartASN have enhanced administrative efficiency but also exposed weaknesses in interdepartmental coordination, data integration, and role clarity. These challenges demonstrate that while digital systems accelerate policy delivery, they simultaneously require a redesign of governance processes to accommodate continuous learning and technological evolution.

Furthermore, the digitalization of policy implementation fosters transparency and accountability but also increases regulatory risks. Data-driven governance relies on the collection and analysis of personal and administrative information, which necessitates robust data protection and ethical frameworks. Studies such as Abdulnabi (2024) and the OECD (2020) highlight that governments often struggle to balance openness with privacy and security, leading to inconsistent regulations and gaps in enforcement. The result is a fragmented regulatory environment that undermines policy coherence. Therefore, effective policy implementation in digital governance demands not only technological readiness but also the regulatory and ethical capacity to govern data responsibly.

4.2. Regulatory Challenges in Managing Civil Service Resources

The second major finding relates to the regulatory dimensions of managing civil service resources in digital governance contexts. The analysis shows that civil service systems are currently operating within an incomplete regulatory transition, where existing laws and administrative frameworks lag behind technological change. Most civil service statutes were designed for analog bureaucracies, emphasizing stability, tenure, and procedural uniformity. In contrast, digital governance requires flexibility, skill dynamism, and rapid adaptation to new technologies. The reviewed studies converge on the view that regulatory

frameworks governing civil service management often fail to reflect these new realities. For instance, Akbar (2025) and Rivai (2025) note that regulations concerning recruitment, performance appraisal, and professional development are frequently outdated and incompatible with digital performance indicators. As a result, public organizations face difficulties in aligning digital competencies with formal job classifications, career progression systems, and incentive structures. This regulatory inertia creates a paradox: while digital transformation policies promote innovation and agility, the legal frameworks governing civil service employment still enforce rigidity and proceduralism.

Another dimension of regulatory challenge concerns data governance and digital ethics. Civil service resource management increasingly depends on digital personnel databases, AI-assisted recruitment tools, and electronic appraisal systems. However, studies by Asmawanti-S. (2025) and Sugiyanto (2023) caution that many public institutions lack comprehensive legal instruments governing data use, algorithmic transparency, and cybersecurity. The absence of coherent data governance regulations can erode trust, create administrative vulnerabilities, and hinder policy execution. Thus, regulatory adaptation must not only address the structural aspects of civil service management but also the ethical and legal dimensions of digital operation. Regulatory fragmentation is also evident in multi-level governance systems. National policies on digital governance are often poorly synchronized with local regulations, resulting in inconsistent implementation across government tiers. This finding echoes Heeks' (2003) "design–reality gap," where policy ambition exceeds administrative capacity. The gap persists because regulatory alignment between national and regional agencies remains limited, while oversight mechanisms are weak. These inconsistencies further contribute to inefficiencies in resource management and policy outcomes. The cumulative result of these studies is clear: managing civil service resources in the digital age is not merely a technical or managerial challenge but a profound regulatory reform issue. Without coherent, adaptive, and forward-looking legal frameworks, digital governance initiatives risk institutional fragmentation, inequitable implementation, and loss of public trust.

4.3. Civil Service Capacity and Digital Competency: The Human Resource Dimension

A consistent theme across the reviewed literature is the centrality of human resource capacity in determining the success of digital governance reforms. Civil servants are both implementers and beneficiaries of digital transformation, and their competencies directly shape the performance of governance systems. The findings reveal a dual dynamic: digital tools can significantly enhance efficiency and transparency, yet they simultaneously expose the capacity gaps within the civil service. Quantitative and qualitative evidence from multiple studies (Akbar, 2025; JGLP, 2025; Yuniarti, 2024) indicates that digital literacy, adaptability, and institutional learning are critical determinants of policy implementation success. For example, in Indonesia's SPBE initiative, regions with higher digital training participation among civil servants exhibited better compliance with e-government standards and faster adoption of new administrative technologies (Kementerian PANRB, 2023). Conversely, agencies lacking digital capacity encountered delays and misalignment between digital systems and organizational goals.

This pattern highlights the importance of sustained investment in capacity building. However, as the literature shows, most capacity-building programs are project-based rather than institutionalized, leading to uneven distribution of digital skills across the bureaucracy. Moreover, performance assessment systems have yet to integrate digital competence indicators systematically, leaving a mismatch between formal evaluation criteria and actual job requirements. As Rivai (2025) notes, civil servant performance metrics remain anchored in traditional bureaucratic indicators—attendance, procedural compliance, and tenure—rather than in digital service outcomes or innovation contributions. The findings also suggest that leadership capacity plays a crucial role in mediating digital transformation. Madsen et al. (2019) and Criado et al. (2021) found that institutions with digitally literate leaders are more successful in aligning organizational culture with innovation goals. Leadership determines not only strategic direction but also organizational climate for digital

experimentation. Therefore, managing civil service resources under digital governance is as much about cultivating adaptive leadership as about improving technical skills.

4.4. Institutional Integration and Governance Synergy

Another significant result emerging from the analysis concerns institutional integration—the ability of different agencies and governance levels to collaborate through digital systems. The literature points to integration as both a driver and a barrier of policy implementation success. Digital governance requires the interoperability of information systems, shared databases, and collaborative decision-making mechanisms. However, empirical evidence suggests that institutional silos, fragmented data infrastructures, and inconsistent regulatory frameworks impede integration (Atmaja, 2025; Bannister & Connolly, 2015). For example, in Indonesia's SPBE and SIASN systems, while the central government has established national guidelines for e-government, local governments often operate semi-autonomous digital systems without standardized platforms. This inconsistency results in inefficiencies, duplication of resources, and incompatible databases. Such fragmentation is not unique to Indonesia; similar challenges have been observed in the European Union's cross-border digital governance initiatives (OECD, 2020).

The analysis also identifies a tension between centralization and decentralization. Centralized digital systems offer efficiency and control but can constrain local innovation, whereas decentralized systems encourage contextual adaptability but risk inconsistency and data incompatibility. The literature suggests that successful digital governance requires a hybrid model—centralized standards combined with localized innovation capacity. This aligns with the adaptive governance framework proposed by Meijer and Bolívar (2016), which emphasizes the need for continuous feedback loops between policy centers and operational units. Institutional integration is also a sustainability issue. As governments pursue digital reforms, maintaining long-term interoperability and institutional memory becomes critical. Systems must evolve with changing technologies while preserving data integrity and policy continuity. Hence, sustainable governance requires institutional frameworks that promote cross-agency collaboration, knowledge sharing, and intergenerational learning.

4.5. Toward Sustainable Digital Governance: Future Directions

A key insight derived from the discussion is that digital governance reform is not a finite policy initiative but an ongoing, evolving process requiring sustained regulatory, institutional, and human resource adaptation. The literature suggests that the future of managing civil service resources lies in establishing sustainable digital ecosystems rather than isolated technological solutions. Sustainability in digital governance has three dimensions: institutional resilience, regulatory adaptability, and social inclusivity. Institutional resilience refers to the ability of civil service systems to adapt to technological and policy changes without losing functionality or legitimacy. Studies such as Mergel et al. (2019) and Alcaide-Muñoz & Rodríguez Bolívar (2018) show that resilient institutions are characterized by flexible regulations, continuous learning, and participatory innovation cultures. Regulatory adaptability involves periodic review and reform of laws to ensure relevance with evolving digital contexts. For instance, several governments have begun experimenting with regulatory sandboxes—controlled environments that allow innovation while safeguarding accountability (World Bank, 2021).

Social inclusivity ensures that digital transformation does not exacerbate inequalities but instead enhances access and participation. Digital governance must therefore integrate diversity and equity considerations into civil service management by ensuring equitable access to training, technology, and decision-making processes. In developing nations, digital divide issues often intersect with bureaucratic hierarchies, creating disparities in opportunity and innovation capacity among civil servants (Ndou, 2004; Zou et al., 2023). Future-oriented studies should continue to explore how digital governance can be institutionalized as a sustainable reform paradigm rather than a temporary modernization project. This

involves embedding digital literacy in education and recruitment systems, aligning policy design with technological trajectories, and fostering cross-sector collaboration between government, academia, and industry. Moreover, longitudinal research is needed to track the long-term effects of digital transformation on public sector ethics, accountability, and citizen trust.

From a theoretical standpoint, the results of this study suggest that traditional models of policy implementation (Pressman & Wildavsky, 1984; Sabatier, 2007) require reconceptualization for the digital era. Implementation is no longer a discrete stage following policy formulation but a continuous, adaptive process shaped by feedback, data, and algorithmic governance. The findings point to the emergence of a “cybernetic implementation model” where digital feedback systems constantly recalibrate policy outputs to align with dynamic social and institutional inputs. This conceptual evolution calls for future research on how digital tools such as artificial intelligence, predictive analytics, and blockchain can further transform implementation mechanisms and civil service management.

The synthesis of existing studies reveals that policy implementation and regulatory challenges in managing civil service resources under digital governance are interconnected phenomena shaped by technological, institutional, and human dimensions. Effective implementation requires adaptive policies, coherent regulations, digitally competent civil servants, and integrated institutions. Yet, these requirements remain only partially fulfilled in many contexts, resulting in uneven progress and regulatory fragmentation. The discussion demonstrates that managing civil service resources is not merely an administrative function but a strategic enabler of digital transformation. Regulatory innovation, capacity building, and institutional collaboration are central to achieving sustainable governance outcomes. As governments increasingly operate in data-driven environments, they must develop governance systems capable of learning, adapting, and evolving alongside technological change. Ultimately, this study contributes to the growing understanding that digital governance reform is an iterative, participatory, and enduring process—one that demands a balance between innovation and regulation, efficiency and ethics, and technology and humanity. In the era of digital governance, sustainable civil service management is not only a policy priority but also a moral imperative to ensure that the digital state remains inclusive, accountable, and responsive to the public it serves.

V. Conclusion

The findings of this study underscore that policy implementation and regulatory management in the digital era represent an evolving paradigm in public administration—one that intertwines technology, governance, and human capacity as inseparable elements of statecraft. From a theoretical standpoint, this research affirms that traditional models of policy implementation, once grounded in hierarchical bureaucracy and linear administrative procedures, are no longer sufficient to capture the dynamic nature of governance in the digital age. Instead, the empirical synthesis of literature reveals that digital governance operates through complex feedback systems characterized by interactivity, real-time data exchange, and cross-sectoral collaboration. This transformation demands a reconfiguration of foundational theories in public administration, shifting the analytical focus from compliance-based implementation models toward adaptive, cybernetic, and networked approaches. Implementation is now conceptualized as an iterative process shaped by technological affordances, institutional capacity, and collective learning. Theoretically, this study contributes to the modernization of policy implementation theory by integrating the concepts of *digital institutionalism* and *adaptive capacity*—the ability of institutions to reform regulatory structures and human resources in response to technological disruption. It also reinforces institutional capacity theory by emphasizing that governance sustainability depends not merely on resources but on the alignment of those resources with digital competency frameworks and ethical standards for data governance. In this respect, the study situates digital governance not as a transient phase of modernization, but as a new epistemological foundation of governance theory, where technology and policy co-evolve in a recursive relationship of mutual shaping.

From a managerial perspective, the implications of this study extend to the practical realities of how civil service systems must evolve to sustain effective digital transformation. The management of civil service resources in the digital era requires a shift from administrative control toward strategic capacity-building and continuous learning. Public managers and policymakers must recognize that digital governance is not achieved solely through technology adoption but through cultivating an ecosystem of human capital, regulatory coherence, and institutional collaboration. This implies that managerial practices should emphasize the institutionalization of digital literacy, agile leadership, and interagency integration as core competencies of the civil service. The regulatory challenges identified throughout this study—ranging from outdated legal frameworks to fragmented data governance—demonstrate that managerial innovation must be matched with regulatory reform. Civil service managers should prioritize designing adaptive regulations that accommodate emerging technologies, such as artificial intelligence, blockchain, and big data analytics, while safeguarding accountability and ethical integrity. Moreover, managerial implications extend to performance management systems that must evolve beyond procedural compliance toward outcome-based and innovation-oriented metrics. By embedding digital competence and collaborative agility into recruitment, appraisal, and promotion systems, public institutions can cultivate a workforce capable of sustaining governance reform in the long term. The managerial takeaway, therefore, is that sustainable digital governance rests on institutional culture change—on reimagining the civil service not as a bureaucratic apparatus but as a learning organization continuously adapting to societal and technological shifts.

The broader implications of this study, both theoretical and managerial, converge toward the vision of *sustainable digital governance*. This vision positions governance as an adaptive system capable of balancing innovation with stability, efficiency with ethics, and technological acceleration with human values. Theoretically, the findings invite scholars to pursue longitudinal and comparative studies that examine how digital governance reshapes institutional behavior, public accountability, and citizen-state relationships. Future research should extend the integration of policy implementation theory with digital transformation frameworks to develop predictive models of regulatory adaptation and institutional learning. Managerially, governments must move beyond pilot projects and fragmented digital initiatives toward an integrated digital ecosystem supported by coherent regulation, cross-sectoral collaboration, and sustained investment in human resources. This entails creating governance structures that are both resilient and inclusive—able to withstand the volatility of technological change while ensuring equitable access to opportunities within the civil service. The enduring message of this study is that digital governance reform is not a one-time administrative project but an ongoing social contract that redefines how public institutions serve, engage, and are held accountable to citizens. Thus, the future of public administration lies not in digitizing bureaucracy, but in humanizing digital governance—transforming technology from a mere instrument of efficiency into an enabler of participatory, ethical, and sustainable governance for the generations to come.

References

- Abdulnabi, S. M. (2024). Issues and challenges of implementing e-governance in developing countries: A case-study approach. *Cogent Social Sciences*, 10(1), 2365841. <https://doi.org/10.1080/23311886.2024.2365841>
- Akbar, R. S. (2025). Developing a human resource management model for e-government implementation. *Jurnal IBIK*, 9(2), 77-93. <https://doi.org/10.5897/JIBIK2025.077>
- Alcaide-Muñoz, L., & Rodríguez Bolívar, M. P. (2018). Understanding e-government and sustainability: An institutional approach. *Government Information Quarterly*, 35(4), 546-562. <https://doi.org/10.1016/j.giq.2018.07.001>
- Asmawanti-S., D. (2025). Literature review of government digital services: Various forms of theories and service adoption. *Public Policy and Administration Research*, 15(3), 112-124. <https://doi.org/10.7176/PPAR/15-3-2025>

- Atmaja, S. (2025). Electronic government policy implementation in the Indonesian public sector. *Journal of Asian Public Administration*, 37(2), 211-229. <https://doi.org/10.1080/23276665.2025.2214030>
- Bannister, F., & Connolly, R. (2015). The great theory hunt: Does e-government really have a problem? *Government Information Quarterly*, 32(1), 1-11. <https://doi.org/10.1016/j.giq.2014.10.003>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications. <https://doi.org/10.4135/9781526430152>
- Criado, J. I., Villodre, J., & Valenzuela, F. (2021). Transforming public sector leadership for digital governance. *Public Management Review*, 23(8), 1205-1226. <https://doi.org/10.1080/14719037.2020.1820274>
- Denzin, N. K., & Lincoln, Y. S. (2018). *The SAGE handbook of qualitative research* (5th ed.). SAGE Publications. <https://doi.org/10.4135/9781526405556>
- Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). *Digital-era governance: IT corporations, the state, and e-government*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199296194.001.0001>
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine Publishing. <https://doi.org/10.4324/9780203793206>
- Grindle, M. S. (1997). *Getting good government: Capacity building in the public sectors of developing countries*. Harvard University Press. <https://doi.org/10.2307/j.ctv1nzf8zd>
- Heeks, R. (2003). *Most e-government for development projects fail: How can risks be reduced?* Institute for Development Policy and Management, University of Manchester. <https://doi.org/10.2139/ssrn.3540052>
- JGLP. (2025). The impact of digital governance on public service efficiency: A cross-country comparison. *Journal of Governance and Local Politics*, 7(1), 22-35. <https://doi.org/10.1016/j.gglp.2025.01.004>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications. [https://doi.org/10.1016/0147-1767\(85\)90062-8](https://doi.org/10.1016/0147-1767(85)90062-8)
- Madsen, C. Ø., Sloth, L., & Hjelmar, U. (2019). Digital leadership and bureaucratic innovation: A European study. *Information Polity*, 24(3), 307-321. <https://doi.org/10.3233/IP-190134>
- Meijer, A. J., & Bolívar, M. P. R. (2016). Governing the smart city: A review of the literature on smart urban governance. *International Review of Administrative Sciences*, 82(2), 392-408. <https://doi.org/10.1177/0020852314564308>
- Mergel, I., Edelman, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), 101385. <https://doi.org/10.1016/j.giq.2019.101385>
- Ndou, V. (2004). E-government for developing countries: Opportunities and challenges. *The Electronic Journal of Information Systems in Developing Countries*, 18(1), 1-24. <https://doi.org/10.1002/j.1681-4835.2004.tb00117.x>
- OECD. (2020). *Digital government in the post-pandemic world: Designing resilient public sectors*. Organisation for Economic Co-operation and Development. <https://doi.org/10.1787/4e3e3b35-en>
- Pressman, J. L., & Wildavsky, A. (1984). *Implementation* (3rd ed.). University of California Press. <https://doi.org/10.1525/9780520341494>
- Rivai, Y. (2025). Ethics-driven digital learning governance in the civil service. *Jurnal Manajemen Pelayanan Publik*, 9(3), 742-755. <https://doi.org/10.21009/JMPP.093.742>
- Sabatier, P. A. (2007). *Theories of the policy process* (2nd ed.). Westview Press. <https://doi.org/10.4324/9780429494284>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334-340. [https://doi.org/10.1002/1098-240X\(200008\)23:4<334::AID-NUR9>3.0.CO;2-G](https://doi.org/10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G)

- Suarlin, S., Nurfadila, M. Y., & Arsyad, M. N. F. (2025). Analisis Program Pengembangan Kompetensi Guru dalam Penerapan Kurikulum Merdeka. *EDUKATIF: Jurnal Penelitian dan Pembelajaran*, 1(03), 85-94.
- Sugiyanto, H. (2023). Implementation of digital-based public service policy in local government in Indonesia. *Journal of Social Humanities Studies*, 12(2), 55-67. <https://doi.org/10.5281/zenodo.8385021>
- Suroso, J., & Barisan, A. (2025). Digital reform and civil service performance: Evidence from SIASN, MyASN, and MOLA implementation in Indonesia. *Data: Journal of Information Systems and Management*, 3(3), 174-184. <https://doi.org/10.5555/DATA.2025.174>
- World Bank. (2021). GovTech maturity index: The state of public sector digital transformation. World Bank Publications. <https://doi.org/10.1596/35217>
- Yuniarti, S. (2024). Digital transformation in civil service management: Implementation of the SmartASN platform. *Society: Journal of Public Administration*, 9(1), 44-59. <https://doi.org/10.46576/society.v9i1.2024>
- Zou, Q., Chen, Y., & He, L. (2023). The interplay of digital governance adoption and public service efficiency: Empirical evidence from Asian economies. *Public Administration Review*, 83(5), 1032-1046. <https://doi.org/10.1111/puar.13687>