

Reforming the Indonesian Bureaucracy through State Civil Apparatus Reform, Could It be Optimized with Technology?

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Abstract

Bureaucracy, from a societal perspective, is often perceived as complex, slow, and inefficient. Despite these criticisms, bureaucracy remains a fundamental component of governance and plays a crucial role in societal functioning. As such, bureaucratic reform has been a prominent focus of policy discussions for several decades. A technology-driven government system, coupled with a bottom-up approach, has the potential to enhance efficiency, transparency, and accountability in public administration. However, in practice, such reforms have been largely confined to central government institutions and select agencies. This study aims to explore the integration of technology within the

bureaucratic system in Indonesia, with a focus on its comprehensive implementation across government structures. Employing a normative research methodology, the study emphasizes the need for the government to take proactive steps in developing a skilled workforce in information technology. The authors also recommend strategically mapping positions that can integrate technological expertise throughout government departments. Furthermore, the study proposes a comprehensive examination of the potential for replacing executive positions with artificial intelligence (AI) to streamline and simplify bureaucratic processes. In addition to technological advancements, bureaucratic reform must be accompanied by legal reform, particularly in the areas of data security and the protection of personal information. This includes redefining bureaucratic and personal data categories to ensure robust safeguards. The Personal Data Protection Law should play a pivotal role in integrating these data types and ensuring their protection. Moreover, the Telecommunications Act and the Personal Data Protection Act should foster collaboration between the government and technology companies to develop effective security solutions. Lastly, strengthening the Ombudsman as a public service oversight institution is essential to ensuring transparency and accountability in the implementation of bureaucratic and technological reforms.

Keywords *Bureaucratic, State Civil Apparatus, Technology*

Introduction

Bureaucratic reform is essential for enhancing the quality of the state civil service. Etymologically, the term *bureaucracy* derives from the French word "*buro*" (meaning office or desk) and the Greek verb "*kratein*" (meaning to organize). At its core, bureaucracy consists of two key elements: formal rules or norms and a hierarchical structure. Thus, bureaucracy can be defined as the exercise of formal power grounded in laws and regulations, structured around the principles and ideals that govern the functioning of an organization. As a critical instrument in societal governance, bureaucracy should be understood as a rationally designed system and process that ensures orderly, predictable, and

controllable work mechanisms. Its primary function is to provide clarity and consistency in the administration of public duties, facilitating efficient and transparent governance.¹

In the context of societal perspective, bureaucracy is often considered complicated, slow and unprofessional. Bureaucratic reform is a policy that aims to change and improve the current government bureaucratic system in Indonesia.² In fact, bureaucracy is an important instrument in society whose presence cannot be avoided. Bureaucracy is a logical consequence of accepting the assumption that the state has a noble obligation, namely to improve the welfare of its people through the medium of bureaucracy. As an embodiment of this obligation, the state is required to be directly involved in providing public goods and services needed by its people.³ Bureaucratic reform really needs what is called a change trigger. In government bureaucracy, the trigger for change (reform trigger) can come from internal or external bureaucracy, found in the form of problems, opportunities and tendencies that have the potential to influence the organization's performance in the future.⁴

One of the main components of bureaucratic reform in Indonesia is the implementation of Good Governance Principles.⁵ In 1998, political reforms in Indonesia led to changes in the constitutional system, affecting public administration. Bureaucratic reform is considered a significant change in governance, impacting institutions, management, human resources, services, accountability, legislation, and

¹ Dewi Asri Yustia and Firdaus Arifin, "Bureaucratic Reform as an Effort to Prevent Corruption in Indonesia," *Cogent Social Sciences* 9, no. 1 (2023): 1–11.

² Abdurrahman et.al, "Peran Teknologi Dalam Transformasi Pendidikan: Perspektif Dari Studi Kepustakaan," *Journal on Education* 6, no. 2 (2024): 11359–11368.

³ Rumzi Samin, "Reformasi Birokrasi," *Jurnal Fisip UMRAH* 2, no. 2 (2011): 172–82.

⁴ Adam Idris, "Bingkai Reformasi Birokrasi Indonesia," *Jurnal Paradigma* 2, no. 3 (2013): 352–257, <https://doi.org/10.30872/jp.v2i3.365>.

⁵ Mahfud Effendi et.al, "Reformasi Birokrasi UMKM Dengan Konsep Integrated One Stop Service Melalui Linkage Channeling Programs Untuk Menuju Masyarakat Ekonomi Asean (MEA) 2015," *Jurnal Pendayaan Aparatur Negara* 4, no. 4 (2014): 6–20.

mindset. This reform aims to achieve good governance in response to public demands and globalization-related developments.⁶

Even though it is not stated explicitly, the existence of the Good Governance Principle can be traced through Article 25 Paragraph 4 of Law Number 25 of 2009 concerning Public Services. Through the principles of effectiveness, efficiency, transparency, accountability, and sustainability, the Indonesian bureaucracy is expected to be more responsive to the needs of the community. One effective way to reform bureaucracy is to make maximum use of technology.

Digital technology presents opportunities to enhance access to information, lower transfer costs, and automate certain tasks, with various programs being tested worldwide.⁷ Although existing evidence indicates that digital technology can boost efficiency and effectiveness—particularly in specific sectors—this knowledge represents only a small part of what we need to understand in this field. Additionally, many of the findings available are often based on partial equilibrium results. Moreover, while digital technologies can improve the effectiveness and efficiency of public service delivery, there is still much to explore.⁸

The target of bureaucratic reform is the state apparatus. This is needed empirically to answer the demands of society, which wants a clean government free from the practices of corruption, collusion, and nepotism. In an article published by the Ministry of Communication and Information of the Republic of Indonesia, it was stated that Indonesia's human resources in the field of informatics are very worrying. In 2017, the quality of education in the field of information and communication technology in Indonesia was ranked 8th in Southeast Asia.⁹ Meanwhile, according to the Indonesian Central Statistics Agency, the Indonesian Technology, Information, and

⁶ Arief Jauhari et.al, “Are E-Government and Bureaucratic Reform Promoting Good Governance Towards a Better Performance of Public Organization?,” *Quality - Access to Success* 21, no. 175 (2020): 25–30.

⁷ Jenny C Aker and Joël Cariolle, “The Use of Digital for Public Service Provision in Sub Saharan Africa,” *FERDI Policy Brief*, no. B209 (2020): 3–12, <https://hdl.handle.net/10419/269811>.

⁸ Sanjeev Gupta et.al (Ed), *Digital Revolution in Public Finance* (Washington DC: IMF, 2017), 218.

⁹ Kominfo RI, https://www.kominfo.go.id/content/detail/10247/indonesia-darurat-tenaga-programmer/0/sorotan_media.

Communication Development Index for 2022 will reach 5.85 points on a scale of 0-10.¹⁰ This data shows that Indonesia cannot yet say that Indonesia has implemented technology to the maximum.

In reality, the existence of bureaucracy in the government is often viewed in a dichotomous manner; apart from being needed to carry out daily government affairs, bureaucracy is also often seen as a system that causes the running of government and public services to be stalled and long-winded. Symptoms of bureaucratic disease like this are also visible in the government bureaucratic system in Indonesia.¹¹ Various criticisms regarding inefficiency in the Indonesian bureaucratic system, its quantity being too large and rigid have often been expressed openly.¹² Factors such as corruption, which is the result of top-down decision-making patterns in the bureaucratic system, are still a serious issue.

Continuous learning and adaptation to technological advances are the keys to formulating relevant and effective steps in achieving the vision of bureaucratic reform. Based on general data, by 2025 Indonesia will need almost 2 million workers in the technology, information, and communications sectors. This is certainly an important note for the government to be able to catch up with Indonesia's lagging bureaucratic sector in the technology-based personnel sector so that it can keep pace with market needs in 2025 as shown on Figure 1.

¹⁰ Badan Pusat Statistik Indonesia, *Indeks Pembangunan Teknologi Informasi dan Komunikasi* 2022, <https://www.bps.go.id/id/publication/2023/09/29/cfa3a7c9e8b2397799ec6bb3/indeks-pembangunan-teknologi-informasi-dan-komunikasi-2022.html>.

¹¹ Tjahya Supriatna, *Birokrasi Dan Pemerintahan Daerah* (Jakarta: PT Nagakusuma, 2014), 66.

¹² Yudha Watuhana dan Rini Werdiningsih, "Reformasi Birokrasi Era Informasi Teknologi," *Jurnal Media Administrasi* 3, no. 1 (2021): 8–15.

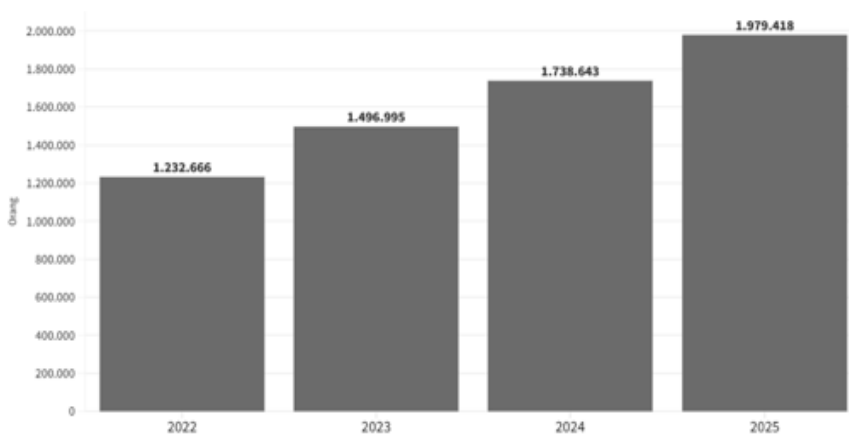


FIGURE 1. Data of Projection of Workforce Demand in the ICT Sector (2022-2025)

Source: Kementerian Ketenagakerjaan Republik Indonesia, 2024.

An electronic-based government system with a bottom-up approach can be an alternative for an effective, efficient, and transparent management process.¹³ However, currently, technology-based bureaucratic policies are only felt by a few regions and agencies, most of which are in the central government. For example, the birth of Presidential Regulation Number 28 of 2021 concerning the National Cyber and Crypto Agency and the formation of the National Public Service Complaints-People's Online Aspiration and Complaints Service, which is managed by the Ministry of State Apparatus Empowerment and Bureaucratic Reform through Presidential Regulation Number 76 of 2013 concerning the Management of Public Service Complaints. Recruitment of state officials with the background and main task of implementing technology in the bureaucracy is also unable to cover the lack of need for the use of technology in the bureaucracy.

Through the explanation above, at least the authors highlight several things related to the importance of legal reform in the bureaucratic sector, which causes the ineffective work of the state civil apparatus in Indonesia. First, the performance of state civil servants as

¹³ Yuhfizar et.al, "Penerapan Sistem Pemerintahan Berbasis Elektronik (E-Government) Dengan Pendekatan Bottom-Up Berbasis Web Di Sumatera Barat," *Prosiding Seminar Nasional Multidisiplin Ilmu*, no. 1 (2019): 303–309.

bureaucrats is often long-winded and slow. Second, the inadequate presence of state civil servants who are placed in the field of technology, and third, the development of bureaucratic technology has only been carried out massively at the central level and has not yet touched grassroots agencies and regional governments. Based on this explanation, the authors raise two legal issues related to the extent of Indonesia's current bureaucratic reform and what legal efforts to integrate technology into the Indonesian bureaucracy as an effort to reform the bureaucracy.

This research is normative legal research by conducting a systematic literature review on the development of bureaucratic reform in Indonesia.¹⁴ This research is divided into several research stages. First, the authors will search for studies related to bureaucratic reform contained in credible journal articles, for example journals indexed by Scopus, which helps the authors develop a broader perspective but remains relevant to this research.¹⁵ Second, namely identifying these articles and finding connections between them by looking for key words that are relevant to this research. Third, namely the stage of finding the results of the identification that has been carried out.¹⁶

This research uses a conceptual approach. The approach departs from the views and doctrines that develop in legal science.¹⁷ By studying views and doctrines in legal science, researchers will find ideas that give rise to legal meanings, legal concepts, and legal principles that are relevant to¹⁸ the issues faced regarding the regulation of Indonesian bureaucracy. The legal material analyzed in this research will be examined normatively and qualitatively. This means the research data

¹⁴ Matthew J Page et.al, "PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews," *BMJ*, 2021, 1–35.

¹⁵ Angela Carrera-Rivera et.al, "How-To Conduct A Systematic Literature Review: A Quick Guide For Computer Science Research," *MethodsX* 9 (2022): 1–12.

¹⁶ Mukhlis et.al, "Regional Regulation Problems In The Field Of Salt Industry Development Perspective Of Farmers In Sampang Regency," *Trunojoyo Law Review (TLR)* 6, no. 1 (2023): 81.

¹⁷ Yati Nurhayati et.al, "Investment in Indonesia After Constitutional Court's Decision in the Review of Job Creation Law," *Jurnal Lentera Hukum* 9, no. 3 (2022): 439–40.

¹⁸ Purnima Khanna, "Constitutionalism and Human Rights: A Critical Analysis of the Rights of Transgender People in India," *Jurnal Lentera Hukum* 9, no. 3 (2022): 373.

will be discussed and explained according to relevant legal norms, principles, and doctrines related to the issue. The researcher will systematically collect and reduce the data, analyzing it thoroughly until a conclusion is reached. This study will systematically process and organize primary, secondary, and tertiary legal materials using the deductive method.¹⁹

Indonesia's Current Bureaucracy Reform

Since the post-Soeharto reform era, Indonesia's bureaucratic reforms have been making rapid progress. Progress in Indonesia's bureaucratic reform was a gradual process that required three waves of reform. The new bureaucratic transition significantly occurred during the first wave of 2003, aiming to make changes.²⁰ Then, during the second wave of reform, the governments of Susilo Bambang Yudhoyono and Joko Widodo implemented a national-scale bureaucratic reform in 2010, as outlined in Presidential Regulation Number 81 of 2010, known as the Grand Design of Reforms. The bureaucratic reform's grand design has been in progress from 2010 to 2025. It is divided into three periods: the 2010-2014 Bureaucratic Reform Road Map, the 2015-2019 Bureaucratic Reform Road Map, and the 2020-2024 Bureaucratic Reform Road Map. The reform aims to address the Grand Design of Reforms.²¹ The grand design of the second wave of bureaucracy will conclude in 2025, as it is currently entering its final phase.

The implementation of reform policies carried out in Indonesia is directed at efforts to create a bureaucratic profile that is efficient, capable, responsive and dynamic to the demands aimed at the bureaucracy itself, whether originating from the national, regional or international scope, which works towards Good Governance. The

¹⁹ Amancik et.al, "Choices of Law for Democratic Regional Head Election Dispute Resolution Institutions in Indonesia," *Jambura Law Review* 6, no. 2 (2024): 309–10.

²⁰ Mark Turner et.al, "The Challenge of Reforming Big Bureaucracy in Indonesia," *Policy Studies* 43, no. 2 (2022): 333–351.

²¹ Linda Widowati et.al, "Dynamic Governance as Perspective in Indonesian Bureaucracy Reform Qualitative Analysis of Indonesian Bureaucracy Reform Based on Dynamic Governance," *Jurnal Bina Praja* 15, no. 2 (2023): 403–15.

bureaucratic system is a pillar of public service to deal with very fundamental problems.²²

The Grand Design of bureaucratic reform in Indonesia is outlined in Presidential Regulation Number 81 of 2010, commonly referred to as the Grand Design of Reforms. This regulation aims to establish a professional government bureaucracy by implementing a competency-based recruitment and promotion system. The goal is to create a transparent bureaucracy that encourages mobility among regional officials, connects central and regional offices, and ensures equitable salaries and welfare guarantees. Additionally, according to Robins and Judge, personnel management involves three essential skills: technical skills, personal skills, and conceptual skills.²³

Technical skills refer to the ability to apply specialized knowledge or expertise. When we think of professionals like civil engineers or oral surgeons, we often focus on the technical skills they acquire through extensive formal education. However, technical skills are not exclusive to these professionals. Not all technical skills need to be learned in schools or traditional training programs; all jobs require some level of specialized expertise. Many individuals develop their technical skills while on the job.²⁴

People skills refer to the ability to understand, communicate with, motivate, and support others, both individually and in groups. While many individuals may be technically proficient, they may struggle with listening, understanding others' needs, or managing conflicts effectively. For managers, possessing strong people skills is essential, as they must collaborate with and lead others to accomplish tasks.

Conceptual skills are the mental ability to analyze and diagnose complex situations, which is essential for developing conceptual skills. For example, effective decision-making involves identifying problems, developing alternative solutions, evaluating those alternatives, and

²² Asnawi Reswansyah, *Reformasi Birokrasi Dalam Rangka Good Governance* (Jakarta: Yusaintanas Prima, 2010), 148.

²³ Brett Valentine, "The 4x4 Security Program and Organization Structure", *IBM: Security Intelligence*, Accessed on September 1, 2024, <https://securityintelligence.com/the-4x4-security-program-and-organization-structure/>.

²⁴ Stephen P Robins and Timothy A Judge, *Organizational Behavior* (London: Pearson, 2023), 42.

selecting the best option. Once a course of action is chosen, managers must organize a plan and execute it. Additionally, the ability to integrate new ideas with existing processes and to innovate in the workplace are crucial conceptual skills for today's managers.

In order to realize the managerial abilities of bureaucrats, it is only natural that technology becomes a tool that can improve the skills mentioned above. The United Nations has released the results of the 2022 E-Government survey. The results are quite encouraging, namely Indonesia's position has risen significantly from rank 88 in 2020 to rank 77 in 2022.²⁵ The survey results are a strong sign that digitalization must be realized immediately, especially in government so that public services from the State Civil Apparatus (ASN) continue to improve. Therefore, all ministries, institutions and regional governments need to strengthen their commitment and increase the use of technology. Currently, Indonesia is launching an Electronic-Based Public Service System which is regulated in Presidential Regulation Number 95 of 2018 concerning Electronic-Based Public Service System.

The survey, which is published every two years, ranks 193 UN member countries on three performance dimensions of the E-Government Development Index (EDGI). These are the online service index (OSI), the telecommunications infrastructure index (TII), and the human capital index (HCI). In each assessment of performance measures, Indonesia recorded a fairly good score, namely a score of 0.7644 for OSI, a score of 0.6397 for TII, and a score of 0.7438 for HCI. These three components are above the world average score.

Even though it has experienced significant improvements, bureaucratic digitalization is still far below Thailand which is ranked 55th, Malaysia which is ranked 53rd and Singapore which is ranked 12th. In Singapore, for example, the use of Artificial Intelligence (AI) seems to be quite developed, as reported by the Singapore media, several public service activities have been carried out by AI, for example Smart estates, seamless and efficient municipal services and Education, K-12.²⁶

²⁵ United Nations, *E-Government Survey 2022 The Future of Digital Government* (New York: Department of Economic and Social Affairs, 2022), 69.

²⁶ Management and Business Review, *Singapore's AI Applications in the Public Sector: Six Examples*, <https://mbrjournal.com/2023/07/25/singapores-ai-applications-in-the-public-sector-six-examples/>, was accessed on October 29, 2024 . also read: UNDP Singapore Global Centre, *Pairing with AI for Public Sector Impact in*

The lack of maximum bureaucratic reform in Indonesia is due to many factors, but the main reason is that it is not supported. bureaucratic reform with basic legal reform and the behavior of state civil servants which does not fully support the interests of society.²⁷

There are many explanations that can be used to understand why the government and bureaucracy are slow to develop good service performance. The ability of a public service system to respond to the dynamics occurring in society appropriately, quickly and efficiently will be largely determined by how the bureaucracy's mission can be understood and used as a basis for criteria in policy making by the bureaucracy. The lack of clarity in the mission also makes the orientation of the bureaucracy and its officials towards procedures and regulations very high. Especially in the Indonesian public bureaucracy which tends to make procedures and regulations the commander in chief. As a result, the unclear mission of the public bureaucracy encourages public bureaucratic officials to use procedures and rules as the main criteria in providing services. A management style that is too task oriented also causes employees to become unmotivated to create real results and excellent quality public services. Formality in the details of organizational tasks demands a high degree of uniformity. As a result, employees are afraid of making mistakes and tend to complete work in accordance with implementation instructions and technical instructions, even though the conditions found in reality are very different from these technical regulations.²⁸ A long-standing research trend has shown that reference to procedures and a lack of creativity are common characteristics of civil servants in Indonesia.²⁹ For this reason, technological development in a bureaucratic context is hampered and many encounter steep roadblocks.

Singapore, <https://www.undp.org/policy-centre/singapore/blog/pairing-ai-public-sector-impact-singapore>, was accessed on October 29, 2024.

²⁷ Jamiat Akadol, "Bureaucracy Reform: A Dilemmatic Bureaucratic Law Politic," *South East Asia Journal of Contemporary Business, Economics and Law* 8, no. 4 (2015): 81–86.

²⁸ Agus Dwiyanto (Ed), *Mewujudkan Good Governance Dalam Pelayanan Publik* (Yogyakarta: JICA dan Gadjah Mada University Press, 2005), 101.

²⁹ Roni Ekha Putera, "E-Government Dan Reformasi Birokrasi Dalam Rangka Peningkatan Pelayanan Publik Di Daerah," *Jurnal Demokrasi* 8, no. 11 (2009): 97–123.

The uneven distribution of bureaucratic reform through technology is also an obstacle currently faced by Indonesia. Even though some local government agencies are encouraging themselves to implement e-government, this does not mean that all of them are doing this. There are many other agencies or areas that have not yet been touched by e-government. Since 2003, through Presidential Instruction Number 3 of 2003 concerning National Policy and Strategy for E-government Development, the Government has asked regional officials to take the necessary steps according to their respective duties, functions and authorities in order to carry out development. e-government nationally. However, unfortunately, this is not accompanied by knowledge readiness in the field of technology, so that officials cannot map the need for technology in the context of the bureaucracy under their control.

In a country, government officials are typically referred to as state servants or public servants. This role is expected to be fulfilled by providing various essential services to the community.³⁰ In the context of public services organized by the state, Article 12 and Article 23 of Law Number 25 of 2009 concerning Public Services states that cooperation is required regarding operational techniques and is obliged to manage information systems. If we look at the explanation of the two articles in its law, these activities are carried out using technology.

It must be acknowledged that through the 2014 State Civil Apparatus Law, which has now been replaced by Law Number 20 of 2023, Indonesia has changed the view of the Parkinson's bureaucracy system³¹ by Meritocracy.³² ASN is expected to demonstrate high

³⁰ Muhammad Sawir, *Birokrasi Pelayanan Publik (Konsep, Teori Dan Aplikasi)* (Yogyakarta: Deepublish, 2022), 113.

³¹ Parkinson's style suggests that state officials tend to expand their departments by creating more specialized roles, even when the workload does not necessitate it. As a result, bureaucrats may continue to hire more staff regardless of the actual needs of the organization. This stands in direct contrast to Weber's vision of an efficient, effective, rational, and professional bureaucracy, often referred to as the "ideal" bureaucracy. Additionally, good governance can be attained through the application of trust-building principles, including participation, law enforcement, transparency, responsiveness, equality, justice, and accountability.

³² In a meritocracy system, individuals are assigned to positions of power, influence, or reward based solely on their abilities and achievements, rather than on their social, cultural, or economic background or irrelevant personal characteristics.

competence, professionalism, integrity, objectivity, and impartiality, as well as to combat corruption, collusion, and nepotism. This Ministerial Regulation codifies the Circular Letter of the Minister of PANRB Number 384, 390, and 391 of 2020 concerning Strategic and Concrete Steps for Bureaucratic Simplification addressed to Advanced Indonesian Cabinet Ministers, Governors, and Regents/Mayors throughout Indonesia on November 13, 2019. According to the Minister of PANRB, bureaucratic simplification is intended to create a more dynamic, agile, and professional bureaucracy to increase effectiveness and efficiency in supporting the delivery of government services to the community. After that, efforts will be made to improve the competence of civil service employees (ASNs).³³ The plan to simplify the bureaucratic structure by streamlining the echelon system is one of the strategies and breakthroughs of bureaucratic reform.

Even though it has succeeded in making bureaucracy more efficient, this system is not yet fully effective, especially in regional bureaucracies. Several state civil servants in the regions experienced disorientation in determining their duties and functions in terms of public services. Some even think that this simplification actually increases the workload.³⁴

The situation is worsened by the spread of bureaucratic pathology, which is particularly challenging to address in Indonesia. Smith, in his book, identifies two main issues within bureaucracy: Dysfunctions of Bureaucracy and Mal-administration.³⁵ Dysfunctions of Bureaucracy refer to ineffective institutions characterized by poor structures, rules, and procedures that impact bureaucratic quality. On the other hand, Mal-administration involves the inability to regulate behavior, leading to problems such as corruption, arrogance,

³³ Istiyadi Insani et.al, "Impact of Bureaucratic Simplification on Policy Analyst Functional Positions in Indonesia," *Proceedings of the 5th International Conference on Indonesian Social and Political Enquiries, ICISPE 2020*, 2021.

³⁴ Aris Maulana et.al, "Analysis of Bureaucratic Reform Through Delaying of Government Institutions in Indonesia," *Jurnal Borneo Administrator* 18, no. 2 (2022): 155–70.

³⁵ Ronald G Ehrenberg and Robert S Smith, *Modern Labor Economics: Theory and Public Policy* (Boston: Routledge-Cavendish, 2008), 355, https://faculty.ksu.edu.sa/sites/default/files/Modern_labor_economics__theory_and_public_policy_0.pdf.

misinformation, ignorance, and bias, which are closely tied to the quality of human resources or bureaucrats within the system.

If most research shows that the most effective way to eradicate this bureaucratic pathology (maximizing the work of bureaucrats) is understanding ethics and strengthening the character of bureaucrats related to honesty, benevolence and good nature, in this research, the authors assume that such methods are the way to—method.³⁶ Other research says that in responding to society 5.0, bureaucrat ethics must be balanced with bureaucratic development.³⁷ This view is shared by researchers, but researchers assume that in certain contexts, the massive and organized use of technology is an effective way to build ethical values (honesty, benevolence and good nature). With the use of technology, bureaucratic spaces that previously could not be touched easily and quickly will be opened and can be seen clearly. Legal protection and accountability will be easier to enforce.

Technology Integration in Indonesian Bureaucracy

A. Construction of Technology-Based Public Services and Bureaucracy in Indonesia

Adam Smith in *"Roles for Government and Contemporary U.S. Government Roles"* stated which he believed that government's proper roles in society should be limited, but well-defined: government should provide national defense, the administration of justice, and public goods.³⁸ Meanwhile, the bureaucracy has four tasks. The first is the Administrative Task, which is the main task of the bureaucracy to implement the laws and policies set by the government. Second, the bureaucracy serves as the central organization in the state and is responsible for providing policy advice, including offering information, suggestions, and recommendations for the organization to formulate

³⁶ Eva Sørensen and Jacob Torfing, "The Ideational Robustness of Bureaucracy," *Policy and Society* 43, no. 2 (2024): 141–58, <https://doi.org/10.1093/polsoc/puae015>.

³⁷ Romdana, "Implementation of Bureaucracy Reform Through Implementation Of Apparatus Human Resources Management Towards Society Bureaucracy 5.0," *Jurnal Education and Development* 10, no. 1 (2022): 294–301, <https://journal.ipts.ac.id/index.php/ED/article/view/3446/2219>.

³⁸ Zainuddin Mustapa, *Bunga Rampai Birokrasi (Isu-Isu Strategik Seputar Birokrasi)* (Makassar: Celebes Media Perkasa, 2017), 5–6.

policies. Next, the bureaucracy is often involved in articulation and aggregation tasks because it implements organizational policies and programs. The final task is to maintain organizational stability. Rulers, ministers, constitutions, laws, political parties, and models of government may change numerous times, but the bureaucracy is responsible for keeping the state functioning and unified, ensuring that the state mechanisms continue to operate effectively.³⁹

Therefore, to carry out their four duties in an appropriate manner, the state civil apparatus as the spearhead of the bureaucracy mostly carries out public service tasks. Public service is the provision of services (serving) the needs of other people or the public who have an interest in the organization in accordance with the basic rules and procedures that have been determined.⁴⁰ Meanwhile, Thoha in Sedarmayanti said that community service is an effort carried out by a person or group of people or certain agencies to provide assistance and convenience to the community in achieving certain goals.⁴¹

The quality of public service is the quality of bureaucrats' service to the community which is able to fulfill the desires or needs of customers/society. In this case, service quality is a measure of conformity between what is expected and reality in terms of meeting community needs, and to achieve maximum quality, control/monitoring must always be carried out, and to see service quality, indicators are needed.⁴²

In the previous part it was said that with the existence of technology, bureaucratic spaces that previously could not be touched easily and quickly will be opened and can be seen clearly. Legal protection and accountability will be easier to enforce. This is due to how have enabled a number of major changes in how public bureaucracies operate,⁴³ there are Speed in internal operations,

³⁹ Yuliana Keke et.al, "Bureaucracy and Government," *Constitutionale* 3, no. 1 (2022): 11–20.

⁴⁰ Harbani Pasalong, *Kepemimpinan Birokrasi* (Bandung: Alfabeta, 2008), 199.

⁴¹ Sedarmayanti, *Reformasi Administrasi Publik, Reformasi Birokrasi, Dan Kepemimpinan Masa Depan (Mewujudkan Pelayanan Prima Dan Kepemimpinan Yang Baik* (Bandung: Refika Editama, 2009), 243.

⁴² L P Sinambela, *Reformasi Pelayanan Publik* (Jakarta: Bumi Aksara, 2010), 8.

⁴³ Joshua Newman et.al, "Digital Technologies, Artificial Intelligence, and Bureaucratic Transformation," *Features* 136, no. 102886 (2022): 1–11, <https://doi.org/10.1016/j.futures.2021.102886>.

Convenience at the user interface, Better Data, Transparency and Accountability.

In essence, the aim of the quality of public services carried out by the bureaucracy is to meet the needs of the community with the end result of creating community satisfaction regarding the services provided. To achieve this satisfaction, of course the bureaucracy in providing public services must be able to provide quality services for the community. However, many government agencies experience issues with the performance of their infrastructure, which significantly impacts the effectiveness of the state civil service. Moreover, the shortage of personnel within the organization can hinder workflow. Additionally, there are challenges related to the discipline of the state civil service.⁴⁴

Apart from that, community services that have not maximized technology are an obstacle to improving the quality of services provided. The Minister of Communication and Information explained that digital literacy is something that is very important for the State Civil Apparatus, not only aimed at fulfilling their obligations as a State Civil Apparatus to develop their competence, but also to increase the competence of the State Civil Apparatus in the field of technology that supports services to the community. Technology aims to achieve greater efficiency through innovation, which includes cost reduction, improvements in the production, handling, and analysis of information and large quantities of data. It also involves the creation of digital networks that can enhance cooperation, such as enabling remote collaboration. However, it is important to note that simply adopting and implementing technological innovations does not guarantee these outcomes.

President Joko Widodo in 2018 issued a road map policy for *Makin Indonesia 4.0* as a form of government effort to face the industrial revolution 4.0. (currently entering the industrial revolution 5.0) The Ministry of Industry published a road map document containing the government's commitment to revitalizing the national manufacturing sector which is supported by technology such as the Internet of Things, Artificial Intelligence, robotic technology and so

⁴⁴ Steven Monggesang et.al, "Analysis of the State Civil Apparatus's Public Service Performance at the Pinaesaan Village Office, Wenang District," *Journal of Public Administration and Government* 5, no. 1 (2023): 99–106.

on.⁴⁵

In fact, the rules and policies relating to public services and state civil servants mentioned above have basically led to a technology-based bureaucratic system, but do not appear to have had a significant impact on public services in Indonesia. This is proven by the absence of a policy that specifically integrates the work of civil servants with technology.

If we look at the Regulation of the Minister for Administrative Reform and Bureaucratic Reform of the Republic of Indonesia Number 3 of 2023 concerning Amendments to the Regulation of the Minister of Administrative Reform and Bureaucratic Reform Number 25 of 2020 concerning the Road Map for Bureaucratic Reform 2020-2024, the main strategy for creating this governance is by making information and communication technology the main instrument in the internal process of good government governance and the provision of quality public services. Digital bureaucracy is believed to be the fastest strategy for creating a more agile, responsive and adaptive government so that it can accelerate various national development programs, improve the quality of services more quickly and easily, and suppress irregularities that are very likely to occur if done manually without technology.

In fact, there are nine digital bureaucratic policies that have been determined to be the main strategy by the Ministry of Empowerment of State Civil Apparatus and Bureaucratic Reform (PAN-RB), one of which is Strengthening evidence-based Public Policy with Big Data and Artificial Intelligence, the estuary of the use of technology or SuperApps is the provision of data in real time and up-to-date which can be used as a basis for decision making and the preparation of artificial intelligence-based public policies. The target of this policy is "Improving the Quality of Policies and Regulations", namely that every public policy and regulation that will be issued by an agency must be based on evidence from relevant and valid data sources so that the quality of the policies that will be issued and implemented will be better because they can be a solution in every strategic issues that form the background for the issuance of policies and regulations.

From the 2020-2024 Bureaucratic Reform roadmap above, it can

⁴⁵ V M Rumata dan D A Nugraha, "Rendahnya Tingkat Perilaku Digital ASN Kementerian Kominfo: Survei Literasi Digital Pada Instansi Pemerintah," *Jurnal Studi Komunikasi* 4, no. 2 (2020): 476.

actually be seen that the government has a strong desire to integrate digital technology and even artificial intelligence in the bureaucratic system. Unfortunately, if you look at the policies currently in force, the government is still focused on strengthening the use of technology within the internal bureaucracy. For example, planning, reporting and monitoring technology-based performance (for example the SISTER application for lecturers, E-SKP for civil servants who will report their performance). However, public services, which are the core of the bureaucracy, are still untouched by technology.

As previously explained, when compared with allied countries such as Thailand, Malaysia and Singapore, Indonesia's e-government index is still far behind. This must be anticipated immediately so that digital-based public services can provide services to the community well and optimally. On the other hand, there are findings that the work culture of state civil servants still uses traditional methods and has not been able to adapt to current developments, especially technology.⁴⁶ Even though the mandate of Article 4 of Law Number 20 of 2023 concerning State Civil Apparatus, one of the behaviors of state civil servants must be adaptive.

Seeing how important the role of technology is as part of bureaucratic reform, the authors see the importance of prioritizing the procurement and mapping of technological personnel as state civil servants. Until now, there is no information or in-depth study regarding the number of state officials who specifically work as supporting technology and information in running the wheels of bureaucracy. If we view bureaucratic reform as a serious matter, it is hoped that the government can pressure all agencies, both central and regional, to jointly prepare recruitment and placement plans for state civil servants who have an educational background related to the operation of technology. This seems to be in line with the provisions of Article 1 number 6 of Law Number 20 of 2023 concerning State Civil Apparatus.

The government must seriously apply the principles of meritocracy to address the issue of recruiting state civil servants. In research in Africa, for example, policy makers were deemed unable to

⁴⁶ M Kurniati, "Analisis Gaya Komunikasi Pegawai Negeri Sipil Generasi Milenial Di Badan Kepegawaian Negara," *Civil Service: Jurnal Kebijakan Dan Manajemen PNS* 16, no. 2 (2023): 56–76.

address persistent obstacles to technology and information access through their policies. The government's insensitivity to the massive need for personnel in the field of information technology (IT) was also pointed out as a failure in identifying problems in the bureaucratic reform process.

Apart from that, the extreme idea of replacing some of the state civil servants with Artificial Intelligence also seems to need to be the subject of serious study by the government. The definition of intelligence is '*the ability to accomplish complex goals*.' Tegmark argues that this definition is broad enough to encompass many of the competing definitions of intelligence, which include 'capacity for logic, understanding, planning, emotional knowledge, self-awareness, creativity, problem solving, and learning.'⁴⁷

Throughout history, especially regarding technological innovation, bureaucratic public administration has struggled to effectively utilize advancements in a timely manner and fully benefit from them. The adoption of innovative software and communication technologies, particularly with the rise of the internet (even though governments played a significant role in its development), has progressed rapidly everywhere except within public administrations.⁴⁸ Beyond this urge of not being left behind, it is necessary to analyze if the adoption of artificial intelligence by public administrations, particularly in bureaucratic processes, is desirable and if it can lead to positive outcomes not only in terms of efficiency and speed related to how bureaucracy is run and decisions are made but in terms of outcomes, if on the whole these are positive for bureaucratic public administration specifically but more in general, for the whole of society, for citizens and their rights.

Beyond the desire to keep up with the latest trends, it is important to consider whether it is beneficial for public administrations to integrate artificial intelligence into bureaucratic processes. This analysis should focus on whether such integration can improve efficiency, speed, and decision-making within the bureaucracy, as well as whether it can

⁴⁷ M Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence* (New York: Alfred A Knopf, 2017), 24.

⁴⁸ Rodrigo Cetina Presuel and Jose M Martinez Sierra, "The Adoption of Artificial Intelligence in Bureaucratic Decision-Making: A Weberian Perspective," *Digital Government: Research and Practice* 5, no. 1 (2024): 1–20.

lead to positive overall outcomes for public administration and society as a whole, including citizens and their rights.

However, this is slightly different from some who emphasize the use of artificial intelligence which is intended to replace street-level bureaucrats⁴⁹ massively, the authors only focus on one street-level bureaucrat. In the Regulation of the Minister for Empowerment of State Apparatus and Bureaucratic Reform of the Republic of Indonesia Number 45 of 2022 concerning the Position of Acting Civil Servants in Government Agencies, there is a Clerk. Clerk is a nomenclature classification of executive positions that carry out administrative service tasks. In the Indonesian Dictionary, the word "*clerk*" contains two meanings of low-ranking employees who do paperwork in government offices, a rank above clerks and employees who do paperwork in private offices.⁵⁰ This position seems to be very suitable to be replaced by artificial intelligence. This aligns with Max Weber's opinion, who stated that:⁵¹

"Bureaucracy develops the more perfectly, the more it is 'dehumanized', the more completely it succeeds in eliminating from official business love, hatred, and all purely personal, irrational, and emotional elements which escape calculation"

Max Weber's opinion is indeed considered not very relevant to the culture and work ethic of Indonesians in general, but Weber's understanding of "dehumanized" must be interpreted as an individual who gives up his personal and group interests in order to provide services to the public more efficiently. Replacing low-ranking employees who do paperwork in government offices with Artificial Intelligence on a massive scale is certainly a rational option for improving the quality of

⁴⁹ Street-level bureaucrats are bureaucratic officials who are directly in contact with public services or in another sense are bureaucratic officials who have direct access to the public or provide public services.

⁵⁰ Kamus Besar Bahasa Indonesia (KBBI), <https://kbbi.web.id/klerek>. Accessed on September 2, 2024.

⁵¹ Max Weber, *Economy Society* (California: University of California Press, 1978), 975.

public services. We can identify this as the Neo-Weberian concept.⁵²

This aligns with the views of Burns and Stalker, who describe bureaucracies as having a "*mechanistic*" form of administration that is based on fixed rules and procedures. In contrast, "*organic*" organizations rely more on individual discretion.⁵³

Implementing this idea certainly still requires a lot of research, especially in the field of Artificial Intelligence technology. America even has laws that comprehensively regulate how AI is used in its government, namely the AI in Government Act (H.R. 2575) and the Advancing American AI Act (S.1353).⁵⁴ In this Act, America has obliged certain agencies to drive AI programs and policies across the federal government. In January 2023, the White House Office of Science and Technology Policy published its Blueprint for an AI Bill of Rights, while the National Institute of Standards and Technology released an AI Risk Management Framework. In the summer of 2023, two additional broad policy frameworks were introduced: the SAFE Innovation Framework for AI Policy and the Blumenthal & Hawley Comprehensive AI Framework, both seeking bipartisan support to guide Congress in developing future AI legislation. Furthermore, in April 2023, four federal agencies issued a joint statement emphasizing that their enforcement powers apply to AI and that advanced technology should not be used as an excuse for breaking the law.⁵⁵ At the state level, Stanford University reports that from 2016 to 2022, 14 states enacted legislation related to AI. Maryland led the way with seven AI-related

⁵² Rodrigo Cetina Presuel and Jose M Martinez Sierra, "The Adoption of Artificial Intelligence in Bureaucratic Decision-Making: A Weberian Perspective," *Digital Government: Research and Practice* 5, no. 1 (2024): 1–20, <https://doi.org/10.1145/3609861>.

⁵³ Ronald M Lee, "Bureaucracies, Bureaucrats and Information Technology," *North-Holland European Journal of Operational Research* 18, no. 3 (1984): 293–303, [https://doi.org/10.1016/0377-2217\(84\)90151-6](https://doi.org/10.1016/0377-2217(84)90151-6).

⁵⁴ Christie Lawrence et.al, "The Bureaucratic Challenge to AI Governance: An Empirical Assessment of Implementation at U.S. Federal Agencies," *AIES '23: Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society*, 2023, 606–52.

⁵⁵ Marcin Szczepeński, *United States Approach to Artificial Intelligence* (European Parliament, 2024), [https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/757605/EPRS_ATAG\(2024\)757605_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/757605/EPRS_ATAG(2024)757605_EN.pdf).

bills, followed by California with six, and Massachusetts and Washington, each with five.

The authors evaluate the significant efforts made by the Indonesian government to enhance the image of bureaucracy in 2021, the government will make a big leap in simplifying bureaucracy in Indonesia through the Minister of State Apparatus Empowerment and Bureaucratic Reform Regulation Number 17 of 2021 concerning the Equalization of Administrative Positions into Functional Positions. The implication is that several administrator positions have been transferred to functional positions, which automatically eliminates several echelon concepts that previously applied. Imagine if artificial intelligence came in and could replace a small portion of executive positions. This effort certainly further simplifies the bureaucratic system in Indonesia. The action by the government indicates future systematic improvements in the Indonesian bureaucratic sector.

B. Optimizing Legal Regulations in the Bureaucratic Sector

The impact of the integration of technology in the bureaucratic system in Indonesia is of course that the bureaucratic data protection system must increase and become stricter. Based on Article 1 Paragraph (1) of Law Number 27 of 2022 concerning Personal Data Protection, states that "*Personal Data is data about an individual who is identified or can be identified individually or in combination with other information either directly or indirectly via an electronic system or non-electronic*". Then Article 1 Paragraph (3) states that "Information is information, statements, ideas and signs that contain the value, meaning and messages, both data, facts, and explanations that can be seen, heard and read which are presented in various forms." packaging and format following developments in electronic and non-electronic information and communication technology." The article explains that personal data is information about a person's matters in both electronic and non-electronic forms.

Data security is a crucial aspect of technology-driven governance. The government must ensure that confidential information is kept secure and not misused by unauthorized parties. Personal data of individuals must be safeguarded and not disclosed to unauthorized

parties.⁵⁶ There are a large number of potential security compromises that can easily cripple and damage technology-based bureaucratic services. Most security issues can be classified into four categories namely Infrastructure Security, Application Security, Identify Management and Information Assurance.⁵⁷

For this reason, it is very important to distinguish between personal data and bureaucratic data. At certain moments, personal data can become bureaucratic data when it relates to public services. For example, SISTER account for lecturers, in the interest of increasing knowledge, personal data collected in SISTER can become bureaucratic data which should be able to be consumed by the public because it contains various research and service activities which are accompanied by reports and research results. The current problem is how data that is actually personal data can be used as government information records and can be used for public purposes. This is a problem that the government should be able to anticipate if it wants to use technology as a means of bureaucratic reform. This is because the use of technology has an impact on transparency and also the availability of adequate data to meet community needs.

For this reason, it is crucial to reinterpret bureaucratic data and personal data. In the future, there must be regulations that can protect personal data that is also used as public data. It is also essential to have collaboration between the government, the private sector, and technology experts. The role of telecommunications law and the Personal Data Protection Law should be to create an environment where the government can work with technology companies to develop effective security solutions and ensure that existing regulations are always up-to-date with the latest technological developments.

The role of public service supervisory institutions also requires bureaucratic reform. Good governance aligns with the national bureaucratic reform agenda outlined in the 2005–2025 National Long Term Development Plan (RPJPN) and the 2010–2025 Bureaucratic Reform Grand Design. This aims to establish authoritative governance

⁵⁶ Richardus Eko Indrajit et.al, *E-Government in Action (Ragam Kasus Implementasi Sukses Di Berbagai Belahan Dunia)* (Yogyakarta: Andi, 2005), 3.

⁵⁷ James SL Young, *Enabling Public Service Innovation in the 21st Century E-Government in Asia* (Singapore: Times Editions, 2003), 243.

based on law and a neutral, professional bureaucracy. In the context of mainstreaming good governance, the Indonesian Ombudsman aims to improve the quality of public services. It measures this through the number of resolutions of public reports or complaints against public service providers. This role is defined by the regulations in Law Number 37 of 2008 concerning Ombudsman and Law Number 25 of 2009 concerning Public Services. The Indonesian Ombudsman also aims to encourage government agencies to achieve a high level of compliance in public services within the apparatus sector.⁵⁸

Article 6 of Law Number 37 of 2008 concerning the Ombudsman of the Republic of Indonesia regulates the function of the Ombudsman in supervising the implementation of public services organized by state and government administrators both at the center and in the regions, including those organized by BUMN, BUMD, BHMN as well as private bodies or individuals who given the task of carrying out certain public services. According to Article 1 number 2, what is meant by State Administrator is an official who carries out public service functions whose main duties are related to state administration in accordance with the provisions of statutory regulations. As for the definition of state administrators according to Law Number 28 of 1999 concerning State Administrators who are Clean and Free from Corruption, Collusion and Nepotism, Article 1 number 1 states that: "*State Administrators are officials who carry out executive, legislative, or judicial functions, as well as other officials whose main duties are related to state administration in accordance with applicable laws and regulations*".

The Ombudsman of the Republic of Indonesia, as an institution authorized to supervise public service administration, plays a crucial role in creating effective and efficient public services. However, there are obstacles to implementing this supervision. Specifically, many reported parties do not implement the Ombudsman's recommendations because they believe that these recommendations are not mandatory.⁵⁹

The implementation of the ombudsman's recommendations and suggestions differs from the execution in general courts in civil cases. It

⁵⁸ Andi Setyo dan Rahmat Hidayat, "Kinerja Pengawasan Pelayanan Publik Dalam Prioritas Nasional," *Bappenas Working Papers* V, no. 2 (2022): 270–89.

⁵⁹ Nabila Firstia Izzati, "Ombudsman Sebagai Lembaga Pengawas Pelayanan Publik Di Indonesia," *Jurnal SASI* 26, no. 2 (2019): 176–87.

requires support from the control function of the DPR/DPRD as a people's representative institution. This institution has the authority to oversee government policies and is strengthened through public awareness to carry out social control. The Ombudsman's role is to address maladministration in a constructive manner. This means that the Ombudsman doesn't just act as a watchdog by monitoring and imposing sanctions, but also collaborates with government agencies to provide oversight and guidance, ultimately aiming to improve the quality of public services.

Basically, these assumptions cannot be justified. Recommendations issued by the Ombudsman must be implemented by the reported party and the reported superior. If it is not implemented, the Ombudsman can convey this matter to the President and the House of Representatives (DPR). The Ombudsman's recommendations are binding and must be implemented. Apart from that, if the Ombudsman's recommendations are not heeded by the reported party or the reported superior, then the Ombudsman can publish the relevant state administration agency. The Ombudsman's recommendation includes a description of the report that was submitted, the results of the examination, instances of maladministration, as well as the conclusions and opinions of the Ombudsman on what actions the reported party and the reported superior need to take. It's important to note that the Ombudsman does not issue recommendations carelessly. Before making any recommendations, there are stages of clarification and mediation that take place. In fact, state civil servants who do not comply with the Ombudsman's recommendations may face sanctions, including a reduction in salary of up to one periodic salary increase for a maximum of one year according to Article 54, Paragraph (5) of the Public Service Law. They may also face sanctions such as dismissal from office, as regulated in Article 54, Paragraph (7) of the Public Service Law by their superiors. The Ombudsman's recommendations can serve as the basis for imposing sanctions on the officials concerned.

For this reason, the government should be able to socialize the duties and functions of the Ombudsman or even strengthen the position of the Ombudsman as a public service complaint channel that must be passed before moving to the level of resolving litigation in court.

Conclusion

Recognizing the critical role of technology in bureaucratic reform, the authors emphasize the importance of prioritizing the recruitment and training of technology professionals as state civil servants. Additionally, the authors suggest considering the use of Artificial Intelligence to replace certain administrative positions in order to streamline bureaucracy and reduce state spending. In addition, the government must think that the impact of technology-based bureaucratic reform is increasing data security. It is crucial to reinterpret bureaucratic data and personal data. In the future, there must be regulations that can protect personal data that is also used as public data. Collaboration with the private sector in maintaining bureaucratic data security is also highly recommended. Strengthening public service supervisory institutions is also an important note. The Ombudsman, who currently holds this power, is often underestimated because the recommendations he issues regarding public service cases are not binding. Furthermore, the authors believe that strengthening the Electronic Transaction Information Law is also essential. Regulations regarding the types of bureaucratic data that are allowed to be shared and bureaucratic data that cannot be shared at all.

References

- Abdurrahman et.al. "Peran Teknologi Dalam Transformasi Pendidikan: Perspektif Dari Studi Kepustakaan." *Journal on Education* 6, no. 2 (2024): 11359–11368.
- Adam Idris. "Bingkai Reformasi Birokrasi Indonesia." *Jurnal Paradigma* 2, no. 3 (2013): 352–257. <https://doi.org/10.30872/jp.v2i3.365>.
- Agus Dwiyanto (Ed). *Mewujudkan Good Governance Dalam Pelayanan Publik*. Yogyakarta: JICA dan Gadjah Mada University Press, 2005.
- Amancik et.al. "Choices of Law for Democratic Regional Head Election Dispute Resolution Institutions in Indonesia." *Jambura Law Review* 6, no. 2 (2024): 309–10.
- Andi Setyo dan Rahmat Hidayat. "Kinerja Pengawasan Pelayanan Publik Dalam Prioritas Nasional." *Bappenas Working Papers* V, no. 2 (2022): 270–89.

- Angela Carrera-Rivera et.al. "How-To Conduct A Systematic Literature Review: A Quick Guide For Computer Science Research." *MethodsX* 9 (2022): 1–12.
- Arief Jauhari et.al. "Are E-Government and Bureaucratic Reform Promoting Good Governance Towards a Better Performance of Public Organization?" *Quality - Access to Success* 21, no. 175 (2020): 25–30.
- Aris Maulana et.al. "Analysis of Bureaucratic Reform Through Delaying of Government Institutions in Indonesia." *Jurnal Borneo Administrator* 18, no. 2 (2022): 155–70.
- Asnawi Reswansyah. *Reformasi Birokrasi Dalam Rangka Good Governance*. Jakarta: Yusaintanas Prima, 2010.
- Christie Lawrence et.al. "The Bureaucratic Challenge to AI Governance: An Empirical Assessment of Implementation at U.S. Federal Agencies." *AIES '23: Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society*, 2023, 606–52.
- Dewi Asri Yustia and Firdaus Arifin. "Bureaucratic Reform as an Effort to Prevent Corruption in Indonesia." *Cogent Social Sciences* 9, no. 1 (2023): 1–11.
- Eva Sørensen and Jacob Torfing. "The Ideational Robustness of Bureaucracy." *Policy and Society* 43, no. 2 (2024): 141–58. <https://doi.org/10.1093/polsoc/puae015>.
- Harbani Pasalong. *Kepemimpinan Birokrasi*. Bandung: Alfabeta, 2008.
- Istiyadi Insani et.al. "Impact of Bureaucratic Simplification on Policy Analyst Functional Positions in Indonesia." *Proceedings of the 5th International Conference on Indonesian Social and Political Enquiries, ICISPE 2020*, 2021.
- James SL Young. *Enabling Public Service Innovation in the 21st Century E-Government in Asia*. Singapore: Times Editions, 2003.
- Jamiat Akadol. "Bureaucracy Reform: A Dilemmatic Bureaucratic Law Politic." *South East Asia Journal of Contemporary Business, Economics and Law* 8, no. 4 (2015): 81–86.
- Jenny C Aker and Joël Cariolle. "The Use of Digital for Public Service Provision in Sub Saharan Africa." *FERDI Policy Brief*, no. B209 (2020): 3–12. <https://hdl.handle.net/10419/269811>.
- Joshua Newman et.al. "Digital Technologies, Artificial Intelligence, and Bureaucratic Transformation." *Features* 136, no. 102886 (2022): 1–11. <https://doi.org/10.1016/j.futures.2021.102886>.

- L P Sinambela. *Reformasi Pelayanan Publik*. Jakarta: Bumi Aksara, 2010.
- Linda Widowati et.al. "Dynamic Governance as Perspective in Indonesian Bureaucracy Reform Qualitative Analysis of Indonesian Bureaucracy Reform Based on Dynamic Governance." *Jurnal Bina Praja* 15, no. 2 (2023): 403–15.
- M Kurniati. "Analisis Gaya Komunikasi Pegawai Negeri Sipil Generasi Milenial Di Badan Kepegawaian Negara." *Civil Service: Jurnal Kebijakan Dan Manajemen PNS* 16, no. 2 (2023): 56–76.
- M Rumata dan D A Nugraha, V. "Rendahnya Tingkat Perilaku Digital ASN Kementerian Kominfo: Survei Literasi Digital Pada Instansi Pemerintah." *Jurnal Studi Komunikasi* 4, no. 2 (2020): 476.
- M Tegmark. *Life 3.0: Being Human in the Age of Artificial Intelligence*. New York: Alfred A Knopf, 2017.
- Mahfud Effendi et.al. "Reformasi Birokrasi UMKM Dengan Konsep Integrated One Stop Service Melalui Linkage Channeling Programs Untuk Menuju Masyarakat Ekonomi Asean (MEA) 2015." *Jurnal Pendayaan Aparatur Negara* 4, no. 4 (2014): 6–20.
- Marcin Szczeptański. *United States Approach to Artificial Intelligence*. European Parliament, 2024. [https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/757605/EPRS_ATA\(2024\)757605_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/757605/EPRS_ATA(2024)757605_EN.pdf).
- Mark Turner et.al. "The Challenge of Reforming Big Bureaucracy in Indonesia." *Policy Studies* 43, no. 2 (2022): 333–351.
- Matthew J Page et.al. "PRISMA 2020 Explanation and Elaboration: Updated Guidance and Exemplars for Reporting Systematic Reviews." *BMJ*, 2021, 1–35.
- Max Weber. *Economy Society*. California: University of California Press, 1978.
- Muhammad Sawir. *Birokrasi Pelayanan Publik (Konsep, Teori Dan Aplikasi)*. Yogyakarta: Deepublish, 2022.
- Mukhlis et.al. "Regional Regulation Problems In The Field Of Salt Industry Development Perspective Of Farmers In Sampang Regency." *Trunojoyo Law Review (TLR)* 6, no. 1 (2023): 81.
- Nabila Firstia Izzati. "Ombudsman Sebagai Lembaga Pengawas Pelayanan Publik Di Indonesia." *Jurnal SASI* 26, no. 2 (2019): 176–87.
- Purnima Khanna. "Constitutionalism and Human Rights: A Critical

- Analysis of the Rights of Transgender People in India.” *Jurnal Lentera Hukum* 9, no. 3 (2022): 373.
- Richardus Eko Indrajit et.al. *E-Government in Action (Ragam Kasus Implementasi Sukses Di Berbagai Belahan Dunia)*. Yogyakarta: Andi, 2005.
- Rodrigo Cetina Presuel and Jose M Martinez Sierra. “The Adoption of Artificial Intelligence in Bureaucratic Decision-Making: A Weberian Perspective.” *Digital Government: Research and Practice* 5, no. 1 (2024): 1–20.
- Rodrigo Cetina Presuel and Jose M Martinez Sierra. “The Adoption of Artificial Intelligence in Bureaucratic Decision-Making: A Weberian Perspective.” *Digital Government: Research and Practice* 5, no. 1 (2024): 1–20. <https://doi.org/10.1145/3609861>.
- Romdana. “Implementation of Bureaucracy Reform Through Implementation Of Apparatus Human Resources Management Towards Society Bureaucracy 5.0.” *Jurnal Education and Development* 10, no. 1 (2022): 294–301.
- Ronald G Ehrenberg and Robert S Smith. *Modern Labor Economics: Theory and Public Policy*. Boston: Routledge-Cavendish, 2008. https://faculty.ksu.edu.sa/sites/default/files/Modern_labor_economics_theory_and_public_policy_0.pdf.
- Ronald M Lee. “Bureaucracies, Bureaucrats and Information Technology.” *North-Holland European Journal of Operational Research* 18, no. 3 (1984): 293–303.
- Roni Ekha Putera. “E-Government Dan Reformasi Birokrasi Dalam Rangka Peningkatan Pelayanan Publik Di Daerah.” *Jurnal Demokrasi* 8, no. 11 (2009): 97–123.
- Rumzi Samin. “Reformasi Birokrasi.” *Jurnal Fisip UMRAH* 2, no. 2 (2011): 172–82.
- Sanjeev Gupta et.al (Ed). *Digital Revolution in Public Finance*. Washington DC: IMF, 2017.
- Sedarmayanti. *Reformasi Administrasi Publik, Reformasi Birokrasi, Dan Kepemimpinan Masa Depan (Mewujudkan Pelayanan Prima Dan Kepemimpinan Yang Baik)*. Bandung: Refika Editama, 2009.
- Stephen P Robins and Timothy A Judge. *Organizational Behavior*. London: Pearson, 2023.
- Steven Monggesang et.al. “Analysis of the State Civil Apparatus’s Public Service Performance at the Pinaesaan Village Office, Wenang

- District.” *Journal of Public Administration and Government* 5, no. 1 (2023): 99–106.
- Tjahya Supriatna. *Birokrasi Dan Pemerintahan Daerah*. Jakarta: PT Nagakusuma, 2014.
- United Nations. *E-Government Survey 2022 The Future of Digital Government*. New York: Department of Economic and Social Affairs, 2022.
- Yati Nurhayati et.al. “Investment in Indonesia After Constitutional Court’s Decision in the Review of Job Creation Law.” *Jurnal Lentera Hukum* 9, no. 3 (2022): 439–40.
- Yudha Watuhana dan Rini Werdiningsih. “Reformasi Birokrasi Era Informasi Teknologi.” *Jurnal Media Administrasi* 3, no. 1 (2021): 8–15.
- Yuhefizar et.al. “Penerapan Sistem Pemerintahan Berbasis Elektronik (E-Government) Dengan Pendekatan Bottom-Up Berbasis Web Di Sumatera Barat.” *Prosiding Seminar Nasional Multidisiplin Ilmu*, no. 1 (2019): 303–309.
- Yuliana Keke et.al. “Bureaucracy and Government.” *Constitutionale* 3, no. 1 (2022): 11–20.
- Zainuddin Mustapa. *Bunga Rampai Birokrasi (Isu-Isu Strategik Seputar Birokrasi)*. Makassar: Celebes Media Perkasa, 2017.

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