

# Artificial Intelligence Function Management in Supporting the Process of Government Implementation and Public Services in Indonesia

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**Abstract.** *This research investigates the impact of Artificial Intelligence (AI) on government administration and public service delivery in Indonesia. The study employed qualitative research methods, including semi-structured interviews and detailed case studies of selected AI projects. The research results indicate that AI has significantly improved administrative efficiency and public service delivery. The "Smart Administration System" has automated routine tasks, resulting in a 60% reduction in manual processing times and enhancing overall productivity. The "Policy Insight Tool" has supported better policy formulation through advanced predictive analytics and scenario modeling. Despite these successes, the study identified challenges such as resistance to change, technical difficulties, and data integration issues. Feedback from users also highlighted limitations in AI language processing and accessibility concerns.*

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## INTRODUCTION

Over the past few years, the Indonesian government has been diligently implementing a range of innovative policy initiatives with the goal of propelling the nation to become a leading global economic force by 2045. This ambitious objective, commonly known as "Golden Indonesia 2045," signifies a significant milestone in Indonesia's development. The endeavors cover a broad spectrum of tactics, such as bolstering the economy, encouraging investment, cultivating human resources, and implementing extensive infrastructure projects. The primary aim of these efforts is to coordinate and align national and regional development plans, guaranteeing a cohesive approach to attaining long-term objectives (Nawaludin, 2023).

An essential step in this direction involves the incorporation of the National Long-Term Development Plan (RPJP) with the Regional Long-Term Development Plan (RPJPD) into a unified national development framework (Rustan et al., 2022; Pribadi et al., 2023). The objective of this integration is to ensure that regional development goals are in line with national priorities, promoting a cohesive and harmonized approach to development at different levels of administration. The synchronization of RPJP and RPJPD documents aims to establish a cohesive development path from 2025 to 2045, thereby improving the efficacy and efficiency of policy implementation. Ensuring alignment between national and regional policies is of utmost importance in order to maintain coherence and mutual reinforcement, ultimately leading to the achievement of Indonesia's long-term developmental goals.

Concurrent with these strategic planning endeavors, technological advancements have had an ever-growing impact on governance and public administration (Bezzina et al., 2021). One of the most significant technological advancements in recent times is Artificial Intelligence (AI),

which has had a profound impact on the functioning of governments and the delivery of public services (Kulal et al., 2024). The utilization of artificial intelligence has significantly transformed conventional administrative procedures at both national and regional levels through its ability to swiftly analyze data, recognize patterns, and make automated decisions (Marda, 2018; Dwivedi et al., 2021). Indonesia is currently experiencing a period of rapid digital transformation. The incorporation of AI into government operations offers great potential for enhancing administrative efficiency, improving public service delivery, and strengthening security and oversight (Van Noordt & Misuraca, 2022).

One of the key advantages of AI in government is its potential to enhance efficiency in administrative processes. AI technologies, which encompass machine learning algorithms and natural language processing systems, have the capability to automate mundane tasks such as document processing, data management, and policy analysis (Mehta et al., 2018). By entrusting these repetitive and time-consuming tasks to AI systems, government officials can focus on more intricate and strategic activities, such as synchronizing policies and making adjustments between RPJP and RPJPD documents. This shift not only improves administrative efficiency, but also guarantees higher accuracy and accountability in governmental operations. In addition, the automation of administrative functions can result in substantial cost savings and efficient resource allocation, thereby enhancing the utilization of public funds.

AI's impact goes beyond administrative tasks and extends to enhancing the delivery of public services. AI-driven technologies, such as chatbots and virtual assistants, have the potential to enhance the responsiveness and efficiency of services provided to citizens (Makasi et al., 2020). The AI systems are capable of handling common inquiries, providing prompt information, and aiding in various service-related processes. This helps alleviate the workload of public service personnel and speeds up responses to public requests. In addition, the data analysis capabilities of AI allow the government to gain a more profound understanding of community needs. This, in turn, facilitates the development of evidence-based policies that better meet the requirements of the population. Through the utilization of artificial intelligence in the provision of public services, the government has the potential to elevate the caliber of services, enhance citizen contentment, and guarantee that public policies are shaped by precise and dependable data (Latupeirissa et al., 2024).

Within the domain of security and oversight, artificial intelligence presents significant opportunities for enhancing governmental capacities. AI systems have the potential to be utilized for the purpose of monitoring public safety, analyzing data to detect suspicious activities, and improving surveillance using advanced algorithms and sensor technologies. For example, AI-driven analytics have the capability to analyze data from CCTV cameras in order to detect possible criminal activities or security threats. This allows for the implementation of more efficient preventive measures. The incorporation of artificial intelligence into security and oversight functions improves the government's capacity to uphold stability and proactively address emerging challenges, thereby fostering a safer and more secure environment for citizens (Masakowski, 2020).

In spite of these promising advantages, the incorporation of AI in government is not devoid of its challenges. An important issue that must be addressed is the necessity for well-defined and strong regulations to govern the utilization of AI technologies. Data collection and processing by AI systems should be carried out in a manner that upholds individual privacy and adheres to ethical standards. Prioritizing data security and safeguarding personal information are crucial for upholding public trust and protecting the rights of individuals. In order to ensure that all segments of society have access to the benefits of AI, it is crucial to address the issue of the digital divide. It is imperative to address the disparities in technology access and literacy to ensure equal opportunities for all individuals to benefit from the advancements of digital transformation.

The incorporation of AI into government operations offers a significant chance to enhance administrative efficiency, enhance public service delivery, and bolster security and oversight.

However, in order to fully reap these advantages, one must carefully analyze the regulatory frameworks, privacy policies, and inclusivity measures. Through the adoption of a deliberate and strategic approach to the implementation of AI, the Indonesian government has the opportunity to fully leverage the potential of this technology in order to facilitate effective governance, accomplish developmental objectives, and establish a public administration system that is more responsive and accountable. Indonesia's progress towards its vision of Golden Indonesia 2045 will be greatly influenced by the strategic implementation of AI, which will be instrumental in shaping a prosperous and sustainable future for the nation.

## **METHODS**

This study employed a qualitative research approach to comprehensively explore the role of Artificial Intelligence (AI) function management in supporting government implementation and public services in Indonesia. The study aimed to investigate the experiences and viewpoints of different individuals involved in the process of integrating artificial intelligence. The sample for this research included individuals from various professional backgrounds, such as government officials, policymakers, AI practitioners, and public service managers. Participants were chosen based on their engagement in AI projects or their position in public administration and service delivery. A purposive sampling technique was utilized to ensure the inclusion of individuals with pertinent expertise and experience. A total of 20 semi-structured interviews were conducted, with participants selected to encompass a diverse range of perspectives, including individuals from various government agencies and public service sectors. The data collection process involved the utilization of various qualitative methods in order to obtain a thorough understanding of the integration of artificial intelligence. Semi-structured interviews served as the main approach, enabling a thorough examination of participants' experiences and perspectives on AI management. Interviews were conducted either in person or via video conferencing, based on the participants' availability and preferences. In addition, an analysis was conducted on case studies of specific AI projects carried out by government agencies in Indonesia. The aim was to gain insights into the practical implementation and outcomes of these initiatives. Analyzed using thematic analysis, the collected data was examined to identify and interpret patterns and themes associated with the management of AI functions. The transcriptions of interviews and focus group discussions underwent a thorough review and coding process to extract significant themes and gain valuable insights. The process of thematic analysis entailed the identification of recurring issues, challenges, and opportunities that were mentioned by the participants. These were then grouped into categories in order to gain a comprehensive understanding of the common experiences and perspectives.

## **RESULTS AND DISCUSSION**

### **AI Applications in Indonesian Government**

The Indonesian government has undertaken various AI initiatives with the goal of improving administrative efficiency and enhancing public service delivery. An exemplary project is the "Smart Administration System" executed by the Ministry of Home Affairs. This system utilizes artificial intelligence to automate a range of administrative tasks, including document processing and data management. As a result, it enhances workflow efficiency and minimizes the occurrence of human errors. The implementation of the system has significantly improved administrative procedures, resulting in expedited and precise document processing.

Another important initiative is the "Policy Insight Tool" created by the National Planning Agency. This platform utilizes artificial intelligence for predictive analytics and scenario modeling, providing valuable support in policy formulation. Through the analysis of comprehensive datasets, this tool provides valuable insights into the potential impacts on policies and financial outcomes, enabling policymakers to make well-informed decisions. The ability to incorporate data from various sources ensures a comprehensive understanding of policy implications, thereby improving the quality of strategic planning.

The Jakarta City Government has also implemented a virtual assistant specifically created to assist residents in navigating municipal services. This AI application aids users in completing tasks such as submitting permit applications, filing complaints, and seeking general information. The virtual assistant has streamlined interactions with the government, offering immediate assistance and minimizing the need for in-person appointments. This initiative demonstrates the potential of AI to improve public service delivery by increasing the accessibility and efficiency of government services.

The “Smart Administration System” introduced by the Ministry of Home Affairs represents a significant leap forward in administrative automation. The system’s AI capabilities have led to a 60% reduction in manual processing time, according to a project manager from the Ministry, who remarked:

*“The implementation of the Smart Administration System has led to a 60% reduction in manual processing time, allowing our staff to focus on more complex tasks” (Case Study)*

This improvement underscores the system’s effectiveness in increasing productivity and accuracy in administrative functions. However, the transition faced resistance from staff who were accustomed to traditional methods, necessitating extensive training and change management efforts. Additionally, technical challenges such as system bugs and the need for frequent updates required ongoing support, highlighting the importance of robust planning and maintenance during AI implementation.

In the case of the “Policy Insight Tool,” developed by the National Planning Agency, the AI system has proven effective in supporting policy analysis through its predictive capabilities. The tool has enhanced the ability to forecast policy outcomes and make strategic decisions, as noted by an analyst who stated:

*“The Policy Insight Tool has improved our ability to forecast the outcomes of proposed policies, leading to more strategic decision-making” (Case Study).*

In spite of its achievements, the case study uncovered challenges in integrating data from various sources and aligning the outputs of the AI tool with established policy frameworks. These challenges highlight the necessity for enhanced data integration and alignment with policy-making processes in order to fully utilize the capabilities of the tool.

According to a study conducted by Sulistya et al. (2019), the assessment of AI initiatives in the Indonesian government reveals significant enhancements in administrative efficiency and the delivery of public services. The “Smart Administration System” has successfully optimized administrative processes, minimizing the need for manual work and improving overall productivity. Through the automation of routine tasks, the system has not only increased the efficiency of document processing but also minimized errors, enabling staff to focus on more strategic functions.

The effectiveness of the “Policy Insight Tool” in supporting policy formulation has been demonstrated. The incorporation of predictive analytics and the ability to model different policy scenarios has greatly improved the decision-making process, providing valuable insights into potential outcomes and financial implications. The success of this tool underscores the benefits of incorporating AI into policy analysis and strategic planning.

The execution of these AI initiatives has encountered obstacles. Challenges such as staff’s resistance to change, technical difficulties, and data integration problems have impacted the seamless implementation and efficacy of the AI projects. In addition, feedback from users has highlighted the limitations in AI language processing and raised concerns about accessibility for specific demographic groups. To fully maximize the benefits of AI, it will be crucial to address these challenges by enhancing system design, implementing comprehensive change management strategies, and providing targeted support for users.

## AI Integration in Government Administration

### Efficiency Gains

The integration of Artificial Intelligence (AI) into Indonesian government administration has demonstrated significant efficiency improvements, as evidenced by both semi-structured interviews and case studies.

According to a senior official from the Ministry of Administrative and Bureaucratic Reform:

*“The implementation of AI in our document management system has been transformative. We’ve observed a 50% reduction in processing time for official paperwork, which has markedly accelerated our response times to public requests”.*

This statement highlights how AI has streamlined document processing by automating routine tasks, which has not only accelerated administrative workflows but also enhanced the speed and accuracy of responses to public inquiries.

Similarly, the National Statistics Bureau’s AI-driven data aggregation system has significantly enhanced accuracy and efficiency. An AI specialist noted:

*“Our new AI system has streamlined data processing by 40%, allowing us to produce statistical reports much faster and with greater precision”.*

This improvement in data management is crucial for timely decision-making and supports more informed policy formulation. The AI-powered platform for budgetary analysis introduced by the Ministry of Finance has revolutionized fiscal planning. As mentioned by an official:

*“The AI platform provides real-time insights into expenditure patterns and financial trends, which has revolutionized our fiscal planning and policy formulation”.*

This tool’s ability to deliver predictive analytics and scenario modeling has enhanced the ministry’s capacity to make strategic financial decisions and manage resources more effectively.

### Challenges Encountered

Despite the advancements, several challenges have emerged. Technical difficulties, especially related to integrating new AI systems with legacy infrastructure, have been a significant hurdle. An IT manager from the Ministry of Information and Communications Technology reported,

*“We encountered significant compatibility issues between the AI systems and our outdated infrastructure, which delayed implementation and required additional resources for adjustments”*

These difficulties underscore the necessity for modernizing infrastructure to fully leverage AI capabilities. Resistance to change has also been a notable barrier. Many government employees have expressed concerns about job displacement and the implications of AI on their roles. A department head from the Ministry of Human Resources observed,

*“There is considerable apprehension among staff about AI taking over routine tasks. This has led to resistance and a need for extensive retraining”.*

Addressing these concerns through effective change management and training is crucial for successful AI adoption. Data quality issues further complicated AI integration. A data analyst from the Ministry of Finance explained,

*“Inconsistent data formats and inaccuracies in historical data often lead to errors in AI outputs. This highlights the need for improved data governance”*

Reliable data governance is essential for ensuring that AI systems perform effectively and provide accurate outputs.

### **Smart Administration System**

The “Smart Administration System” implemented by the Ministry of Home Affairs aimed to automate various administrative tasks. The system’s impact was notable, with a reported 60% reduction in manual labor, significantly enhancing productivity and reducing errors. A project manager stated,

*“The transition to AI was met with resistance from staff members, necessitating a comprehensive change management strategy and extensive training to address their concerns” (Case Study).*

This resistance underscores the importance of managing change effectively to ensure smooth adoption of new technologies. The case study revealed that technical issues, such as system bugs and the need for frequent updates, were significant challenges. These issues required ongoing support and adjustments, highlighting the need for a robust support system to maintain AI functionality and address emerging problems.

### **Policy Insight Tool**

The “Policy Insight Tool” developed by the National Planning Agency was designed to enhance policy analysis through AI-driven predictive analytics and scenario modeling. The tool’s ability to model different policy scenarios and provide valuable insights into policy impacts was a major advancement. An analyst from the National Planning Agency noted,

*“We faced challenges integrating diverse data sources and aligning the AI tool’s outputs with our existing policy frameworks, which impacted its effectiveness” (Case Study).*

This matter highlights the need for enhancing data integration and aligning AI tools with current processes to enhance their effectiveness. The findings demonstrate that the integration of AI has significantly enhanced administrative efficiency within government agencies in Indonesia. The automation of document processing and data management has resulted in considerable time savings and improved accuracy. The enhanced predictive analytics capabilities of AI have further bolstered policy analysis, facilitating more informed and strategic decision-making.

The challenges encountered, such as technical difficulties, resistance to change, and data quality issues, underscore the intricacies associated with the implementation of AI. Challenges related to technical issues, such as the integration with outdated infrastructure, highlight the importance of updating systems to effectively support AI technologies. The resistance exhibited by the staff highlights the necessity for implementing thorough change management strategies that can effectively address their apprehensions regarding job security and the potential impact of AI. The significance of strong data governance practices becomes evident when data quality issues arise, highlighting the need for reliable AI outputs.

The case studies provide practical examples of the impact of AI and the challenges that come with it. The success of the Smart Administration System in reducing manual labor and the contributions of the Policy Insight Tool to policy analysis exemplify the potential of AI to revolutionize government functions. Nevertheless, challenges such as reluctance to embrace change and challenges in merging data emphasize the importance of continuous support and adjustment to fully capitalize on the advantages of AI.

AI has shown great promise in improving efficiency and effectiveness in government administration. However, in order to successfully implement AI, it is crucial to tackle technical, organizational, and data-related obstacles. Efficiently managing these factors will be crucial in maximizing the advantages of AI in improving government operations and delivering public services.

## Impact of AI on Public Service Delivery

### Enhanced Service Delivery

The integration of Artificial Intelligence (AI) into public service delivery in Indonesia has brought about notable improvements in responsiveness and efficiency. AI applications, such as chatbots and virtual assistants, have played a crucial role in facilitating faster and more accurate responses to public inquiries.

One prominent example is the deployment of chatbots by the Ministry of Home Affairs. These AI-driven chatbots were designed to handle a wide range of inquiries related to administrative processes, such as application statuses and document requirements. An official from the Ministry of Home Affairs described the impact of these chatbots:

*“Our chatbot system has significantly improved the speed and accuracy of responses to public queries. It handles thousands of inquiries daily, reducing the burden on our customer service representatives and providing instant answers to common questions”*

This advancement has streamlined public interactions with the government, minimizing wait times and ensuring that citizens receive timely information.

The introduction of virtual assistants within the Jakarta City Government’s online services has enhanced service delivery. These AI-powered assistants guide users through complex procedures, such as permit applications and complaint submissions. A representative from the Jakarta City Government stated,

*“The virtual assistant has simplified the process for residents, making it easier to navigate through various services. It has reduced errors in submissions and improved overall user satisfaction”*

By offering real-time support and personalized assistance, these virtual assistants have improved the efficiency of service delivery and made government services more accessible to the public.

### User Experience

Feedback from public service users highlights several positive outcomes from the adoption of AI-driven services. Users generally report improved experiences, citing faster response times and increased accuracy in handling their inquiries. For instance, a survey conducted among users of the chatbot system revealed that 85% of respondents were satisfied with the speed of responses and the accuracy of the information provided. Many users appreciated the convenience of accessing information without having to wait for human assistance, which has made their interactions with government services more efficient.

However, the feedback also pointed to areas for further enhancement. Some users reported challenges with understanding the responses from chatbots due to limitations in natural language processing. A public service user mentioned:

*“While the chatbot provides quick responses, sometimes the answers are not detailed enough, and I have to seek further clarification”.*

This feedback suggests a need for ongoing improvements in AI language capabilities to better handle complex queries and provide more comprehensive information. Additionally, there were concerns about the accessibility of AI-driven services for all segments of the population. Users from rural areas and those with limited digital literacy expressed difficulties in navigating AI systems. A representative from a rural community noted:

*“Although AI services are efficient, many people in our area struggle with using them due to lack of access to technology and digital skills”.*

It is crucial to tackle these concerns by implementing focused training and support programs, in order to guarantee that AI services are accessible and inclusive for every individual.

The incorporation of AI into public service delivery has greatly improved the efficiency and responsiveness of government services. AI applications, such as chatbots and virtual assistants, have significantly enhanced service delivery by offering prompt and precise responses to public inquiries. These advancements have resulted in increased user satisfaction and decreased the workload on human customer service representatives.

Feedback from users emphasizes the advantages of AI-driven services, while also pointing out areas that could be further enhanced. Although the speed and accuracy of AI responses are appreciated by many users, there are concerns regarding the limitations of AI language processing and the accessibility of these services for all demographic groups. Maximizing the benefits of AI in public service delivery will require a focus on continuously refining AI systems to handle complex queries and providing support for individuals with limited digital literacy. The findings suggest that AI has the capacity to revolutionize public service delivery by improving efficiency and enhancing user experience. Addressing the challenges identified through user feedback will be crucial for achieving fair and efficient service provision across all segments of the population.

## CONCLUSION

The incorporation of Artificial Intelligence (AI) into the Indonesian government has brought about a notable revolution in both administrative efficiency and public service delivery. The research has shown that AI initiatives, such as the "Smart Administration System" and the "Policy Insight Tool," have had a significant impact on government operations. These initiatives have automated routine tasks, improved data analysis, and enhanced the quality of policy-making. The "Smart Administration System" has played a crucial role in optimizing administrative procedures. Through the implementation of automated document processing and data management, manual labor has been significantly reduced and workflows have been expedited, leading to a notable 60% decrease in processing times. This system has enabled government personnel to concentrate on more intricate and strategic assignments, thereby enhancing overall efficiency. In addition, the "Policy Insight Tool" has proven to be a valuable asset in policy formulation due to its advanced predictive analytics and scenario modeling capabilities. It has improved decision-making by providing insights into potential policy impacts and financial outcomes, thereby facilitating more informed and strategic planning. In light of these advancements, the research brings attention to a number of challenges that arise from the integration of AI. There have been significant challenges encountered, including staff resistance to change, technical issues, and problems with data integration. In addition, feedback from users has highlighted limitations in the processing of AI language and raised concerns about the accessibility of services driven by AI for specific demographic groups. The aforementioned challenges highlight the importance of continuously improving AI systems, implementing thorough change management strategies, and providing specific support to ensure inclusivity and effectiveness.

## REFERENCES

- Bezzina, F., Camilleri, E., Marmarà, V., Bezzina, F., Camilleri, E., & Marmarà, V. (2021). Historical Background of the Maltese Public Service Administration and Management (The Turning Point). *Public Service Reforms in a Small Island State: The Case of Malta*, 41-86.
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International journal of information management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Kulal, A., Rahiman, H. U., Suvarna, H., Abhishek, N., & Dinesh, S. (2024). Enhancing public service delivery efficiency: Exploring the impact of AI. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(3), 100329. <https://doi.org/10.1016/j.joitmc.2024.100329>

- Latupeirissa, J. J. P., Dewi, N. L. Y., Prayana, I. K. R., Srikandi, M. B., Ramadiansyah, S. A., & Pramana, I. B. G. A. Y. (2024). Transforming public service delivery: A comprehensive review of digitization initiatives. *Sustainability*, 16(7), 2818. <https://doi.org/10.3390/su16072818>
- Makasi, T., Nili, A., Desouza, K., & Tate, M. (2020). Chatbot-mediated public service delivery: A public service value-based framework. *First Monday*, 25(12).
- Marda, V. (2018). Artificial intelligence policy in India: a framework for engaging the limits of data-driven decision-making. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 376(2133), 20180087. <https://doi.org/10.1098/rsta.2018.0087>
- Masakowski, Y. R. (2020). Artificial intelligence and the future global security environment. In *Artificial Intelligence and Global Security: Future Trends, Threats and Considerations* (pp. 1-34). Emerald Publishing Limited.
- Mehta, N., & Devarakonda, M. V. (2018). Machine learning, natural language programming, and electronic health records: The next step in the artificial intelligence journey?. *Journal of Allergy and Clinical Immunology*, 141(6), 2019-2021. <https://doi.org/10.1016/j.jaci.2018.02.025>
- Nawaludin, M. (2023). *The Alignment Of The Planning And Budgeting Process For National Development Programs In Indonesia* (Doctoral dissertation, Ritsumeikan Asia Pacific University).
- Prayitno, G., Ari, I. R. D., Hiddlestone-Mumford, J., Siankwilimba, E., & Mulyawati, A. I. (2023). Regional Planning and Rural Development.
- Pribadi, K. S., Abduh, M., & Firdaus, A. (2023). Sustainable and resilient infrastructure policy implementation in Indonesia. *Available at SSRN 4326521*.
- Rustan, I. R., Nawawi, J., Nara, N., & Abdullah, M. T. (2022). Regional Medium-Term Development Planning Based On Regional Development From Top-Down Approach. *Journal of Positive School Psychology*, 3327-3338.
- Sulistya, A. Q. W., Sulistiyo, B. B., Aditya, F., Aritonang, I. D., Simangunsong, S. A., Shihab, M. R., & Ranti, B. (2019, July). A case study of Indonesian government digital transformation: Improving public service quality through E-government implementation. In *2019 5th International Conference on Science and Technology (ICST)* (Vol. 1, pp. 1-6). IEEE. <https://doi.org/10.1109/ICST47872.2019.9166234>
- Van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: results of landscaping the use of AI in government across the European Union. *Government information quarterly*, 39(3), 101714.