The Role of Artificial Intelligence in Advancing Public Services: Opportunities and Ethical Challenges

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Abstract

The advancement of artificial intelligence (AI) has brought significant changes in various sectors, including public services. The implementation of AI in the government sector has the potential to increase efficiency, transparency, and speed of services to the public. However, the application of AI also raises various ethical challenges, such as personal data protection, potential algorithmic bias, and accountability in decision-making. This study aims to analyze the role of artificial intelligence in advancing public services and identify ethical opportunities and challenges that arise in the implementation process. The research method used is a qualitative approach, which involves reviewing various sources, such as previous research results, academic studies, and relevant policy documents. The collected data was analyzed systematically to identify key patterns and ethical implications related to the application of AI in the public sector. The results of the study show that AI has the potential to increase the efficiency of public services, but challenges related to privacy, transparency, and accountability are still major obstacles. The readiness of infrastructure and human resources are key factors in implementing AI in government bureaucracy. Therefore, strict regulations, cross-sector collaboration, and ongoing supervision are needed to ensure the ethical and equitable implementation of AI.

Keywords: *Artificial Intelligence (AI), Public Services, Ethics.*

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A. INTRODUCTION

Artificial intelligence (AI) has become a phenomenon that increasingly dominates various sectors, including governance and public services. Rapid technological developments have encouraged government agencies in various countries to adopt AI as part of efforts to improve efficiency, effectiveness, and quality of services to the public. Along with the demands for a more responsive, transparent, and efficient bureaucracy, many governments have begun implementing AI to optimize operations in various fields, from public administration, and data management, to direct interaction with citizens (Newman et al., 2022). AI technology enables the automation of tasks that previously required human intervention, such as document processing, complaint management, and the provision of real-time public service information. With AI's capacity to analyze large amounts of data at high speed, governments can be more proactive in identifying social trends, understanding community needs, and designing more data-driven policies (Kulal et al., 2024).

In recent years, the application of AI in the public sector has shown significant results in various countries. The use of AI-based chatbots in public information

services allows the public to get answers to administrative questions quickly without having to queue at government offices. Automated data processing systems have been implemented in tax management, population administration, and business licensing, thus accelerating services that previously took weeks or even months (Chen et al., 2024). AI has also begun to be implemented in security and order systems, such as the use of facial recognition technology to identify law violations and big data-based crime prediction systems. The application of this technology not only improves operational efficiency but also helps the government detect potential threats earlier. Even in the public health system, AI has been integrated into epidemiological data analysis, early disease detection, and hospital service management, which contributes to improving health services to the community (Hung & Yen, 2021).

On the other hand, although AI promises many benefits for public services, its implementation also poses major challenges, especially in terms of ethics and governance. The implementation of AI technology in government presents various issues related to data privacy, algorithm transparency, and the potential for bias in decision-making. Many cases show that AI algorithms can reflect or even exacerbate social injustice if not designed properly. AI systems used in recruitment, for example, have the potential to be biased towards certain groups based on historical data used as a basis for learning (Zuiderwijk et al., 2021). In the police sector, facial recognition technology is often criticized for its varying levels of accuracy, which can pose a risk of misidentification and legal injustice. Another problem is related to the supervision and accountability of decisions made by AI systems. In many cases, it is difficult for the public and even government officials themselves to understand how an AI system makes certain decisions, raising concerns about a non-transparent and unaccountable process (Hill et al., 2022).

In addition, the application of AI in public services also has complex social and economic impacts. One of the biggest concerns is the potential for job losses in the government sector due to massive automation. Many administrative tasks previously performed by civil servants can now be automated by AI-based systems, which could eventually replace certain job positions. While there is an argument that AI can create new jobs in technology and data analysis, this transition is not always easy for employees who have long worked in traditional bureaucratic systems (Khogali & Mekid, 2023). Another challenge is the readiness of infrastructure and human resource capacity in government to optimally manage AI technology. Not all countries, especially developing countries, have adequate digital infrastructure to adopt AI on a large scale. In addition, many bureaucrats and government employees do not yet have sufficient technological skills to adapt to AI-based systems, so the implementation of this technology often faces obstacles in terms of the adoption and effectiveness of its use in public services (Wang et al., 2021).

Furthermore, differences in regulatory policies across countries are also a major challenge in the application of AI to public services. Some countries have already established strict regulations related to data protection and AI ethics, while others are still in the early stages of designing appropriate policies. In the international context,

the absence of uniform standards in the management of AI has led to disparities in the application of this technology across regions (Van Noordt & Misuraca, 2022). Some developed countries that already have more established digital infrastructure can optimize AI more quickly while developing countries are still struggling with regulatory constraints, human resources, and budget constraints. In addition, there is still debate about the extent to which AI can be used in strategic decision-making in government, given that this technology still has limitations in understanding the broader social and cultural context (Mannuru et al., 2023).

With the increasing reliance on AI in public services, there is an urgent need to design policies that can ensure that this technology is used ethically, and responsibly, and does not harm the public. Governments must find a balance between the use of AI to improve the efficiency of public services and the protection of people's rights. Transparency in algorithm design, public involvement in decision-making related to AI, and increasing the capacity of human resources in the public sector are crucial steps that need to be considered. In addition, collaboration between government, academics, the private sector, and civil society is essential in creating an AI system that can provide maximum benefits without sacrificing the principles of ethics and social justice (Díaz-Rodríguez et al., 2023).

In facing this challenge, a more in-depth study is needed on how AI can be utilized to advance public services without ignoring ethical aspects. This study aims to analyze the opportunities offered by AI in increasing the efficiency and effectiveness of public services while identifying the ethical challenges that arise in its implementation. By understanding these dynamics, it is hoped that policy strategies can be found that can ensure that AI is used optimally in government without causing negative impacts on society.

B. LITERATURE REVIEW

1. Artificial Intelligence (AI)

Artificial intelligence is a part of computer science that makes machines (computers) able to do work as well as humans do. Meanwhile, Kristanto stated that artificial intelligence is a part of computer science that is specifically aimed at designing intelligent behavioral automation in computer intelligence systems. The system shows typical properties associated with intelligence in behavior that can completely imitate some functions of the human brain, such as understanding language, knowledge, thinking, problem-solving, and so on (Xu et al., 2021).

According to Alan Turing, if a computer cannot be distinguished from a human when talking through a computer terminal, then it can be said that the computer is intelligent, and has intelligence. John Carthy defines intelligence as "The ability to achieve success in solving a problem". According to Herbert Alexander Simon: "Artificial intelligence is an area of research, application, and instruction related to computer programming to do something that in the human view is intelligent" (Bhutoria, 2022).

According to Rich and Knight: "Artificial intelligence (AI) is a study of how to make computers do things that humans can currently do better". From the definitions outlined above, it can be concluded that artificial intelligence is a part of computer science that focuses on designing intelligent behavioral automation (Zhang & Lu, 2021).

Some of the advantages of artificial intelligence are:

a. Artificial intelligence is more permanent. Natural intelligence will change quickly. This is possible because of the forgetful nature of humans. Artificial intelligence will not change as long as computer systems and programs do not change it.
b. Artificial intelligence is easier to duplicate and spread. Transferring human knowledge from one person to another takes a long time and process. In addition, a skill can never be completely duplicated. Whereas if knowledge lies in a computer system, the knowledge can be transferred or copied easily and quickly from one computer to another.
c. Artificial intelligence is cheaper than natural intelligence. Providing computer services will be easier and cheaper than having to bring in someone to do several jobs for a very long time.
d. Artificial intelligence is consistent. This is because artificial intelligence is part of computer technology. While natural intelligence is constantly changing.
e. Artificial intelligence can be documented. Decisions made by computers can be easily documented by tracking every activity of the system. Natural intelligence is very difficult to reproduce.
f. Artificial intelligence can do work faster and better than natural intelligence.

Types of artificial intelligence:

a. Fuzzy Logic

   The basis of fuzzy logic is fuzzy set theory. In fuzzy set theory, the role of membership degree as a determinant of the existence of elements in a set is very important. The membership value membership degree or membership function is the main characteristic of reasoning with fuzzy logic (Kokkinen, 2022).
b. Expert System

   An expert system is a computer-based system that uses knowledge, facts, and reasoning techniques to solve problems, which usually can only be solved by an expert in a particular field (Fadriati et al., 2024).
c. Image Processing

   Image as one of the multimedia components plays a very important role as a form of visual information. When viewed from a mathematical perspective, an image is a continuous function and light intensity in a 2-dimensional plane (Zuraw & Aeffner, 2022).
d. Game

   A game is an art form where the user, called a player, is required to make decisions with the aim of managing resources obtained from his playing

opportunities (tokens), to achieve a certain goal. Video games are a form of game whose main interaction involves video media (and usually involves audio) (Paajala et al., 2022).

2. Public Service

Service can be interpreted as an effort to serve the needs of others while serving is helping to prepare (take care of) what someone needs. Service is very closely related to society so that service is better known as public service. The term public comes from the meaning of the general public and the state (Crawford et al., 2021). The word public is interpreted as the general public and crowded. So Public Service according to Poltak Sinambela can be interpreted as the fulfillment of the desires and needs of the community by state administrators. The state was founded by the public (society) of course to be able to improve the welfare of the community (Bauer, 2024).

In essence, the state in this case the government (bureaucrats) must be able to meet the needs of the community. The needs in this case are not individual needs but various needs that are expected by the community. In line with that, Moenir stated that public service is an activity carried out by a person or group of people based on material factors through certain systems, procedures, and methods to fulfill the interests of others according to their rights (Brahmasari & Sukristyanto, 2023).

In addition, the Decree of the Minister of State Apparatus Empowerment No. 63/KEP/M.PAN/7/2003 also states that Public Service is all service activities carried out by public service providers as an effort to fulfill the needs of service recipients or the implementation of provisions of laws and regulations (Lnenicka et al., 2024). What is meant by public service providers is government agencies. Therefore, public service can be concluded as the provision of services to other people or the community following their rights by public service providers or the state following the basic rules and procedures that have been determined based on laws and regulations (Jovi et al., 2022).

According to the Decree of the Minister of State Apparatus Empowerment Number 63 of 2004, it states that the essence of public service is the provision of excellent service to the community which is a manifestation of the obligations of government apparatus as public servants. Therefore, with this decision, the government as a public service actor must always provide excellent service quality to its community (Sadik-Zada et al., 2024).

C. METHOD

The research method used in this study is a qualitative approach, which allows for an in-depth analysis of the application of artificial intelligence in public services and the ethical challenges that accompany it. Research data will be obtained from various sources, including previous research results, academic studies, and relevant policy documents. By collecting information from various credible references, this study aims to provide a comprehensive understanding of the role of AI in government bureaucracy and the implications it has for aspects of transparency, efficiency, and

social justice. After the data is collected, the next step is to analyze the information that has been collected. Data will be processed systematically to identify key patterns and important findings that support the objectives of this study. A qualitative approach allows for a more flexible exploration of complex issues that arise in the implementation of AI in the public sector. Thus, this study is expected to contribute to the formulation of more adaptive and ethical policies in the use of AI to improve the quality of public services sustainably (Pahleviannur et al., 2022).

D. RESULT AND DISCUSSION

1. Application of Artificial Intelligence in Public Services

The application of artificial intelligence in public services is growing along with the increasing need for efficiency, accuracy, and transparency in government systems. AI technology has been used to optimize various aspects of government administration to speed up bureaucratic processes and reduce the workload of civil servants. With an AI-based system, many public services that previously took a long time to process can now be completed in minutes, even seconds. Document digitization, automatic verification, and artificial intelligence-based monitoring systems enable the government to manage data more effectively and reduce human error. In addition, the application of AI in government administration also contributes to increasing the efficiency of resource allocation, because automated systems can analyze patterns of service use by the public and identify areas that require greater attention.

One of the main aspects of implementing AI in the public sector is automation in data processing and the completion of digital-based public services. With the increasing amount of data generated by the government, AI technology plays an important role in processing, filtering, and analyzing information to support faster and more accurate decision-making. The AI system applied in public services enables the automation of various administrative processes, such as processing population documents, recording permits, and tax management. Advanced AI algorithms can identify patterns that are undetectable by humans, thus optimizing efficiency in data management and improving the accuracy of public services. In addition, the presence of AI in digital services also allows the public to access information more quickly and easily, reducing the need for face-to-face interactions that often take a long time. Thus, AI plays a role in accelerating public services while increasing convenience for the public.

In addition to increasing efficiency in government administration, artificial intelligence is also starting to be widely applied in the management of urban infrastructure, transportation, and public health services. In the urban sector, AI is used to monitor traffic conditions in real-time and optimize transportation systems to reduce congestion. AI-based systems can analyze data from various traffic sensors, surveillance cameras, and user reports to provide recommendations for dynamic improvements to transportation policies. In the field of public health, the application of AI allows the government to increase the effectiveness of health services through

AI-based diagnosis, patient data management, and epidemic forecasting. With this technology, the government can identify disease spread patterns more quickly and design more targeted handling strategies. The use of AI in urban infrastructure and transportation not only improves the quality of services for the community but also helps the government manage resources more efficiently and sustainably.

Furthermore, the use of AI in data-based decision-making systems has a significant impact on the effectiveness of public policy. AI systems enable the government to conduct predictive analysis based on data collected from various sources so that the policies taken are more adaptive to social and economic changes. This data-based decision-making helps the government identify trends and community needs more accurately, so that the policies implemented are more effective and have a broad impact. AI technology also allows for policy simulations before they are implemented, so that governments can anticipate potential impacts before the policies are implemented. With this approach, AI acts as a tool that strengthens the government's capacity to design more responsive, innovative, and evidence-based policies.

The interaction between the government and the public has also undergone a major transformation with the presence of AI technology in the form of chatbots and virtual assistants. With the increasing need for faster and more responsive public services, AI-based chatbots have been implemented to answer public questions regarding various government services, such as population document creation, tax payments, and health service information. These chatbots can respond instantly, at any time, and without the need for direct involvement from government officials. In addition, AI-based virtual assistants have also been developed to help the public access complex information in a way that is easier to understand. The existence of this technology not only saves time and energy but also increases the accessibility of services for the wider community, especially for those who live in remote areas or have limitations in physically accessing government services.

The application of artificial intelligence in public services provides various significant benefits, ranging from increasing administrative efficiency and optimizing urban infrastructure to making more adaptive data-based policies. AI also brings major changes in the way the government interacts with the public, making public services faster, more transparent, and easier to access. Although there are still various challenges in its implementation, such as aspects of ethics and personal data protection, the development of AI technology still opens up great opportunities for the transformation of public services in the future. Therefore, a mature strategy is needed in implementing AI so that its benefits can be felt optimally by all levels of society.

2. Ethical Challenges in AI Implementation in the Public Sector

The ethical challenges of implementing artificial intelligence in the public sector are increasingly being addressed as the technology is increasingly adopted in various government services. One of the main issues that has emerged is the concern

about privacy and personal data protection. AI applied in government systems often manages and processes large amounts of data, including sensitive information belonging to citizens. While this technology offers efficiency in data management, there is a significant risk of leakage or misuse of personal information, either by authorized parties or by irresponsible third parties. The immature data protection regulations in many countries can exacerbate this situation, creating loopholes that allow citizens' data to be misused without clear accountability mechanisms. In addition, the use of AI for predictive analysis in public services also raises concerns about how personal data is used to make decisions that affect individuals' lives, such as in the provision of health services, social assistance, or security monitoring.

In addition to privacy concerns, the potential for bias in AI algorithms is also a significant challenge. AI works by analyzing the data given to it, and if the data contains historical or structural biases, the decisions made by the AI system can reinforce or even worsen existing inequities in society. In the public sector, these biases can impact various aspects of service delivery, such as the selection of social assistance recipients, security monitoring, or licensing decisions that can lead to discrimination against certain groups. The problem is further compounded when AI systems are used in the justice or policing systems, where biases in the analysis of criminal data can result in racial profiling or misidentification of individuals. Furthermore, the lack of transparency in how AI makes decisions often makes it difficult for the public to understand whether decisions take into account principles of fairness or simply replicate discriminatory patterns from the historical data used to train the system.

The transparency and accountability of AI systems in government is a hotly debated issue, particularly given the often "black box" nature of the technology that is difficult for laypeople and policymakers to understand. Many AI algorithms used in the public sector are designed by technology companies that do not always disclose information about how their systems work, creating challenges in assessing the accuracy and fairness of decisions made. Without transparency, it is difficult for the public and oversight bodies to ensure that AI systems are operating ethically and not disadvantaging certain groups. Accountability in the use of AI in government is also problematic because in many cases, it is unclear who is responsible for mistakes or decisions that harm individuals. Is it the responsibility of the technology developer, the government officials who adopt the AI system, or the institutions that use the technology in their operations? This lack of clarity can undermine public trust in the use of AI in the public sector and create resistance to further adoption.

While AI offers several benefits in improving government efficiency, the role of humans in overseeing and controlling the decisions made by AI systems remains crucial to ensuring ethical implementation. AI should not completely replace human decision-making but rather serve as a tool to assist in the analysis and evaluation process. Therefore, policies are needed that regulate human intervention in AI systems, especially in decisions that directly impact the lives of individuals or groups of people. The government must ensure that there are mechanisms that allow humans to verify, reassess, and if necessary, reject decisions made by AI if they are considered

unfair or inconsistent with applicable public policy. In addition, increasing the capacity of government officials to understand and supervise AI systems is important so that they can play an active role in ensuring that this technology is used ethically and does not harm society.

Another important ethical challenge is the social impact of AI implementation on the public sector workforce. With increasing automation in various government services, many jobs previously done by humans can now be completed by AI systems in less time and with a higher level of accuracy. While this brings benefits in terms of efficiency and reduced operational costs, it also raises concerns about the loss of jobs in the public sector. Many administrative workers, data analysts, and service officers who previously had roles in manual processes are now at risk of being replaced by automated systems that are faster and cheaper to operate. This phenomenon can trigger social and economic instability, especially if there is no clear strategy for dealing with the workforce shift due to the implementation of AI. Therefore, the government must consider policies that can protect public sector workers from the negative impacts of automation, such as retraining programs or restructuring of job roles so that human workers can still contribute to AI-based systems.

With the various ethical challenges that arise in the implementation of artificial intelligence in the public sector, a more careful and principled approach is needed in adopting this technology. The government needs to ensure that policies governing the use of AI not only focus on efficiency and effectiveness, but also consider aspects of fairness, transparency, and protection of community rights. Strict regulations are needed to ensure that AI is used in a way that does not harm certain groups, as well as a strong monitoring system to prevent misuse of this technology. In addition, the government needs to continue to communicate with the public about how AI is used in public services so that there is a better understanding and greater trust in the application of this technology. If these ethical challenges can be addressed properly, AI can be a powerful tool in improving the quality of public services without sacrificing the rights and welfare of the community.

3. Infrastructure and Resource Readiness in AI Adoption

The readiness of infrastructure and resources for the adoption of artificial intelligence in the public sector is a crucial factor that determines the success of implementing this technology in various aspects of government. One of the main challenges in building an effective AI ecosystem is the readiness of digital infrastructure that supports fast, safe, and efficient data processing. Many countries, especially developing countries, still face constraints in terms of internet network capacity, the availability of national data centers, and adequate cybersecurity to manage AI-based systems. Weak digital infrastructure can cause instability in the operation of AI systems, slow down data analysis, and increase the risk of disruption or hacking of information stored and processed by government systems. In addition, limited access to cloud computing technology and supercomputers needed for training and implementing complex AI models is also a serious obstacle. Without the

support of a strong digital infrastructure, the potential of artificial intelligence to improve the efficiency and accuracy of public services will not be optimally utilized.

In addition to infrastructure challenges, limited human resource capacity in government bureaucracy is also a major obstacle to the adoption of AI. Most civil servants working in the government system still do not have a deep enough understanding of how AI works, its ethical implications, and how to manage this technology in the decision-making process. The lack of training and education on artificial intelligence among bureaucrats has created a gap between the potential of technology and the human ability to utilize it. Without adequate human resource readiness, the implementation of AI in public services can be counterproductive, where a system that should increase efficiency leads to chaos in government administration due to a lack of understanding and skills in managing the technology. Therefore, the government needs to develop a sustainable training strategy for civil servants so that they not only understand AI technically but are also able to integrate it with existing policies and regulations.

The technological gap between developed and developing countries in the application of AI is also a major challenge that needs to be addressed. Developed countries with more mature digital infrastructure, large investments in AI research, and more advanced technology ecosystems have an advantage in adopting artificial intelligence in public services. In contrast, developing countries often face limitations in terms of funding, expertise, and access to the latest technology, which makes them lag in the use of AI in the government sector. This gap is further exacerbated by the dependence of developing countries on technologies developed by foreign companies, which are often not fully tailored to the specific needs of each country. As a result, many developing countries can only adopt AI on a limited scale, often with less-than optimal implementation due to the incompatibility of the system with the realities of their administration and governance. To overcome this gap, collaborative efforts are needed between the government, the private sector, and educational institutions in building local capacity that can support the development and implementation of AI that is more independent and follows domestic needs.

Another challenge that is no less important is how to integrate AI with existing technological systems in government bureaucracies. Most of the systems used in public administration have been developed years ago with technologies that are not always compatible with AI-based systems. Integration between AI and legacy systems often faces technical barriers, such as differences in data architecture, security standards, and information processing methods. In addition, complex and layered bureaucracy can also slow down the AI adoption process, especially if there is no clear strategy for aligning new systems with existing procedures and regulations. Many AI projects in the government sector have failed or performed below expectations due to a lack of coordination in connecting new systems with legacy systems that are still in use. Therefore, a more structured approach is needed in designing an AI integration roadmap that considers technical aspects, regulations, and organizational readiness to adopt new technologies.

To overcome these challenges, a strategy to improve civil servants' competency in facing AI-based digital transformation is the main key to ensuring the successful implementation of this technology in the public sector. Training and skills development for civil servants should focus on improving their understanding of the basics of AI, its practical application in public services, and how to manage the ethical and social impacts caused by this technology. Training programs should cover a variety of aspects, from technical skills in data analysis and AI programming to a conceptual understanding of policies that can support the ethical and effective implementation of AI. In addition, collaboration with the academic sector and the technology industry can also help create a more dynamic learning environment for civil servants. The government can also consider establishing a digital innovation center within the bureaucracy that functions as a laboratory for employees to test and understand AI technology before it is widely implemented in public administration.

With the various challenges faced in the readiness of infrastructure and resources for AI adoption, a holistic approach is needed to ensure that the implementation of this technology can run effectively and provide optimal benefits to the community. The government needs to invest in developing a stronger digital infrastructure, increasing the capacity of human resources in the bureaucracy, and developing strategies that can overcome the technological gap between developed and developing countries. In addition, the integration of AI with existing systems must be well-planned so as not to disrupt government services. With the right strategy, AI can be a valuable tool in increasing the efficiency and transparency of public services, while strengthening the capacity of governments to face increasingly complex future challenges.

4. Policy Strategies to Promote Ethical Use of AI

The use of artificial intelligence in the government sector requires a mature policy strategy so that its implementation is not only effective but also runs ethically and responsibly. Regulations and policies governing the use of AI must be formulated with principles that uphold the public interest, avoid potential misuse of technology, and ensure that AI contributes to improving public services without causing negative impacts on society. The government needs to establish a clear legal framework regarding how AI may be used, how processed data must be protected, and how accountability mechanisms are implemented in the event of misuse or errors in AI-based decision-making. Existing regulations should not only focus on technical aspects, but must also consider social values, ethics, and human rights so that the implementation of AI does not harm certain groups or deepen existing inequalities. In addition, effective policies must also be adaptive, considering that the very rapid development of AI requires dynamic regulations that can adapt to technological changes.

Increasing public involvement in the formulation of policies related to AI is an important element in ensuring that the regulations that are formulated truly represent the interests of the wider community. One of the main challenges in implementing AI

is the potential gap between policymakers and citizens affected by this technology. Therefore, the government must open up space for public participation at every stage of policy formulation, whether through public consultation, discussion forums, or transparency mechanisms that allow the public to provide input on the social impacts of the use of AI in government services. Public involvement can also help identify risks that may not have been considered by the government, and ensure that the resulting policies reflect the needs and expectations of citizens. In this context, educating the public about AI is crucial so that they have sufficient understanding to contribute to the policy formulation process. Without broad and inclusive involvement, AI policies risk becoming merely administrative instruments that are less responsive to the social realities that are developing in society.

Collaboration between government, academia, and the private sector is a key factor in developing ethical and transparent AI. Given the complexity of AI technology, governments cannot work alone in designing effective regulations and policies. Academics have an important role to play in providing scientific insights into the impacts of AI from various perspectives, including technical, social, and philosophical aspects. Academic research can be the basis for developing AI ethics guidelines based on empirical evidence so that the policies implemented are not only based on assumptions but have a strong scientific basis. Meanwhile, the private sector, which is often the party that develops and implements AI technology, also needs to be involved in policy dialogues so that they have a clear understanding of the ethical boundaries of using AI in the government sector. With this collaboration, AI policies can be formulated more comprehensively, taking into account various interests, and reducing the possibility of conflicts between government regulations and business practices in the private sector.

The preparation of operational standards for the use of AI is a crucial step in ensuring that this technology is implemented with a focus on security and social justice. AI applied in government systems has great potential to improve the efficiency of public services, but without clear standards, its use can pose risks of discrimination and violations of privacy rights. Therefore, governments need to develop technical guidelines that govern how AI can be used safely, including in terms of data management, automated decision-making, and transparency in the algorithms used. One of the main challenges in this regard is how to ensure that AI algorithms do not contain biases that can harm certain groups in society. In many cases, AI systems developed without ethical considerations can reinforce existing inequities in society, for example by providing better access to services to economically better-off groups, while vulnerable groups are increasingly marginalized. With strict operational standards, such risks can be minimized, and AI can serve as a truly inclusive and equitable tool.

Strengthening supervision and evaluation of the long-term impact of AI in public services is also an aspect that should not be ignored. The government must ensure that the implementation of AI is not only effective in the short term but also provides sustainable benefits to the community. To that end, there needs to be a

continuous monitoring mechanism for the AI systems used in government, both in terms of technical performance and the social impacts they cause. One approach that can be applied is to establish an independent supervisory institution tasked with evaluating the use of AI in the public sector, ensuring that the systems used do not cause unwanted negative impacts, and providing policy recommendations if potential misuse is found. In addition, the government must also be open to feedback from the public and other stakeholders regarding how AI has affected their lives. Regular evaluation is essential to ensure that AI continues to be used in a responsible manner, as well as to identify areas where policies and regulations need to be updated or adjusted to technological developments.

By implementing a holistic policy strategy based on ethical principles, AI can become a tool that brings great benefits to public services without sacrificing fundamental social values. Strict regulation, broad public participation, collaboration between various parties, and clear operational standards will ensure that AI is used in a transparent, fair, and accountable manner. In addition, strict supervision of AI implementation will help reduce negative risks and ensure that this technology truly functions to improve the welfare of society at large. With the right policy approach, AI can be an instrument that strengthens governance, improves the efficiency of public services, and supports more inclusive and sustainable development.

E. CONCLUSION

In facing the development of artificial intelligence in the public sector, the government must ensure that the implementation of this technology is carried out ethically, transparently, and responsibly. The main challenges in implementing AI include the protection of personal data, potential bias in algorithms, and transparency and accountability in decision-making. Therefore, a mature policy strategy is key to ensuring that AI not only improves the efficiency of public services but also upholds the principles of social justice and human rights. Strict regulations, community involvement in policy formulation, and ongoing supervision are crucial steps in optimizing the benefits of AI while mitigating potential risks. In addition to regulatory aspects, the readiness of infrastructure and human resources is also a determining factor in the success of AI adoption in government bureaucracy. The development of supporting digital infrastructure, increasing the competence of civil servants, and collaboration between the government, academics, and the private sector are needed to create an inclusive and sustainable AI ecosystem. Without adequate readiness, AI can widen the technological gap and hinder the effectiveness of public services. Therefore, the policies implemented must include a holistic approach that not only focuses on technology development but also considers the long-term social and economic impacts on society.

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