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Algorithmic Constitutionality: New Challenges for Constitutional Law in The Era of Artificial Intelligence

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Abstract: The development of artificial intelligence (Artificial Intelligence/AI) technology has encouraged the use of algorithms in various aspects of government administration, including administrative decision-making, public service delivery, and the management of state data. The presence of algorithms as decision-making instruments raises new issues in constitutional law, particularly in relation to the principles of constitutionality, constitutional supremacy, the protection of human rights, and the general principles of good governance. This article aims to analyze the position of algorithms from the perspective of constitutional law and to examine the constitutional challenges arising from the use of algorithms in governmental practice in the era of artificial intelligence. The research method employed is normative legal research using a statute approach, a conceptual approach, and a comparative approach. The legal materials used include statutory regulations and legal literature relevant to the development of digital technology and algorithm-based governance. The findings indicate that the use of algorithms in government has the potential to improve the efficiency, accuracy, and transparency of public services; however, it also poses serious challenges to the principle of constitutionality, such as the risk of algorithmic discrimination, lack of transparency (black box algorithm), and the potential violation of the right to personal data protection and the right to procedural justice. Therefore, it is necessary to strengthen the legal framework and constitutional oversight mechanisms for the use of algorithms in government administration, including the establishment of specific regulations, algorithmic accountability standards, and judicial oversight that is adaptive to technological developments.

Keywords: Algorithmic Constitutionality, Constitutional Law, Artificial Intelligence, Human Rights, Digital Governance.

INTRODUCTION

Background

The development of digital technology in recent decades has brought significant changes to various aspects of state life, including governance and public service delivery. One rapidly growing technological innovation is the use of artificial intelligence (Artificial Intelligence/AI),

which utilizes algorithms to process data automatically and generate decisions based on digital systems. The use of algorithms in public decision-making, such as in population administration systems, digital public services, and national security systems, indicates that algorithmic technology has become an integral part of modern governmental practice (Russell & Norvig, 2021). Within the structure of state power administration, algorithms are no longer merely technical instruments; rather, they have become an integral part of public decision-making processes, ranging from government administration and law enforcement to the distribution of social welfare. This transformation marks the emergence of what is known as an algorithmic society, in which power relations are determined not only by human actors but also by algorithmic systems that operate automatically and in complex ways (Avbelj, 2024).

In the context of the rule of law, every government policy and action must comply with the principle of constitutionality, which guarantees the protection of human rights, legal certainty, and governmental accountability. However, the use of algorithms in public decision-making processes raises new issues in constitutional law, particularly concerning transparency, accountability, and the protection of citizens' constitutional rights. Algorithms that are complex and often non-transparent (black box algorithm) may create risks of discrimination, erroneous decision-making, and violations of the right to privacy and personal data protection (Pasquale, 2015). The presence of algorithms gives rise to significant constitutional issues. Fundamental principles such as the supremacy of law, the protection of human rights, and the accountability of power face new challenges due to the characteristics of algorithms, which tend to be opaque, difficult to audit, and potentially biased. The use of AI by the state in various strategic sectors is even considered capable of changing the way public power is exercised, thereby creating risks to democratic legitimacy and the protection of citizens' rights (Atmaja & Maulana, 2026).

The global development of AI shows that an ethics-based approach alone is no longer sufficient. A stronger approach is needed through a constitutional legal framework capable of ensuring that the use of algorithms remains within the boundaries of democracy and the rule of law. In this context, the concept of digital constitutionalism has emerged, emphasizing the importance of integrating constitutional values into the design and governance of digital technology (Abdulloh et al., 2026).

Furthermore, the application of artificial intelligence technology in government administration raises fundamental questions regarding the limits of state authority in using digital technology to make administrative decisions and public policies. Within the Indonesian constitutional legal system, the principle of the rule of law (Rechtsstaat) requires supervision over every governmental action to ensure that it does not violate the constitutional rights of citizens as guaranteed under the 1945 Constitution of the Republic of Indonesia. Therefore, the use of algorithms as supporting instruments in public decision-making must remain subject to the principle of constitutional supremacy and the general principles of good governance (Asshiddiqie, 2020).

At the global level, various countries have begun developing legal frameworks to regulate the use of algorithms and artificial intelligence in the public sector. For example, the European Union has developed regulations on artificial intelligence through a risk-based approach to ensure the protection of citizens' rights in the governmental use of digital technology. This demonstrates that regulation concerning the constitutionality of algorithms has become an important issue in the development of modern constitutional law (European Commission, 2021).

In Indonesia, the use of algorithm-based systems in digital public services has continued to increase, such as in electronic-based government systems (SPBE), population data processing, and digital technology-based monitoring systems. Nevertheless, legal arrangements that specifically examine the constitutionality of algorithm use in public decision-making remain very limited. This condition creates a normative legal vacuum that has

the potential to result in violations of citizens' constitutional rights if the use of algorithms is not accompanied by adequate oversight mechanisms (Government of Indonesia, 2018).

Based on the foregoing discussion, it can be understood that the use of algorithms in the era of artificial intelligence presents new challenges for constitutional law, particularly in maintaining a balance between technological innovation and the protection of citizens' constitutional rights. Therefore, an in-depth study of the constitutionality of algorithms as instruments in modern government administration is necessary to ensure that the utilization of artificial intelligence technology remains aligned with constitutional principles, the supremacy of law, and the protection of human rights in Indonesia.

Problem Identification

Based on the background described above, the research problems in this study are formulated as follows:

1. What is the position of algorithms from the perspective of constitutional law and the principle of constitutionality?
2. What constitutional challenges arise from the use of algorithms in government administration?

Research Objectives

Based on the research problems above, the objectives of this study are:

1. To examine and analyze the position of algorithms from the perspective of constitutional law and the principle of constitutionality
2. To examine and analyze the constitutional challenges arising from the use of algorithms in government administration

METHOD

This article employs normative legal research, namely research conducted by examining legal norms relating to the constitutionality of algorithm use in government administration in the era of artificial intelligence. Normative legal research aims to examine constitutional principles, the principle of the rule of law, and the protection of citizens' constitutional rights in relation to the use of algorithmic technology in public decision-making (Marzuki, 2021).

The research approaches used in this study include a statute approach, a conceptual approach, and a comparative approach. The statute approach is carried out by examining various legal provisions relating to the use of digital technology in government administration, including the 1945 Constitution of the Republic of Indonesia and statutory regulations governing electronic-based government systems and personal data protection. The conceptual approach is used to examine the concepts of constitutionality, the principle of the rule of law, and theories of human rights protection in the use of algorithms as instruments of public policy. Meanwhile, the comparative approach is conducted by comparing the regulation of artificial intelligence use in other countries or international organizations as a consideration in formulating an appropriate regulatory model for Indonesia (Ibrahim, 2019).

The types of legal materials used in this research consist of primary legal materials, secondary legal materials, and tertiary legal materials. Primary legal materials include the 1945 Constitution of the Republic of Indonesia, statutory regulations related to electronic-based government systems, and regulations concerning personal data protection. Secondary legal materials include scholarly books, legal journals, and previous research findings related to constitutional law and artificial intelligence. Tertiary legal materials include legal dictionaries, legal encyclopedias, and other reference sources that support understanding of the legal concepts used in this research (Soekanto & Mamudji, 2018).

The technique for collecting legal materials is conducted through library research, namely by tracing and examining various legal documents, scholarly literature, and research findings relevant to the research topic. Subsequently, the collected legal materials are analyzed using qualitative analysis, namely by interpreting legal norms systematically, logically, and comprehensively in order to obtain conclusions regarding the constitutionality of algorithm use in government administration. The results of the analysis are presented descriptively and analytically, by describing the legal issues that arise and providing an analysis of the applicable legal norms and their possible development in the future (Ali, 2022).

RESULTS AND DISCUSSION

The Position of Algorithms from the Perspective of Constitutional Law and the Principle of Constitutionality

The development of artificial intelligence has shifted the position of algorithms from merely technical instruments to integral components in the exercise of state power. Algorithms are now used in various public sectors, such as government administration, law enforcement, and the distribution of social welfare. This condition indicates that algorithms are no longer neutral; rather, they have a normative dimension because they affect the rights and obligations of citizens.

In this context, the phenomenon of algorithmic governance has emerged, namely governance that relies on data-based systems and artificial intelligence in decision-making. This transformation is even viewed as a major test for the theory of modern constitutionalism, because AI technology has fundamentally changed the way power is exercised (Avbelj, 2024).

In addition, the use of algorithms by the state reflects a shift from human decision-making to automated decision-making, which has the potential to reduce the scope of human discretion while increasing the risk of dependence on technological systems. Therefore, algorithms can no longer be separated from constitutional law analysis.

The development of digital technology, particularly artificial intelligence (Artificial Intelligence/AI), has brought significant changes to modern governance. One of the main components of artificial intelligence technology is the algorithm, namely a series of logical and systematic instructions used to process data and produce a particular decision or recommendation. In the context of constitutional law, the use of algorithms in government administrative processes raises questions regarding the position of algorithms as public policy instruments that may affect citizens' constitutional rights (Russell & Norvig, 2021).

In a state governed by the rule of law (Rechtsstaat), every governmental action must be based on law and comply with the principle of constitutionality. The principle of constitutionality affirms that all government policies and actions must conform to the applicable constitutional norms. Therefore, the use of algorithms in public decision-making, such as in digital public service systems, population data processing, and administrative supervision, must remain within the framework of constitutional supremacy and the principle of legality (Pasquale, 2015). In this respect, algorithms may be viewed as administrative tools that assist the government in carrying out governmental functions, but they must not replace the state's constitutional responsibility to protect citizens' rights.

From the perspective of constitutional law, the position of algorithms cannot be separated from the basic principles of good governance, such as transparency, accountability, and legal certainty. Algorithms used by the government must be legally accountable, especially when the decisions they produce have a direct impact on people's rights. In practice, however, many algorithmic systems are closed or known as black box algorithms, namely systems whose operational mechanisms are difficult for users and supervisors to understand. This condition has the potential to violate the principles of accountability and transparency in government administration (Barocas & Selbst, 2016).

In addition, the use of algorithms in governance is closely related to the protection of citizens' constitutional rights, particularly the right to privacy and personal data protection. Algorithms generally require large amounts of data to produce accurate decisions, thereby increasing the risk of misuse of personal data if not strictly regulated. In modern constitutional systems, personal data protection forms part of human rights that must be guaranteed by the state as a form of protection for individual freedom. Therefore, the use of algorithms in government administration must be accompanied by adequate oversight mechanisms so as not to cause violations of citizens' constitutional rights (Zarsky, 2013).

On the other hand, the increasing use of algorithms in the public sector also demonstrates a transformation in the relationship between the state and citizens. Administrative decisions that were previously made by humans are now beginning to be transferred to automated algorithm-based systems. This change creates new challenges in constitutional law, particularly regarding legal responsibility for decisions generated by algorithmic systems. In this regard, the state must remain responsible for every decision produced by the algorithmic systems used in government administration, because algorithms are essentially tools developed and used by humans within the framework of state authority (Hildebrandt, 2020).

Thus, the position of algorithms from the perspective of constitutional law may be understood as administrative instruments that support the implementation of governmental functions, but that must remain subject to the principle of constitutionality, the supremacy of law, and the protection of citizens' constitutional rights. Therefore, clear and comprehensive legal regulation concerning the use of algorithms in government is required to ensure that the utilization of artificial intelligence technology remains consistent with the rule of law and modern constitutionalism.

Constitutional Challenges Arising from the Use of Algorithms in Government Administration

The use of algorithms in government administration in the era of artificial intelligence brings various constitutional challenges relating to the protection of citizens' constitutional rights and the principles of the rule of law. Algorithms used in public decision-making processes are capable of processing large amounts of data quickly and efficiently. Nevertheless, the application of this technology also gives rise to a number of legal issues that require particular attention from the perspective of constitutional law, especially in relation to transparency, accountability, and the protection of human rights (Russell & Norvig, 2021).

One of the main constitutional challenges in the use of algorithms is the lack of transparency in algorithmic system-based public decision-making processes. Many algorithmic systems are closed or known as black box algorithms, namely systems whose operational mechanisms are difficult for the public and supervisory authorities to understand. This condition has the potential to violate the principles of information openness and public accountability, which are part of the rule of law. In a democratic system of government, every decision that affects citizens' rights must be explainable and rationally accountable. Therefore, the use of non-transparent algorithms may create legal uncertainty and potentially reduce public trust in the government (Pasquale, 2015).

In addition to the issue of transparency, another constitutional challenge is the potential for discrimination arising from bias in algorithmic systems (algorithmic bias). Algorithms constructed on the basis of certain historical data may produce unfair decisions when the data used contain social or discriminatory bias. In the context of constitutional law, such a condition has the potential to violate the principle of equality before the law, which is one of the fundamental principles of modern constitutional systems. Decisions produced by discriminatory algorithms may result in violations of citizens' rights, such as the right to receive fair and equal public services (Barocas & Selbst, 2016).

Another equally important challenge concerns the protection of citizens' personal data. The use of algorithms in government requires the collection and processing of large amounts of data to generate accurate decisions. However, such data management creates risks of personal data misuse if it is not strictly regulated. From the perspective of constitutional law, personal data protection forms part of the protection of the right to privacy that must be guaranteed by the state. Therefore, the use of algorithms must be accompanied by adequate data security systems and effective oversight mechanisms in order to prevent violations of citizens' constitutional rights (Solove, 2008).

Furthermore, the use of algorithms in public decision-making also raises issues concerning legal accountability. In traditional administrative systems, governmental decisions are made by public officials who can be held directly accountable. However, in algorithm-based systems, decisions are often generated automatically by computer systems, thereby raising questions about the party responsible when an erroneous decision occurs. This creates new challenges in constitutional law, particularly in determining the limits of state responsibility for decisions generated by algorithmic systems (Hildebrandt, 2020).

Moreover, the use of algorithms in government administration also has the potential to reduce the role of humans in public decision-making processes. Excessive dependence on automated systems may diminish the space for administrative discretion needed in certain situations. In a constitutional context, decisions that have significant effects on citizens' rights should continue to involve human judgment as a form of protection for citizens' constitutional rights. Therefore, a human oversight mechanism is required in the use of algorithms to ensure that every decision produced remains consistent with the principles of justice and legal certainty (Yeung, 2018).

Thus, the various constitutional challenges arising from the use of algorithms in government administration demonstrate the need for legal regulation that is comprehensive and responsive to the development of digital technology. Such regulation must be able to guarantee transparency, accountability, personal data protection, and clear legal responsibility so that the use of algorithms in government remains consistent with the principle of constitutionality and the protection of citizens' constitutional rights.

CONCLUSION

The use of algorithms in government administration in the era of artificial intelligence has brought significant changes to modern constitutional practice. Algorithms are no longer merely technical tools, but have developed into instruments that affect administrative decision-making processes and public policy. From the perspective of constitutional law, the position of algorithms must be placed as a supporting instrument for the exercise of state power that remains subject to the principle of constitutional supremacy, the rule of law, and the protection of human rights. Thus, every use of algorithms in government must be aligned with the principles of constitutionality, transparency, accountability, and justice.

The constitutional challenges arising from the use of algorithms include the risk of algorithmic discrimination, the lack of transparency in artificial intelligence-based systems (black box algorithm), and the potential violation of the right to personal data protection and the right to procedural justice. These conditions indicate that the existing constitutional legal framework still requires adjustment in order to effectively and fairly accommodate the development of digital technology.

Therefore, an adaptive reformulation of legal policy in response to the development of artificial intelligence is necessary, including the establishment of specific regulations on algorithmic governance in government, the strengthening of constitutional oversight mechanisms, and the application of ethical standards and algorithmic accountability. These efforts are expected to ensure that the use of algorithms in government administration not only

improves the efficiency and quality of public services, but also continues to guarantee the protection of citizens' constitutional rights and preserve the fundamental principles of a democratic state governed by the rule of law.

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