

Research Article

Constitution in the Age of Algorithms: Reinterpreting the Rule of Law in the Context of Digital Constitutionalism in Indonesia

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Abstract: The rapid expansion of algorithm-driven digital platforms has transformed the relationship between the state, citizens, and private technology companies, creating constitutional challenges beyond conventional constitutional law. Algorithmic governance increasingly enables private platforms to influence freedom of expression, privacy, access to information, and other constitutional rights, prompting the emergence of Digital Constitutionalism. However, existing scholarship largely emphasizes European and North American perspectives, while Indonesia remains underexplored. This study examines how the rule of law should be reinterpreted to address the constitutional implications of algorithmic governance in Indonesia. Using normative legal research with constitutional, statutory, conceptual, and comparative approaches, it analyzes constitutional provisions, legislation, judicial decisions, international legal instruments, and academic literature. The findings show that Indonesia's constitutional framework still focuses on state–citizen relations, despite the growing constitutional influence of digital platforms. Therefore, rule of law principles—including legality, legal certainty, due process, transparency, accountability, and equality before the law—should be reconstructed to accommodate algorithmic governance. The study proposes an Indonesian Digital Constitutionalism Framework that strengthens constitutional protection of digital human rights while providing guidance for constitutional reform, digital governance regulation, and democratic accountability in the digital era.

Keywords: Algorithmic Governance; Constitutional Rights; Digital Constitutionalism; Digital Human Rights; Rule of Law.

Received: February 26, 2026

Revised: April 30, 2026

Accepted: June 27, 2026

Published: July 24, 2026

Curr. Ver.: July 24, 2026



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1. Introduction

The development of digital technology in the last two decades has fundamentally changed the landscape of modern governance. Digitalization is no longer understood simply as a technological transformation that improves the efficiency of public services, but has developed into a new mechanism that affects the distribution of power, the formation of social norms, and the implementation of citizens' constitutional rights. The presence of digital platforms powered by artificial intelligence, large-scale data processing (*big data*), and algorithm-based decision-making systems has created a digital public space that is not completely under the control of the state. In this context, algorithms not only function as technical instruments, but also become normative mechanisms that determine the information that is accessible to the public, shape political preferences, influence economic behavior, and even limit freedom of expression through the content moderation process that is carried out automatically. This condition shows that power in the digital society is no longer monopolized by state institutions, but also run by private actors who have the capacity to regulate public life (Balkin, 2018; Celeste, 2022).

The change in the configuration of power presents a new challenge to classical constitutional theory, which has been oriented towards limiting state authority (*state-centric constitutionalism*).

The modern constitutional tradition is built on the assumption that the primary threat to the fundamental rights of citizens stems from the abuse of governmental power. Therefore, the constitution is designed as an instrument to guarantee the rule of law, limit the authority of the state, and provide protection of constitutional rights through the mechanism of checks and balances. However, the development of the digital ecosystem shows that various forms of restrictions on privacy rights, freedom of expression, access to information, and the freedom to receive fair treatment can now also be carried out by technology companies through algorithm design, content moderation policies, and the practice of using personal data that are massive. This phenomenon shows that constitutional relations no longer only take place vertically between the state and citizens, but also develop horizontally through interactions between citizens and digital platforms that have a significant influence on the fulfillment of constitutional rights (Suzor, 2019).

This phenomenon then gave birth to an academic discourse known as *Digital Constitutionalism*, which is an approach that seeks to adapt constitutional values into the governance of digital space. This concept developed in response to the increasing dominance of global technology companies in regulating digital communication architectures, personal data management, information dissemination, and automated decision-making that have a direct impact on human rights. In contrast to the technically-oriented approach to digital regulation, *Digital Constitutionalism* places the constitution as the main normative framework that ensures that digital transformation remains subject to the principles of democracy, rule of law, accountability, transparency, and protection of human rights. A study conducted by Celeste (2022) shows that the development of *Digital Constitutionalism* has produced various global normative instruments that aim to build digital governance that is oriented towards the protection of fundamental rights, while expanding the meaning of constitutionalism beyond the boundaries of state institutions.

At the international level, these developments are gaining legitimacy through various legal and policy instruments that place digital rights as an integral part of human rights protection. Regulations such as the *General Data Protection Regulation* (GDPR), *Digital Services Act* (DSA), and *Digital Markets Act* (DMA) in the European Union show a paradigm shift from a purely market-regulatory oriented approach to a digital governance model that places the protection of citizens' rights as the primary goal. At the same time, UNESCO's recommendations on the ethics of artificial intelligence, the *OECD Principles on Artificial Intelligence*, as well as various United Nations resolutions on human rights in the digital space further emphasize that the development of digital technology must always be within the corridor of constitutional values and human rights principles (European Union, 2016; European Union, 2022; UNESCO, 2021).

In the Indonesian context, digital transformation is taking place with a very high intensity along with the increasing penetration of the internet, the use of social media, the development of the digital economy, and the use of artificial intelligence in various government sectors and public services. This condition produces great opportunities for national development, but at the same time also gives birth to various constitutional problems that are increasingly complex. Issues such as the processing of personal data without adequate consent, the spread of disinformation, the removal of content by digital platforms, the use of algorithms in public service systems, and the increasing practice of *digital surveillance* show that the protection of citizens' constitutional rights faces challenges that were previously unknown in the conventional legal system. Although Indonesia already has the 1945 Constitution of the Republic of Indonesia, Law Number 27 of 2022 concerning Personal Data Protection, as well as various regulations regarding the implementation of electronic systems, the legal framework is still basically still oriented towards institutional arrangements and has not comprehensively accommodated the constitutional implications of *algorithmic governance*.

A number of previous studies have discussed the relationship between constitutions and the development of digital technology from various perspectives. Balkin (2018) stated that the digital era demands a constitutional paradigm transformation through the concept of *information fiduciaries* and responsible information governance. Suzor (2019) highlights the increasing normative power of digital platforms which in practice carry out functions like public institutions without adequate constitutional accountability mechanisms. Meanwhile, Celeste (2022) develops the conceptualization of *Digital Constitutionalism* as a global movement that aims to build the protection of fundamental rights in the digital space through a constitutional approach. However, most of the studies were developed based on the experiences of European and North American countries that have different characteristics of legal systems, democratic institutions, and the maturity level of digital regulations than Indonesia. As a result, there is no conceptual framework that specifically explains how the principle of the rule of law as embraced in Indonesia's constitutional system needs to be

reinterpreted to answer the constitutional challenges that arise due to the development of algorithmic power.

This gap shows that the discussion of *Digital Constitutionalism* in Indonesia is still dominated by sectoral studies, such as personal data protection, freedom of expression on social media, or information technology regulations, without fully linking it to the principles of the rule of law that are the foundation of the constitution. In fact, the development of digital technology has expanded the object of constitutional protection from the relationship between the state and citizens to a relationship that also involves technology companies as actors who have the ability to regulate, limit, and even determine the implementation of constitutional rights. Therefore, a reinterpretation of the principle of the rule of law is needed that not only maintains classical constitutional values, but is also able to respond to the new challenges that arise due to the dominance of algorithms in the life of digital democracy.

Based on this background, this study aims to analyze how the principle of the rule of law in Indonesia needs to be reinterpreted in the face of the phenomenon of *Digital Constitutionalism* and the development of algorithm-based governance. In addition to examining the relevance of constitutional principles to the protection of human rights in the digital space, this study also develops a conceptual framework that integrates the theory of the rule of law, constitutional rights, algorithmic governance, and *Digital Constitutionalism* into a normative model that is in accordance with the characteristics of the Indonesian constitutional system. Thus, this article not only expands the academic discourse on digital constitutionalism from the perspective of Indonesian constitutional law, but also makes a theoretical contribution to the development of contemporary constitutional law studies and offers a normative basis for the formation of a democratic, accountable, and human rights protection-oriented digital governance policy.

Research Gap

The development of the literature on *Digital Constitutionalism* has shown a significant increase in recent years as attention to the constitutional implications of digital transformation has strengthened. Various studies have examined how digital platforms, artificial intelligence, and algorithm-based governance affect the implementation of fundamental rights and contemporary democratic practices. However, the direction of development of the study is still dominated by the experience of countries with relatively established digital democracy systems, especially in the European Union and North American regions. The main focus of previous research has generally been directed at personal data protection, regulation of digital platforms, freedom of expression, and the establishment of accountability standards for technology companies through human rights and digital governance approaches (Balkin, 2018; Suzor, 2019; Celeste, 2022).

In line with these developments, various international regulations such as *the General Data Protection Regulation* (GDPR), *Digital Services Act* (DSA), and *Digital Markets Act* (DMA) have become the main references in the formation of the modern digital legal framework. The presence of these instruments encourages the birth of various studies that focus on the harmonization of digital regulations, consumer protection, data governance, and supervision of the dominance of technology companies. However, most of these studies still view digital issues, especially as sectoral regulatory issues, so they have not fully developed a conceptualization of how constitutional principles should be reinterpreted when public and private power both have the ability to limit the exercise of citizens' constitutional rights (European Union, 2016; European Union, 2022).

In the Indonesian context, the development of research on digital law also shows a similar trend. Most of the studies focus on the implementation of the Electronic Information and Transaction Law, personal data protection, cybersecurity, cybercrime, freedom of expression on social media, and artificial intelligence governance. These studies make an important contribution to the development of positive national law, but they are still generally sectoral and have not placed the issue within the framework of the theory of the state of law or the development of digital constitutionalism. As a result, the relationship between the principle of the state of law as stipulated in the 1945 Constitution of the Republic of Indonesia and the *phenomenon of algorithmic governance* has not received a comprehensive discussion.

Another limitation lies in the still dominance of *the state-centered constitutionalism* paradigm in explaining the protection of constitutional rights. Most research departs from the assumption that threats to citizens' rights mainly come from government actions, while the increasing role of digital platforms as private actors with regulatory capacity has not received proportionate attention. In fact, the practice of content moderation, automated decision-making, information ranking, user profiling, and the use of personal data shows that technology companies have carried out functions that substantively affect the implementation

of people's constitutional rights. This phenomenon indicates the need to expand the constitutional perspective so that it is no longer limited to the vertical relationship between the state and citizens, but also includes the horizontal relationship between citizens and digital actors who have normative power in the public space.

Based on these conditions, this study identifies three main gaps in the existing literature. First, there are still limited studies that connect the concept of *Digital Constitutionalism* with the principle of the rule of law in the Indonesian constitutional system. Second, there is no conceptual model that explains how the basic principles of the rule of law, such as constitutional supremacy, legal certainty, equality before the law, transparency, accountability, and *due process of law*, need to be reinterpreted to respond to the development of algorithm-based governance. Third, there is no formulation of a normative framework that systematically integrates the theory of the rule of law, constitutional rights, *algorithmic governance*, and digital human rights protection as the basis for the formation of digital legal policies in Indonesia.

On the basis of these gaps, this research not only fills an empirical gap regarding the application of *Digital Constitutionalism* in the Indonesian context, but also offers a conceptual approach that expands the meaning of the state of law in the era of algorithms. This approach is expected to be able to bridge the development of constitutional theory with the dynamics of digital transformation that is taking place globally while providing an academic foundation for the formation of a digital governance system that remains oriented towards constitutional supremacy and the protection of human rights.

Research Questions

Departing from these problems, this research is directed to answer the following research questions.

1. How has the development of *the concept of Digital Constitutionalism* formed a new paradigm in the protection of constitutional rights in the era of digital governance?
2. Why does the principle of the rule of law in the Indonesian constitutional system need to be reinterpreted to deal with the development of *algorithmic governance* and the dominance of digital platforms?
3. How is the relevant conceptual model of *Digital Constitutionalism* applied in the Indonesian legal system to strengthen the protection of constitutional rights and human rights in the digital space?

Research Objectives

In line with the formulation of the problem, this study aims to analyze the development of *Digital Constitutionalism* as a new constitutional paradigm in global digital governance, evaluate the relevance of Indonesian rule of law principles in the face of increasing algorithmic power, and formulate a conceptual model of *the Indonesian Digital Constitutionalism Framework* which integrates the principles of the rule of law, protection of constitutional rights, algorithmic governance, and digital human rights protection as the normative basis for the development of digital regulations and policies in Indonesia.

Research Novelty

The novelty of this research lies in the effort to shift the constitutional perspective from an approach centered on the relationship between the state and citizens to one that also recognizes the existence of digital platforms as actors with constitutional influence on the exercise of fundamental rights. In contrast to previous research that generally discusses *Digital Constitutionalism* as an issue of technology regulation or data protection, this article places it as a paradigm of reinterpretation of the state of law in the face of power transformation in the algorithm era.

In addition, this study develops a conceptual synthesis between the theory of the rule of law, constitutional rights, *algorithmic governance*, and *Digital Constitutionalism* into an analytical framework specifically designed according to the characteristics of the Indonesian constitutional system. Through this synthesis, this article offers the Indonesian Digital Constitutionalism Framework as a normative model that places constitutional supremacy, algorithmic accountability, digital transparency, human rights protection, and supervision of digital platforms as a unit of principles in the governance of the digital space. This model is expected not only to enrich the development of contemporary constitutional legal theory, but also to make a practical contribution to the formation of national policies regarding the regulation of digital platforms, artificial intelligence, and the protection of constitutional rights in the era of digital transformation.

3. Materials and Method

This study uses normative *legal research methods* with conceptual and comparative orientations to analyze the development of the principle of the state of law in dealing with the phenomenon of *Digital Constitutionalism* in Indonesia. The normative approach was chosen because the main focus of the research is not to test the causal relationship between variables through the collection of empirical data, but to evaluate the adequacy of constitutional norms in responding to changes in power structures brought about by the development of digital technology. In the study of constitutional law, normative research has high relevance when the object of research is directed at the analysis of legal principles, constitutional concepts, harmonization of laws and regulations, and the development of legal arguments that produce a new normative construction (IRAC) that can be used as a basis for policy formation and legal reform (Hutchinson & Duncan, 2012; Smits, 2017).

The character of this research is prescriptive with the aim of producing legal arguments regarding the reinterpretation of the principle of the state of law in the context of algorithm-based digital governance. Therefore, the research not only describes the applicable legal norms (*ius constitutum*), but also develops a conceptual formulation of the norms that should be built (*ius constituendum*) so that the Indonesian constitutional system is able to provide effective protection for the constitutional rights of citizens in the era of digital transformation. This prescriptive approach is in line with the characteristics of modern legal research that places law as a normative instrument that is dynamic and adaptive to social changes and technological developments (Van Hoecke, 2011).

To obtain a comprehensive analysis, this study integrates several complementary legal approaches. First, the *constitutional approach* is used to examine the basic principles of the rule of law as stipulated in the 1945 Constitution of the Republic of Indonesia, especially regarding the supremacy of the constitution, protection of human rights, legal certainty, equality before the law, and restrictions on power. This approach is the main basis for assessing whether the development of digital governance has given rise to the need for reinterpretation of applicable constitutional norms.

Second, the *statutory approach* is used to analyze various national laws and regulations that regulate the implementation of electronic systems, personal data protection, electronic information and transactions, and other regulations related to the governance of the digital space. The analysis of these positive legal instruments aims to identify the level of harmonization between national policies and constitutional principles as well as the development of international legal standards regarding the protection of digital rights.

Third, the research applies a *comparative legal approach* through a comparison of various international legal instruments and digital regulatory practices in several jurisdictions that have developed the *Digital Constitutionalism framework*. Comparisons were made with instruments such as the *General Data Protection Regulation* (GDPR), *Digital Services Act* (DSA), *Digital Markets Act* (DMA), *OECD Principles on Artificial Intelligence*, and UNESCO's recommendations on the ethics of artificial intelligence. The comparative approach is not intended to carry out a direct legal transplant, but to identify universal principles that can be adapted according to the characteristics of the Indonesian constitutional system (Örücü, 2006).

In addition, this study uses a *conceptual approach* to examine the development of various main concepts that are the foundation of the analysis, namely *the rule of law*, *constitutional rights*, *Digital Constitutionalism*, *algorithmic governance*, *platform governance*, and *digital human rights*. A conceptual approach is important because most of these concepts are still developing dynamically in the international legal literature and have not yet fully acquired an established formulation in the Indonesian legal system. Through this approach, the research builds a theoretical synthesis that links the development of constitutional theory with the transformation of digital governance so as to produce a more comprehensive conceptual framework.

The legal materials analyzed in the study consist of primary legal materials, secondary legal materials, and tertiary legal materials. Primary legal materials include the 1945 Constitution of the Republic of Indonesia, Law Number 27 of 2022 concerning Personal Data Protection, Law Number 11 of 2008 concerning Information and Electronic Transactions and its amendments, various Constitutional Court decisions related to the protection of constitutional rights, and various international legal instruments relevant to digital governance. Secondary legal materials are obtained from internationally reputable scientific articles, academic monographs, research results, and policy documents that discuss the development of digital constitutionalism, digital human rights, and algorithmic regulation. The tertiary legal materials in the form of legal dictionaries, encyclopedias, and other reference

documents are used to support the interpretation of legal concepts that develop in the literature.

The analysis of legal materials is carried out through several interrelated stages. The first stage is a *content analysis* of constitutional norms, national regulations, and international legal instruments to identify the legal principles that govern the protection of constitutional rights in the digital space. The second stage uses the *legal interpretation method*, which includes grammatical, systematic, teleological, and comparative interpretation, to understand the development of the meaning of constitutional norms in the face of social changes due to the development of digital technology. Furthermore, a *comparative legal analysis* was carried out to evaluate the suitability of the Indonesian legal framework with global developments regarding *Digital Constitutionalism*. The final stage is in the form of *normative synthesis*, which is the preparation of legal arguments that integrate all the results of the analysis into a conceptual model called the *Indonesian Digital Constitutionalism Framework*. The model is designed as a normative construction that explains how the principle of the rule of law can be reinterpreted in order to remain able to guarantee the protection of citizens' constitutional rights in a digital ecosystem that is increasingly influenced by algorithm-based governance.

Through the combination of these various approaches, this research not only results in an evaluation of the adequacy of the applicable legal framework, but also offers a conceptual reconstruction of the relationship between the state, citizens, and digital platforms in a constitutional perspective. Thus, the methodology used allows the research to make theoretical contributions as well as normative recommendations that can be a reference for regulatory development, public policy formation, and legal reform of the Indonesian constitution in facing the challenges of the algorithm era.

4. Results and Discussion

The Evolution of Digital Constitutionalism and the Transformation of Constitutional Power

The development of digital technology has fundamentally changed the power structure in the modern constitutional system. If in the era of classical constitutionalism, the state is seen as the only actor who has the authority to limit or guarantee the constitutional rights of citizens, then the digital era shows the emergence of non-state actors who have regulatory capacity with no less significant impact on public life. Global technology companies through digital platforms now not only provide a space for communication, but also control the flow of information, shape user preferences, manage digital identities, determine access to services, and influence democratic processes through algorithmic mechanisms that work automatically. These changes show that the distribution of constitutional power is no longer a monopoly on state institutions, but has developed into a *digital governance ecosystem* involving various private actors with an increasingly wide influence on the implementation of fundamental rights of the community (Balkin, 2018; Suzor, 2019).

This transformation marks a paradigm shift from *government* to *governance* in the management of digital public spaces. In the conventional paradigm, the state is the main subject that sets norms, supervises their implementation, and sanctions for violations of the law. On the other hand, in the digital ecosystem, various decisions that affect people's lives are actually determined by an algorithmic system developed by technology companies based on internal policies (*private ordering*). Algorithms determine content that appears in users' timelines, identify information that is considered to violate community standards, set search priorities, recommend products and political information, and even influence economic opportunities through ranking *systems* and user profiling. Thus, algorithms have evolved from mere technical tools to regulatory instruments that have direct legal, social, economic, and political consequences (Yeung, 2018).

This phenomenon shows that digital power is not always exercised through formal legal instruments, but through technology design mechanisms (*code*), community *standards*, and platform policies that are implemented automatically. In this perspective, regulation is no longer only realized through laws and regulations, but also through digital architecture that determines user behavior without involving the legislative process or constitutional democratic mechanisms. This idea is in line with Lawrence Lessig's argument that *code is law*, namely that technological design has the ability to regulate people's behavior as the law regulates the behavior of citizens. In the era of algorithms, norms built through program codes are able to produce consequences that substantively resemble the implementation of state functions, even though they are compiled and run by private entities (Lessig, 2006).

This development is one of the main factors in the birth of the *concept of Digital Constitutionalism*. In contrast to the approach of digital regulation that is oriented towards technological control, *Digital Constitutionalism* seeks to maintain the basic values of the constitution in a rapidly changing digital environment. Celeste (2022) explained that *Digital Constitutionalism* is a set of ideas, principles, and normative instruments that aim to ensure that the development of digital technology remains subject to the principles of democracy, the rule of law, respect for human rights, and public accountability mechanisms. Thus, the main focus of *Digital Constitutionalism* is not just to limit the use of technology, but to ensure that digital transformation does not reduce the effectiveness of protecting citizens' constitutional rights.

The development of *Digital Constitutionalism* also shows the expansion of the meaning of the constitution from the legal document that governs the organization of the state to a set of fundamental principles that direct the governance of the digital space. In this paradigm, the constitution is no longer understood narrowly as the basic law of the state, but as a normative framework that regulates the relationship between all actors who have the ability to influence the implementation of fundamental rights, including technology companies, digital platform operators, internet service providers, and artificial intelligence developers. This approach shows that constitutional protection in the 21st century is not enough to control government actions (*public power*), but must also be able to reach the use of power by private actors (*private power*) that have regulatory capacity for digital public spaces (De Gregorio, 2022).

This change in orientation gained legitimacy through the development of various international instruments that place digital rights as an integral part of the human rights protection system. *The General Data Protection Regulation* (GDPR) reinforces the principle of personal data protection as a fundamental right, while *the Digital Services Act* and *Digital Markets Act* develop accountability mechanisms for digital platforms through algorithm transparency obligations, systemic risk mitigation, and protection of digital service users. At the same time, UNESCO through *its Recommendation on the Ethics of Artificial Intelligence* emphasizes that the development and utilization of artificial intelligence must be based on respect for human dignity, justice, non-discrimination, transparency, and accountability. These overall developments show that the international community is beginning to shift the orientation of digital regulation from an economic approach to a constitutional approach centered on the protection of fundamental rights (European Union, 2016; European Union, 2022a; European Union, 2022b; UNESCO, 2021).

However, the transformation of constitutional power in the digital era is not only related to the expansion of regulatory objects, but also concerns changes in the nature of power itself. In the classical constitutional system, power is generally territorial, has clear jurisdictional boundaries, and is subject to national constitutional oversight mechanisms. In contrast, algorithmic power operates *transnationally*, is dynamic, and is often beyond the reach of traditional constitutional oversight mechanisms. Decisions generated by algorithms can affect millions of users simultaneously without transparency regarding decision-making logic, evaluation parameters, or correction mechanisms for system errors. This situation poses a new challenge to the principle of *due process of law*, as individuals often do not know the reasons behind the restrictions on their rights or the procedures available to file objections (Pasquale, 2015).

On the other hand, the development of artificial intelligence strengthens the autonomous character of algorithmic governance. Machine learning-based systems are capable of generating decisions through complex computational processes that are difficult to understand even by the developers themselves. This condition gives rise to the phenomenon of *black box algorithms*, which is a decision-making system that cannot be adequately explained to the affected parties. From the perspective of the state of law, this phenomenon raises serious problems because it is contrary to the principles of transparency, accountability, legal certainty, and the right of everyone to receive fair treatment in every decision-making process that affects their interests. Therefore, there is a growing view that *algorithmic accountability* should be positioned as part of constitutional protection, not solely as a technological ethical issue (Hildebrandt, 2020).

In the Indonesian context, the change in the power structure has increasingly real implications. High internet penetration, the dominance of the use of digital platforms in economic and social activities, and the increasing use of artificial intelligence in public services show that most people's interactions now take place through digital spaces controlled by global technology companies. In practice, various decisions regarding content removal, account suspension, information dissemination, news recommendations, and the use of personal data are more determined by platform policies than national legal mechanisms.

As a result, the implementation of citizens' constitutional rights is factually increasingly influenced by private actors who do not gain legitimacy through the democratic process like state institutions.

This reality shows that the concept of the state of law is no longer sufficiently understood as a principle that only regulates the relationship between the state and citizens. The development of *Digital Constitutionalism* requires the expansion of the constitutional perspective in order to be able to accommodate the changes in the distribution of power that occur due to the development of algorithm-based digital governance. Thus, the protection of constitutional rights in the digital era requires a reinterpretation of the principles of the rule of law so that the supremacy of the constitution is not only binding on state administrators, but also becomes a normative basis for regulating the use of power by digital platforms that have a direct influence on the implementation of human rights. This reinterpretation is a prerequisite for the realization of digital governance that is democratic, transparent, accountable, and upholds constitutional values in the midst of increasingly complex relations between the state, society, and technology.

Constitutional Challenges of Algorithmic Governance in Indonesia

The massive digital transformation that is taking place in Indonesia has resulted in fundamental changes in the mechanisms of social, economic, political, and government life. The development of information technology not only improves the efficiency of public services and expands public access to information, but also creates new forms of power that are exercised through algorithmic systems. Various digital platforms now function as the main infrastructure for public communication, economic transactions, information distribution, and political participation. As a result, most of the implementation of people's constitutional rights takes place in a digital space whose management is under the control of global technology companies with operational standards, decision-making mechanisms, and corporate interests that are not always in line with the principles of the national constitution (De Gregorio, 2022).

From the perspective of the state of law, this condition poses a constitutional challenge that is different from the character of legal issues in the conventional era. If previously the protection of constitutional rights was mainly directed to limit government actions, then the development of *algorithmic governance* shows that restrictions on fundamental rights can also occur through automated decisions generated by digital systems. Content removal, content *demotion*, account *suspension*, user profile-based information recommendations, and automatic classification of individuals are examples of how algorithms can affect the exercise of constitutional rights without going through a transparent legal process or adequate constitutional oversight mechanism. Thus, the center of the problem no longer lies solely in the legality of state actions, but also in the legitimacy of the use of digital power by private actors who have the capacity to regulate public space.

One of the most prominent constitutional challenges is the protection of freedom of *expression*. Article 28E paragraph (3) of the 1945 Constitution of the Republic of Indonesia guarantees the right of everyone to express their opinions, while Article 19 of the *International Covenant on Civil and Political Rights* (ICCPR), which Indonesia has ratified through Law Number 12 of 2005, provides equal recognition of the freedom to seek, receive, and impart information. However, in the practice of digital space, the implementation of these rights is increasingly influenced by content moderation policies implemented by digital platforms through artificial intelligence systems. Algorithms can automatically remove uploads, limit the distribution of information, or lower the visibility of a piece of content based on internal company parameters that are often unknown to users. This situation raises constitutional problems because restrictions on freedom of expression are no longer fully carried out based on legal procedures set by the state, but through private mechanisms that have a similar impact to government administrative actions (Suzor, 2019).

The next issue is related to the protection of the right to privacy and personal data. The development of the digital economy makes data a strategic asset that has economic value as well as political value. People's activities in the digital space produce data footprints that continue to be collected, analyzed, traded, and utilized for various commercial purposes and the development of artificial intelligence systems. This practice shows that personal data is no longer just individual information, but has developed into an instrument for controlling behavior through the *process of profiling, behavioral prediction, and targeted advertising*. Shoshana Zuboff (2019) calls this phenomenon *surveillance capitalism*, which is an economic model that exploits human experience as a raw material to predict and influence future behavior. In a constitutional context, such practices pose a risk to the right to privacy, individual autonomy, and freedom of choice without algorithmic intervention unknown to the user.

Although Indonesia has passed Law Number 27 of 2022 concerning Personal Data Protection as an important milestone in digital legal reform, its implementation still faces various challenges. One of the main problems is the limited monitoring mechanism for data processing carried out by cross-border digital platforms. In addition, existing regulations still regulate more administrative aspects of data collection and processing, while the issue of algorithmic transparency, the use of data for automated decision-making, and the right of individuals to obtain explanations for algorithmic decisions have not been comprehensively regulated. In fact, the development of international regulations, especially through GDPR, has shown a tendency to strengthen the rights of data subjects in the face of *automated decision-making systems* that have a significant impact on the interests of individuals (European Union, 2016).

The next constitutional challenge arises in the aspect of transparency and accountability of algorithms. One of the main characteristics of modern artificial intelligence systems is the complexity of computational processes that produce decisions without being able to explain them simply to the user. Machine learning-based algorithms are able to learn data patterns independently, so the relationship between input and *output* often cannot be traced directly. This condition gives birth to the phenomenon of *algorithmic opacity* or *black box*, which is a situation when the decision-making process cannot be understood by the affected parties or by the regulator. From the point of view of the rule of law, this condition has the potential to undermine the principles of transparency, legal certainty, and accountability, as individuals do not have access to the underlying reasons for decisions that affect their rights or interests (Pasquale, 2015; Hildebrandt, 2020).

These problems are even more complex when algorithms begin to be used in the implementation of public services. Various countries have used artificial intelligence to help the selection process of social assistance recipients, risk assessment, apparatus recruitment, health services, and law enforcement. Indonesia has also begun to develop various digital-based government systems that utilize data analysis in the administrative decision-making process. Although this approach improves bureaucratic efficiency, the use of algorithms in the public sector must still be subject to constitutional principles, especially the principles of legality, the principle of proportionality, the principle of openness, and the right of citizens to obtain effective legal protection. Without adequate oversight mechanisms, algorithm-based administrative decisions have the potential to result in discrimination, misclassification, and violations of the right to a fair *administrative process*.

In addition to concerns the relationship between individuals and digital platforms, *algorithmic governance* also affects the quality of constitutional democracy. Social media platforms have become the main arena for the formation of public opinion, the dissemination of political information, and the mobilization of public participation in the democratic process. However, recommendation algorithms designed to maximize user engagement often reinforce the spread of sensational content, disinformation, and political polarization. As a result, digital public spaces no longer fully reflect the rational deliberation process as assumed in constitutional democracy theory, but rather are influenced by commercial logic operated through artificial intelligence systems. This condition shows that the protection of democracy in the digital era cannot be separated from the regulation of algorithmic mechanisms that shape the flow of public information (Balkin, 2018).

On the other hand, the *cross-border* character of digital platforms also poses challenges to the implementation of state sovereignty. Most of the technology companies that dominate Indonesia's digital space are located outside the national jurisdiction, so the implementation of national laws often faces limitations in terms of enforcement and supervision. This situation shows an imbalance between the global scope of digital power and the constitutional protection mechanisms that are still essentially operating within national borders. Therefore, strengthening the rule of law in the digital era is not enough to be done through the formation of national regulations alone, but also requires harmonization with the development of international standards regarding digital platform governance, personal data protection, artificial intelligence, and digital human rights.

The overall dynamics show that the constitutional challenge in Indonesia is no longer only related to how the state exercises power legally according to the law, but also how the constitution is able to control the use of power by digital actors who carry out regulatory functions against society. In other words, the main problem is not just the lack of technological regulation, but the limitations of the paradigm of the state of law in explaining the constitutional relationship that developed in the algorithm era. Therefore, a reinterpretation of the basic principles of the rule of law is needed to not only ensure the legality of government actions, but also to ensure that any use of digital power that impacts constitutional rights is subject to the principles of constitutional supremacy, transparency,

accountability, human rights protection, and effective oversight mechanisms. This reinterpretation is the basis for the formation of a *Digital Constitutionalism model* that is in accordance with the characteristics of the Indonesian constitutional system.

Reinterpreting the Rule of Law in the Age of Algorithms

The development of *Digital Constitutionalism* and the strengthening of algorithm-based governance show that the concept of the rule of law can no longer be understood only based on the classical constitutional paradigm that places the state as the only subject exercising public power. The dynamics of the digital space show that some of the regulatory functions that were previously the authority of the state are now carried out by digital platforms through algorithmic mechanisms that directly affect the implementation of people's constitutional rights. These changes require a reinterpretation of the principle of the rule of law in order to remain able to carry out its main function as a power limiting instrument as well as a protector of human rights in an increasingly complex digital environment. This reinterpretation is not intended to replace the principles of the rule of law that have developed over the years, but rather to expand the scope of its application so that it remains relevant to the changes in power structures brought about by digital transformation.

In modern constitutional theory, the state of law is built on several fundamental principles, namely the supremacy of law, equality before the law, legal certainty, limitation of power, and protection of fundamental rights, as well as the availability of an independent judicial mechanism as a means of resolving disputes. These principles developed in the tradition of the Rule of Law pioneered by A. V. Dicey and the concept of *Rechtsstaat* in the continental European legal tradition, both of which placed law as the basis for the legitimacy of all actions of state administrators. In this context, the constitution functions as an instrument to prevent the abuse of power through regulating the authority of state institutions and providing guarantees for the rights of citizens (Dicey, 1885; Tamanaha, 2004).

While these principles remain normative, the change in power structures in the digital age suggests that threats to constitutional rights no longer stem solely from government actions. Digital platforms through algorithmic systems now have the ability to determine access to information, control the distribution of content, process personal data, shape user preferences, and influence individual economic and political opportunities. In many circumstances, algorithmic decisions even produce consequences that have similar impacts to state administrative decisions, although they are not based on public legal procedures. Thus, the restriction of power, which is the main goal of the state of law, must be expanded so that it applies not only to state institutions (*public power*), but also to the use of power by private actors (*private digital power*) that have a constitutional influence on society (De Gregorio, 2022).

The expansion has consequences for the interpretation of the principle of the rule of law. In the classical paradigm, the rule of law is understood as the obligation of all government actions to comply with applicable laws. However, in the digital ecosystem, the rule of law is not enough to be interpreted as controlling state actions, but must include the obligation of all actors who carry out regulatory functions on the digital public space to respect constitutional values. In other words, the constitution must be a source of legitimacy for any form of power exercise that impacts the exercise of fundamental rights, regardless of whether that power is exercised by state institutions or technology companies. This approach reflects a shift from *state-centered constitutionalism* to *constitution-centered governance*, where the constitution becomes the normative foundation for all forms of governance that affect the public interest.

The next reinterpretation is related to the principle of legal certainty. In the traditional legal system, legal certainty is realized through the existence of written norms that can be understood, predicted, and applied consistently by law enforcement officials. However, the character of artificial intelligence-based algorithms often conflicts with this principle because the decision-making process is carried out through computational mechanisms that are not transparent. Digital service users generally do not know the parameters used in determining information recommendations, content removal, account ratings, or risk assessments. As a result, it is difficult for individuals to predict the legal and administrative consequences of their digital activities. Therefore, legal certainty in the algorithm era must be interpreted not only as certainty about the existence of legal norms, but also as certainty about the logic of digital decision-making that has an impact on a person's rights and interests.

Similar changes are also needed to the principle of *due process of law*. In the conventional constitutional system, *due process* guarantees that any restriction on citizens' rights can only be carried out through legal procedures that are fair, transparent, and accountable. However, in digital governance, decisions that limit individual rights are often made automatically without adequate notice, without explanation of the basis for decision-making, and without effective objection mechanisms. This condition shows that procedural protection in the digital age must be expanded through the recognition of the right of every individual to obtain

information about algorithmic decisions, the right to request explanation, the right to object to automated decisions, and the right to human *review*) when the decision has a significant impact on fundamental rights. Thus, *due process* is no longer limited to judicial processes or state administration, but also becomes a binding principle of algorithmic governance.

The principle of transparency has also undergone a significant transformation in meaning. Transparency in the rule of law was initially directed to ensure the openness of the administration of government so that the public can supervise the use of public authority. In the context of *Digital Constitutionalism*, transparency must be expanded to include openness regarding algorithm design, data processing purposes, content moderation mechanisms, the use of artificial intelligence systems, and the basis for automated decision-making that affects people's rights. Algorithmic transparency does not always require the disclosure of source *code*, given the protection of intellectual property rights and system security. However, at least the user should obtain sufficient information about how the system works, the main parameters used in decision-making, and the consequences that may arise for his rights. From the perspective of the state of law, this kind of transparency is the main requirement for the realization of public accountability and oversight of the use of digital power.

The principle of accountability also requires a broader reinterpretation. So far, accountability is understood as the obligation of state administrators to account for the use of their authority to the public through legal and political mechanisms. However, the development of digital technology shows that technology companies also carry out functions that have public consequences, such as managing communication spaces, moderating information, prioritizing content distribution, and processing data on a very large scale. Therefore, any use of algorithms that has the potential to affect fundamental rights must be accompanied by a clear accountability mechanism, including the obligation to conduct an *algorithmic impact assessment*, independent audits, periodic reporting, and the provision of an effective complaint mechanism for the public. Algorithmic accountability can no longer be seen as a standard of corporate ethics, but rather as a consequence of the application of the rule of law principles in digital governance (Yeung, 2018).

Furthermore, the principle of *equality before the law* also gained a new dimension in the era of algorithms. The use of artificial intelligence in various sectors often relies on historical data that contains social, economic, and cultural biases. If the bias is reproduced by algorithms, then the digital system can produce discriminatory treatment against certain groups, even without discriminatory intentions from the system developer. Therefore, protection of the principle of equality before the law is not enough to be realized through the prohibition of discrimination in legal norms, but must also include an obligation to identify, prevent, and correct algorithmic biases that may reduce a person's access to constitutional rights. Thus, the principle of equations acquires a technological dimension previously unknown in classical legal state theory.

The reinterpretation of the state of law in the algorithmic era also requires strengthening the principle of public participation in the digital policy formation process. So far, algorithm design and platform policies have been largely determined unilaterally by technology companies based on business considerations and system efficiency. In fact, these decisions have a direct impact on the democratic space, freedom of expression, privacy protection, and other fundamental rights. Therefore, the development of artificial intelligence systems and digital platform governance should involve public consultation mechanisms, independent oversight, and periodic evaluations that allow the public to participate in the formation of digital standards that will affect their lives. This approach expands the concept of constitutional democracy from the formal legislative process to *participatory digital governance*.

Based on the overall analysis, this study argues that the reinterpretation of the rule of law in the algorithm era must be built through the expansion of constitutional orientation from the control of *public power* to the control of all forms of *constitutional power* that affect the exercise of fundamental rights. In this new paradigm, constitutional supremacy not only binds state actions, but also becomes the normative standard for the use of power by digital platforms and artificial intelligence systems. The reinterpretation gave birth to six main principles of the *digital rule of law*, namely: (1) constitutional *supremacy*, (2) *algorithmic transparency*, (3) *digital accountability*, (4) *Digital Constitutional Rights Protection*, (5) *Independent Algorithmic Oversight*, and (6) *Public Participation in Digital Policy Formation (Participatory Digital Governance)*. These six principles are the conceptual foundation for the *Indonesian Digital Constitutionalism Framework model* which will be developed in the next section as the main theoretical contribution of this research.

Constitutional Protection of Digital Human Rights The development of *Digital Constitutionalism* is not only related to changes in the power structure in the digital space, but also to the transformation of the way the state understands and protects the constitutional rights of citizens. If the constitution was originally designed to guarantee individual freedom from the abuse of state power, then the development of digital technology shows that threats to fundamental rights now also arise through the use of data, algorithms, and artificial intelligence run by non-state actors. Therefore, constitutional protection in the digital era is no longer enough to be understood as protection of conventional rights in physical space, but must develop into protection of *digital human rights* that is able to answer the new characteristics of digital society's lives. This transformation does not change the substance of human rights, but expands the scope for its application to remain effective in the face of rapid technological changes (Celeste, 2022).

In the legal perspective of the Indonesian constitution, the foundation for the protection of human rights has been comprehensively affirmed in Chapter XA of the 1945 Constitution of the Republic of Indonesia. Various provisions regarding the right to freedom of expression, the right to information, the right to security, the right to personal protection, the right to legal certainty, and the right to be free from discriminatory treatment show that the Indonesian constitution has provided a strong normative foundation for the protection of fundamental rights. However, the formulation of the constitution was prepared in a period when the digital space has not developed as it currently is. As a result, the main challenge lies not in the lack of constitutional norms, but in the need to interpret these norms dynamically to remain relevant in the face of the development of algorithm-based digital governance. This approach is in line with the doctrine of *the living constitution*, which views the constitution as a legal instrument that must be able to adapt to social changes without losing the fundamental values it contains (Strauss, 2010).

One of the rights that has undergone the most significant transformation is the right to privacy. In the digital environment, privacy is no longer limited to the protection of one's personal space, but has evolved into the protection of digital identities, personal data, communication patterns, behavioral preferences, geographic location, and a track record of online activities that collectively form an individual's digital profile. Massive data collection and analysis allows technology companies and public institutions to generate predictions about a person's behavior that even go beyond the information that is consciously provided by the individual. This condition shows that privacy violations in the digital era do not always occur through data disclosure, but also through the process of collecting, processing, analyzing, and utilizing data without adequate control from the data owner. Therefore, the right to privacy in the perspective of *Digital Constitutionalism* must be interpreted as the right of individuals to maintain autonomy over the entire life cycle of their personal data (*data lifecycle*), from data collection to deletion (Cohen, 2019).

This development is closely related to the strengthening of the right to *personal data protection*. Although this right is often seen as part of the right to privacy, various developments in international law show that the protection of personal data has evolved into a right that has its own characteristics. The GDPR, for example, places data protection as a fundamental right that provides a variety of guarantees to data subjects, including the right to obtain information, the right to access data, the right to rectify data, the right to *erasure*, the right to restrict processing, the right to transfer data (*data portability*), as well as the right to object to decisions based entirely on automated processing. This approach shows that the protection of personal data is no longer just an administrative obligation for data controllers, but is a constitutional instrument to safeguard individual freedom in the digital society (European Union, 2016).

In addition to the right to privacy, freedom of *expression* has also expanded its constitutional dimension. In the digital age, the right to express opinions depends not only on legal guarantees from the state, but also on the design of algorithms that determine whether information will be seen, restricted, or even removed from the digital public space. Algorithmic decisions regarding content moderation can affect the effectiveness of the implementation of freedom of expression even if it is not carried out through censorship mechanisms by the government. Therefore, constitutional protection of freedom of expression needs to include the obligation of transparency to content moderation policies, clarity of information removal procedures, providing reasons for content restrictions, and the availability of objection mechanisms that can be effectively accessed by users. The protection aims to maintain a balance between the interests of platforms in managing digital space and the public's right to obtain freedom of opinion responsibly.

The right to *access information* has also undergone changes that are no less important. In the conventional system, the main challenge is related to the disclosure of public information by the government. On the other hand, in the era of algorithms, the problem shifts to how information recommendation systems shape public access to knowledge. Algorithms designed to increase *user engagement* often create the phenomenon of *filter bubbles* and *echo chambers*, which are conditions when users only receive information that is in line with their preferences or views. This situation has the potential to reduce information diversity, strengthen social polarization, and affect the quality of democratic deliberation. Therefore, the right to obtain information in the perspective of *Digital Constitutionalism* does not only mean the availability of access to information, but also includes the right of the public to obtain information that is diverse, not algorithmically manipulated, and presented through a transparent mechanism (Pariser, 2011).

The development of artificial intelligence technology has also created a need for the recognition of new rights that were previously unknown in the traditional constitutional legal system. One of them is *the right to explanation*, which is the right of every individual to obtain an understandable explanation about the basis for automatic decision-making that affects his or her rights or interests. This right developed in response to the increasing use of algorithms in various sectors, including financial services, health, employment, education, and public services. Without adequate explanation, individuals will have difficulty assessing the legality of decisions, identifying possible system errors, or exercising their right to object. Therefore, *the right to explanation* is an integral part of procedural protection that supports the principle of *due process of law* in digital governance (Wachter, Mittelstadt, & Floridi, 2017).

The next right that has gained attention in the development of *Digital Constitutionalism* is the right not to be subject solely to automated decision-making. Recognition of this right is based on the assumption that decisions that have a significant impact on individual rights should not be left entirely to algorithms without *meaningful human oversight*. Human presence in the decision-making process is not just an administrative formality, but a constitutional mechanism to ensure that there are considerations of proportionality, justice, and protection of human dignity that cannot always be replicated by computational systems. Thus, the use of artificial intelligence must be positioned as a *decision support system*, not as a substitute for the constitutional responsibility inherent in the exercise of power.

In the Indonesian context, strengthening the protection of *digital human rights* must also pay attention to the characteristics of the constitutional system that places respect for human dignity as one of the fundamental values of the constitution. This principle requires that every use of digital technology is always directed to improve the welfare of the community without reducing individual freedoms and constitutional rights guaranteed by the 1945 Constitution of the Republic of Indonesia. Therefore, policy development regarding artificial intelligence, digital platform governance, and the use of personal data should be based on a *human-centered digital governance* approach, which is an approach that places humans as the main goal of technology development, not just as a source of data or an object of algorithmic analysis.

Based on the overall analysis, this study argues that the protection of human rights in the digital era must be understood as an integral part of the protection of constitutional rights. The right to privacy, the protection of personal data, freedom of expression, access to information, algorithmic transparency, the right to an explanation of automated decisions, the right to file objections, and the right to human supervision of the use of artificial intelligence are new manifestations of constitutional values that have long been recognized in the rule of law. Thus, *Digital Human Rights* is not a category of rights that stands alone outside the constitution, but is a reinterpretation of constitutional rights in order to remain able to provide effective protection for citizens in a digital environment that is increasingly dominated by algorithm-based governance. This understanding is the normative basis for the development of the Indonesian Digital Constitutionalism Framework model, which will be formulated in the following section as the main conceptual contribution of this research.

Indonesian Digital Constitutionalism Framework (Novelty Model)

The analysis in the previous sections shows that the development of *Digital Constitutionalism* not only presents new problems in the field of technology regulation, but also changes the way constitutional law views the relationship between power, human rights, and public governance. The shift in the distribution of power from state institutions to digital platforms shows that the constitutional protection mechanism that has been built on the paradigm of *state-centered constitutionalism* is no longer fully able to answer the challenges of the algorithmic era. Therefore, this study proposes a conceptual model called the Indonesian Digital Constitutionalism Framework (IDCF) as a form of reinterpretation of the principle of the rule of law that is adjusted to the characteristics of the Indonesian constitutional system and the development of global digital governance.

In contrast to the various models of *Digital Constitutionalism* that have developed in Europe and North America, the framework proposed in this study does not solely adopt the principles of international digital regulation. This model is built on the integration of the basic values of the Indonesian rule of law, the principle of human rights protection as guaranteed in the 1945 Constitution of the Republic of Indonesia, the development of international standards regarding digital governance, as well as the characteristics of Indonesia's digital society which has a high level of internet penetration, socio-cultural diversity, and a developing constitutional democratic system. Thus, this model is not intended as a form of *legal transplantation*, but rather as a conceptual reconstruction that adapts universal principles into a national context.

Conceptually, the Indonesian Digital Constitutionalism Framework is built on the assumption that any form of power that has the ability to influence the exercise of constitutional rights must be subject to constitutional principles, regardless of whether such power is exercised by the state or private actors. This assumption expands the scope of the principle of the rule of law from supervision of *public power* to supervision of all forms of *constitutional power* operating in the digital space. Thus, the constitution is no longer positioned only as an instrument of controlling state administrators, but also as a normative standard that binds digital platform operators, developers of artificial intelligence systems, digital service providers, and all actors who use algorithms to produce decisions that have an impact on society.

Based on this approach, this study develops six main pillars that make up the Indonesian Digital Constitutionalism Framework.

The first pillar is Constitutional Supremacy in Digital Governance.

This pillar emphasizes that all forms of digital governance must be within the framework of constitutional supremacy. The Constitution is a source of legitimacy for all policies that regulate the digital space, both those formed by the state and by digital platform operators. Any algorithmic policy that has the potential to limit fundamental rights must be tested for conformity with constitutional principles, in particular respect for human dignity, protection of human rights, legal certainty, proportionality, and justice. Thus, the supremacy of the constitution applies not only to the administrative actions of the state, but also to algorithmic decisions that have a public impact.

The second pillar is Digital Constitutional Rights Protection.

This pillar places constitutional rights as the main orientation in the entire process of developing and implementing digital technology. These protections include the right to privacy, personal data protection, freedom of expression, access to information, equal treatment, protection from algorithmic discrimination, the right to an explanation of automated decisions, the right to file an objection, and the right to obtain redress in the event of a violation of digital rights. In this framework, digital rights are not seen as a new category of rights separate from the constitution, but rather as a contemporary manifestation of the constitutional rights that have been guaranteed by the 1945 Constitution of the Republic of Indonesia.

The third pillar is Algorithmic Transparency and Explainability.

This pillar develops the principle of openness as the foundation of democratic algorithmic governance. Any artificial intelligence system used in decision-making that impacts society must meet adequate transparency standards. Transparency does not necessarily mean opening the entire source code of the system, but it does include the obligation to explain the purpose of using the algorithm, the type of data processed, the key parameters in decision-making, the potential risks that may arise, as well as the objection mechanisms available to users. The presence of the *explainability* principle allows individuals to understand the reasons behind a decision so that they can use their constitutional rights effectively.

The fourth pillar is Digital Accountability and Independent Oversight.

This pillar emphasizes that any use of algorithms that have a significant impact on society must be accompanied by a clear accountability mechanism. Accountability is realized through the obligation to conduct *algorithmic impact assessments*, independent audits of artificial intelligence systems, periodic reporting on algorithmic risks, and the provision of a complaint mechanism that is easily accessible to the public. In addition, it is necessary to have supervisory institutions that have independence, technical capacity, and legal authority to evaluate the use of algorithms in both the public and private sectors. The presence of an independent supervisory mechanism is a direct implementation of the principle of *checks and balances* in the context of digital governance.

The fifth pillar is Human-Centered Artificial Intelligence Governance.

This pillar places humans as the main goal of technology development. The use of artificial intelligence must always be directed to improve people's welfare, strengthen public services, and support respect for human rights. Any artificial intelligence system used in strategic sectors, such as health, education, employment, finance, law enforcement, and public services, must still ensure meaningful *human oversight* so that the resulting decisions are not entirely dependent on automated computing processes. This approach ensures that technology functions as an instrument to support decision-making, not as a substitute for human constitutional responsibility.

The sixth pillar is Participatory Digital Democracy.

This pillar develops the principles of constitutional democracy into digital governance through increased public participation in technology policy formation. The preparation of regulations on digital platforms, the use of personal data, and artificial intelligence must involve the public, academics, civil society organizations, industry players, and state institutions in an open, inclusive, and accountable consultation process. Public participation not only increases the legitimacy of digital policies, but also strengthens public scrutiny of the use of algorithmic power that increasingly affects daily life.

The six pillars form a system that is interrelated and inseparable from each other. The supremacy of the constitution is the normative foundation that directs the protection of digital rights. The protection of digital rights can only be realized if it is supported by algorithmic transparency, while transparency requires independent accountability and oversight mechanisms to be implemented effectively. Furthermore, all algorithmic governance must be human-oriented and implemented through a democratic process that guarantees community participation. The relationship between these pillars has resulted in a digital governance model that not only meets the needs of technological developments, but also maintains the character of a democratic state of law as mandated by the Indonesian constitution.

From a theoretical perspective, the Indonesian Digital Constitutionalism Framework contributes to the development of constitutional law in three main aspects. First, this model expands the object of the study of the state of law by including digital platforms and artificial intelligence systems as subjects that carry out regulatory functions towards society. Second, this model integrates the theory of *rule of law*, *constitutional rights*, *algorithmic governance*, and *Digital Constitutionalism* into a complete conceptual framework so as to be able to explain the relationship between technological developments and the protection of constitutional rights more comprehensively. Third, this model introduces the concept of constitutional algorithmic governance, which is a paradigm that places all the use of algorithms that have an impact on fundamental rights under the supervision of constitutional values, thus expanding the scope of constitutionalism from the control of state power to the control of all forms of power that have constitutional consequences.

From a practical perspective, this model can be a reference for lawmakers in drafting regulations regarding artificial intelligence, digital platform governance, and personal data protection. In addition, this model also provides an evaluation framework for state institutions in developing digital transformation policies that remain in line with the principles of the rule of law, constitutional democracy, and human rights protection. Thus, the Indonesian Digital Constitutionalism Framework not only functions as an academic construction, but also as a normative instrument that can support the development of national legal policies in the midst of the increasing influence of algorithms on people's lives.

Based on the overall results of the analysis, this study emphasizes that the main challenge of the state of law in the era of algorithms does not lie in the need to form a new constitution for the digital space, but in the ability to reinterpret existing constitutional principles in order to remain effective in the face of changes in the distribution of power due to technological developments. Therefore, the future of Indonesia's rule of law is not determined by the extent to which technology has developed, but by the ability of the constitutional system to ensure that every form of digital power, regardless of who the perpetrator is, remains subject to constitutional supremacy, respects human dignity, and guarantees the protection of the fundamental rights of citizens. Thus, Digital Constitutionalism is not just a discourse on technology regulation, but a new paradigm of constitutionalism that places the constitution as the main foundation of digital governance that is democratic, fair, and oriented towards the protection of human rights.

5. Conclusion

The development of digital technology has fundamentally changed the constitutional landscape by presenting new forms of power that are no longer fully within the scope of the state. Digital platforms, artificial intelligence systems, and algorithms now carry out regulatory functions that directly affect the implementation of people's constitutional rights, ranging from freedom of expression, protection of personal data, access to information, to participation in democratic life. This condition shows that the paradigm of the state of law oriented towards controlling *public power* is no longer adequate to answer the complexity of legal relations in the digital society. Therefore, the reinterpretation of the principle of the rule of law is a constitutional necessity so that the supremacy of the constitution is still able to control all forms of power that have consequences for the fundamental rights of citizens.

The results of this study show that the *phenomenon of Digital Constitutionalism* is not just a new development in technology regulation, but a conceptual transformation of the way the constitution carries out its protective function. Threats to constitutional rights no longer only come from government actions, but also from the use of algorithms that determine the distribution of information, content moderation, processing of personal data, and various automated decisions that affect people's lives. In the Indonesian context, this condition shows that there is a gap between the development of digital technology and the constitutional paradigm that is still oriented towards vertical relations between the state and citizens. As a result, various forms of digital power use by private actors have not been fully within the framework of effective constitutional oversight.

Based on the analysis of the theory of the rule of law, constitutional rights, algorithmic governance, and the development of *Digital Constitutionalism*, this study emphasizes that the principle of the rule of law must be reinterpreted through the expansion of the scope of constitutional protection for all forms of *constitutional power*, both run by state institutions and by digital platforms. The reinterpretation includes strengthening the principle of constitutional supremacy in digital governance, algorithmic transparency, digital accountability, protection of digital constitutional rights, independent oversight of algorithmic systems, and public participation in digital policy formation. With this approach, the rule of law still maintains its main function as a mechanism to limit power, but with a scope that is more appropriate to the characteristics of the digital society.

The main contribution of this research is the development of the Indonesian Digital Constitutionalism Framework (IDCF) as a conceptual model that integrates the principles of Indonesia's rule of law, human rights protection, and digital governance into one comprehensive constitutional framework. In contrast to the approach developed in the previous literature, this model places the constitution as the normative foundation for all forms of digital power use, regardless of whether the power comes from state institutions or private actors. Thus, this study expands the scope of constitutionalism theory through the introduction of the constitutional algorithmic governance paradigm, which is an approach that places algorithms and artificial intelligence systems as objects of constitutional supervision when it produces an impact on the implementation of fundamental rights.

The findings of this study also have practical implications for the formation of legal policy in Indonesia. Future digital regulatory reforms will not focus enough on the technical aspects of technology utilization, but need to be directed at strengthening constitutional guarantees for people's digital rights. The development of regulations on artificial intelligence, digital platform governance, personal data protection, and algorithmic transparency should be built on constitutional principles, so that digital transformation takes place in line with respect for democracy, the rule of law, and human rights. This approach will strengthen the legitimacy of national digital governance while increasing Indonesia's readiness to face global digital regulatory developments.

This research still has limitations because it uses a normative legal approach that focuses on conceptual analysis of constitutional norms, regulations, and theoretical developments. Therefore, further research needs to develop an empirical approach through case studies on the practice of using algorithms by digital platforms and government institutions in Indonesia. Comparative studies with countries that have developed more comprehensive regulations on artificial intelligence and *Digital Constitutionalism* are also needed to test the effectiveness of the model offered in this study. Thus, the development of the concept of *Digital Constitutionalism* in Indonesia not only enriches academic discourse, but also provides a scientific basis for the formation of a digital legal system that is able to maintain a balance between technological innovation, constitutional supremacy, and the protection of fundamental rights of citizens.

References

- Balkin, J. M. (2018). Free speech in the algorithmic society: Big data, private governance, and new school speech regulation. *UC Davis Law Review*, 51(3), 1149–1210. <https://doi.org/10.2139/ssrn.3038939>
- Celeste, E. (2022). *Digital constitutionalism: The role of Internet bills of rights*. Routledge. <https://doi.org/10.4324/9781003247058>
- Cohen, J. E. (2019). *Between truth and power: The legal constructions of informational capitalism*. Oxford University Press. <https://doi.org/10.1093/oso/9780190246691.001.0001>
- De Gregorio, G. (2022). *Digital constitutionalism in Europe: Reframing rights and powers in the algorithmic society*. Cambridge University Press. <https://doi.org/10.1017/9781009071473>
- Dicey, A. V. (1885). *Introduction to the study of the law of the constitution*. Macmillan.
- European Parliament and Council. (2016). Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). *Official Journal of the European Union*, L119, 1–88.
- European Parliament and Council. (2022a). Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a single market for digital services and amending Directive 2000/31/EC (Digital Services Act). *Official Journal of the European Union*, L277, 1–102.
- European Parliament and Council. (2022b). Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act). *Official Journal of the European Union*, L265, 1–66.
- Hildebrandt, M. (2020). The issue of bias in AI and the principle of equality. In L. A. Bygrave, M. M. Madden, & M. Hildebrandt (Eds.), *The Oxford handbook of digital technology and society*. Oxford University Press.
- Hutchinson, T., & Duncan, N. (2012). Defining and describing what we do: Doctrinal legal research. *Deakin Law Review*, 17(1), 83–119. <https://doi.org/10.21153/dlr2012vol17no1art70>
- Lessig, L. (2006). *Code: Version 2.0*. Basic Books.
- Organisation for Economic Co-operation and Development. (2019). *OECD recommendation of the Council on artificial intelligence*. OECD Legal Instruments.
- Örücü, E. (2006). Developing comparative law. In M. Reimann & R. Zimmermann (Eds.), *The Oxford handbook of comparative law* (pp. 43–65). Oxford University Press.
- Pariser, E. (2011). *The filter bubble: What the Internet is hiding from you*. Penguin Press.
- Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Harvard University Press. <https://doi.org/10.4159/harvard.9780674736061>
- Republic of Indonesia. (1945). *The 1945 Constitution of the Republic of Indonesia (as amended)*.
- Republic of Indonesia. (2005). *Law Number 12 of 2005 concerning the ratification of the International Covenant on Civil and Political Rights*. State Gazette of the Republic of Indonesia Year 2005 Number 119.
- Republic of Indonesia. (2008). *Law Number 11 of 2008 concerning Electronic Information and Transactions*. State Gazette of the Republic of Indonesia Year 2008 Number 58.
- Republic of Indonesia. (2022). *Law Number 27 of 2022 concerning Personal Data Protection*. State Gazette of the Republic of Indonesia Year 2022 Number 196.
- Smits, J. M. (2017). What is legal doctrine? On the aims and methods of legal-dogmatic research. In R. van Gestel, H.-W. Micklitz, & E. L. Rubin (Eds.), *Rethinking legal scholarship: A transatlantic dialogue* (pp. 207–228). Cambridge University Press. <https://doi.org/10.1017/9781316688920.011>
- Strauss, D. A. (2010). *The living constitution*. Oxford University Press.
- Suzor, N. P. (2019). *Lawless: The secret rules that govern our digital lives*. Cambridge University Press. <https://doi.org/10.1017/9781108666426>
- Thompson, B. Z. (2004). *On the rule of law: History, politics, theory*. Cambridge University Press.
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. United Nations Educational, Scientific and Cultural Organization.
- Van Hoecke, M. (Ed.). (2011). *Methodologies of legal research: Which kind of method for what kind of discipline?* Hart Publishing.
- Wachter, S., Mittelstadt, B., & Floridi, L. (2017). Why a right to explanation of automated decision-making does not exist in the General Data Protection Regulation. *International Data Privacy Law*, 7(2), 76–99. <https://doi.org/10.1093/idpl/ix005>
- Yeung, K. (2018). Algorithmic regulation: A critical interrogation. *Regulation & Governance*, 12(4), 505–523. <https://doi.org/10.1111/rego.12158>
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.