

# Digital Constitutionalism: Protecting Fundamental Rights in an Era of Automated State Power

1. Jennifer Lee<sup>1</sup>: Department of Political Science, Stanford University, Stanford, USA

2. Robert Martinez<sup>2\*</sup>: Department of Law, Yale University, New Haven, USA

3. Lucía Fernández<sup>3</sup>: Department of Political Science, University of Buenos Aires, Buenos Aires, Argentina

\*Correspondence: e-mail: robert.martinez@yale.edu

## Abstract

The accelerating integration of automated decision-making, predictive analytics, and biometric surveillance into public administration has fundamentally altered the constitutional landscape of modern governance. As states increasingly rely on algorithmic systems to allocate welfare benefits, monitor public spaces, assess risk, and shape information environments, traditional mechanisms designed to protect fundamental rights face unprecedented strains. This narrative review examines the evolution of algorithmic governance and its implications for privacy, equality, freedom of expression, due process, and democratic participation. It analyzes how opacity, embedded bias, and the rising influence of private technology companies disrupt long-standing constitutional protections and weaken accountability structures. The review also evaluates regional approaches to digital constitutionalism, including the comprehensive regulatory architecture of the European Union, the fragmented model of the United States, the expanding digital authoritarianism in parts of the Global South, and the aspirations of multilateral soft-law initiatives. Across these contexts, significant gaps remain in transparency, oversight, and rights enforcement, revealing systemic vulnerabilities in the governance of automated state power. The article argues that effective digital constitutionalism must embed rights protections within algorithmic systems themselves, supported by robust judicial review, independent oversight bodies, mandatory impact assessments, and clear procedural guarantees such as explanation, contestation, and human oversight. Ethical considerations including digital inclusion, public trust, and the protection of vulnerable groups further shape the legitimacy of digital governance. The review concludes that constitutional principles must evolve to ensure that technological innovation strengthens rather than undermines the integrity of democratic governance and the protection of fundamental rights.

**Keywords:** Digital constitutionalism; automated decision-making; algorithmic governance; fundamental rights; biometric surveillance; accountability; digital rights; AI regulation

Received: date: 15 November 2022

Revised: date: 16 December 2022

Accepted: date: 27 December 2022

Published: date: 01 January 2023



**Copyright:** © 2023 by the authors. Submitted for possible open access publication under the terms and conditions of Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

**Citation:** Lee, J., Martinez, R., & Fernández, L. (2023). Digital Constitutionalism: Protecting Fundamental Rights in an Era of Automated State Power. *Legal Studies in Digital Age*, 2(1), 53-67.

## 1. Introduction

The digital transformation of public administration has reshaped the relationship between the modern state and its citizens, creating new infrastructures of governance grounded in data extraction, computational analysis, and automated decision-making. Governments increasingly integrate digital technologies into administrative processes in ways that extend far beyond

conventional e-government reforms. What was once a supplementary tool for bureaucratic efficiency has evolved into a complex digital apparatus capable of influencing constitutional orders, restructuring public authority, and redefining the scope of fundamental rights. This shift is especially visible in jurisdictions where digital regulatory models interact with longstanding constitutional traditions, revealing tensions that echo earlier debates about rights protection and state power. Several scholars have shown that constitutionalism itself has historically evolved through transformations in political and technological environments, as seen when discussions of state-building emphasized human and civil rights as foundational determinants of legitimate governance (Nelin, 2020). As this new digital administrative order expands, it brings to the forefront urgent questions about whether existing legal frameworks can withstand the pressures generated by automated governance.

Among the most significant developments is the rise of automated decision-making systems embedded in core state functions. Administrative agencies now deploy predictive analytics in policing, risk modeling in border management, algorithmic scoring in welfare eligibility, and biometric monitoring in public security. These practices are deeply influenced by broader global transitions in the exercise of public authority, often implemented through technologies originally developed in the private sector and later incorporated into governmental processes, raising the type of concerns observed in debates about facial recognition systems used in public institutions (Chong & Kuek, 2022). Automated systems built on machine learning, neural networks, and large-scale data processing increasingly exercise a degree of discretionary authority previously reserved for human officials. This encroachment of computational logic into governance presents the possibility that administrative power can be executed without full transparency or meaningful human oversight, echoing earlier critiques that legal systems sometimes fail to regulate complex policy mechanisms effectively, particularly when data-driven tools penetrate sensitive areas of public life (Paiva & Anderson Souza da Silva, 2023).

The constitutional dilemma posed by these technologies arises from their opacity, embedded bias, and limited accountability. Automated decision-making often operates through proprietary algorithms or statistical models that public administrators themselves cannot fully interpret, creating structural asymmetries of knowledge between the state and its subjects. Historically, constitutionalism developed to prevent the arbitrary exercise of public power by ensuring judicial review, due process, and clear procedural guarantees, a trajectory reflected in long-standing analyses of how traditional human rights protections evolved across legal systems (Loveland, 2021). Yet algorithms introduce new layers of abstraction that complicate these safeguards. The threat of discriminatory outputs is also a constitutional concern, as algorithmic systems can reproduce biases contained within historical datasets or produce disparate impacts across different demographic groups, mirroring earlier observations about how constitutional rights must adapt when new technologies or crises challenge established doctrines, including states of emergency (Krusian, 2022). Moreover, opacity in automated systems undermines the individual's ability to contest adverse decisions, thereby weakening due process protections and limiting effective judicial scrutiny, a matter that resonates with debates about the boundaries of constitutional rights when they intersect with institutional or technological constraints (Shimizu, 2022).

These developments have sparked a growing conceptual movement known as digital constitutionalism. At its core, this emerging field seeks to articulate normative and legal principles capable of protecting fundamental rights within technologically mediated environments while preserving the balance between governmental power and individual freedoms. Digital constitutionalism builds on earlier scholarship that explored how constitutional complaints serve as mechanisms for safeguarding rights against the state, especially when new social contexts demand innovative institutional responses (Zharovska, 2023). It also connects to wider discussions regarding the resilience of constitutional democracies in an era marked by political and technological disruptions, a theme reflected in examinations of how populist transformations reshape constitutional structures and challenge established legal protections (Szente, 2022). In this sense, digital constitutionalism does not replace classical constitutional theory; rather, it extends it into domains where digital architectures and algorithmic systems exert unprecedented influence over governance.

Understanding the significance of fundamental rights in the algorithmic era requires recognizing that digital technologies do more than enhance administrative efficiency. They actively reshape the contours of constitutional guarantees by determining how privacy, equality, expression, and due process are experienced in digitally mediated societies. Concerns about privacy rights are especially prominent as large-scale data extraction becomes central to both public and private actors, mirroring broader legal debates about how privacy is framed as an extension of constitutional protections in diverse jurisdictions

(Gautam, 2022). When states rely on continuous biometric surveillance or predictive algorithms, they acquire capabilities that expand their reach far beyond traditional administrative supervision, raising questions about proportionality and legitimate uses of public power. These shifts are reminiscent of discussions about how constitutionalism and democratic values mutually reinforce one another, especially when governance systems confront emerging pressures (Berch, 2023).

Despite the scale of these transformations, constitutional frameworks across many jurisdictions have not evolved at a pace sufficient to address the challenges posed by automated governance. Existing legal doctrines were not designed for a context in which algorithms, datasets, and digital architectures exercise material influence over rights and state power. Earlier analyses of constitutional change illustrate how legal systems often lag behind broader societal shifts, as seen in examinations of transitions that affected governance structures and legal interpretations in prior decades (Amin et al., 2020). Yet the velocity of technological innovation magnifies this gap, creating regulatory vacuums where rights may be compromised without adequate constitutional safeguards. Some of these gaps mirror older challenges related to complex administrative actions such as tax regulation, where questions of verification and oversight have long raised constitutional concerns (Bratko, 2020). However, the introduction of algorithmic tools amplifies these issues by embedding decision-making processes within opaque digital systems that resist traditional forms of review.

The purpose of this narrative review is to examine how digital constitutionalism can serve as a framework for addressing the constitutional challenges introduced by automated state power. This article explores how algorithmic decision-making reshapes fundamental rights, assesses the adequacy of existing constitutional mechanisms, and identifies the theoretical and practical foundations needed to construct a rights-based digital constitutional order. The guiding questions focus on understanding how constitutional norms should evolve in response to automated governance, what risks automated administrative systems pose to fundamental rights, and how states can incorporate constitutional safeguards into their digital infrastructures to ensure transparent, accountable, and rights-respecting governance.

## 2. Conceptual Foundations

The foundations of constitutionalism in the digital age must be understood through the lens of classical constitutional principles while also recognizing how digital technologies unsettle the assumptions that historically grounded these principles. Traditional constitutional doctrine has long centered on limiting arbitrary state power by embedding the rule of law, protecting fundamental rights, and maintaining systems of separation of powers that prevent any single authority from monopolizing public decision-making. Scholars examining the evolution of human and civil rights emphasize that constitutional orders were built on the premise that public power must remain accountable to both citizens and institutional checks, a dynamic that is particularly visible in analyses of how rights protections have historically structured national legal systems (Nelin, 2020). These frameworks ensured that administrative actions were subject to review and that public authority operated transparently and predictably. Yet as digital infrastructures become embedded in state functions, they introduce a new mode of governance that complicates these foundational assumptions. This shift echoes broader reflections on the historical evolution of rights protections, where classical human rights scholarship identified persistent tension between state authority and the individual's need for legal safeguards (Loveland, 2021). When public power is increasingly mediated through algorithmic systems, the mechanisms through which constitutional principles constrain state action become less direct and more opaque.

Digital technologies challenge constitutional principles in several ways. The integration of automated systems into public governance introduces layers of technical complexity that make administrative actions less transparent, thereby weakening accountability. Predictive analytics, risk-scoring models, and biometric recognition tools are often developed by private companies whose proprietary algorithms are shielded from scrutiny, which creates obstacles to judicial review similar to the structural barriers noted in contexts where legal systems struggle to regulate technologically sophisticated procedures (Paiva & Anderson Souza da Silva, 2023). Algorithmic governance also disrupts the separation of powers by transferring functional decision-making authority from human officials to automated systems, effectively reallocating public discretion to computational models. This echoes earlier critiques of how institutional transformations can alter the balance of public authority, such as when populist reforms challenged established constitutional arrangements and destabilized longstanding channels of accountability (Szente, 2022). Furthermore, the rule of law becomes difficult to enforce when algorithmic

processes operate in ways that cannot be meaningfully inspected or justified, creating a situation in which the rationales for public decisions become inaccessible to both citizens and courts. The historical trajectory of constitutionalism shows that rights protections must continuously adapt to new governance pressures, a dynamic reflected in discussions of emergency powers and exceptional circumstances (Krusian, 2022). The digital age represents a continuation of this pattern, introducing novel forms of opacity and discretion that exceed what traditional constitutional mechanisms were designed to regulate.

The emergence of digital constitutionalism as a conceptual response reflects an attempt to reconcile classical constitutional values with the realities of technologically mediated governance. The term has evolved in contemporary scholarship to describe a normative project aimed at embedding constitutional safeguards into digital infrastructures and ensuring that the expansion of digital technologies does not erode fundamental rights. This intellectual trajectory draws on earlier analyses of the institutional mechanisms designed to protect constitutional rights, such as studies that explored how constitutional complaints serve as legal instruments for correcting rights violations within evolving governance environments (Zharovska, 2023). Over time, digital constitutionalism has developed multiple theoretical streams. One stream seeks to reinterpret traditional constitutional norms through the lens of digital transformation, emphasizing how principles such as transparency and accountability must be rearticulated in relation to algorithmic systems. Another stream focuses on digital rights and proposes new fundamental rights specific to digital environments, building on work that links modern interpretations of privacy and human dignity to constitutional guarantees (Gautam, 2022). A third stream aligns with the broader movement toward digital sovereignty, which examines how states assert control over data infrastructures and technological systems while attempting to preserve rights protections within these nationally governed digital spaces. These evolving streams also intersect with emerging discussions about constitutional AI, a field concerned with embedding rights-respecting design principles into artificial intelligence systems used by public institutions.

Digital constitutionalism is therefore closely connected to debates about digital rights, data governance, and the boundaries of state authority. For example, analyses of constitutionalism's relationship with democratic values illustrate that legal protections must adapt when public authority operates within technologically mediated environments, a theme reflected in scholarship that highlights the interdependence of democratic legitimacy and constitutional order (Berch, 2023). At the same time, examinations of how new technologies blur public and private boundaries, such as discussions of the horizontal effect problem in digital contexts, emphasize that constitutional norms must account for the increasing privatization of infrastructures used by the state (Shimizu, 2022). In this sense, digital constitutionalism extends the historical mission of constitutional law by ensuring that technological architectures uphold human rights even when they are designed or operated by entities outside traditional state institutions.

These conceptual foundations are inseparable from the rise of automated state power, a phenomenon that describes how governments increasingly rely on algorithmic systems to execute administrative functions. Automated state power is defined by the delegation of decision-making authority to computational models that perform tasks traditionally carried out by public officials. This includes automated eligibility assessments for social welfare programs, algorithmic risk scoring in policing and criminal justice, biometric identification in border control, and continuous surveillance through facial and behavioral recognition technologies. The constitutional implications of these developments resemble earlier concerns about complex administrative systems, such as when scholars analyzed the difficulties of ensuring constitutional oversight in intricate fiscal or regulatory mechanisms (Bratko, 2020). What distinguishes automated state power is the degree of systemic autonomy granted to digital tools, enabling them to shape administrative outcomes without consistent human supervision.

The increasing reliance on automated systems has produced what can be described as an algorithmic bureaucratic state. In this emerging model, administrative decisions are influenced by algorithms that process large sets of data to identify patterns, classify individuals, or predict future behavior. The implications of such a system are profound because algorithms can encode structural biases, reinforce inequalities, or generate outcomes that conflict with constitutional safeguards, concerns reflected in analyses of how rights protections must extend to technologically mediated environments (Amin et al., 2020). Moreover, the integration of predictive tools in public security and policing parallels earlier critiques of governance models that expand state surveillance under the guise of efficiency or risk prevention, as observed in legal discussions of security-driven policy transformations (Chong & Kuek, 2022). The transformation of public administration into an algorithmic bureaucracy raises

fundamental questions about the locus of state power, the nature of public accountability, and the future of constitutional constraints in a world where data-driven systems increasingly shape governmental authority.

### 3. Fundamental Rights Under Algorithmic Governance

The expansion of algorithmic governance has transformed the ways in which fundamental rights are experienced and protected, reshaping the practical meaning of privacy, equality, expression, due process, and democratic participation. These rights were historically articulated to limit state intrusion and ensure accountable public power, but algorithmic systems introduce forms of state capability that are both pervasive and concealed. Many of these tensions echo earlier legal debates on how technological or administrative change can alter the scope of constitutional protections, a dynamic reflected in scholarly examinations of privacy as an extension of constitutional rights in contexts where state surveillance and data processing have intensified (Gautam, 2022). As governments increasingly integrate predictive analytics, biometric identification, and automated decision-making into their administrative structures, fundamental rights face structural pressures that conventional constitutional mechanisms were not originally designed to address. The following sections explore how these pressures manifest across key domains of constitutional protection.

The right to privacy and data protection is among the most visibly affected by algorithmic governance. The mass collection of personal data has become routine for public authorities, enabling unprecedented monitoring capabilities that rely on digital infrastructures rather than traditional physical surveillance. In earlier constitutional discourse, privacy protections were often grounded in principles of human dignity and personal autonomy, reflecting broader understandings of how rights operate as constraints on state intrusion (Loveland, 2021). The proliferation of state-operated facial recognition systems illustrates how algorithmic tools allow forms of identification that extend far beyond prior technological capacities. Analyses of facial recognition technologies applied in public governance reveal concerns about intrusiveness, accuracy, and the potential for abuse, especially when the systems operate in environments with limited legal oversight (Chong & Kuek, 2022). The construction of large-scale biometric databases similarly raises constitutional questions because such databases may store immutable biological markers, enabling long-term or retroactive tracking. The use of predictive analytics by police and intelligence agencies further intensifies these risks. Predictive policing models often aggregate personal, demographic, and behavioral data to generate risk assessments, embedding the logic of surveillance into everyday public administration. These developments resemble broader discussions in constitutional scholarship about how new monitoring capabilities can expand state power during exceptional or crisis conditions, sometimes blurring the line between necessary security measures and disproportionate infringements of rights (Krusian, 2022). In this sense, privacy rights encounter a transformed constitutional landscape in which algorithmic monitoring becomes both ubiquitous and subtle.

Concerns about equality and non-discrimination also emerge prominently in algorithmic governance. Automated systems rely on historical datasets to train predictive models, and these datasets often encode biased patterns that reflect past social inequalities. If algorithmic systems reproduce or intensify these patterns, they risk generating discriminatory outcomes that conflict with constitutional commitments to equality. This dynamic is visible in discussions of how rights shape national legal identities, where scholars emphasized that citizenship and equality protections must adapt when new forms of state power emerge (Nelin, 2020). Welfare scoring models used in some jurisdictions illustrate how automated eligibility decisions can disproportionately affect marginalized groups if the underlying data reflect economic or social disparities. Predictive policing tools similarly risk reinforcing patterns of over-policing in historically targeted neighborhoods, thereby replicating structural injustices embedded in law enforcement records. Sentencing algorithms used in judicial risk assessments also pose concerns because evaluations of recidivism risk may reflect demographic correlations rather than individualized analysis. These issues parallel the broader constitutional challenge posed by populist or technocratic reforms that reshape governing structures in ways that weaken safeguards against discrimination, as noted in analyses of how populist transformations can destabilize established rights protections (Szente, 2022). The result is an environment in which algorithmic systems can subtly entrench systemic inequalities without explicit discriminatory intent.

Freedom of expression and information is likewise affected by the spread of algorithmic governance, particularly through the role of moderation systems and automated content-ranking mechanisms. While historically freedom of expression was



conceptualized primarily as a protection against direct state censorship, contemporary governance environments involve complex interactions between public authorities, private platforms, and automated algorithms. Private platforms frequently regulate speech through moderation algorithms that can amplify or suppress content in ways that influence political discourse, echoing earlier concerns about constitutional rights reaching into the private sphere and the difficulties of regulating private actors whose functions increasingly resemble public authority (Shimizu, 2022). Automated censorship systems used by states or platforms can remove content based on keywords, image recognition, or behavioral analysis, often without transparent criteria. Content-ranking algorithms also shape political information environments by determining which voices and perspectives are prioritized or marginalized, a dynamic that intersects closely with discussions of democratic values and constitutionalism, where the vitality of public discourse is understood as a foundational democratic principle (Berch, 2023). The growing reliance on state–platform partnerships, especially in areas like counterterrorism or public health communication, further blurs boundaries between public regulatory power and private algorithmic authority, creating new forms of influence over speech that do not map neatly onto traditional constitutional categories.

Due process, transparency, and accountability are deeply challenged by algorithmic systems that operate as opaque decision-making mechanisms. Automated decision-making tools often function as “black boxes” because their internal logic cannot be easily explained in legal or administrative terms. This lack of explainability complicates judicial review and weakens procedural safeguards that are central to constitutional governance. Earlier discussions of constitutional oversight mechanisms, such as analyses of constitutional complaints, highlight how legal systems rely on transparency and reason-giving to enable meaningful rights protection (Zharovska, 2023). When administrative decisions are generated by proprietary algorithms, officials may be unable to explain the reasoning behind adverse outcomes, undermining transparency obligations and making it difficult for individuals to challenge decisions. Procedural rights such as notice, appeal, and human oversight thus become fragile in algorithmic governance contexts. These structural weaknesses are similar to concerns observed in administrative domains like tax regulation, where complex decision-making mechanisms have historically tested the limits of constitutional review (Bratko, 2020). The core issue is that algorithmic processes introduce forms of administrative opacity that exceed previous governance challenges, thereby weakening accountability in ways that can erode public trust.

Finally, collective rights and democratic participation face profound transformations in environments governed by algorithms. The manipulation of public opinion through targeted political messaging, algorithmically curated news feeds, and microprofiling campaigns has altered the mechanisms through which citizens form political judgments. These issues intersect with broader analyses of how constitutional structures respond to societal transformations, such as examinations of democratic instability under populist reforms that challenge participatory norms (Szente, 2022). Algorithmic governance can also limit civic autonomy by nudging or steering individuals through personalized content flows, creating environments in which political behavior becomes subtly shaped by automated systems. Mass surveillance infrastructures—often legitimized through technological efficiency—may discourage participation in public space by creating a constant sense of monitoring, a concern connected to discussions of how rights to privacy and civic freedom function interdependently (Gautam, 2022). Digital divides and unequal access to technology further exacerbate participatory inequality, as individuals without digital literacy or stable internet access are less able to engage in algorithmically mediated public processes. These disparities mirror earlier concerns that constitutional structures must address unequal conditions that inhibit full democratic participation, a theme reflected in discussions of the historical struggle to align rights protections with inclusive state-building (Nelin, 2020).

In sum, algorithmic governance introduces structural pressures on fundamental rights that require renewed constitutional attention. Privacy, equality, expression, due process, and democratic participation all encounter novel vulnerabilities as state power becomes increasingly mediated through digital systems. These transformations raise constitutional questions that extend beyond the scope of traditional legal doctrine, demanding new interpretations of rights and new mechanisms of accountability.

#### **4. Digital Constitutionalism Frameworks: Global Perspectives**

The global landscape of digital constitutionalism illustrates how different legal systems attempt to safeguard fundamental rights while responding to the rapid expansion of algorithmic governance. Although the normative goals of rights protection appear consistent across regions, the institutional pathways diverge considerably, shaped by constitutional traditions,

administrative structures, and political contexts. Some of these differences echo long-standing observations in constitutional scholarship about the diverse ways legal systems construct mechanisms for rights protection and how these mechanisms evolve when confronted with technological or political transformations, a theme reflected in analyses of national state-building and its reliance on human and civil rights (Nelin, 2020). Across jurisdictions, digital constitutionalism frameworks seek either to reinforce traditional rights in light of technological change or to create new governance structures capable of addressing the unique risks posed by automated decision-making, surveillance infrastructures, and data-driven state power. The following global perspectives illustrate how these frameworks operate in practice.

Within the European Union, digital constitutionalism has reached one of its most developed expressions through a combination of regulatory instruments, fundamental rights protections, and emerging legislation governing artificial intelligence. The General Data Protection Regulation (GDPR) remains central to Europe's constitutional approach to digital rights by articulating strong data protection principles, including lawfulness, transparency, data minimization, and individual control. These protections reflect broader academic discussions about the importance of privacy and personal autonomy within constitutional systems, such as comparative analyses emphasizing privacy as a constitutional extension of human dignity (Gautam, 2022). The EU Charter of Fundamental Rights reinforces this foundation by embedding explicit protections for data protection and private life at the constitutional level. The Digital Services Act (DSA) further strengthens rights protection by regulating platform power, particularly algorithmic content moderation practices that may affect freedom of expression, an area connected to concerns about the reach of constitutional rights into technologically mediated private spheres (Shimizu, 2022). The AI Act represents an additional layer of constitutionalized governance by establishing risk-based controls on AI systems, including transparency obligations, quality standards, and prohibitions on certain high-risk applications. This approach aligns with scholarly reflections on the role of constitutionalism in safeguarding democratic values when societal systems face new pressures (Berch, 2023). EU policymakers have also proposed mandatory obligations for the use of automated decision-making in the public sector to ensure consistency with procedural rights and accountability principles. These proposed mechanisms echo earlier concerns in constitutional scholarship about how complex administrative systems risk undermining legal oversight, as seen in examinations of intricate regulatory environments like tax governance (Bratko, 2020). As a result, the EU's model integrates rights, regulatory oversight, and administrative design into a cohesive—though evolving—constitutional framework.

The United States adopts a different approach characterized by fragmentation and sector-specific regulation. Unlike the EU, the U.S. lacks a unified federal data protection regime, leaving personal data regulation dispersed across specific fields such as healthcare, finance, or education. This fragmented governance structure mirrors scholarly critiques that emphasize how constitutional protections become uneven when jurisdictions rely on patchwork regulatory tools rather than systematic legal frameworks (Paiva & Anderson Souza da Silva, 2023). The proposed Algorithmic Accountability Act reflects attempts to address algorithmic harm by requiring companies to conduct impact assessments for automated systems, although the bill has yet to become law. State-level legislation has been more active, particularly in California and Colorado, where data protection and algorithmic accountability laws impose transparency and risk assessment obligations on private entities. These developments complement longer traditions of due process jurisprudence in the United States, where constitutional challenges often focus on procedural fairness and the ability of individuals to contest government action. This procedural orientation resonates with comparative scholarship examining how constitutional complaints function as critical tools for rights protection, a mechanism reflected in analyses of the legal nature of constitutional review procedures in different jurisdictions (Zharovska, 2023). Yet the absence of comprehensive federal regulation means that algorithmic governance continues to expand in administrative settings without a consistent constitutional safeguard structure, raising concerns parallel to earlier critiques of institutional gaps observed in populist or rapidly transforming political environments (Szente, 2022).

In the Global South and authoritarian contexts, digital constitutionalism faces distinct obstacles. In several countries, digital technologies are deployed to expand state surveillance, centralize political authority, and monitor citizens rather than protect their rights. These developments resemble legal analyses describing how states with weak constitutional constraints often restrict rights during emergencies or periods of instability, such as findings that rights and freedoms become vulnerable under martial law conditions when legal safeguards are insufficiently strong (Krusian, 2022). Social credit systems, mandatory biometric registration, pervasive CCTV networks, and AI-driven public security platforms exemplify tools used by

governments in parts of Asia and the Middle East to consolidate state control. In Latin America and Africa, while some democracies have attempted to enact data protection laws, enforcement mechanisms frequently remain limited due to institutional fragility, reflecting the broader problem that constitutional principles often struggle to take hold when foundational governance structures are uneven or politically contested. These dynamics echo earlier scholarship on how human and civil rights serve as determinants of national legal identity and governance stability, especially in societies undergoing complex transitions (Nelin, 2020). Ultimately, the dominance of digital authoritarianism in some regions highlights how algorithmic systems can entrench political power, suppress dissent, and undermine collective rights when constitutional frameworks are unable to resist technological expansion.

Beyond national jurisdictions, multilateral organizations and soft-law initiatives have attempted to establish global norms for algorithmic governance. The OECD AI Principles articulate standards for transparency, fairness, accountability, and human rights in AI systems, reflecting concerns similar to those raised in comparative constitutional analyses about the need to ensure proportionality and legal oversight when new technologies expand state power (Amin et al., 2020). UNESCO's AI Ethics Framework extends this global effort by emphasizing inclusivity, human dignity, and the prevention of harm, aligning with broader constitutional discussions about rights protection in diverse cultural and political contexts. The Council of Europe has taken a more formal approach through its ongoing development of a Convention on AI aimed at creating binding obligations for member states. However, the challenges of enforceability remain significant. Soft-law instruments depend on voluntary compliance, and even treaty-based mechanisms face structural obstacles when implemented across jurisdictions with differing political will, economic capacity, and constitutional traditions. These limitations parallel broader constitutional challenges identified in scholarly explorations of populist transformation and rights instability, where legal norms often fail to constrain political actors in environments where enforcement is weak or institutions are under strain (Szente, 2022). As a result, multilateral digital constitutionalism continues to function more as a normative guide than an enforceable global system.

Together, these global perspectives demonstrate that digital constitutionalism is not a uniform framework but a diverse set of efforts shaped by regional legal traditions, political structures, and normative commitments. Whether through the comprehensive regulatory strategies of the European Union, the fragmented constitutionalism of the United States, the authoritarian digital architectures of certain regimes, or the aspirational soft-law frameworks of multilateral organizations, each model reveals distinct tensions between technological governance and the protection of fundamental rights.

## **5. Gaps, Tensions, and Challenges in Digital Constitutionalism**

Digital constitutionalism as a normative and regulatory project confronts several structural gaps and tensions that complicate its ability to effectively safeguard fundamental rights in an era of algorithmic governance. One of the core challenges is the persistent lack of algorithmic transparency. Automated systems used in public administration often rely on proprietary computational models, trade-secret protected algorithms, or machine-learning architectures that evolve in ways neither administrators nor courts can fully inspect. This structural opacity mirrors earlier concerns raised in constitutional scholarship about how increasing institutional complexity can undermine legal oversight, as seen in analyses of intricate administrative actions such as taxation where verification mechanisms struggled to keep pace with regulatory sophistication (Bratko, 2020). When algorithms are deployed to allocate welfare benefits, classify individuals for border screening, or assess risk in policing, their opacity weakens procedural rights by concealing the reasoning behind state decisions. This lack of transparency also complicates the individual's ability to challenge adverse administrative outcomes, echoing findings that effective constitutional complaints require a clear articulation of the legal grounds on which decisions can be contested (Zharovska, 2023). Without traceability or explainability, algorithmic governance risks transforming decision-making processes into inscrutable mechanisms beyond the reach of democratic and judicial review.

Closely linked to opacity is the weakness of oversight and accountability mechanisms in many jurisdictions. Traditional systems of administrative accountability assume that state actions can be evaluated through documentary evidence, human testimony, and legal reasoning. Yet algorithmic systems often operate through embedded statistical correlations rather than explicit rules, making it difficult for oversight bodies to assess whether an outcome violated constitutional standards. This challenge parallels broader analyses of rights protection in volatile governance contexts, where institutional instability can undermine the enforcement of constitutional guarantees, as observed in discussions on rights vulnerabilities under martial law



or emergency conditions (Krusian, 2022). When oversight institutions lack technical expertise or regulatory authority, algorithmic governance expands into a constitutional vacuum, allowing public agencies to rely on technological systems without robust accountability practices. Scholars examining privacy and data protection have similarly noted that the absence of effective supervisory mechanisms enables unchecked data processing and surveillance, contributing to structural imbalances between the state and the individual (Gautam, 2022). As algorithmic systems become more deeply embedded in administrative functions, these oversight gaps become more consequential, weakening the foundational principles of constitutional governance.

The narrative of “technological inevitability” presents another major barrier. Governments often justify the adoption of automated decision-making on the grounds of efficiency, neutrality, or modernization, implying that technological adoption is unavoidable and therefore beyond constitutional debate. This framing resembles broader political narratives analyzed in constitutional studies, where reform movements invoke historic inevitability or crisis-driven necessity to justify structural legal changes, as seen in examinations of populist constitutional restructuring (Szente, 2022). By framing automation as an inevitable progression, states may circumvent meaningful public deliberation and minimize scrutiny of the rights-based implications of algorithmic governance. Such narratives risk masking the value-laden assumptions embedded in algorithmic models, suggesting an apolitical technological progress even when algorithmic tools encode social biases or reinforce existing inequalities. Earlier critiques of how new technologies challenge constitutional frameworks—such as concerns about intrusive surveillance tools identified in analyses of facial recognition systems (Chong & Kuek, 2022)—underscore that technological inevitability is neither neutral nor uncontested.

Compounding these challenges are deepening asymmetries of power between states and private technology companies. Many algorithmic systems used by governments are developed, maintained, or operated by private entities whose economic interests may not align with constitutional safeguards. This dynamic reflects longstanding concerns about the horizontal effect of constitutional rights and the difficulty of regulating powerful private actors whose activities increasingly intersect with public authority, as noted in comparative discussions of rights penetration into private spheres (Shimizu, 2022). When governments procure algorithmic systems from private vendors, contractual arrangements may prevent disclosure of critical information needed for judicial or democratic review. Such arrangements can result in “constitutional bypassing,” where technological procurement enables the state to exercise significant public power through tools that escape traditional legal constraints—a phenomenon resembling earlier patterns in which institutional design allowed governments to expand authority during periods of legal ambiguity (Amin et al., 2020). The result is an erosion of constitutional accountability as technological infrastructures become intermediaries of state power without corresponding transparency obligations.

Cross-border data flows and jurisdictional conflicts also complicate digital constitutionalism. Data collected in one jurisdiction may be processed or stored in another, subjecting individuals’ information to legal regimes that lack equivalent rights protections. This creates inconsistencies in the level of constitutional safeguards available across regions, echoing analyses of how rights protections vary widely among national systems depending on political context and institutional maturity, such as discussions of emergent constitutional systems undergoing state-building transitions (Nelin, 2020). These tensions become more pronounced when states with differing democratic commitments share digital infrastructures or rely on multinational technology providers whose operations span continents.

A further challenge arises from the tension between security imperatives and rights protection. Governments frequently justify algorithmic surveillance and predictive security tools by invoking national security or public order concerns. This approach parallels constitutional debates about exceptional powers, where rights restrictions are justified under conditions framed as threats or crises, as illustrated in scholarship examining emergency powers and rights limitations during politically unstable periods (Krusian, 2022). When security rhetoric dominates policymaking, constitutional safeguards are often weakened or reinterpreted in ways that expand state power. Technologies such as AI-enhanced CCTV networks, biometric border controls, and behavioral analytics systems become normalized under the justification of preventing harm, even when they significantly infringe on privacy or freedom of expression.

Finally, global digital governance suffers from a fragmentation of legal and ethical norms. Different jurisdictions adopt divergent regulatory approaches, resulting in inconsistencies in algorithmic accountability, data protection, and rights enforcement. This fragmentation mirrors broader observations in constitutional scholarship concerning how varying political

cultures and institutional capacities produce heterogeneous rights protections, as seen in comparative studies of democratic and authoritarian constitutional environments (Berch, 2023). While some regions adopt comprehensive regulatory frameworks, others rely on weak or nonexistent protections, enabling digital authoritarian practices that exploit technological tools to consolidate state control. Efforts to harmonize global standards, such as multinational data protection agreements or ethical AI guidelines, remain constrained by political reluctance, differing economic interests, and limited enforceability. As a consequence, digital constitutionalism remains an uneven project, marked by significant normative and operational gaps that challenge its ability to meaningfully constrain algorithmic state power.

## 6. Normative and Policy Implications

Strengthening the constitutional foundations of algorithmic governance requires a multidimensional approach that addresses legal, institutional, regulatory, ethical, and social dimensions. One of the most immediate normative implications is the need to deepen constitutional safeguards so that digital environments are not treated as exceptions to established principles of rights protection. Embedding digital rights directly into constitutional texts would allow legal systems to articulate privacy, data protection, informational self-determination, and algorithmic fairness as fundamental guarantees rather than auxiliary statutory protections. Such a development parallels earlier conceptual arguments emphasizing that rights protections must evolve alongside societal transformations, as seen in analyses highlighting the constitutional significance of privacy as an extension of human dignity in digitally mediated contexts (Gautam, 2022). Strengthening judicial review of automated decision-making is equally essential. Courts must be able to evaluate whether algorithmic tools used in public administration comply with principles of legality, proportionality, and equality, a challenge reminiscent of discussions about the need for clear judicial oversight when administrative systems become increasingly complex (Bratko, 2020). Rights to explanation, contestation, and human oversight would further reinforce these safeguards by ensuring that individuals can meaningfully challenge algorithmic decisions. Such mechanisms connect closely to scholarship analyzing the role of constitutional complaint procedures in enabling individuals to remedy rights violations within evolving governance structures (Zharovska, 2023). These elements collectively support a constitutional framework capable of resisting the opacity and unchecked discretion embedded in algorithmic governance.

Institutional and procedural reforms are equally central to the project of digital constitutionalism. Independent algorithmic oversight bodies could play a key role in evaluating the legitimacy, fairness, and transparency of automated systems used in public administration. The rationale for such institutions reflects broader concerns raised in constitutional studies about the dangers of weak oversight in politically volatile environments, including analyses of rights vulnerabilities under emergency or martial law conditions where institutional controls are inadequate (Krusian, 2022). Mandatory algorithmic impact assessments would further strengthen procedural safeguards by requiring public agencies to anticipate the rights implications of algorithmic tools before deployment. These assessments echo earlier calls for more robust administrative accountability mechanisms when governments adopt technologies that significantly affect individual freedoms, a theme visible in debates concerning the constitutional implications of facial recognition technologies and related surveillance tools (Chong & Kuek, 2022). Transparency registries for public-sector algorithms would also promote accountability by making visible the digital systems that exert authority over citizens' lives. Such registers would enable researchers, oversight bodies, and courts to scrutinize algorithmic infrastructures, helping to counteract the tendencies toward opacity that often accompany public-private partnerships in the technological arena. These mechanisms align with broader constitutional discussions emphasizing that legal systems must adapt when technological change disrupts traditional forms of accountability and rights protection (Szente, 2022).

Regulatory design and governance models offer additional avenues for addressing the challenges of algorithmic authority. Co-regulation between states and digital platforms is increasingly necessary in areas such as online speech governance, misinformation management, and content moderation. This approach reflects scholarly examinations of the blurred boundaries between public and private regulatory authority, particularly in contexts where private actors increasingly perform functions that affect public rights and freedoms (Shimizu, 2022). State obligations for "responsible automation" would require governments to ensure that algorithmic systems used in public administration are consistent with constitutional norms. Such

obligations resonate with earlier arguments regarding the responsibility of public institutions to prevent rights violations when adopting invasive or discriminatory technologies, a dynamic visible in assessments of privacy harms and data protection concerns (Gautam, 2022). Setting algorithmic audit standards would further strengthen regulatory design by providing a structured method for evaluating bias, fairness, and human rights compliance. These standards would help mitigate the risks associated with data-driven governance, including the possibility that algorithms reproduce inequalities embedded in historical systems, a pattern examined in scholarship on the relationship between constitutionalism and democratic values (Berch, 2023). Together, these regulatory frameworks provide a structural basis for aligning technological innovation with constitutional commitments.

Finally, the ethical and social dimensions of digital constitutionalism highlight the importance of building public trust and ensuring that algorithmic governance supports rather than undermines democratic participation. Ensuring digital inclusion is a central aspect of this effort, especially in societies where access to technology and digital literacy varies widely. Unequal access to digital infrastructures can create new forms of participatory inequality similar to earlier constitutional concerns about the uneven distribution of rights protections in transitioning or fragile state contexts (Nelin, 2020). Protecting vulnerable populations is equally critical, as marginalized groups often face disproportionate risks from algorithmic bias, surveillance, or data exploitation. These concerns parallel the broader tensions identified in constitutional scholarship analyzing how rapid political or technological transformations can threaten individual rights if adequate safeguards are not in place (Amin et al., 2020). Ethical frameworks that foreground dignity, autonomy, and fairness therefore play an essential role in sustaining democratic legitimacy in the digital age. By centering the social implications of algorithmic governance, digital constitutionalism becomes not merely a legal project but a broader societal commitment to ensuring that technological systems serve public values rather than undermine them.

## 7. Conclusion

The accelerating integration of algorithmic systems into public governance has reshaped the constitutional landscape in ways that demand renewed attention, critical reflection, and purposeful institutional innovation. Automated decision-making, predictive analytics, and biometric surveillance have moved from experimental tools to foundational components of contemporary governance infrastructures. As these systems become embedded in welfare administration, law enforcement, border management, judicial processes, and public–platform interactions, they alter the balance between state power and individual rights in ways that classical constitutional frameworks were never designed to anticipate. The central insight that emerges from examining these transformations is that constitutional protections cannot remain static in the face of rapidly evolving digital architectures. Instead, they must be rearticulated, expanded, and operationalized within the algorithmic systems that increasingly shape everyday interactions between citizens and the state.

Throughout this review, it has become clear that algorithmic governance introduces distinct vulnerabilities across multiple domains of fundamental rights. Privacy is challenged by pervasive data extraction and biometric identification. Equality is threatened by algorithmic bias embedded in historical datasets and machine-learning models. Freedom of expression becomes entangled with the power of automated moderation and content-ranking systems. Procedural rights are weakened by opaque algorithmic processes that obscure the reasoning behind state actions. Democratic participation is reshaped by personalized information ecosystems and the risk of subtle behavioral manipulation. These pressures reveal that algorithmic systems do not simply automate preexisting administrative tasks—they reconfigure the underlying mechanics of constitutional governance itself. They transform how the state exercises power and how individuals experience rights, responsibilities, and public authority.

Yet the challenges exposed by algorithmic governance also illuminate pathways for strengthening constitutional resilience. One of the most compelling insights is the need to shift constitutional thinking from a model that merely constrains state action to one that actively embeds rights into the design, deployment, and oversight of digital systems. This requires moving beyond the assumption that constitutional norms operate only through courts, legislation, or administrative processes. Instead, constitutional safeguards must directly shape digital infrastructures, algorithmic models, and data flows. Such a transformation demands collaboration between legal experts, technologists, ethicists, policymakers, and civil society actors who understand that constitutionalism in the digital age cannot be confined to traditional institutional boundaries.

The emergence of digital constitutionalism as a conceptual framework reflects this broader reconceptualization. It offers a way to understand how constitutional norms can be translated into digital contexts without losing their normative force. It emphasizes that rights to privacy, equality, due process, and democratic participation must be redefined through principles of explainability, accountability, fairness, and human oversight. At the same time, digital constitutionalism highlights that the legitimacy of algorithmic governance depends on institutional transparency, robust oversight mechanisms, and the capacity of courts to evaluate automated decision-making. As algorithmic tools reshape public power, constitutional review must evolve accordingly, ensuring that technological systems remain subject to the same scrutiny and accountability obligations that historically applied to human decision-makers.

Nevertheless, digital constitutionalism faces significant obstacles. Key among them are structural asymmetries between the state and private technology companies, jurisdictional conflicts arising from cross-border data flows, and the entrenchment of technological inevitability narratives that portray automation as beyond political control. Weak oversight capacities, limited judicial access to algorithmic systems, and fragmented regulatory approaches further intensify these challenges. In some regions, authoritarian practices complicate the creation of rights-based digital governance altogether. These realities underscore that the promise of digital constitutionalism will remain aspirational unless accompanied by meaningful institutional reform and political commitment.

The normative and policy implications of these findings reveal that constitutional governance must extend into algorithmic environments through concrete measures. These include embedding digital rights in constitutional texts, strengthening judicial review of automated systems, establishing independent oversight bodies, mandating algorithmic impact assessments, and requiring transparency registries. They also call for regulatory models capable of managing state–platform dynamics, enforcing algorithmic audit standards, and ensuring responsible automation practices. Equally important are ethical commitments to digital inclusion, public trust, and the protection of vulnerable populations, recognizing that algorithmic systems often reproduce social inequalities rather than correct them.

Ultimately, the transformation of state power through algorithmic governance is neither inherently beneficial nor inherently harmful. What matters is the constitutional framework within which these systems operate. The digital age does not diminish the relevance of constitutional principles; rather, it heightens their importance. The challenge for contemporary societies is to ensure that these principles remain effective when translated into the technical infrastructures that increasingly shape public life. Digital constitutionalism offers a compelling path toward that goal by insisting that technological innovation and constitutional values are not mutually exclusive but fundamentally intertwined. As states continue to adopt automated systems across domains of governance, the imperative is clear: constitutional protections must evolve to ensure that the digital transformation of public power enhances, rather than erodes, the rights and dignity of all individuals.

## **Ethical Considerations**

All procedures performed in this study were under the ethical standards.

## **Acknowledgments**

Authors thank all participants who participate in this study.

## **Conflict of Interest**

The authors report no conflict of interest.

## **Funding/Financial Support**

According to the authors, this article has no financial support.

## **References**

- Amin, H., Qurban, S., & Siddiq, M. (2020). The Impact of Abusive Constitutionalism on Democracy in Pakistan. *Global Political Review*, V(I), 46-54. [https://doi.org/10.31703/gpr.2020\(v-i\).06](https://doi.org/10.31703/gpr.2020(v-i).06)

- Berch, V. V. (2023). The Implicative Relationship Paradigm of Democracy and Constitutionalism: Key Values. *Uzhhorod National University Herald Series Law*, 1(74), 55-58. <https://doi.org/10.24144/2307-3322.2022.74.8>
- Bratko, T. D. (2020). Verification of Constitutionality of Tax Breaks: Russian and U.S. Approaches. *Налоги И Налогообложение*(3), 67-78. <https://doi.org/10.7256/2454-065x.2020.3.32849>
- Chong, S. Z., & Kuek, C. Y. (2022). Facial Recognition Technology in Malaysia: Concerns and Legal Issues. 101-109. [https://doi.org/10.2991/978-2-494069-59-6\\_10](https://doi.org/10.2991/978-2-494069-59-6_10)
- Gautam, P. (2022). Right to Privacy as a Fundamental Right – Extension of Article 21 of the Indian Constitution? *Revista De Drept Constituțional*, 95-98. <https://doi.org/10.47743/rdc-2022-1-0007>
- Krusian, A. (2022). Constitutional and Legal Status and Restriction of Human and Civil Rights and Freedoms Under Martial Law in Ukraine. *Al'manah Prava*(13), 93-97. <https://doi.org/10.33663/2524-017x-2022-13-14>
- Loveland, I. (2021). Human Rights I: Traditional Perspectives. 449-468. <https://doi.org/10.1093/he/9780198860129.003.0017>
- Nelin, O. (2020). Human and Civil Rights as a Determiner of National State-Building. *Legal Ukraine*(7), 6-12. [https://doi.org/10.37749/2308-9636-2020-7\(211\)-1](https://doi.org/10.37749/2308-9636-2020-7(211)-1)
- Paiva, T. D. S., & Anderson Souza da Silva, L. (2023). Proteção De Dados Pessoais No Brasil: Os Limites Da Regulamentação E Da Regulação Da LGPD No Constitucionalismo Digital Brasileiro. *Revista Controle - Doutrina E Artigos*, 22(1), 239-262. <https://doi.org/10.32586/rcda.v22i1.865>
- Shimizu, J. (2022). The Historical Origins of the Horizontal Effect Problem in the United States and Japan: How the Reach of Constitutional Rights Into the Private Sphere Became a Problem. *The American Journal of Comparative Law*, 70(4), 780-815. <https://doi.org/10.1093/ajcl/avad013>
- Szente, Z. (2022). Constitutional Changes in Populist Times. *Review of Central and East European Law*, 47(1), 12-36. <https://doi.org/10.1163/15730352-47010001>
- Zharovska, I. (2023). The Legal Nature of the Institution of a Constitutional Complaint in the Doctrine of Constitutionalism. *Analytical and Comparative Jurisprudence*(5), 716-720. <https://doi.org/10.24144/2788-6018.2023.05.128>