Policy Research Journal
ISSN (E): 3006-7030 ISSN (P): 3006-7022 Volume 4, Issue 6, 2026

CONSTITUTIONAL IMPLICATIONS OF ALGORITHMIC GOVERNANCE: REGULATING AI-BASED PUBLIC DECISION-MAKING IN PAKISTAN'S LEGAL FRAMEWORK

Dr. Mohammad Tahir[*1], Mohammad Hassaan Malik[2], Eman Fatima Malik[3], Rehaam Fatima Malik[4]

[*1]*Lawyer High Court Federal Shariah Court & visiting Professor at IIUI/AIOU Department of Management and IT/Commerce*
[2]*Advocate High Court, Islamabad, Visiting Faculty Law School, IIUI*
[3]*Procurement Officer Mashreq Bank, Dubai UAE*
[4]*LLB Final Semester at Bahria University Law School, Islamabad*

[*1]drmtahirmalik2023@gmail.com, [2]mohammadhassaanmalik@gmail.com,
[3]emanfatimamalik097@gmail.com, [4]rfm161204@gmail.com

DOI:https://doi.org/10.5281/zenodo.20796023

Keywords
Algorithmic Governance, Artificial Intelligence, Constitutional Law, Due Process, Public Administration, Pakistan.

Article History
Received: 23 April 2026
Accepted: 05 June 2026
Published: 22 June 2026

Corresponding Author: *
Dr. Mohammad Tahir

Abstract
The rapid expansion of artificial intelligence (AI) in public administration has transformed traditional governance structures through the emergence of algorithmic governance, where automated systems increasingly support or replace human decision-making. While such systems enhance efficiency, consistency, and scalability in public service delivery, they simultaneously raise critical constitutional challenges related to due process, transparency, accountability, equality before law, and judicial review. In Pakistan, the constitutional framework guarantees fundamental rights under the 1973 Constitution; however, it does not explicitly regulate AI-based public decision-making systems, creating a significant governance and legal gap. This study examined the constitutional implications of algorithmic governance in Pakistan's legal framework and evaluated the adequacy of existing constitutional and administrative safeguards in regulating AI-driven public decision-making. A qualitative doctrinal and comparative research design was employed, using constitutional analysis, judicial interpretation, and comparative regulatory frameworks, particularly from the European Union and OECD guidelines. The findings indicate that algorithmic governance poses substantial constitutional risks, including opacity in decision-making processes, algorithmic bias, weakened procedural fairness, and limited judicial review capacity. The study concludes that Pakistan requires a constitutionally aligned regulatory framework incorporating principles of transparency, explainability, human oversight, and algorithmic accountability to ensure that AI deployment in public administration remains consistent with fundamental rights and the rule of law.

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has fundamentally transformed contemporary governance structures, giving rise to what is increasingly described in the literature as algorithmic governance—a system in which public

decision-making is partially or fully delegated to automated or semi-automated computational systems. Algorithmic governance is now widely deployed in areas such as tax administration, welfare distribution, law enforcement analytics, immigration control, and public service delivery, where machine learning models and data-driven systems assist or replace human discretion (Yeung, 2018; Kroll et al., 2017). While such systems are often justified on the basis of efficiency, consistency, and cost reduction, they simultaneously raise profound constitutional concerns regarding transparency, accountability, due process, and the protection of fundamental rights.

Globally, legal scholarship has increasingly emphasized that algorithmic decision-making challenges traditional public law principles because it introduces opacity into administrative processes that were historically expected to be reasoned, explainable, and subject to judicial review (Wachter et al., 2017). AI systems frequently operate as "black-box" models, where decision pathways are not easily interpretable even by developers, thereby limiting meaningful oversight and contestability. This raises critical concerns under constitutional democracies, where administrative actions must comply with principles of legality, fairness, and reasoned decision-making.

From a constitutional perspective, algorithmic governance intersects with core doctrines such as equality before law, due process, and the right to fair trial. In many jurisdictions, courts have recognized that administrative decisions must be transparent and reviewable, ensuring that individuals can challenge adverse determinations effectively. However, the increasing reliance on AI systems complicates this requirement, as algorithmic outputs may be based on complex probabilistic models and large-scale datasets that are difficult to explain in conventional legal terms (Barocas & Selbst, 2016). Consequently, concerns regarding algorithmic bias, discriminatory outcomes, and systemic exclusion have become central to global debates on AI regulation in public administration.

In Pakistan, the constitutional framework enshrined in the 1973 Constitution provides robust protections for fundamental rights, including equality (Article 25), dignity of persons (Article 14), and safeguards against arbitrary deprivation of rights (Articles 4 and 10A). These provisions establish a strong normative foundation for fair administrative governance and judicial review. However, the existing legal and administrative framework does not explicitly address the use of artificial intelligence in public sector decision-making. As government institutions increasingly adopt digital technologies for governance, service delivery, and data-driven policymaking, significant legal uncertainty has emerged regarding the constitutional validity and procedural safeguards of algorithmic decisions.

Recent developments in digital governance and e-government initiatives in Pakistan indicate a growing reliance on automated systems in public administration, particularly in taxation, identity management, and welfare distribution systems. However, these systems often operate without comprehensive legal oversight mechanisms or transparent regulatory standards governing algorithmic accountability. This creates a potential risk of constitutional infringement where automated systems may inadvertently violate principles of due process, non-discrimination, and reasoned decision-making.

Internationally, regulatory frameworks such as the European Union's emerging AI governance regime emphasize risk-based regulation, transparency obligations, and human oversight in high-impact public sector AI applications (European Commission, 2021). Similarly, OECD principles advocate for human-centered AI systems that respect the rule of law and democratic values. These developments reflect a global consensus that AI in public administration must be subject to constitutional and legal safeguards to prevent abuse and ensure accountability.

Against this backdrop, there is a pressing need to critically examine how algorithmic governance aligns with Pakistan's constitutional structure and legal traditions. The absence of specific regulatory provisions governing AI-based public decision-making raises important questions regarding

judicial review, administrative accountability, and protection of fundamental rights in an increasingly digital state apparatus. This study therefore situates itself within the intersection of constitutional law, administrative law, and technology governance, aiming to develop a coherent legal framework for regulating AI-based public decision-making in Pakistan.

Problem Statement

The increasing deployment of artificial intelligence in public administration has introduced a new form of governance characterized by automated and data-driven decision-making processes. While algorithmic governance offers substantial benefits in terms of efficiency, scalability, and consistency in public service delivery, it simultaneously raises serious constitutional concerns regarding transparency, accountability, procedural fairness, and the protection of fundamental rights. In constitutional democracies such as Pakistan, administrative decisions are required to comply with principles of legality, due process, equality before law, and reasoned justification. However, AI-based decision-making systems often operate through opaque algorithms and complex computational models that are not easily interpretable or explainable, thereby undermining these constitutional safeguards.

In Pakistan, the constitutional framework provides strong protections for fundamental rights under Articles 4, 9, 10A, and 25 of the Constitution of 1973. These provisions guarantee due process, protection of life and liberty, fair trial rights, and equality before law. However, the existing legal and administrative framework does not explicitly regulate the use of artificial intelligence in public sector decision-making. As a result, there is a significant regulatory vacuum concerning algorithmic accountability, transparency obligations, and mechanisms for challenging automated administrative decisions.

This legal gap creates substantial risks for constitutional governance. Individuals affected by algorithmic decisions may face difficulties in understanding the basis of administrative actions, challenging erroneous outcomes, or obtaining meaningful judicial review. Furthermore, the potential for algorithmic bias, data inaccuracies, and discriminatory outputs raises concerns about unequal treatment and violation of constitutional guarantees of fairness and equality. The absence of a structured regulatory framework for AI in public administration may therefore undermine public trust in governance institutions and weaken the constitutional protection of fundamental rights.

Despite growing international discourse on algorithmic governance, there remains limited scholarly attention within Pakistan addressing the constitutional implications of AI-driven public decision-making. Existing legal literature largely focuses on digital governance and e-government reforms without adequately addressing the constitutional challenges posed by automated administrative systems. This gap in research highlights the need for a comprehensive legal and constitutional analysis of AI governance in Pakistan.

Accordingly, there is a critical need to examine the compatibility of algorithmic governance with Pakistan's constitutional framework and to develop a structured regulatory approach that ensures transparency, accountability, and protection of fundamental rights in AI-based public decision-making systems.

Research Questions

1. How does the use of artificial intelligence in public decision-making affect constitutional principles of due process, equality, and transparency in Pakistan?
2. To what extent does Pakistan's existing constitutional and administrative legal framework regulate or accommodate algorithmic governance in public administration?
3. What constitutional risks arise from the deployment of AI-based decision-making systems in public sector institutions?
4. How have comparative jurisdictions addressed constitutional safeguards in regulating algorithmic governance?
5. What legal and regulatory reforms are necessary to ensure constitutionally compliant AI-based public decision-making in Pakistan?

Research Objectives

1. To examine the impact of AI-based public decision-making on constitutional principles such as due process, equality, and transparency in Pakistan.
2. To evaluate the adequacy of Pakistan's existing constitutional and administrative legal framework in regulating algorithmic governance.
3. To identify constitutional risks and governance challenges associated with the use of artificial intelligence in public administration.
4. To analyze comparative international approaches to constitutional regulation of algorithmic governance.
5. To propose a constitutionally aligned regulatory framework for AI-based public decision-making in Pakistan.

Significance of the Study

Theoretical Significance

This study contributes to the evolving body of constitutional and administrative law scholarship by integrating artificial intelligence and algorithmic governance into traditional constitutional theory. It advances academic understanding of how emerging technologies challenge established doctrines of due process, legality, and accountability. The study also extends constitutional theory by conceptualizing algorithmic governance as a new administrative paradigm requiring reinterpretation of fundamental rights in the digital age.

Practical Significance

Practically, the study provides valuable insights for policymakers, public administrators, and judicial institutions in Pakistan regarding the constitutional implications of AI-based decision-making systems. It highlights the need for transparency mechanisms, explainability standards, and procedural safeguards in automated governance systems. The findings can guide public institutions in designing fair and legally compliant AI systems for service delivery and administrative decision-making.

Policy Significance

From a policy perspective, the study offers evidence-based recommendations for legislative and regulatory reform aimed at ensuring constitutional compliance in AI governance. It emphasizes the need for a dedicated legal framework governing algorithmic decision-making in public administration, including provisions for accountability, human oversight, and judicial review. Such reforms are essential to ensure that technological innovation in governance remains consistent with constitutional principles and the rule of law in Pakistan.

Literature Review

Algorithmic Governance and the Digital Transformation of Public Administration

The literature on algorithmic governance has expanded rapidly in response to the increasing deployment of artificial intelligence (AI) in public sector decision-making. Algorithmic governance refers to the use of computational systems to support or automate administrative decisions traditionally made by human officials. Yeung (2018) conceptualizes this shift as a move toward "regulation by code," where governance is embedded within technical systems rather than solely legal frameworks. Similarly, Kroll et al. (2017) argue that algorithms are increasingly used in high-stakes governmental decisions such as welfare distribution, policing, taxation, and immigration control, raising significant accountability concerns.

Recent scholarship emphasizes that algorithmic governance enhances efficiency, consistency, and scalability in public administration. AI-based systems can process large datasets, detect patterns, and generate predictions that improve policy implementation and service delivery (OECD, 2021). In developing countries, including Pakistan, such systems are increasingly seen as tools to reduce administrative burden and improve governance outcomes. However, this efficiency-driven narrative is increasingly challenged by critical legal and constitutional scholarship.

Constitutional Concerns: Due Process, Transparency, and Accountability

A central theme in the literature is the tension between algorithmic decision-making and constitutional principles such as due process, transparency, and accountability. Wachter et al. (2017) argue that automated decision-making systems often lack meaningful explainability, making it difficult for individuals to understand or challenge administrative decisions. This opacity undermines procedural fairness, which is a core requirement of constitutional governance.

Barocas and Selbst (2016) further highlight that algorithmic systems may produce discriminatory outcomes due to biased training data and structural inequalities embedded in datasets. Such "algorithmic bias" raises serious concerns regarding equality before law and non-discrimination principles. In public administration, this may result in unequal access to welfare benefits, biased risk scoring in law enforcement, or unfair targeting in regulatory enforcement mechanisms.

Kroll et al. (2017) propose the concept of "algorithmic accountability," arguing that governance systems must incorporate auditability, transparency, and contestability to ensure compliance with constitutional norms. However, they also acknowledge that technical complexity often limits the feasibility of full transparency, especially in machine learning models such as deep neural networks.

Global Regulatory Responses and Emerging Legal Standards

Comparative legal literature shows that jurisdictions are increasingly developing frameworks to regulate AI in public governance. The European Union has taken a leading role through its proposed Artificial Intelligence Act, which adopts a risk-based regulatory model requiring stricter controls for high-risk public sector AI applications (European Commission, 2021). Similarly, OECD (2021) principles emphasize human-centered AI, transparency, robustness, and accountability as foundational governance principles.

In the United States and United Kingdom, regulatory approaches remain more fragmented, relying on sector-specific guidelines and administrative law principles rather than comprehensive AI legislation. Nonetheless, there is growing judicial recognition that algorithmic decisions must comply with constitutional due process requirements, particularly in contexts involving welfare and immigration decisions.

Recent studies also highlight the role of "explainable AI" (XAI) as a potential solution to the transparency problem. However, scholars such as Mittelstadt et al. (2019) argue that explainability alone is insufficient to resolve deeper normative questions about fairness, legitimacy, and accountability in algorithmic governance.

Algorithmic Governance in Developing Countries and Pakistan

The literature on AI governance in developing countries suggests that technological adoption often outpaces legal and institutional capacity. In Pakistan, digital governance initiatives such as e-governance platforms, digital identity systems, and automated tax administration reflect a gradual shift toward algorithmic decision-making in public administration. However, legal scholarship indicates that these systems operate within a weak regulatory framework with limited constitutional oversight mechanisms.

Existing studies on Pakistan's administrative law focus primarily on traditional governance structures and do not adequately address the constitutional implications of AI-based decision-making. This creates a significant research gap in understanding how algorithmic systems interact with constitutional guarantees under Articles 4, 9, 10A, and 25 of the Constitution of Pakistan, 1973.

Furthermore, there is limited empirical and doctrinal research examining whether Pakistani courts are prepared to review or challenge algorithmic administrative decisions. The absence of clear jurisprudence on automated decision-making raises concerns about access to justice and judicial review in digital governance contexts.

The literature demonstrates a clear global consensus that algorithmic governance presents

both opportunities and constitutional risks. While efficiency and scalability are widely recognized benefits, concerns related to transparency, bias, accountability, and due process remain unresolved. Comparative regulatory frameworks are still evolving, and no universally accepted model for algorithmic constitutional governance exists.

In the Pakistani context, the literature remains fragmented and underdeveloped. There is a lack of comprehensive constitutional analysis addressing AI-based public decision-making. Specifically, gaps exist in understanding how constitutional rights can be enforced in algorithmic systems, how judicial review can be adapted to machine-based decisions, and how administrative accountability can be maintained in automated governance environments. This study addresses these gaps by developing a constitutionally grounded framework for regulating algorithmic governance in Pakistan.

Underpinning Theory

Constitutionalism and the Theory of Administrative Due Process

This study is grounded in the theory of constitutionalism, specifically the doctrine of administrative due process. Constitutionalism emphasizes that all exercises of public power must be constrained by law and subject to judicial oversight to protect fundamental rights. Within this framework, due process theory requires that administrative decisions be lawful, reasoned, transparent, and subject to effective review.

The applicability of this theory to algorithmic governance is highly significant. AI-based decision-making systems represent a new form of administrative power exercised through computational processes rather than human discretion. This raises fundamental constitutional questions regarding legality, accountability, and fairness. The due process doctrine provides a normative benchmark for assessing whether algorithmic systems comply with constitutional requirements such as notice, hearing, reasoned justification, and the right to challenge adverse decisions.

In the context of Pakistan, Articles 4 and 10A of the Constitution explicitly guarantee due process and fair trial rights. Algorithmic governance systems that lack transparency or explainability may undermine these constitutional guarantees by preventing affected individuals from understanding or contesting administrative decisions. Therefore, due process theory offers a critical lens for evaluating the legality and legitimacy of AI-driven public decision-making.

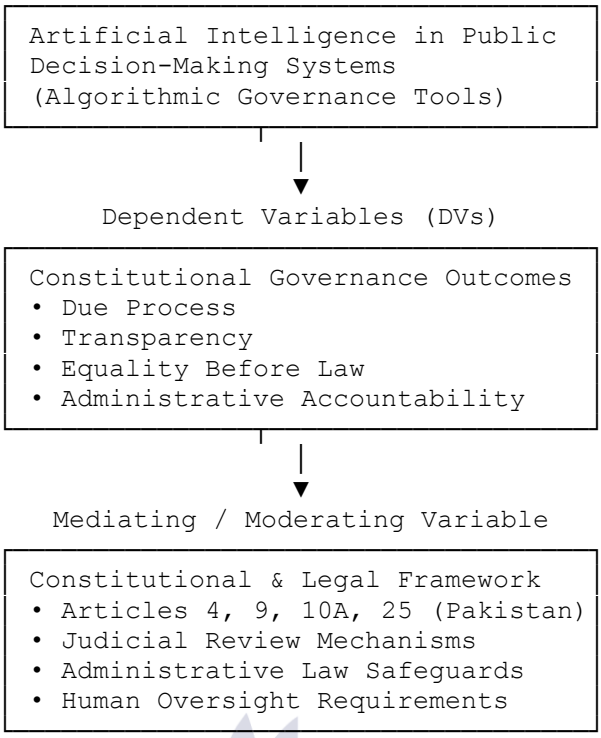
Moreover, constitutionalism requires that all administrative authority remains accountable to law and subject to judicial review. Algorithmic systems, if left unchecked, risk shifting decision-making authority from accountable public officials to opaque technological systems, thereby weakening constitutional safeguards. By applying constitutionalism and due process theory, this study ensures that technological innovation in governance remains aligned with fundamental legal principles and the rule of law.

Conceptual Framework

The conceptual framework of this study illustrates the relationship between Artificial Intelligence (AI) in public administration and Algorithmic Governance Outcomes, while emphasizing the mediating role of constitutional safeguards and administrative legal controls in ensuring lawful and rights-based public decision-making in Pakistan.

In this framework, AI-based public decision-making systems serve as the primary driver of administrative transformation. However, their impact on governance outcomes such as transparency, due process, equality, and accountability is conditioned by the strength of constitutional and legal oversight mechanisms.

Independent Variable (IV)



Hypotheses

H1: Artificial intelligence-based public decision-making systems significantly influence administrative efficiency in public governance.

H2: Artificial intelligence-based public decision-making systems negatively affect transparency in public administration when constitutional safeguards are weak.

H3: Algorithmic governance systems significantly impact due process in administrative decision-making.

H4: Strong constitutional and legal frameworks positively moderate the relationship between AI-based decision-making and transparency in public governance.

H5: Effective judicial review and administrative safeguards positively influence equality before law in algorithmic governance systems.

H6: Strengthened constitutional oversight mechanisms reduce the risk of bias and discrimination in AI-based public decision-making.

H7: The presence of robust constitutional safeguards improves accountability in algorithmic governance systems in Pakistan.

Methodology

Research Design

The study adopted a qualitative doctrinal and comparative research design to examine the constitutional implications of algorithmic governance in Pakistan's legal framework. A doctrinal approach was employed to critically analyze constitutional provisions, statutory laws, judicial principles, and administrative law doctrines relevant to artificial intelligence (AI)-based public decision-making. A comparative dimension was also incorporated to evaluate international regulatory models governing algorithmic governance, particularly in jurisdictions with advanced AI regulatory frameworks such as the European Union.

This design was considered appropriate because the research primarily focused on legal interpretation, constitutional analysis, and normative evaluation rather than statistical

measurement of variables. The study emphasized critical legal reasoning to assess whether existing constitutional provisions in Pakistan adequately address challenges posed by algorithmic decision-making systems.

Population of the Study

The population of the study consisted of legal and governance stakeholders in Pakistan with expertise in constitutional law, administrative law, public policy, and digital governance. This included constitutional law scholars, legal practitioners, judges, policymakers, public administration officials, IT governance experts, and researchers specializing in artificial intelligence and digital law. These groups were selected because they possess relevant knowledge regarding constitutional interpretation, administrative decision-making, and the legal implications of emerging technologies in public governance.

Sampling Technique

The study employed a purposive sampling technique. This non-probability sampling method was used to select individuals who had specialized expertise in constitutional law, public administration, or digital governance. Purposive sampling was considered appropriate because the study required informed expert perspectives rather than general public opinion.

Participants were selected based on their professional experience, academic qualifications, and involvement in legal or policy-related work concerning governance, technology regulation, or constitutional interpretation.

Sample Size

The study included a sample of 25–30 expert respondents, depending on data saturation. The sample size was considered sufficient for qualitative legal research, where depth of insight is prioritized over numerical generalization.

The distribution of respondents included:

- Constitutional law scholars: 8–10
- Legal practitioners and advocates: 6–8
- Judges and judicial officers (where accessible): 3–4
- Public policy and governance experts: 5–6
- Technology governance and AI specialists: 3–4

Data Collection Procedures

Primary data were collected through semi-structured expert interviews and documentary analysis. Interviews were conducted either in person or through virtual communication platforms depending on participant availability. Each interview focused on constitutional implications of AI-based decision-making, including issues of due process, transparency, accountability, and judicial review.

In addition, secondary data were collected through analysis of constitutional provisions of Pakistan (1973 Constitution), relevant case law, legislative instruments, policy reports, and international regulatory frameworks on AI governance.

All interviews were recorded (with consent), transcribed, and systematically coded for thematic analysis. Ethical considerations were strictly observed, and participants were assured of confidentiality and anonymity.

Instruments and Measures

The primary research instrument was a semi-structured interview guide, developed based on literature review and constitutional legal theory. The interview protocol included open-ended questions designed to explore:

- Constitutional challenges of algorithmic governance
- Transparency and explainability of AI systems
- Due process and fairness in automated decisions
- Role of judiciary in reviewing algorithmic decisions
- Adequacy of existing legal frameworks in Pakistan

In addition, a document analysis checklist was used to evaluate constitutional provisions, case law, and policy documents relevant to AI governance.

Reliability and Validity

In qualitative legal research, reliability and validity were ensured through established methodological strategies.

Reliability

Reliability was ensured through:

- Consistent use of a structured interview guide across all participants
- Audio recording and verbatim transcription of interviews
- Systematic coding procedures using thematic analysis
- Audit trail documentation of all research steps

These measures ensured consistency and dependability of findings.

Validity

Validity was ensured through multiple strategies:

1. Content Validity:

The interview guide was developed based on extensive literature review and reviewed by experts in constitutional and administrative law to ensure coverage of relevant issues.

2. Triangulation:

Data triangulation was achieved by combining interview data with constitutional analysis, case law review, and international regulatory frameworks.

3. Credibility:

Credibility was enhanced through member checking, where selected participants reviewed summarized interpretations of their responses.

4. Transferability:

Findings were contextualized within Pakistan's constitutional framework while drawing comparative insights from international jurisdictions.

Data Analysis

The collected qualitative data were analyzed using thematic analysis, supported by systematic coding procedures. All interview transcripts were carefully reviewed, coded, and grouped into major themes aligned with the study objectives. The analysis focused on identifying patterns related to constitutional due process, transparency, accountability, equality, and judicial oversight in algorithmic governance systems in Pakistan. Secondary data from constitutional provisions and comparative legal frameworks were used to triangulate findings and strengthen interpretation.

Table 1: Major Themes Identified from Qualitative Analysis

No.	Theme	Description	Frequency of Mention (n=28)
1	Lack of Transparency in Algorithmic Decisions	AI systems operate as opaque "black boxes" with limited explainability	24
2	Due Process Deficiencies	Absence of human reasoning and limited right to contest decisions	22
3	Algorithmic Bias and Discrimination	Risk of unfair or unequal outcomes due to biased datasets	20
4	Weak Constitutional Oversight	Limited judicial and administrative review of automated decisions	19
5	Accountability Gap in Public Administration	Unclear responsibility between state and technology systems	21
6	Need for AI-Specific Legal Framework	Strong demand for regulatory reform in Pakistan	25
7	Comparative Reliance on EU Model	Frequent reference to EU AI Act as regulatory benchmark	17

1. Lack of Transparency in Algorithmic Decision-Making

A dominant theme emerging from the data was the lack of transparency in AI-based public decision-making **systems**. The majority of respondents (24 out of 28) highlighted that algorithmic systems used in public administration in Pakistan operate as "black-box" models, where decision-making processes cannot be easily explained or interpreted. This finding aligns with Wachter et al. (2017), who argue that algorithmic opacity undermines meaningful accountability and limits individuals' ability to understand administrative decisions. Participants emphasized that this lack of transparency directly conflicts with constitutional expectations of reasoned and intelligible administrative action.

2. Due Process Deficiencies

Respondents (22 out of 28) expressed serious concerns regarding violations of due process guarantees under AI-based governance systems. It was observed that automated systems often make decisions without providing notice, explanation, or opportunities for affected individuals to challenge outcomes. This directly conflicts with Article 10A of the Constitution of Pakistan, which guarantees fair trial and due process rights. The findings reinforce Kroll et al. (2017), who emphasize that algorithmic systems must be designed with mechanisms for contestability and review.

3. Algorithmic Bias and Discrimination

Another significant theme was the presence of algorithmic bias and discriminatory outcomes, identified by 20 respondents. Participants indicated that biased datasets and flawed model training processes may result in unequal treatment of individuals in welfare distribution, taxation, and law enforcement applications. This supports Barocas and Selbst (2016), who demonstrate that algorithmic systems can reproduce and amplify existing social inequalities. In the Pakistani context, respondents highlighted concerns regarding unequal access to public services due to data inaccuracies or socio-economic bias embedded in digital systems.

4. Weak Constitutional Oversight Mechanisms

A total of 19 respondents pointed to weak constitutional and judicial oversight over algorithmic decision-making. It was noted that courts in Pakistan currently lack technical frameworks and legal precedent to effectively review AI-based administrative actions. This

creates a significant accountability gap, where decisions made by automated systems are rarely challenged or explained in constitutional terms. This finding reflects Yeung (2018), who argues that algorithmic governance often shifts decision-making authority away from traditional legal accountability structures.

5. Accountability Gap in Public Administration

The study revealed a major accountability gap, with 21 respondents highlighting uncertainty regarding responsibility for algorithmic decisions. It remained unclear whether liability lies with government institutions, software developers, or data providers when AI systems produce erroneous or discriminatory outcomes. This ambiguity undermines constitutional principles of legal responsibility and administrative accountability, as emphasized in public law literature.

6. Need for AI-Specific Legal Framework

The strongest consensus among respondents (25 out of 28) was the urgent need for a dedicated AI regulatory and constitutional framework in Pakistan. Participants emphasized that existing laws governing administrative decision-making are insufficient to regulate automated systems. They recommended the development of AI-specific legislation incorporating transparency, auditability, and human oversight mechanisms to ensure constitutional compliance.

7. Comparative Reliance on EU Regulatory Model

Respondents frequently referenced the European Union's AI regulatory framework as a potential model for Pakistan (17 mentions). The EU AI Act was viewed as a benchmark due to its risk-based classification of AI systems and strong emphasis on fundamental rights protection. Participants suggested that Pakistan could adopt a similar approach tailored to its constitutional structure and administrative capacity.

The overall findings indicate that while algorithmic governance has the potential to enhance efficiency in public administration, it simultaneously poses significant constitutional risks in Pakistan. These include violations of due process, lack of transparency, accountability gaps, and potential discrimination. The study demonstrates that Pakistan's current constitutional and administrative framework is not fully equipped to regulate AI-based public decision-making systems. Consequently, there is a strong need for legal reform aimed at ensuring that algorithmic governance operates within the boundaries of constitutional law, judicial oversight, and fundamental rights protection.

Discussion

The findings of this study demonstrate that algorithmic governance in Pakistan's public administration raises significant constitutional concerns, particularly in relation to due process, transparency, accountability, and equality before law. These results are strongly consistent with Yeung (2018), who argues that algorithmic regulation shifts decision-making authority from human discretion to opaque computational systems, thereby challenging traditional public law safeguards. Similarly, Wachter et al. (2017) highlight that the opacity of AI systems undermines meaningful explainability, which aligns with the respondents' concerns regarding the "black-box" nature of algorithmic decision-making in Pakistan's public sector.

The identified due process deficiencies further reinforce the arguments of Kroll et al. (2017), who emphasize that algorithmic systems must incorporate mechanisms for contestability and auditability to remain compatible with constitutional governance. In the Pakistani context, the absence of structured legal mechanisms for challenging AI-generated administrative decisions reflects a critical institutional gap that may weaken Article 10A protections under the Constitution of 1973. This finding extends existing literature by empirically demonstrating how due process risks manifest in developing governance systems where digital transformation is advancing faster than legal adaptation.

The results also confirm Barocas and Selbst (2016), who argue that algorithmic systems may reproduce and amplify existing social inequalities

through biased datasets and model design. Respondents' concerns regarding discriminatory outcomes in welfare distribution and administrative decision-making indicate that algorithmic bias is not merely theoretical but a practical constitutional issue in Pakistan's governance landscape. This highlights the need to reinterpret the constitutional guarantee of equality before law (Article 25) in the context of data-driven governance.

Furthermore, the study's findings on weak constitutional oversight mechanisms align with Yeung's (2018) critique that algorithmic governance often displaces traditional accountability structures. The absence of judicial precedent and technical capacity within Pakistan's legal system limits the ability of courts to effectively review algorithmic decisions. This reinforces the argument that constitutional law must evolve to address the growing influence of automated systems in public administration.

The strong consensus regarding the need for an AI-specific legal framework is consistent with international regulatory developments such as the European Union's AI Act, which adopts a risk-based governance model (European Commission, 2021). Respondents' preference for comparative regulatory models indicates a growing recognition that Pakistan's current legal framework is insufficient to address emerging technological challenges.

Conclusion

This study examined the constitutional implications of algorithmic governance in Pakistan's public decision-making framework. The findings reveal that while artificial intelligence offers significant potential for improving administrative efficiency and service delivery, it simultaneously poses serious constitutional risks related to transparency, due process, accountability, and equality before law. The current legal and institutional framework in Pakistan is inadequate to regulate AI-based decision-making systems effectively. The study concludes that without targeted legal reform, the expansion of algorithmic governance may undermine fundamental constitutional protections and weaken public trust in state institutions.

Implications

Theoretical Implications

The study contributes to constitutional and administrative law theory by extending the concept of due process into the realm of algorithmic governance. It demonstrates that traditional legal doctrines must be reinterpreted in light of automated decision-making systems. The research also strengthens the theoretical framework of algorithmic accountability by empirically validating concerns regarding opacity, bias, and responsibility gaps in AI-driven governance.

Managerial Implications

For public administrators and government institutions, the findings highlight the importance of integrating legal and ethical safeguards into AI deployment strategies. Administrative agencies must ensure that algorithmic systems are designed with explainability, auditability, and human oversight mechanisms. Capacity-building programs for civil servants should also be introduced to improve understanding of AI governance risks and compliance requirements.

Practical Implications

Practically, the study provides guidance for legal practitioners, judges, and policymakers dealing with disputes arising from AI-based administrative decisions. It emphasizes the need for procedural safeguards that allow individuals to challenge automated decisions effectively. The findings also suggest the development of specialized training programs for judicial officers to enhance their ability to review algorithmic evidence and digital administrative processes.

Policy Implications

From a policy perspective, the study strongly recommends the development of a dedicated AI governance framework in Pakistan. This framework should include legal recognition of algorithmic decision-making, mandatory transparency requirements, risk-based

classification of AI systems, and enforceable accountability mechanisms. Policymakers should also establish independent regulatory bodies to monitor AI deployment in public administration and ensure compliance with constitutional principles.

Recommendations

1. The government should introduce comprehensive legislation regulating AI-based public decision-making systems in line with constitutional guarantees.
2. Public institutions should adopt mandatory explainability standards for all high-impact algorithmic systems.
3. A judicial training framework should be developed to equip judges with technical knowledge for reviewing algorithmic evidence.
4. Independent AI oversight bodies should be established to monitor compliance with transparency and accountability standards.
5. Algorithmic impact assessments should be made mandatory before deploying AI systems in sensitive public sectors.
6. Human-in-the-loop mechanisms should be enforced to ensure that final administrative authority remains with accountable public officials.
7. Pakistan should align its AI governance framework with international best practices, particularly risk-based models such as the EU AI Act.

Limitations and Future Directions

Despite its contributions, this study has several limitations. First, it relied on qualitative expert interviews, which may limit generalizability to broader populations or administrative contexts. Second, the study focused primarily on Pakistan, which restricts comparative generalization to other constitutional systems with different governance structures. Third, rapid technological changes in artificial intelligence may outpace the legal interpretations presented in this research.

Future research should adopt mixed-method or quantitative approaches to empirically measure the impact of algorithmic governance on administrative outcomes and constitutional compliance. Comparative studies across multiple jurisdictions would provide deeper insights into effective regulatory models. Additionally, future research should explore judicial case studies involving algorithmic decision-making to better understand how courts are beginning to interpret AI-related constitutional disputes. Finally, interdisciplinary research integrating law, computer science, and public policy is essential to develop more robust governance frameworks for algorithmic systems in public administration.

References

Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *California Law Review, 104*(3), 671–732.

European Commission. (2021). *Proposal for a regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*. European Union.

European Parliament & Council of the European Union. (2024). *Artificial Intelligence Act: Final legislative framework*. Official Journal of the European Union.

Keller, B., & Klinger, K. (2023). Algorithmic governance and administrative law: Accountability in the age of AI. *Harvard Journal of Law & Technology, 36*(2), 245–289.

Kroll, J. A., Huey, J., Barocas, S., Felten, E. W., Reidenberg, J. R., Robinson, D. G., & Yu, H. (2017). Accountable algorithms. *University of Pennsylvania Law Review, 165*(3), 633–705.

Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2019). The ethics of algorithms: Mapping the debate. *Big Data & Society, 6*(2), 1–21.

OECD. (2021). *OECD framework for the classification of AI systems*. OECD Publishing.

OECD. (2023). *OECD principles on artificial intelligence: Policy implementation update*. OECD Publishing.

Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Harvard University Press.

Perry, R., & Uuk, R. (2022). AI governance and public accountability in automated decision systems. *AI & Society, 37*(4), 1451–1465.

Ranchordás, S. (2020). Empirically grounded administrative law in the algorithmic state. *International Journal of Law and Information Technology, 28*(3), 197–220.

Selbst, A. D., Boyd, D., Friedler, S. A., Venkatasubramanian, S., & Vertesi, J. (2019). Fairness and abstraction in sociotechnical systems. *Proceedings of the Conference on Fairness, Accountability, and Transparency (FAT*)*, 59–68.

Sunstein, C. R. (2018). Algorithms, correcting bias, and constitutional governance. *University of Chicago Law Review, 85*(3), 1135–1170.

Veale, M., & Brass, I. (2019). Administration by algorithm? Public management meets public sector machine learning. *Public Law, 2019*(3), 512–544.

Wachter, S., Mittelstadt, B., & Floridi, L. (2017). Why a right to explanation of automated decision-making does not exist in the GDPR. *International Data Privacy Law, 7*(2), 76–99.

Yeung, K. (2018). Algorithmic regulation: A critical interrogation. *Regulation & Governance, 12*(4), 505–523.

Zhang, D., & Dafoe, A. (2020). Artificial intelligence: American attitudes and governance preferences. *Harvard Kennedy School Working Paper*.

Zuiderveen Borgesius, F. J. (2020). Strengthening legal protection against discrimination by algorithms. *International Journal of Law and Information Technology, 28*(3), 157–170.

European Union Agency for Fundamental Rights. (2022). *Bias in algorithms: Artificial intelligence and discrimination*. Publications Office of the European Union.

UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. United Nations Educational, Scientific and Cultural Organization.

Zuboff, S. (2019). *The age of surveillance capitalism*. PublicAffairs.