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AI, Automation, and the Pakistan's Judiciary: Mapping the Ethical and Legal Boundaries of Algorithmic Justice

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ABSTRACT
Artificial intelligence (AI) is transforming the global judicial system by ensuring efficiency but not without raising ethical and legal questions. In Pakistan the contemporary move towards automation like utilising AI for case scheduling by High Court Lahore in 2023 initiated the rift between technological innovation and constitutional guarantees under Article 10A (right to a fair trial). There is lack of comprehensive legal framework which governs the use of AI in courts in Pakistan. This paper critically analyses the effect of algorithmic tools upon n judicial impartiality, transparency, and accountability. This research paper highlights structural risks of bias, opacity, and procedural unfairness through doctrinal legal analysis of constitutional provisions and landmark cases like Justice Qazi Faez Isa v. President of Pakistan, and the comparative study of the EU AI Act and China's Smart Courts. Pakistan's existing data and cyber laws including Pakistan Electronic Crimes Act, 2016 and the Draft Data Protection Bill (2023) have failed to address the challenges posed by judicial AI. This paper proposes the creation of an "AI Judiciary Act" based on constitutional norms focuses on the algorithmic impact assessments, transparency protocols, and institutional oversight. This research contribution will only serve as a legal blueprint for Pakistan but offers a broader insight for judicial AI regulation in developing democracies.

Keywords: *Judicial Automation, Article 10A, Algorithmic Fairness, Legal Transparency, AI Judiciary Act, Constitutional Rights, Pakistan, AI Regulation, PECA 2016, EU AI Act.*

Introduction

The scheme of using of artificial intelligence (AI) to help in case scheduling and docket management was introduced by the Lahore High Court, in 2023. It was only a technical development without any accompanied statute, procedural code to address the change, and no any impact assessment was issued publicly (Lahore High Court AI Task Force Report, 2023). This incorporation of AI was justified on the grounds of administrative convenience but it has miserably failed to accommodate the constitutional compatibility. Every citizen of Pakistan has the right of fair trial under Article 10A of the Constitution of Pakistan 1973 which includes access to impartial and procedurally sound judicial forum. Similarly, the right of dignity and privacy are secured under Article 14 which is in question now when litigants' data is processed by opaque or unregulated AI tools (Government of Pakistan, 1973). In judicial arena the use of algorithmic

decision making without regulatory supervision have raised concerns pertaining to legality, transparency, and accountability.

The legal vacuum surrounding AI in Pakistan's courts is stark. PECA (2016), the primary legislation governing digital technologies, contains no provisions addressing algorithmic decision systems in legal adjudication (Pakistan Electronic Crimes Act, 2016). The Draft Personal Data Protection Bill (2023) excludes sector-specific rules for judicial bodies, omitting any procedural safeguard for automated legal reasoning (Ministry of IT & Telecom, 2023). There are no court rules, judicial guidelines, or statutes clarifying the role or permissibility of AI in decision support, scheduling, or analytics. While digital case management tools have proliferated, they have not been subjected to doctrinal scrutiny or democratic oversight (PILDAT, 2022; ADB, 2020).

This regulatory inertia stands in contrast to developments elsewhere. In China, the Smart Courts initiative has institutionalized algorithmic adjudication for legal document analysis, predictive analytics, and even judgment drafting (China Supreme People's Court, 2020). Yet transparency and human oversight remain minimal, with critics noting the consolidation of state control through opaque computational methods (Završnik, 2020). The European Union has adopted a diametrically opposed trajectory. Its Artificial Intelligence Act (2024) classifies judicial AI as a "high-risk" category, requiring pre-deployment conformity assessments, transparency protocols, and human-in-the-loop requirements (European Commission, 2021). Article 13 mandates that AI-assisted decisions be explainable to the affected parties—a requirement lacking in the Pakistani context. These divergent approaches provide analytical leverage for assessing potential pathways and pitfalls.

Judicial AI is not inherently incompatible with constitutional norms. However, when integrated without legal scrutiny or procedural transparency, it may reproduce or entrench procedural unfairness (Citron, 2008; Wachter, Mittelstadt, & Floridi, 2017). Algorithms trained on historical data risk encoding past judicial biases into present decisions (Selbst, 2017; Binns, 2018). The black-box nature of proprietary systems further frustrates legal contestation, creating epistemic asymmetries between the state and litigants (Pasquale, 2015; O'Neil, 2016). In developing jurisdictions with low institutional capacity, the risk of unreviewable automated decision-making is exacerbated (Eubanks, 2018; World Justice Project, 2023). These concerns are not speculative. The U.S. case of *State v. Loomis* (2016) illustrates how reliance on AI in sentencing—specifically the COMPAS risk assessment tool—was upheld despite its proprietary opacity, thereby restricting meaningful appeal (Loomis v. Wisconsin, 2016).

In Pakistan, the lack of algorithmic literacy within the judiciary compounds the regulatory deficit. As observed by the Federal Judicial Academy (2022), training programs for judges do not yet include modules on AI ethics, transparency, or explainability. The Law and Justice Commission of Pakistan has not issued any guidance, leaving individual benches to determine the admissibility or procedural consequences of AI-generated outputs. This institutional gap places Pakistan's judiciary in a precarious position: exposed to the promises of technological efficiency but unshielded by normative safeguards (Brookings Institution, 2020; Surden, 2019).This paper addresses two research questions:

1. How can Pakistan regulate judicial AI without violating Article 10A (right to fair trial) and Article 14 (privacy and dignity)?
2. What ethical and legal safeguards are necessary to prevent bias, opacity, and institutional unaccountability in the deployment of AI tools in court settings?

The methodology is doctrinal, supplemented by comparative legal analysis. It examines constitutional text and judicial precedent, particularly *Justice Qazi Faez Isa v. President of Pakistan* (2023), which affirmed the institutional independence of the judiciary as a structural guarantee. *Asma Jilani v. Punjab* (PLD 1972 SC 139) is revisited as a foundational case on due process. These are contrasted with external regulatory regimes—primarily the EU AI Act and China's Smart Courts—both of which illustrate distinct regulatory logics (Susskind, 2019; Hildebrandt, 2020). Further, policy critiques are drawn from domestic documents (PILDAT, 2022; Lahore High Court AI Task Force Report, 2023) and international recommendations, notably the UNESCO Recommendation on the Ethics of AI (UNESCO, 2021).

The paper finds three fundamental deficiencies. First, the absence of a legal mandate renders current AI deployments extra-legal. Second, there is no requirement for algorithmic transparency, undermining procedural equity. Third, there is no institutional body equipped to monitor AI use or conduct algorithmic impact assessments in judicial contexts. This research paper aims at proposing the

To address these concerns, the paper proposes a statutory intervention: the AI Judiciary Act. This Act would adopt a rights-based, risk-tiered model akin to the EU AI Act, imposing legal requirements for transparency, explainability, and oversight, and embedding these within the court system's operational fabric. This contribution does not advocate for AI prohibition but argues for conditional legitimacy. The main objective is that AI in judicial process should not compromise the due process of law.

2. Literature Review

2.1. Global AI Judicial Trends

In contemporary era, many developed countries are employing AI in judicial processes. According to Susskind (2019) the use of AI in online courts are the novel phenomenon which promise efficiency, speedy procedure, and improved accessibility. But he also mentions that such technological advancement should be paired with efficient legal oversight to protect the fundamental human rights. Hildebrandt (2020) stated that the very nature of computational logic is conflicting particularly in the area of automated decision making and convention process of adjudication, and to protect such conflicts there is dire need of comprehensive legal framework. The European Union (EU) has introduced Artificial Intelligence Act (AI Act), 2024, to deal with the governance of judiciary. This act clearly states that the AI application in court is 'high risk' and introduced the strict regulations to ensure transparency, human oversight, and data quality controls (European Commission, 2021). Moreover, Wachter, Mittelstadt, and Floridi (2017) have also analysed the notion of 'right to explain' in EU context and the challenges faced in operationalizing such rights. There is need of an efficient legal framework and technical and institutional capacity to deal with, to ensure accountability in the practical application of algorithms.

In the international arrna different nations have different level of regulatory frameworks to deal with the use of AI in judicial arena followed by various challenges. As in developed countries the pertinent challenge is to regulate the role of AI and ensuring the judicial autonomy. Contrarily in developing countries like Pakistan the main challenge is to deal with capacity deficits, concerns about lack of regulation, and opaque use of algorithmic tools

2.2. Ethical Risks of Algorithmic Justice

In judicial arena the ethical dimension of the use of AI is heavily discusses by contemporary legal scholars. Zuboff (2019) delineated that the in a surveillance capitalism the use of AI may cause data extraction which will affect the outcomes owing to inherently embedded biases and compromising the individual's autonomy. Similarly Eubanks (2018), has also critically analysed the way algorithmic tools in the public welfare system enhances the existing inequalities which as a result may affect the marginalized communities.

Pasquale (2015) delineates the notions of "black box society" in which the opaque algorithm exclude the accountability and public scrutiny. It is not favorable in judicial arena where the notions of open justice and reasonable decisions are imperative. Similarly, O'Neil (2016) has called that such AI driven predictive models as "weapon of math destruction" as these have potential of amplifying the social disparities under the cloak of neutrality.

Political philosophy informs the ethical debate as well. The standard fairness measures used in machine learning often have failed to look the deeper questions of moral and normative justice (Binns 2018). It implies that purely technical solutions do not adequately address broader ethical concerns. Selbst (2017) offers a legal analysis of the concept of "disparate impact", and shows the way reliance on statistical parity can obscure deeper inequalities in results. From these perspectives it is clear that the danger lies in the use of AI in the judiciary could reinforce or intensify existing biases unless govern by strict legal and judicial scrutiny.

These legal scholar have heighted the importance of transparency and accountability. When the reasoning process and datasets behind AI decisions are opaque then it is impossible for both courts and the litigant to rectify their or challenge the errors in judgment. This gap is known as the "accountability vacuum" which is inherently present in automated decision making, and burdened the legal framework to allocate responsibility (Solum 2021). This issue becomes critical when AI tools impact decisions on sentencing, bail, or the prioritization of cases.

2.3. AI in Developing Countries' Judicial Systems

The deployment of AI in developing countries introduces additional complexity. Pakistan, like many emerging economies, faces institutional, infrastructural, and legal challenges in governing judicial AI. PILDAT's (2022) report on digital transformation in Pakistan's judiciary highlights that efforts have largely prioritized administrative efficiency without sufficiently addressing legal and ethical governance. The Asian Development Bank (2020) has also highlighted the disparities in technological preparedness across South Asia, due to lack of infrastructure, institutional preparedness and regulatory which guarantees the ethical use of AI in judicial arena.

The 2023 Rule of Law Index by the World Justice Project ranks Pakistan as poor in matters of judicial transparency and accountability which the imperative factors in preventing the misuse of algorithmic systems within the justice sector. In the context of Pakistan implementing AI based judicial systems modeled on authoritarian regimes like China may cause rampant non-transparent practices which may compromise the fundamental human rights (Khan 2023). Although China's Smart Courts initiative shows significant technological progress, but it is based on highly centralized and surveillance-driven AI model which lacks transparency and protection (China Supreme People's Court, 2020; Završnik, 2020). This model is contrary to the framework provided by EU AI Act.

The Brookings Institution (2020) advocates for a measured strategy in developing nations, which may balance the AI-driven efficiency against the need for strong institutional protections, and ensure respect for indigenous legal customs, and awareness of socio-political contexts.

According to the Federal Judicial Academy (2022), the lack of dedicated training of AI for judges impede their ability to evaluate and oversee the use of AI in judicial systems and the Law and Justice Commission of Pakistan have no any statutory mandate to regulate AI in courts.

The above institutional gaps also paired with the legislative gaps. For instance, the Prevention of Electronic Crimes Act (PECA) 2016 serves as the primary legislation on cybercrime in Pakistan, but it has no any provision related to algorithmic decision making (Pakistan Electronic Crimes Act, 2016). The Draft Personal Data Protection Bill (2023) contains the principles related to general data protection but it does not have specific provisions related to judiciary (Ministry of IT & Telecom, 2023). This research paper will critically analyse all such legislative gaps and propose recommendation for the safest use of AI in judicial arena.

3. Methodology

This research is based on doctrinal legal methodology complemented with the comparative legal policies analysis to explore the regulatory shortcomings and examine the constitutional consequences of using AI in judicial system of Pakistan. As use of Ai in judicial system is still on nascent stage and there is lack of empirical data the doctrinal approach is most suitable for a thorough legal examination, rooted in primary legal texts and established case law.

The most imperative legal sources for doctrinal analysis are the Constitution of Pakistan, particularly Articles 10A and 14, related to the right of fair trail and personal privacy. These constitutional provisions provide the normative foundation against which AI's judicial use is evaluated. Landmark Supreme Court cases—most notably *Justice Qazi Faez Isa v. President of Pakistan* (2023) and *Asma Jilani v. Government of Punjab* (PLD 1972 SC 139)—are examined to extract principles concerning judicial independence, procedural fairness, and institutional accountability.

This research paper also analyse the legal instruments like Pakistan Electronic Crimes Act (PECA) 2016 and the Draft Personal Data Protection Bill (2023) to examine to what extent the legal system of Pakistan consider the issues related to algorithmic decision-making in the context of judicial system. There is no particular legal provision relevant to the use of AI in judicial proceedings which implies this regulatory gap needs immediate actions.

In order to discuss the legal context of Pakistan in detail a comparative legal analysis of EU and the People's Republic of China will be conducted in this research paper. The Artificial Intelligence Act 2024 of EU is based on human rights regulatory framework to ensure transparency, human supervision and accountability of AI systems in high-risk domains including judiciary. On the other hand, China's smart court system is centralized model based on utilizing AI automation with procedural protection and public transparency to some extent. The comparative analysis will provide benchmarks and precautionary recommendations pertaining to the context of Pakistan.

The analysis of this research is also supported by policy documents and institutional reports such as the Lahore High Court AI Task Force Report (2023) states that the contemporary incorporation of AI in judicial arena for procedural implementations and technical specifications. PILDAT (2022) and the World Justice Project (2023) reports provide data related to institutional readiness and judicial accountability parameters. These findings are very supportive for doctrinal findings to provide a real-world institutional context.

This methodology has limitations as it will not include the interviews and surveys because of of the limited use of AI in Pakistan's courts and the sensitivity of the judicial process. Moreover the

regulatory discourse related to the use AI is also at nascent stage. So this research will only focus on the doctrinal and comparative analysis most suitable for addressing the complex constitutional and ethical questions.

This research paper is based on three-stage process. At first it will discuss all the constitutional and statutory principles related to AI applicable in courts. Secondly it will compare the regulatory gaps with the other regional and national framework such as EU and China. Lastly, it will focus on the institutional and policy critiques to access the judicial AI readiness and capacity of governance to offer a sincere view of risks and opportunities.

This research paper will propose a comprehensive legal framework such as 'AI Judiciary Act' as per requirements of Pakistan's constitutional context and institutional needs. This act will contain the legal accountability, transparency, and procedural fairness as guiding principles in the pursuance of standards of international human rights and AI ethical guidelines proposed by UNESCO (2021).

4. AI in the Judiciary: Comparative Case Studies

The use of AI in judicial procedures is brimmed with various regulatory and operational approaches in different jurisdictions. This section will discuss two entirely different paradigms such as smart court initiative of China and Artificial Intelligence Act of EU. This analysis is imperative to provide insight into different institutional logics and governance frameworks.

4.1. China's Smart Courts: Efficiency over Transparency

The Supreme People's Court of China has taken the Smart Court initiative in 2018 to deploy AI system in more than 3500 courts in whole country. By 2020, over 3.1 million cases had reportedly been processed online through the Smart Court system, including the "206 System" – a platform designed to aid judges in criminal trials through AI-assisted fact recognition and sentencing suggestions (Supreme People's Court Work Report, 2020). This system was developed with the cooperation of iFlytek, which is also a Chinese AI company was banned the USA owing to serious questions about data ethics and rights protection

Smart Courts now employ facial recognition, voiceprint verification, and blockchain to manage evidence authentication and streamline hearings. In Hangzhou, the "Internet Court" has used AI to handle cases involving e-commerce, copyright, and online contract disputes. Between 2017 and 2021, the Hangzhou Internet Court adjudicated over 118,000 cases, many of which were resolved without any in-person hearing (China Justice Observer, 2021). Despite these operational advances, independent oversight remains minimal. The system's AI modules often function without disclosing the algorithmic rationale to users, making it impossible for litigants to contest how a recommendation or judgment was derived.

Moreover, judges are increasingly expected to justify deviations from AI recommendations. In the "One-Stop Diversified Dispute Resolution Mechanism," integrated into Smart Courts in Shenzhen and Beijing, the system flags cases for settlement or pre-judgment based on pre-programmed criteria. A judge in Beijing reportedly noted that "the AI recommends a sentence range based on data from over 100,000 similar cases. If I deviate, I must provide written reasons" (Financial Times, 2020). Such reliance on data-driven norms may discourage judicial discretion and reinforce conformity rather than case-specific justice.

Scholars such as Završnik (2020) have argued that the Chinese model illustrates how judicial efficiency can be pursued at the cost of transparency and accountability. In practice, these Smart Courts operate as 'black boxes,' offering neither the parties nor independent watchdogs access

to review how decisions were shaped. This stands in contrast to fair trial guarantees under international law, notably Article 14 of the ICCPR, which requires reasoned judgments and equality of arms. I n the absence of transparency the sue process of law and fairness are being compromised. Parties to a case have no idea of the process of evaluation of their cases which make it impossible for them to challenge, particularly when these are decided by the algorithmic tools.

For jurisdictions like Pakistan, the Chinese example offers a dual lesson. On one hand, the scale and speed of AI deployment have helped address serious inefficiencies, something particularly relevant given Pakistan's backlog of over 2 million pending cases as of 2023 (Law and Justice Commission of Pakistan). On the other hand, it has adopted such technologies without legal safeguards risks undermining procedural fairness. The absence of explainability, judicial override mechanisms, and independent regulation in China's model demonstrates how efficiency-driven reforms may erode both public trust and constitutional rights.

4.2. The European Union's Regulatory Model: A Rights-Oriented and Risk-Tiered Framework

AI continues to permeate public governance, two markedly divergent approaches have emerged in regulating its judicial use. While China has taken a state-led, efficiency-driven path, the EU has opted for a more restrained, rights-centric regulatory architecture. This divergence reflects not merely different technological priorities, but fundamentally distinct legal and philosophical commitments. In April 2021, the European Commission introduced the Artificial Intelligence Act (COM/2021/206 final), marking the first attempt globally to establish a comprehensive legal framework that classifies and governs AI applications through a layered risk-assessment system (European Commission, 2021).

The AI system used in judicial arena are introduced through the draft Act are stamped as "high-risk" (Art. 6; Annex III), and making them suitable for the legal protection. For instance the conformity test before deployment, documentation about the decision-making procedures, assessment of impact upon fundamental rights, and the mechanism to ensure the proper human oversight, are important steps which makes it most protective. As this framework is in compliance with the General Data Protection Regulation (GDPR) article 22 as it prohibits the complete automated decisions which may have legal consequences without human intervention, provided that in special circumstances (Regulation (EU) 2016/679, 2016).

EU member states have also taken such precautionary measures. For instance in Estonia in 2019 a system was developed to adjudicate the small claims up to the limit of €7,000. This project was not formally launched because of unresolved legal and ethical concerns related to transparency and fairness (OECD, 2020). Similarly Spain has also experimented AI in the allocation of the cases but not adjudication as it consider full human control more important (CNIL, 2022).

The AI Act's Chapter 2 also introduces a requirement for post-market monitoring of high-risk AI systems. Developers must establish procedures for tracking operational impact, documenting serious incidents, and maintaining accountability throughout the system's lifecycle. This dynamic compliance model signals a significant departure from one-time regulatory approvals, embedding rights protection into the entire continuum of technological deployment (European Commission, 2021).

Many scholars have delineated barriers in the adopting such frameworks. The primary rule stated in the AI Act is the "right to explanation" which is difficult to implement when work with the complex deep-learning models which produce ambiguous results. Moreover, these also in

conflict with the commercial interest and protection of the business secrets(Goodman & Flaxman, 2017). It implies that the technological innovations should be under the legal accountability, democratic oversight, and human dignity. AI-based tools could streamline processes such as case triaging, document management, and even non-binding mediation in early-stage disputes. The Chinese model, particularly the Hangzhou Internet Court—which handled over 118,000 e-commerce disputes between 2017 and 2021—demonstrates how AI can reduce backlogs and increase access to justice (Shao & Wang, 2021).

However, wholesale adoption of such models in Pakistan must be approached with caution. Pakistan's Constitution enshrines non-negotiable protections for individual rights. Article 10A guarantees the right to a fair trial, while Article 14 upholds personal dignity and privacy. Any technological intrusion into judicial processes must therefore be transparent, appealable, and supervised by human judges (Constitution of Pakistan, 1973). The procedural fairness cannot be compromised on the pretext of administrative expediency as held in *tice Qazi Faez Isa v. President of Pakistan* (PLD 2023 SC 45).

From above discussion it is clear that the EU model of "high-risk" along with pre and post deployment conditions is most suitable as compared to the opaque "black box" mechanisms of China. Pakistan also follows the UNESCO Recommendation on the Ethics of Artificial Intelligence (2021) which are based on the principles of as transparency, explainability, inclusivity, and accountability(UNESCO, 2021). It is high Time that Pakistan needs a coherent legislative initiative in the form of Judicial Artificial Intelligence Regulation Act to ensure an independent Judicial Technology Oversight Authority, and standards of codification for algorithmic transparency, data protection, and human oversight.

5. Pakistan's Legal Framework: Gaps and Challenges

Judicial sector in Pakistan is standing on cross road now as on one hand it is facing pressure of modernization owing to piles of pending cases and technological innovations. On the other hand, the legal and institutional frameworks of country are not well equipped to deal the risk due to incorporation of AI. Most importantly the absence of any regulatory framework in this arena may put challenges for constitutional guarantees, institutional integrity, and the main objective of procedural justice.

5.1 Constitutional Anchors and AI Intrusions

Any judicial technology including AI should be tested from the context of protection of constitution rights protected by Articles 10A and 14 of the Constitution of Pakistan(Government of Pakistan, 1973). These provisions are not merely aspirational; they are enforceable rights, demanding that every person appearing before a court be given a chance to understand, participate in, and challenge the adjudication process. AI's black-box mechanisms—particularly those driven by deep learning or probabilistic modelling—risk short-circuiting this requirement by rendering decisions opaque and, at times, inexplicable even to experts (Wachter, Mittelstadt, & Floridi, 2017).

Equally concerning is the potential erosion of privacy under Article 14. AI systems, especially those employing predictive analytics or data-intensive training, often ingest large volumes of personal and sensitive information. AI algorithms may erode intimate data spheres of citizens which is violation of private dignity (UNESCO, 2021). The judicial independence implies

protection of judiciary from external political or algorithmic influences as reaffirmed in *Justice Qazi Faez Isa v. President of Pakistan* (PLD 2023 SC 45).

5.2 Statutory Silence and Legislative Myopia

The legislative framework in Pakistan has no any mechanism of foresight related to the use of AI in adjudication. The issues of cybercrime and digital security are guided by Prevention of Electronic Crimes Act 2016 (PECA) but there is no any provision related to the use of AI application in judicial arena (Pakistan Electronic Crimes Act, 2016). This absence is creating a vacuum as technological advancements are creeping into judicial systems.

Likewise, the broader data governance concerns are also addressed by the Draft Personal Data Protection Bill (2023), but it has failed to deal with the sensitivities related to the protection of judicial data (Ministry of IT & Telecom, 2023). This bill has very neutral approach which leaves many question unanswered such as is it mandatory to inform litigant about the risk of AI generated scores? Are these AI algorithmic challenges can be challenged in the absence of transparent pathway? The judicial procedures are too sensitive as the minor infringement of right may cause gross injustice. The digital justice relies on the efficiency narrative at the cost of legal coherence (PILDAT, 2022). The pace of law is too slow as per the pace of experimentation.

5.3 Jurisprudential Vacuums in AI Regulation

There is rich jurisprudence developed by the senior courts of Pakistan related to judicial independence, fairness, and due process but there is no case related to the AI's role in adjudication. Even the case of *Justice Qazi Faez Isa* (2023) constitutional autonomy of judiciary but it does not deal with the algorithmic decision-making.

Justive must not be done but seen to be done as delineated in *Asma Jilani v. Government of Punjab* (PLD 1972 SC 139) can be taken as constitutional lighthouse but this principle is now being tested in a novel way the incorporation of AI. The question is who will explain the rationale when recommendations for sentencing and bail risk assessments will be done by AI systems. There will be no defined line between the discretion end and automation begin in case judges rely on AI to select and interpret cases.

The case *State v. Loomis* (2016) from the United States, states the use of a proprietary risk assessment algorithm in sentencing raised serious questions about procedural fairness and the right to contest decisions (State v. Loomis, 2016). Although the U.S. court allowed its use with warnings, the case underlined the systemic risks of deploying non-transparent tools in judicial decisions and it may serve as a lesson for Pakistan.

5.4 Institutional Readiness: Capacity in Crisis

Beyond the textual law lies an equally troubling reality: Pakistan's judiciary is institutionally underprepared to deal with the ethical, technical, and operational challenges posed by AI. According to the Federal Judicial Academy (2022), existing judicial training programs do not cover algorithmic literacy, data ethics, or the socio-legal dimensions of AI. Judges, clerks, and support staff often lack the baseline knowledge needed to critically assess or even question AI-generated outputs.

Moreover, the Law and Justice Commission of Pakistan—despite its broad mandate on judicial reform—has yet to issue any policy or guidance document on the use of AI in courtrooms. This regulatory inertia leaves judges without a compass in a rapidly evolving digital landscape (PILDAT, 2022).

Infrastructure disparities also pose barriers. Superior courts in urban centres may possess the technological backbone to support AI systems, but lower courts—particularly in rural and underserved regions—lack even basic digitisation. If AI is introduced unevenly, it could deepen access-to-justice divides rather than closing them.

6. Ethical and Legal Boundaries of AI in Pakistan's Courts

There are many questions unanswered such as whether the machines can act as impartial arbitrators the constitutionally sacred and socially complex legal arenas? AI is alos raisning concerns like fairness, equality, transparency, and accountability in judicial contexts.

6.1 Bias: When Technology Reinforces Injustice

The problem with AI is that it mirrors the data it is fed on and in a country like Pakistan where economic disparity, gender discrimination, and ethnic marginalization are the major factors the shape legal results, the algorithmic bias might be the real and imminent issue(Eubanks, 2018; O'Neil, 2016). In this way it may enhance the system of injustice and bias in the guise of technological advancements. It is not only ethical but may erode the the constitutional promise of equal protection under the law, as guaranteed by Article 25 of Pakistan's Constitution (Government of Pakistan, 1973). It can also make the discriminatory logic nearly impossible to detect or correct owing to the ambiguous AI models (Pasquale, 2015).

6.2 The Black Box: Obscured Logic and Procedural Injustice

The traditional notion f justice must not be done but seen to be done, is compromised in the courtrooms due to "black box" problem when AI systems are involved in decision making processes as these are ambiguous, unintelligible and inaccessible (Zuboff, 2019; Wachter et al., 2017). The setting of judicial process demands transparency and accountability which is compromised through the opaque AI systems. For instance, a litigant who received unfavorable decision and is unable to understand the rationale behind it as it is generated by AI. Then it is very complicated for him to apply for appeal. It is also difficult for judge to challenge or override the recommendations provided by AI.

Furthermore, without explainability, appellate courts face challenges in reviewing decisions influenced by opaque algorithms. A cornerstone of the rule of law is the possibility of contesting and reversing decisions through a transparent processis thus threatened by technologies that function without scrutiny or explanation.

6.3 Accountability: Who Bears the Burden of Error?

The question of who is responsible when AI systems go wrong—especially in a courtroom—is not merely academic. It is a legal quagmire. Is it the software developer, the vendor, the judge, or the court administration that holds liability when an AI-generated recommendation leads to a wrongful conviction, biased bail denial, or unjust case disposal? The answer, at present, is unclear (Calo, 2017; Solum, 2021).

Pakistan's current legal framework lacks a defined locus of accountability for AI-induced judicial harm. This ambiguity leaves affected parties without meaningful avenues for redress and may undermine confidence in the courts' moral and constitutional authority. Worse still, such ambiguity could allow institutions to deflect responsibility, creating a vacuum of justice where no one is held accountable.

Establishing a legal doctrine of responsibility for algorithmic outcomes—perhaps modeled on vicarious or joint liability principles—will be crucial to ensure that AI technologies are used ethically and that their failures are rectifiable under Pakistani law.

7. Policy Recommendations

Pakistan's judiciary stands on the threshold of a digital shift that could either modernise legal processes or if mishandled undermine decades of hard-earned constitutional protections. The integration of artificial intelligence (AI) into judicial functions presents an opportunity, but it must be approached with legal caution and ethical foresight. The policy choices made in the present will define the legitimacy, inclusivity, and reliability of the justice system in the digital age. Below are five interlinked recommendations designed to guide Pakistan's judiciary toward a constitutionally grounded, ethically sound, and socially responsible AI governance regime.

7.1 Integrate UNESCO's Ethical Framework for AI

First and foremost, Pakistan should formally adopt and implement the principles articulated in the UNESCO *Recommendation on the Ethics of Artificial Intelligence* (2021). This document can be served as a role model as it delineates the primary requirements for the use of AI such as transparency, inclusivity, data governance, and respect human rights. After implementing these postulates in judicial AI policy of Pakistan fairness can be ensured. These principles should be included in the policies and strategic vision of use of AI in courts (UNESCO, 2021).

7.2 Establish a Judicial AI Oversight Committee

Institutional accountability is imperative for any policy reforms. Under the auspices of Law and Justice Commission of Pakistan an AI oversight committee should be established with a primary duty to supervise all the developments in judicial arena related to AI. This body should have power to review algorithmic impact assessments and investigation of complaints. It will also provide advice on policies related to AI ethics and regulatory evolutions. IT should be consists of a team of legal experts, technologists, ethicists, and civil society representatives, who may assist in maintaining the public trust on judiciary (PILDAT, 2022).

7.3 Enact a Comprehensive AI Judiciary Act

Current legal instruments are ill-suited to govern the complexity of AI use in adjudicative functions. Pakistan urgently requires a bespoke AI Judiciary Act, a law that neither stifles innovation nor abdicates constitutional responsibility. Key provisions should include:

a) Mandatory algorithmic impact assessments to evaluate fairness, bias, and procedural risks (European Commission, 2021);
b) Legal obligations for transparency, ensuring that AI logic is disclosed in understandable language to litigants and judges alike (Wachter, Mittelstadt, & Floridi, 2017);
c) Codified requirements for human oversight**,** with judges retaining ultimate control over AI-assisted decisions;
d) Judicial data protection measures that reflect both constitutional privacy rights and international standards (Ministry of IT & Telecom, 2023).

This act should not exist in isolation. Rather, it must be integrated with existing constitutional guarantees and harmonised with emerging global norms on digital governance.

7.4 Build Institutional Capacity through Judicial Training

Judicial independence means little if judges are unable to interrogate the tools that increasingly shape their decisions. AI literacy must become a core competency. The Federal Judicial Academy should develop mandatory modules on algorithmic ethics, fairness audits, bias detection, and privacy law. Such training would empower judges to critically assess the reliability and implications of AI outputs, rather than defaulting to them unquestioningly (Federal Judicial Academy, 2022). Legal reasoning must remain human-led, not machine-deferred.

7.5 Promote Transparency and Public Engagement

A justice system that silently integrates AI risks eroding public confidence. Courts should proactively disclose where, how, and why AI is being used. Annual transparency reports detailing AI deployments, safeguards, and performance metrics can foster institutional legitimacy. Moreover, courts must provide litigants with accessible explanations of AI involvement in their cases and upholding the procedural fairness guaranteed under Article 10A of the Constitution (Government of Pakistan, 1973; Wachter et al., 2017).

8. Conclusion

Pakistan is standing on critical point amid constitutional regression and judicial innovation. Although the introduction AI in courtrooms has offered a promise of efficiency in solving the pending cases but it brimmed with the severe risks to due process, dignity, and institutional independence. This paper has presented a legal gap and a moral and constitutional crisis.

From the above discussion it is clear that 2016 and the Draft Data Protection Bill, are inadequate in handling the algorithmic complexity. Moreover, rights protected by Articles 10A, 14, and 25 of the constitution of Pakistan will be compromised. China's Smart Court initiative is also opaque and do not provide a good model for Pakistan to follow. On the other hand, the EU AI act presents a transparent approach for juidicial technology.

Pakistan has to introduce a unified statute such as AI Judiciary Act to safeguard the right to a fair trial, mandates human oversight, institutes rigorous algorithmic auditing, and assigns legal responsibility where harm occurs. Apart from that there is dire need of institutional reforms for ethics training for judges, the creation of a dedicated oversight authority, and public transparency mechanisms. At the end the justice should be seen to be done and should not be compromised to code alone.

Bibliography

Asian Development Bank (ADB). (2020). *Digital governance in South Asia: Pakistan case study*.

Binns, R. (2018). Fairness in machine learning: Lessons from political philosophy. *Science*, 361(6406), 451–452.

Calo, R. (2017). Artificial intelligence policy: A primer and roadmap. *UC Davis Law Review*, 51(2), 399–435.

China Supreme People's Court. (2020). *White paper on smart courts*.

Citron, D. (2008). Technological due process. *Washington University Law Review*, 85(6), 1249–1313.

Eubanks, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.

European Commission. (2021). *Proposal for a regulation on artificial intelligence (AI Act)*.

Federal Judicial Academy (Pakistan). (2022). *AI and judicial training modules*.

Floridi, L. (2018). *The ethics of artificial intelligence*. Oxford University Press.

Government of Pakistan. (1973). *Constitution of Pakistan*.

Justice Qazi Faez Isa v. President of Pakistan (2023).

Khan, M. (2023). Bangladesh's digital courts: A model for Pakistan? *South Asia Law Review*.

Lahore High Court AI Task Force. (2023). *AI integration in Pakistani courts*.

Law & Justice Commission of Pakistan (LJCP). (2021). *Automation in case management systems*.

Mittelstadt, B. (2019). AI ethics in the judicial system. *Nature Machine Intelligence*, 1(6), 274–276.

Ministry of IT & Telecom (Pakistan). (2023). *Draft Personal Data Protection Bill*.
O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown.
Pakistan Electronic Crimes Act (PECA). (2016).
PILDAT. (2022). *Digital transformation in Pakistan's judiciary*.
Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Harvard University Press.
Rawls, J. (1971). *A theory of justice*. Harvard University Press.
R (on the application of Bridges) v. Chief Constable of South Wales Police (2020).
Selbst, A. (2017). Disparate impact in big data policing. *NYU Law Review*, 92(1), 109–195.
Solum, L. (2021). *Artificial justice: Legal AI and the challenge of accountability*. Cambridge University Press.
State v. Loomis, 881 N.W.2d 749 (Wis. 2016).
Susskind, R. (2019). *Online courts and the future of justice*. Oxford University Press.
UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*.
Wachter, S., Mittelstadt, B., & Floridi, L. (2017). Why a right to explanation of automated decision-making does not exist in the general data protection regulation. *International Data Privacy Law*, 7(2), 76–99.
Wachter, S., Mittelstadt, B., & Russell, C. (2021). Bias preservation in machine learning: The legality of fairness metrics under EU non-discrimination law. *West Virginia Law Review*, 123(3), 735–790.
World Justice Project. (2023). *Rule of law index – Pakistan*.
Zuboff, S. (2019). *The age of surveillance capitalism*. Harvard University Press.
Završnik, A. (2020). Algorithmic justice: Algorithms and big data in criminal justice settings. *European Journal of Criminology*, 18(5), 623–642.