



Critical Legal Analysis of Pakistan's AI Regulatory Landscape: Challenges and Opportunities

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Abstract. This paper aims to critically evaluate Pakistan's Artificial Intelligence (AI) regulatory frameworks in terms of the general challenges faced by a developing country at the institutional level. Aside from challenges, Pakistan offers considerable room for growth and development in the technology sector. As a populous developing country, Pakistan generates vast volumes of data through its ever-expanding digital ecosystem, including mobile usage, e-governance platforms, biometric databases, and social media, which represent a potentially lucrative commodity for AI developers. However, the absence of a holistic AI governance framework raises serious concerns about misuse, privacy breaches, and exploitation. The paper employs doctrinal and comparative legal methodologies to assess the adequacy of current and future Pakistani laws, including the Regulation of Artificial Intelligence Bill 2024 and the Digital Nation Pakistan Act 2025, in addressing emerging AI-related issues. The paper reveals that such instruments are either overextended, obsolete, inefficient, or lack appropriate mechanisms to regulate AI-specific risks such as bias, AI liability, and autonomous decision-making. For context, the paper draws insights from the European Union's self-regulatory regime, China's state-dependent regulatory model, and the United States' fragmented approach. These comparisons emphasise the need for Pakistan to move above and beyond its typical reactive, policy-only measures toward a binding legal framework that integrates human rights and ethics without compromising innovation and development. This paper finds that Pakistan's fragmented AI governance leads to friction between institutions, corroding coordination. Nonetheless, the paper advocates for a multi-stakeholder approach involving legal experts, legal academics, technologists, civil society, and the industry to create comprehensive legislation. In its conclusion, the paper highlights the urgent need for Pakistan to transition from soft law to binding, enforceable legislation that aligns with global best practices, draws inspiration from Islamic Law Principles, whilst addressing local socio-political realities.

Keywords: Artificial Intelligence, Regulation, Data Protection, Pakistan, Governance.

1 Introduction

Artificial Intelligence (hereinafter referred to as "AI") is the simulation of human cognitive functions by machines, enabling them to perform tasks such as problem-solving, reasoning, learning, and even decision-making [1]. AI is generally classified into two categories: narrow AI, which is designed to perform specific tasks such as language translation or image recognition, and the more familiar general AI,

which aims to replicate human intelligence and encompasses multiple areas of application [2]. Within this classification, there is a subdivision based on learning models, which includes supervised learning, unsupervised learning, and reinforcement learning; each represents a varying mode of algorithmic training [3]. Presently, the most popular and transformative type is generative AI. It utilises advanced models, such as Generative Adversarial Networks (GANs) and large language models, to generate new content, including text, images, video, and music. Recent surveys show that over 90% of students and more than half of marketing departments now use generative AI tools [4].

The AI is transforming multiple industries: in education, it enables adaptive learning platforms; in healthcare, AI improves diagnostics and treatment; in finance, it strengthens fraud detection and algorithmic trading [5]. However, aside from being beneficial, it also poses a potential for misuse. Documented cases include the creation of deepfakes for blackmail and fraud, AI-enabled surveillance that infringes privacy rights, algorithmic bias in recruitment, and automated cyberattacks, misinformation, and defamation campaigns [6], [7], [8].

The global proliferation of AI technology has created a new world of opportunities. The AI revolution is rapidly transforming economies, governments, and society as a whole [1], [2]. From generative AIs revolutionizing Education and Research to algorithmic decision-making systems reshaping security and criminal justice, AI technologies are the driving force behind innovation. However, they are also leading to unprecedented ethical and legal dilemmas [3, 4]. The rise of algorithmic governance prompts questions of transparency, accountability, fairness, and liability [5], [6].

For developing nations such as Pakistan, AI presents both challenges and opportunities. With over 240 million citizens, very high mobile connectivity, numerous biometric databases, and growing e-governance platforms, Pakistan generates invaluable data essential for sustaining and developing AI [7]. Therefore, Pakistan, due to its data-rich ecosystem, is well-positioned to harness and derive substantial benefits from AI-driven innovations across multiple sectors, including agriculture, education, healthcare, and national security [9].

Unfortunately, Pakistan's capacity to utilise AI's potential is hampered by a dearth of effective regulatory frameworks. The country lacks a comprehensive legislative framework for AI governance [10]. In Pakistan, almost all the statutes now being extended to apply to AI were either enacted in a pre-AI era or are stuck in the pipeline. It has been observed that there is a consequential link between the extension of archaic laws and their failure to address algorithmic bias, accountability for automated decision-making, data privacy in machine learning contexts, and liability for autonomous system failures [11]. The Regulation of Artificial Intelligence Bill (hereinafter referred to as "RAIB") 2024 and the Personal Data Protection Bill (hereinafter referred to as "PDPB") 2023 are steps in the right direction; however, the delay in their enactment is a significant cause for concern [13]. The recent

developments, including the Digital Nation Pakistan Act (hereinafter referred to as “DNPA”) 2025, and the National Artificial Intelligence Policy (hereinafter referred to as “NAIP”) 2025, either fall short in providing a robust governance mechanism or are belated policy tools aimed at guiding rather than regulating the technology sphere. This regulatory vacuum exacerbates data theft, exploitation, and abuse whilst also discouraging any potential investors [14], [15].

Despite its critical importance, AI governance has not received the deserved attention from Pakistani legal scholars [16]. Most works are superficial and predate the Digital Nation Pakistan Act, 2025. This paper seeks to address this scholarly deficit through three objectives: (1) systematically mapping Pakistan's current AI-related legal frameworks; (2) critically analysing legal, ethical, and institutional challenges; and (3) providing policy recommendations by drawing comparisons with the EU's AI Act [17], China's state-led governance structure [18], and the United States' fragmented sectoral approach [19]. Moreover, the paper also calls for a novel approach, drawing inspiration from the principles of Islamic Law, which can be extended to AI regulation.

This paper employs doctrinal and comparative legal research methodologies to critically evaluate Pakistan's AI regulatory landscape. The doctrinal component systematically examines primary legal and policy instruments like RAIB, BDPB, and DNPA. This approach is complemented by a comparative analysis that draws insights from the European Union's AI Act, China's state-led governance model, and the United States' (US) fragmented sectoral approach to identify adaptable best practices. Finally, policy and institutional analysis highlight Pakistan's governance gaps.

6 Findings

6.1 Global Approaches to AI Regulation

Global regulatory approaches reveal divergent philosophies. The European Union's AI Act (hereinafter referred to as the EU AI Act), which will be fully applicable from 2026, stratifies AI systems in terms of risk to human rights, health, safety, and democratic values. The four categories are unacceptable, high, limited, and minimal risk. AI products in more serious categories are subjected to more stringent rules, limits, and sometimes fines. This stratification is complemented by other proportionate obligations that emphasise transparency and human oversight [20]. The US, unlike the EU, employs a sectoral approach through agencies like the Equal Employment Opportunity Commission, the Department of Justice, and the Federal Trade Commission. Each agency focuses on its own jurisdiction, creating a multi-stakeholder patchwork of guidelines rather than a single piece of legislation [21]. The proposed Algorithmic Accountability Act, if enacted, would require companies to conduct impact assessments for automated decision systems that make critical determinations [22]. This would include non-state actors and corporate bodies, signaling a participatory approach through collaboration between the public and private sectors. Recent state-level developments, particularly Colorado's AI Act, set to

take effect on 1 February 2026, impose duties on developers and deployers of high-risk systems to protect and safeguard end consumers. Unlike the EU Act, this is done without regard to revenue thresholds [23].

In contrast to the pluralist and rights-based model prevalent in the West, China's model prioritises centralised governance [24]. In other words, China's AI regulation is an extension of the state's political philosophy, where state control and societal stability are prioritized over individual rights and personal liberty [25]. Moreover, non-state actors working on AI are closely monitored by state agencies, such as the Ministry of Industry and Information Technology, resulting in a form of managed participation [26]. China's approach, therefore, is centralized, but it does induce controlled participation of private commercial entities.

For Pakistan, a wholesale transplantation of any foreign framework is undesirable. On the one hand, the risk-based stringency in regulation, as innovated by the EU AI Act, remains a novel yet replicable model [27]. Yet, this may lead to manipulation and exacerbate corrupt practices already rampant in Pakistani society. Similarly, a sectoral approach may not be ideal in a country where there are serious foundational problems within key institutions. Doing so would mean a significant overhaul of individual institutions; this approach may be plausible, but it does not seem very practical. On the other hand, there are parallels to be drawn between the Chinese centralized approach. In recent times, much like China, Pakistan's legislative emphasis has been on state control over the populace in the name of maintaining order and establishing the state's writ, rather than improving the quality of life of its citizens through promoting technology and innovation [28]. The optimal path, therefore, is a hybrid approach that integrates risk-based stratification, sectoral independence, and private sector involvement as well as a degree of central control—drawing on global experiences whilst acknowledging local institutional capacities. Much like the US, Pakistan needs to involve its provinces in the decision-making process to ensure that sectors primarily under provincial influence, as per the constitutional division, are not overlooked [28a]. The regulatory challenge lies in perfecting an approach that ensures data protection and safety for citizens without compromising or impeding the development of AI systems.

6.2 Pakistan's AI Regime

Pakistan's AI regulatory landscape is an epitome of the term "*performative modernization*"—characterized by minimal and symbolic progress with little to no substantive change [29]. Despite the recent policy developments and enactments in the pipeline, the concrete governance deficit remains visible [30].

Constitutional Foundations. The 1973 Constitution ostensibly provides robust protections through Articles 14 (inviolability of human dignity and the privacy of one's home), 19 (freedom of expression), and 25 (equality) [31]. The following table explores the correlation between these articles and the relevant AI issue, as well as the legal implications.

Table 1. Table exhibiting the correlation between constitutional provisions and AI implications

Article	Constitutional Right	AI-Relevant Issue	Legal Implication
14	Dignity & Privacy	Data collection, biometric surveillance, profiling	Requires data protection & consent-based AI governance
19	Freedom of Expression	Generative AI, deepfakes, automated censorship	Balancing innovation with proportional restrictions
25	Equality & Non-discrimination	Algorithmic bias, fairness, digital inclusion	Ensuring transparency, fairness, and equal access

Yet, there exists no empirical evidence to substantiate the efficacy of these fundamental rights articles in an algorithmic context. There is a draught of constitutional cases on technology rights as well. In *Digital Rights Foundation v. Federation of Pakistan*, the petitioner challenged the Prevention of Electronic Crimes Act (PECA) 2016 law, highlighting the absence of a data protection regime. However, the court acknowledged that the right to privacy applied to data; it did not mention AI systems [32]. Similarly, in *Bytes for All v. Federation of Pakistan*, blanket bans on digital platforms were challenged under Article 19; the court’s response was once again limited to the question presented [33]. Aside from these, there are no notable cases on the intersection of rights and technology. This reinforces the well-known behaviour of Pakistani courts, which often exhibit a cautious or guarded approach when it comes to new phenomena [34] or are reluctant to capitalise on opportunities to establish lasting precedents [35].

Statutory and Policy Instruments. Pakistan’s statutory framework is representative of a legal archaeology—layers of colonial, post-independence, and digital-era legislation that create what Thelen and Mahoney characterize as “*institutional layering*” [36]. The accumulation of parallel regulations and institutions with similar mandates can constrain future policies and lead to general confusion in the enforcement of laws [37].

PECA, a law that predates the AI revolution, is limited in scope to crimes committed in digital spaces and lacks specialised provisions or references to AI systems. It offers limited relief in cases involving the usage of AI to commit crimes, but lacks a robust mechanism to address misuse of AI in the design and development phases. Moreover, the use of PECA as a tool to silence dissidence has also been highlighted [38]. It has also been observed to be at odds with Article 19 of the Constitution, which pertains to freedom of speech [39]. This raises doubts about its credibility and the legislative intent behind its enactment. A law created to advance authoritarian goals cannot be relied upon for the protection and safeguard of rights [39a].

The Contract Act of 1872, a colonial construct, predates the age of AI by a century and a half. Neither the act itself nor any amendments cater to digital and commercial algorithmic contracts [40]. Similarly, there is no development in the Intellectual Property (IP) sphere, where IP statutes remain frozen in pre-digital amber. Under the current regulatory regime, individuals and platforms that generate AI content are not afforded any rights [41].

The Draft Personal Data Protection Bill 2023, which has been in the legislative pipeline since 2018 [42], is a specialized law on data protection; thus, it indirectly regulates AI systems that rely on data scraping and consumption, such as those in health, finance, and law enforcement. The bill, in its current form, lacks explicit provisions regarding AI, machine learning, or autonomous systems in relation to data collection and use. It further enshrines the compulsory localization of data, which has the potential to hinder AI progress, especially in a developing country like Pakistan, which is highly dependent on external support, especially in the technology sector [42a].

The Regulation of Artificial Intelligence Bill 2024 is the only AI-focused bill introduced in the country so far. Aside from being stuck in the legislative process, it also has other shortcomings. Despite being a special AI statute, it includes a vague and incomplete definition of AI Systems, fails to distinguish between the high-risk and low-risk scenarios posed by the irresponsible use of AI, and does not acknowledge the potential for AI abuse by government agencies. The bill also calls for the establishment of an autonomous National AI Commission, with no mention of a limit to its autonomy; it can be inferred that this executive body might be given excessive powers by the act [43]. The National AI Commission shall be delegated powers to make secondary legislation; this itself is an attempt to put off substantive regulatory steps. The bill neither acknowledges nor draws inspiration from international regulatory developments and is therefore ignorant of the best AI practices worldwide. Nevertheless, in the absence of the formal enactment of these bills, any substantive discussion remains largely speculative.

Another significant development in the country has been the Digital Nation Pakistan Act 2025 [44]. Even within its ambit, the Act falls considerably short of constituting a robust or comprehensive legislative framework. A major lacuna in the act is that it relies on delegated legislation in the form of subsidiary rules and regulations, which have not yet been enacted. This non-parliamentary lawmaking raises concerns about legal uncertainty and potential executive overreach in the future. Moreover, the Act establishes multiple new bodies, including the National Digital Commission, the Pakistan Digital Authority, and the Oversight Committee. This raises concerns not only about duplication among themselves but also with other similarly mandated organisations. Aside from the shabby institutional framework, there are concerns that the act broadens and consolidates executive power without establishing accountability mechanisms to safeguard ordinary citizens. These issues are compounded by a weak enforcement mechanism that lacks clear penalties for infractions and remedies for victims [45].

Murtaza has pointed out the lack of mention of rights guaranteeing access, erasure, and rectification of data. It is to be noted, however, that these rights are a component of the yet-to-be-enacted DPDPA. He also highlights the localisation of data requirements, which can potentially deter international investors and AI developers. Importantly, the act reads like a policy document and, aside from the creation of bodies and committees. Additionally, it does not address the legislative need with the required urgency [46].

Institutional Fragmentation. The institutional layering is also reflected in the institutional design. The National Centre of Artificial Intelligence, established in 2018 under the umbrella of the Higher Education Commission, has been designed to drive innovation through fostering coordination between stakeholders and nurturing tech start-ups [47]. It, however, operates without a regulatory mandate, whilst the Ministry of IT exercises policy authority without implementation capacity [48]. It can be assumed that the two bodies can work in an interdependent, symbiotic relationship; however, the situation becomes challenging when new bodies with identical mandates, such as PDA and NDC, emerge.

Provincial governments, despite having constitutional authority over health and education following the 18th amendment to the constitution [49], where AI usage is relatively high [50], lack both the technical capacity and the political will for regulation. Given that all the enactments and bills mentioned above are federal in nature, it is evident that subnational AI governance remains essentially nonexistent. Neither these instruments nor the bodies established under them explicitly involve the provincial governments. This raises doubts about the effective implementation of these policies, but also signals potential future disputes arising from AI affairs.

Alternative Approach through Islamic Legal Tradition. Research has highlighted that AI tends to cause legal disruptions that need to be addressed using novel approaches [50a]. Islamic Legal Principles might offer such a novel approach, especially to Pakistan, which has a history of Islamising laws [50b]. Islamic Principles, such as the principle of *Maslaha*, meaning “preventing harm” or “benefit” for individuals and the society as a whole [50c], have been applied to AI from an ethical and normative perspective [50d]. Similarly, attempts have been made to harmonise AI with the prominent Islamic values [50e]. Notably, a report based on a series of surveys concluded that a regulatory framework based on *Maqasid al-Shari’ah* may offer an efficacious solution to the challenges posed by AI [50f]. Furthermore, general principles of Islamic Law, such as the guarantee of *A’dalah*, *Sidq* and *Amanah*, Prevention of *Darar*; *Dirar* and *Gharar*; Promotion of *Maslahah*, *Ihsan* and *Huqooq al Naas*, can also be taken into account to develop an inclusive AI regulatory framework which is in congruence with Pakistan’s existing Islamised legal regime. There is a significant gap in theory as well as practice in this area, which makes it a lucrative legislative and research opportunity. Therefore, such an approach would not only be more culturally and socially nuanced [50g] but would give Pakistan an opportunity to register itself as a global leader in Islamic AI Governance.

7

Conclusions

Pakistan's AI regulatory framework is still in its early stages of development. On the one hand, this makes it fragmented, reactive, and defined by performative modernisation. On the other hand, this underdevelopment itself presents an opportunity to create a robust and contextually sound governance model. Pakistan should take steps to curb over-regulation that can potentially hinder growth and innovation, and embrace a balanced regulation model that protects fundamental rights whilst promoting technological progress.

The paper proposes three key steps to achieve these objectives. Firstly, it is the need of the hour for Pakistan to adopt an enforceable, legally binding instrument that dissipates the confusion caused by an abundance of policy documents signalling cosmetic measures. The Regulation of AI bill should be enacted after making extensive substantive changes that deal with the challenges enumerated above. Most important material changes would entail a clause that makes RAIB supersede other enactments. A section on devolution of legislation to provincial bodies. Another section that recognises the need to evaluate and, where applicable, adopt international best practices. This is the way forward to complete the transition from soft law to hard law.

Secondly, AI governance must involve all stakeholders to ensure inclusive progress, and it should align with human rights considerations in line with the country's international commitments to advance dignity, equity, and equality. Therefore, Pakistan should consider establishing sub-committees at the provincial level to facilitate the implementation of AI-related objectives within each jurisdiction. Alternatively, a sectoral approach could be adopted by embedding dedicated AI units within the regulatory bodies of key sectors. In parallel, the private sector ought to be actively engaged through a calibrated mix of incentives and enforcement mechanisms to ensure compliance at the tertiary levels. Crucially, the federal government should retain overarching policy authority and core regulatory competencies to mitigate the risks of institutional fragmentation and maintain strategic coherence.

Third, Pakistan should learn from global leaders in AI and international best practices that apply to its own socio-political structures. Notably, the US, China, and the EU have a lot of insights to offer, as alluded to above. Such comparative learning can help internalise best practices that have been tried and tested abroad without the risks associated with transplantation. For instance, Pakistan should keep the policy-making central, following the example of China, meanwhile empowering each sector, utilising the US practice. Similarly, inspiration can be drawn from the EU's AI Act by involving provinces and the private sector in the regulatory ambit.

Lastly, given its historical grounding in the Islamic legal tradition, Pakistan may leverage Islamic legal principles to formulate an alternative legislative approach. An AI Regulation that encapsulates overarching principles of *Maqasid al-Shari'ah*, promotes *A'dalah*, *Sidq*, and *Amanah*, meanwhile discouraging *darar* and *dirar*, would be a novel and socially consistent approach that would make Pakistan stand out among Muslim nations.

To conclude, a robust AI governance regime is pivotal for a developing country like Pakistan. The government needs to strike a balance between protecting its citizens from potential abuse of AI technology and its commitment to innovation. The choices the stakeholders make today will have a lasting outcome in the days to come.

— **Authors' Contributions.** Muhammad Hassan: Conceptualization, methodology, investigation, formal analysis. He conducted the doctrinal legal analysis of Pakistani statutes, performed comparative analysis of international AI governance frameworks, and formulated policy recommendations. Dr. Mohamad Fateh Labanieh and Dr Mohammad Hariz Shah Mohammad Hazim Shah: Supervision, methodology, validation, writing – review & editing. They provided expert guidance on comparative legal methodologies and critically revised the manuscript. All the authors have read and agreed to the current version of the manuscript.

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