ISSN E: 2709-8273
ISSN P:2709-8265
JOURNAL OF APPLIED LINGUISTICS AND TESOL
JALT

THE ROLE OF ARTIFICIAL INTELLIGENCE IN STRENGTHENING ANTI-CORRUPTION MECHANISMS IN PAKISTAN: A GOVERNANCE PERSPECTIVE

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Abstract
In Pakistan, corruption is no more an impediment to governance itself or an eroding of confidence in the city in addition to interfering with institutional accountability and deterrence that has plugged into sustainable development. Traditional anti-corruption systems, which rely frequently on manual audits, allegations by whistleblowers, and follow-up investigations, time and time again have proved to be inadequate in the face of progressively complex groups of fraud and malfeasance. Artificial intelligence (AI) conversely provides a revolutionary opportunity to rethink the system of governance with predictive, real-time and data-driven means to identify, prevent and mitigate corrupt activities. The paper examines the question that AI can help improve anti-corruption mechanisms in Pakistan in the context of the governance theory, capacity of the institutions, and legal framework.
By analyzing the recent developments in the world and the local projects of 2024 and 2025 (this includes the biometric data analytics of NADRA, the fraud detecting elements of FBR that rely on AI, and e-governance programs that are emerging), this paper examines the possibility of using AI in a unique environment of Pakistan in terms of socio-political and administrative aspects. It examines how machine learning, natural language processing, and anomaly detection systems have the potential to provide assistance to supervisory organizations, increase transparency of procurement, and allow citizen participation. The case of KrattAI and its Estonian or example of data-driven surveillance of public officials in China is critically analyzed as international models to enlighten on the feasibility of policy transfers.
Nevertheless, the implementation of the AI into Pakistan anti-corruption environment entails a risk. There is still the issue of algorithmic bias, absence of technical infrastructure, the overuse of surveillance, and the ambiguity represented by law regarding data privacy and due process. Through an existing body of statutes that include the Prevention of Electronic Crimes Act (2016), the National Accountability Ordinance (1999), and the Right of Access to Information Act (2017), the paper assesses the institutional preparedness in Pakistan that has not fully embraced AI tools due to critical gaps in the legal and ethical frameworks that have to be filled before such tools become both effective and accountable.
Finally, this study sees that AI will have the potential to become more than just a technological device, but a governance reform mechanism, albeit under the condition that its usage will be tied to the transparency, regulation, and ideal integrity. The paper proposes the establishment of a national AI and Governance Taskforce in the Cabinet Division, capacity-building initiatives in anti-corruption authorities, as well as changing the law to make algorithms responsible. This paper will inject relevant material into the larger conversation on digital governance and anti-corruption in the Global South by combining advanced scholarly resources and up-to-date policy data to successfully provided an updated roadmap on how to use AI in the fight against corruption in Pakistan.

Key Words
Artificial Intelligence (AI), Anti-Corruption Mechanisms, Digital Governance, Algorithmic Bias, Institutional Capacity, Data Privacy Law, Predictive Analytics, Public Sector Transparency, Machine Learning in Governance, Regulatory Reform

ISSN E: 2709-8273
ISSN P:2709-8265
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Introduction

Corruption is not simply a case of ethical shortcoming or a case of bureaucratic short sightness it is rather a governance lapse that has far spread repercussions on the paragons of democracy, economic growth, and the provision of public goods. Corruption continues to be one of the thorns in the flesh in Pakistan, with the country ranked 133 out of 180 countries on Transparency International, Corruption Perceptions Index (CPI) in the year 2024, due to the prevalence of inefficiencies in the public sector, low efforts to enforce accountability laws, and a system of rent-seeking behavior. The efficiency of the anti-corruption machinery in Pakistan headed by agencies like the National Accountability Bureau (NAB) and Federal Investigation Agency (FIA) and provincial anti-corruption institutions has continued to be weak, ad hoc and sometimes politically controversial even after decades of anti-corruption movements, institutional reformations and international pressure.

In this context, the introduction of Artificial Intelligence (AI) can provide a new instrument of governance having the possibility of destabilizing longstanding webs of corruption. AI tools and applications, especially those founded on machine learning, data mining, predictive analytics, are gaining traction over the course of the world to deal with corruption through automation of audits, grouping of anomalies in procurement, and reporting of suspicious transactions in real-time. Estonia, Brazil, and China are some of the countries that have already adopted the use of AI-based system to control government spending, strengthen the integrity of procurement, and the accountability of institutions. Those changes pose dubious issues to Pakistan: is it possible to implement AI technologies into the anti-corruption system in Pakistan? Which institutional, legal and ethical changes are required in order to allow such integration? And how can AI be leveraged as a surveillance device, but also one in support of transparent and participatory governance?

This paper seeks to address these questions by critically analyzing the intersection of AI and governance in Pakistan's anti-corruption landscape. Unlike the predominant techno-solutionist discourse that portrays AI as a neutral, self-executing solution, this study adopts a governance perspective examining how political will, institutional capacity, legal norms, and civic participation shape the use and impact of AI technologies in public administration. It also explores how AI can support a shift from reactive, enforcement-heavy anti-corruption approaches to proactive, risk-based strategies that prevent corruption before it occurs.

The paper is structured into eight sections, The next section is Section 2 which aims to analyze the corruption situation in Pakistan, its causes, systemic trends and institutional failures. In section 3, the overview of AI technologies available in the context of anti-corruption and their viability worldwide will be presented. The fourth section examines the current and new AI projects at the Pakistani governmental level. The fifth section reviews the risks and problems faced in the deployment of AI such as legal, ethical, and infrastructural limitation. The sixth section will look into the compatibility of AI to the existing laws and institutions in Pakistan. Section 7 provides a comparative approach, with lessons being learnt on the use of AI in government reform taken by other countries that have apparently been successful in the use of AI. Lastly, Section 8 introduces the policy recommendations and roadmap of the integration of AI with the anti-corruption agenda in Pakistan.

This paper offers a contribution to an emergent literature that combines the traditions of digital governance, law and policy analysis on the problem of corruption. It seeks to give practical guidelines to policymakers, lawyers, and activists in the civil sector that aspire to construct open, accountable, and technologically adaptable institutions in Pakistan

The State of Corruption in Pakistan

Corruption in Pakistan is not a problem of episodic nature, rather it is a structural characteristic of the Pakistani political economy. It spreads through different layers of the

ISSN E: 2709-8273
ISSN P:2709-8265
JOURNAL OF APPLIED LINGUISTICS AND TESOL
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governance in forms of routine administrative bribery and procurement fraud as well as high level embezzlement and political patronage. As revealed in the latest version of Transparency International, Corruption Perceptions Index (CPI) 2024, Pakistan stood at 133 out of 180 countries with a score of 29 out of hundred that reflects a further decline in the perception of people with respect to institutions mandated to maintain integrity.[1] Corruption has a negative impact on service delivery in areas of health, education, and infrastructure that are vital as the scarce resources are depleted leaving the state without sufficient resources to provide the services to the people.

This deeply rooted corruption is occasioned by several reasons. To begin with, accountability institutions such as National Accountability Bureau (NAB) have been politicized and thus their independence and credibility has been weakened. Although NAB was formed in 1999 under the National Accountability Ordinance to persecute and prosecute cases of corruption, critics have persistently complained that NAB is most of the time applied by way of selectivity in political victimization.[2] Institutional fragmentation and inability to coordinate with the provincial agencies are also the drawbacks of the Federal Investigation Agency (FIA) which, in the first place, was to address white collar crimes and cyber-crimes.

Secondly, lack of real-time transparency in the process of public procurement and budget disallow transparency of the appropriation process leading to a possibility of misappropriation of funds. Even though, Pakistan has taken initiatives by adopting the Public "Procurement Regulatory Authority (PPRA)" rules aiming to enhance openness, the same has not been fruitfully implemented, especially on the provincial and municipal levels.[3] Blobbying of the procurement rules, employing front companies and dark ensemble wearing are the norm. In addition, oversight institutions like Auditor General Offices and Public Accounts Committees tend to be reactive, low sized and limited in coverage.

Third, there are incorrect bureaucratic incentives. There is little encouragement of integrity in the public sector promotion system and there is discouragement against whistleblowing even though a regulation on the same was implemented in some of the provinces called the Whistleblower Protection and Vigilance Commission Act. When combined with low wages, the lack of good electronic systems, and poor performance tracking, these issues breed a bureaucratic culture in which rent-seeking is naturalized.[4]

Lastly, a low rate of civil participation and low rate of enforcing the *"Right of Access to Information Act (2017)"* perpetuates corruption in Pakistan. Although the act ensures access of records held by the government by the citizen, there is a poor compliance. The websites of government agencies tend to be old fashioned and when the requests are made, they are either not heard at all or remain unaddressed and accountability is not much possible on the part of the citizen.

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[1] "2024 Corruption Perceptions Index - Explore Pakistan's Results," Transparency.org, February 11, 2025, https://www.transparency.org/en/cpi/2024.

[2] "Religion, Violence and Political Mobilisation in South Asia - Google Books," accessed June 24, 2025, https://books.google.com.pk/books?hl=en&lr=&id=IjyUJMiCGPYC&oi=fnd&pg=PA145&dq=Selective+Accountability+and+Legal+Instrumentalism+in+Pakistan&ots=4cmQwVCTM7&sig=-WTWg8a98awNuG3i8ZJ0Hjyi3qA&redir_esc=y#v=onepage&q&f=false.

[3] "PPRA :: Public Procurement Regulatory Authority," accessed June 24, 2025, https://ppra.gov.pk/#/.

[4] "(PDF) REFORMING PAKISTAN'S BUREAUCRACY: ENHANCING GOVERNANCE, INSTITUTIONAL QUALITY, AND PROFESSIONALISM FOR EFFECTIVE PUBLIC ADMINISTRATION," accessed June 24, 2025, https://www.researchgate.net/publication/383649734_REFORMING_PAKISTAN'S_BUREAUCRACY_ENHANCING_GOVERNANCE_INSTITUTIONAL_QUALITY_AND_PROFESSIONALISM_FOR_EFFECTIVE_PUBLIC_ADMINISTRATION.

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ISSN P:2709-8265
JOURNAL OF APPLIED LINGUISTICS AND TESOL
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Digital technology started performing a humble role in addressing petty corruption in the last few years with the e-governance systems like Punjab Online FIR System, digital land records of KP, and the IRIS portal to taxation at the federal board of revenue. Nevertheless, these sites are still not used to the full extent as there are no digital literacy skill, scarce inter-agency integration, and bad-quality data. Until smart systems which are scalable are introduced to enable proactive identification of risk patterns and anomalies in the digital anti-corruption infrastructure, the anti-corruption infrastructure is patchy.

To conclude, weakness in institutions, lapses in regulation, and failure to have political will perpetuates corruption in Pakistan. Though it requires classic anti-corruption approaches, they have not shown to be adequate. With a consensus that is growing, it seems that there is a new opportunity to reform through the use of technological interventions, especially those that rely on AI power. The effectiveness of these kinds of interventions however lies in whether they can be constituted as part of a larger sense of institutional transformation, legal protection, and social accountability.

Artificial Intelligence {Tools, Capabilities, and Relevance}

Artificial Intelligence (AI) has emerged as a transformative force in governance, enabling new forms of administrative efficiency, data analysis, and decision-making support. In the context of anti-corruption, AI technologies provide governments with the ability to proactively detect, predict, and prevent irregularities across large-scale public systems. These tools include machine learning algorithms, natural language processing (NLP), computer vision, anomaly detection, and robotic process automation (RPA) each with varying applications in the realm of transparency and accountability.

At its core, AI's advantage lies in its ability to identify patterns and correlations in datasets that human auditors may overlook. In public procurement, for example, machine learning models can detect suspicious bidding behavior or conflicts of interest by comparing historical tenders across departments. Natural language processing can sift through complaint records, audit reports, or social media inputs to flag potential risks or trends. Similarly, anomaly detection systems can be used to monitor financial transactions in real time to identify deviations from normative behaviors, often signaling embezzlement, kickbacks, or ghost employees.[5]

Globally, AI is being deployed in diverse ways to strengthen governance. Estonia's KrattAI strategy has enabled digital agents to facilitate transparent interactions between citizens and the government by using decentralized AI for public service delivery.[6] In Brazil, the "Controle" project employs machine learning models to assess public spending risks, while in India, the Andhra Pradesh government uses AI dashboards to monitor welfare fund disbursements.[7] These examples illustrate the breadth of AI's relevance—not merely as an efficiency tool but as a mechanism of structural reform in anti-corruption frameworks.

The relevance of AI to Pakistan's governance system lies in its capacity to address scale and complexity. Pakistan's administrative architecture is vast and fragmented, comprising federal, provincial, and local government bodies with overlapping jurisdictions and siloed data systems. This decentralization makes it difficult to manually track corruption across departments. AI offers a viable solution by enabling integration across government

[5] Tofail Alam et al., "Impact of E-Government Initiatives to Combat Corruption Mediating by Behavioral Intention: A Quantitative Analysis from Emerging Economies," *Sustainability* 15, no. 3 (January 2023): 2694, https://doi.org/10.3390/su15032694.

[6] "Vision and Strategies," Kratid, accessed June 24, 2025, https://www.kratid.ee/en/kratt-visioon.

[7] Qurat Ul Ain Cheema, Maryam Mahnoor, and Asma Zahid, "Advancing Good Governance: Leveraging Transparency, Accountability, and Anti-Corruption Measures," *Pakistan Languages and Humanities Review* 8, no. 2 (June 28, 2024): 336–52, https://doi.org/10.47205/plhr.2024(8-II-S)31.

ISSN E: 2709-8273
ISSN P:2709-8265
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databases—such as land records, tax data, procurement portals, and complaint management systems—creating a comprehensive and real-time monitoring network.[8]

Moreover, AI systems can support institutional accountability by automating audit trails, verifying documentation authenticity, and identifying discrepancies between declared and actual assets of public officials. This approach aligns with the growing trend toward *regtech* (regulatory technology) tools globally, where public integrity systems rely on digital rule enforcement mechanisms that minimize human discretion and delay.[9]

However, these benefits are contingent upon certain prerequisites: clean and structured data, technical expertise, legal support, and public trust. In Pakistan, where data quality is often poor and inter-agency collaboration limited, deploying AI solutions without foundational investments can lead to inefficiency or even reinforce opacity.

Ultimately, the relevance of AI lies not just in technology itself but in its strategic deployment within accountable governance structures. As Pakistan seeks to modernize its public institutions, integrating AI into anti-corruption policy must go hand in hand with reforms in data governance, regulatory design, and civic engagement.

Current Use of AI in Anti-Corruption Efforts (Global & Pakistan)

The deployment of Artificial Intelligence (AI) in the fight against corruption has witnessed considerable growth in recent years, with a range of governments using data-driven tools to enhance transparency, prevent fraud, and increase public trust in institutions. While some of these innovations remain in pilot phases, others have already been institutionalized as part of digital governance strategies. This section explores the global and Pakistani landscapes of AI applications in anti-corruption efforts.

Global Applications

Several countries have pioneered the integration of AI into anti-corruption systems with measurable success. For instance, in Brazil, the *Controle* system uses AI to detect anomalies in government expenditure data by cross-referencing public financial databases with procurement records.[10] This proactive model flags potentially corrupt transactions for real-time audit, reducing delays in enforcement.

In China, AI-powered systems are embedded within the Communist Party's disciplinary inspection apparatus. These include facial recognition surveillance, predictive behavior analysis, and cross-platform monitoring of officials' financial activities.[11] While these approaches raise concerns about authoritarian overreach, they highlight AI's capacity to handle complex networks of corruption with minimal human input.

Estonia presents a more rights-conscious model. Through its *KrattAI* framework, the Estonian government has developed interoperable AI agents capable of assisting with public service delivery, ensuring that procurement, licensing, and grant decisions are transparent and

[8] "(PDF) REFORMING PAKISTAN'S BUREAUCRACY: ENHANCING GOVERNANCE, INSTITUTIONAL QUALITY, AND PROFESSIONALISM FOR EFFECTIVE PUBLIC ADMINISTRATION."

[9] "The Role of E-Governance on Corruption in East Asia & Pacific: A Panel Data Analysis | Pakistan Journal of Humanities and Social Sciences," accessed June 24, 2025, https://www.internationalrasd.org/journals/index.php/pjhss/article/view/2618.

[10] Tofail Alam et al., "Impact of E-Government Initiatives to Combat Corruption Mediating by Behavioral Intention: A Quantitative Analysis from Emerging Economies," *Sustainability* 15, no. 3 (January 2023): 2694, https://doi.org/10.3390/su15032694.

[11] "8: Repressive Progress in: Capitalism Reloaded," accessed June 24, 2025, https://bristoluniversitypressdigital.com/monochap-oa/book/9781529233872/ch008.xml.

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traceable.[12] Estonia's strategy also includes a legal architecture mandating algorithmic accountability, which could serve as a model for countries like Pakistan grappling with weak oversight and digital mistrust.

India's Andhra Pradesh government uses real-time AI dashboards to monitor welfare fund distribution and detect duplicate beneficiaries across its 29 welfare schemes.[13] Similarly, in Ukraine, the ProZorro e-procurement platform integrates machine learning tools to audit tenders, contributing to over USD 1 billion in savings by identifying collusion and fraudulent bidding.

4.2 Pakistan's Emerging AI-Based Anti-Corruption Tools

In Pakistan, AI integration into anti-corruption mechanisms is still nascent but gradually emerging across select sectors. The National Database and Registration Authority (NADRA) has piloted data analytics tools to detect inconsistencies in national identity and voter rolls. These tools are now being explored for use in subsidy targeting and social protection systems such as the Benazir Income Support Program (BISP).[14]

The Federal Board of Revenue (FBR) has recently launched AI-assisted tax profiling tools to detect income-tax mismatches, hidden assets, and transaction anomalies. These efforts are being supported by Pakistan's Ministry of IT and the Pakistan Revenue Automation Limited (PRAL), as part of a digital transformation strategy to minimize tax evasion and expand the formal economy.[15]

At the provincial level, Punjab's Anti-Corruption Establishment (ACE) has initiated limited AI-based anomaly detection models to review government procurement tenders and contracts. Although these systems are still in the developmental phase and often operate in silos, they indicate a growing interest in predictive risk modeling for anti-corruption purposes.

Additionally, citizen-facing platforms such as the Pakistan Citizen Portal (PCP) and the Prime Minister's Performance Delivery Unit (PMDU) have integrated algorithmic filters to triage complaints and escalate corruption-related grievances to appropriate departments.[16] While these systems are not fully autonomous AI systems, their use of rule-based automation and decision-support analytics represents a critical stepping stone toward full-scale AI integration.

However, these developments remain fragmented and lack a unified national framework. The absence of data interoperability, limited technical expertise, and poor institutional coordination have hindered the broader application of AI across federal and provincial anti-corruption agencies.

Challenges of Implementing AI in Pakistan's Anti-Corruption Framework

Although Artificial Intelligence (AI) can transform the fight against corruption, bringing it to Pakistan encounters numerous types of systemic, legal, institutional, and technical challenges in Pakistan. Unless these impending impediments are met, AI will turn out to be another

[12] "Lehte Ei Leitud | Majandus- Ja Kommunikatsiooniministeerium," accessed June 24, 2025, https://mkm.ee/node/3.

[13] Cheema, Mahnoor, and Zahid, "Advancing Good Governance."

[14] "Fiscal Devolution and Corruption in Pakistan: A Non-Linear Analysis | Journal of Development Policy Research & Practice (JoDPRP)," accessed June 24, 2025, https://journals.sdpipk.org/index.php/JoDPRP/article/view/88.

[15] "Strengthening Bureaucratic Power in Pakistan: Addressing Challenges and Enhancing Accountability for Effective Governance | International Journal of Politics & Social Sciences Review (IJPSSR)," accessed June 24, 2025, https://ojs.ijpssr.org.pk/index.php/ijpssr/article/view/132.

[16] Asma Ishtiaq, "Bad Governance In Pakistan Evidence From Pakistan Citizen Portal," n.d.

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wasted tool that is out of tune with governance realities and prone to abuse. This part critically discusses the most imperative issues that are slowing down the process of the integration of AI in the anti-corruption environment of Pakistan.

Data Fragmentation and Infrastructure Gaps

Effective AI systems depend on access to large, structured, and interoperable datasets. In Pakistan, government data is often stored in siloed, non-standardized formats across different departments, many of which lack digitization entirely. For instance, land records, procurement contracts, and tax data are managed separately by federal, provincial, and district-level authorities, with limited real-time sharing or coordination.[17] The absence of a unified data governance policy undermines AI's ability to detect cross-departmental fraud and corruption patterns.

Moreover, the country's digital infrastructure is uneven, particularly in rural and underdeveloped regions. According to Pakistan's Ministry of IT and Telecommunication (2024), only 45% of government departments maintain basic cybersecurity protocols or automated data processing systems, further constraining AI readiness.[18] Without foundational investments in ICT infrastructure and digital literacy within the bureaucracy, AI applications are likely to remain limited to isolated pilot projects.

Legal and Regulatory Ambiguities

Pakistan lacks a comprehensive legal framework that regulates the ethical use of AI, particularly in relation to transparency, algorithmic accountability, and data privacy. Existing laws such as the *Prevention of Electronic Crimes Act* (2016) and the *Right of Access to Information Act* (2017) offer some safeguards, but neither directly addresses concerns about automated decision-making or the misuse of predictive analytics.[19]

This legal vacuum raises serious concerns. For instance, if an AI tool flags a public official for investigation based on a false positive, there is no clear legal recourse or due process framework governing such outcomes. Furthermore, the absence of guidelines around algorithmic explainability makes it difficult for oversight bodies, courts, or the public to scrutinize AI-generated decisions, thereby weakening accountability mechanisms.[20]

Institutional Resistance and Bureaucratic Inertia

Another major barrier is the bureaucratic culture of resistance to change. AI systems often challenge established hierarchies by minimizing discretionary powers and increasing transparency. In Pakistan, where rent-seeking behavior is often incentivized by opaque procedures, there is little internal push for digitization or data-sharing reforms.[21] Public sector officials may view AI tools not as efficiency enhancers but as threats to existing modes of operation.

Moreover, coordination between agencies remains weak. For example, the Federal Board of Revenue (FBR), National Accountability Bureau (NAB), and provincial Anti-Corruption

[17] Bushra Yasmin and Saira Tufail, "Fiscal Devolution and Corruption in Pakistan: A Non-Linear Analysis," *Journal of Development Policy Research & Practice (JoDPRP)*, December 30, 2024, 104–27, https://doi.org/10.59926/jodprp.vol08/007.

[18] "MINISTRY OF INFORMATION TECHNOLOGY & TELECOMMUNICATION," accessed June 24, 2025, https://moitt.gov.pk/.

[19] Dr Junaid Athar Khan et al., "Strengthening Bureaucratic Power in Pakistan: Addressing Challenges and Enhancing Accountability for Effective Governance," *International Journal of Politics & Social Sciences Review (IJPSSR)* 3, no. III (December 31, 2024): 507–16.

[20] Tofail Alam et al., "Impact of E-Government Initiatives to Combat Corruption Mediating by Behavioral Intention: A Quantitative Analysis from Emerging Economies," *Sustainability* 15, no. 3 (January 2023): 2694, https://doi.org/10.3390/su15032694.

[21] Cheema, Mahnoor, and Zahid, "Advancing Good Governance."

ISSN E: 2709-8273
ISSN P:2709-8265
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Establishments operate independently, with limited collaboration on digital governance initiatives. This institutional fragmentation prevents the development of unified AI systems that can track corruption across jurisdictions.

Algorithmic Bias and Surveillance Concerns

The use of AI also raises ethical and political concerns. Algorithmic bias where AI systems reproduce or even amplify existing social inequalities poses a serious risk in a country marked by ethnic, gender, and regional disparities.[22] If AI tools are trained on incomplete or biased datasets, they may disproportionately target certain communities or individuals, thereby reinforcing discrimination under the guise of objectivity.

Equally concerning is the potential misuse of AI for political surveillance. In the absence of robust oversight mechanisms, there is a risk that AI tools could be weaponized by political actors to target dissent, suppress opposition, or conduct selective accountability.[23] This risk is not hypothetical; previous experiences with surveillance systems under the guise of national security have shown how quickly technology can be redirected toward political ends

Legal and Institutional Framework (Compatibility and Gaps)

The integration of Artificial Intelligence (AI) into Pakistan's anti-corruption strategy requires more than technological readiness; it necessitates a legal and institutional environment that is capable of supporting, regulating, and guiding the ethical use of emerging technologies. This section assesses whether Pakistan's current legal instruments and institutional arrangements are compatible with the demands of AI-based anti-corruption tools, and identifies critical gaps that must be addressed to enable responsible adoption.

Existing Legal Frameworks

Several legislative instruments indirectly relate to the governance of AI and digital oversight, though none explicitly regulate AI's use in anti-corruption:

- The *Prevention of Electronic Crimes Act (PECA) 2016* provides a broad framework for cybersecurity and digital crimes, including unauthorized access, data theft, and cyberstalking. However, it lacks provisions on algorithmic governance, automated decision-making, or AI ethics.[24]
- The *Right of Access to Information Act (2017)* grants citizens access to public records, which can support transparency and data availability for AI systems. Yet, compliance with this law is inconsistent, and many departments remain opaque or under-digitized.[25]
- The *National Accountability Ordinance (1999)* outlines the investigative powers of NAB but is silent on the use of AI or digital forensics. It does not define standards for algorithmic evidence or automated audits, raising questions about the admissibility and reliability of AI-generated data in legal proceedings.[26]
- Pakistan also lacks a dedicated data protection law. While a draft *Personal Data Protection Bill* has been in circulation since 2020, it remains unenacted as of mid-2025. Without robust data protection legislation, the use of AI in government

[22] "The Role of E-Governance on Corruption in East Asia & Pacific: A Panel Data Analysis | Pakistan Journal of Humanities and Social Sciences."
[23] Peter Bloom, "8: Repressive Progress," 2025, https://bristoluniversitypressdigital.com/monochap-oa/book/9781529233872/ch008.xml.
[24] "Prevention of Electronic Crimes Act, 2016," accessed June 24, 2025, https://pakistancode.gov.pk/english/UY2FqaJw1-apaUY2Fqa-apaUY2Jvbp8%253D-sg-jjjjjjjjjjjj.
[25] "Pakistan Information Commission," accessed June 24, 2025, https://rti.gov.pk/.
[26] "Nab_ord_1999," n.d.

ISSN E: 2709-8273
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surveillance, corruption detection, or financial tracking may infringe on individual rights, including privacy and due process.[27]

These legislative instruments reflect a piecemeal approach sufficient for digital basics, but ill-equipped for the governance of intelligent, autonomous systems. There is a pressing need to update these laws to address AI-specific risks, such as algorithmic discrimination, bias, and lack of explainability.

Institutional Capacity and Fragmentation

On the institutional side, the landscape is fragmented. No central regulatory authority exists to oversee AI deployment in the public sector. The Ministry of IT and Telecommunication is tasked with digital transformation, but it operates largely in a technical capacity without legal or ethical oversight powers. Similarly, NAB and FIA possess investigative powers but lack in-house technical capacity to develop or regulate AI tools.

Several agencies have begun pilot AI programs such as FBR's predictive tax audits and NADRA's biometric analytics but these initiatives operate independently without cross-agency coordination or shared ethical frameworks.[28] The absence of a national AI governance policy means each department determines its own protocols, raising concerns about standardization, security, and fairness.

The judiciary also remains largely unprepared to engage with AI-based evidence. There is no formal training for judges or prosecutors on how to assess automated audit trails, algorithmic decision-making, or predictive analytics. This legal unfamiliarity may reduce the effectiveness or admissibility of AI tools in corruption trials.[29]

International Norms and Pakistan's Position

Internationally, various soft law instruments and policy guidelines have emerged to regulate AI ethically. The OECD's *AI Principles*, UNESCO's *Recommendation on the Ethics of AI* (2021), and the EU's *AI Act* all provide frameworks for accountability, transparency, and human oversight in AI systems.[30] Pakistan, however, has yet to domesticate such principles into binding national legislation or policy.

While the Pakistan Telecommunication Authority and Digital Pakistan initiatives show promise, they currently lack a rights-based and ethics-focused approach to AI. Without integrating international standards into local law, Pakistan risks both technological lag and legal incompatibility with global data governance norms especially relevant in cross-border investigations, digital forensics, and financial tracking.

Comparative Study

Use of AI in Anti-Corruption (Estonia, China, and India)

Examination of the experience in other jurisdictions in incorporating Artificial Intelligence (AI) in their anti-corruption systems will also be useful in Pakistan. The state-specific solutions to the AI deployment examined in countries like Estonia, China and India are characterized by a variety of philosophies in the fields of digital governance, dictatorial surveillance, and management capabilities. These experiences of comparison are useful in clarifying which routines could be applicable in Pakistan and which ones must be approached carefully.

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[27] "Final Draft Personal Data Protection Bill May 2023," n.d.

[28] Dr Junaid Athar Khan et al., "Strengthening Bureaucratic Power in Pakistan: Addressing Challenges and Enhancing Accountability for Effective Governance," *International Journal of Politics & Social Sciences Review (IJPSSR)* 3, no. III (December 31, 2024): 507–16.

[29] Cheema, Mahnoor, and Zahid, "Advancing Good Governance."

[30] "Recommendation on the Ethics of Artificial Intelligence - UNESCO Digital Library," accessed June 24, 2025, https://unesdoc.unesco.org/ark:/48223/pf0000381137.

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Estonia: Legal Certainty and Digital Trust

Estonia is one of the leading AI ethical and transparent implementation countries in governance around the world. Its KrattAI plan imagines an artificial intelligence as a digital civil servant doing the same and still under the legal control and deemed responsible to the citizens it helps reaching the services of the government.[31] Estonia has developed interoperable databases that feed AI systems used for monitoring procurement, detecting administrative inefficiencies, and flagging suspicious financial activity in real time.

A key feature of Estonia's model is its legal architecture. Algorithms used in public decision-making must be auditable, explainable, and subject to human review.[32] This commitment to algorithmic accountability ensures that AI augments rather than replaces institutional legitimacy. Citizens can challenge algorithmic decisions through a centralized redressal mechanism—a safeguard that fosters public trust and enhances civic participation.

Pakistan can learn from Estonia's example in two primary ways: First, by investing in digital identity systems that allow secure and transparent service delivery; second, by legislating clear ethical standards for algorithmic governance, including auditability and redress rights.

China: Comprehensive Surveillance and Centralized Control

In stark contrast, China has embraced a high-surveillance model where AI is used aggressively to monitor public officials and citizen behavior. Tools such as facial recognition, gait analysis, and predictive algorithms track officials' financial activity, lifestyle patterns, and political affiliations.[33] AI assists China's Central Commission for Discipline Inspection in identifying unexplained wealth, conflicts of interest, and non-compliance with party codes.

Although it is effective from the point of detection, the model is quite suspicious of civil liberties, privacy, and due process. What is so problematic concerning the use of algorithms is the lack of transparency in their operation and the agency not to have them run amok with political repression or even selective accountability.[34]

For Pakistan, the Chinese model offers cautionary lessons. While centralized data access and surveillance may seem efficient, without strong judicial and civil oversight, such tools can easily be co-opted for political control rather than genuine reform.

India: Mixed Results with Regional Variations

India provides a middle-ground model, characterized by decentralized but innovation-rich applications of AI. At the state level, the Andhra Pradesh government uses AI dashboards to track welfare scheme delivery, flag duplicate beneficiaries, and monitor budget disbursement.[35] The Central Vigilance Commission (CVC) has piloted data mining tools for identifying corruption-prone departments and high-risk transactions.[36]

However, India's AI adoption has been hindered by concerns about data quality, institutional silos, and uneven capacity across states. Moreover, a lack of comprehensive AI legislation—

[31] "Lehte Ei Leitud | Majandus- Ja Kommunikatsiooniministeerium," accessed June 24, 2025, https://mkm.ee/node/3.

[32] "Recommendation on the Ethics of Artificial Intelligence - UNESCO Digital Library," accessed June 24, 2025, https://unesdoc.unesco.org/ark:/48223/pf0000381137.

[33] "8: Repressive Progress in: Capitalism Reloaded," accessed June 24, 2025, https://bristoluniversitypressdigital.com/monochap-oa/book/9781529233872/ch008.xml.

[34] "Social Control in the Digital Transformation of Society: A Case Study of the Chinese Social Credit System," accessed June 24, 2025, https://www.mdpi.com/2076-0760/11/6/229.

[35] Cheema, Mahnoor, and Zahid, "Advancing Good Governance."

[36] Abhishek Thommandru, Fazilov Farkhod Maratovich, and Niyozova Salomat Saparovna, "Fortifying Uzbekistan's Integrity Landscape: Harnessing India's Tech-Driven Anti-Corruption Strategies," *Sustainable Futures* 7 (June 1, 2024): 100206, https://doi.org/10.1016/j.sftr.2024.100206.

ISSN E: 2709-8273
ISSN P:2709-8265
JOURNAL OF APPLIED LINGUISTICS AND TESOL
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comparable to Pakistan's situation has raised questions about ethical safeguards and the transparency of automated governance.

Nevertheless, India's experience shows that incremental adoption of AI in procurement, grievance redressal, and welfare monitoring can yield results—especially when combined with civil society oversight and public audit mechanisms.

Comparative Lessons for Pakistan

These international experiences offer distinct pathways:

- **From Estonia**, Pakistan can adopt best practices in legal oversight, algorithmic auditability, and citizen-facing digital services.
- **From China**, Pakistan should note the risks of unchecked AI use, particularly its potential for repression and political manipulation.
- **From India**, Pakistan can draw lessons on localized implementation and the value of piloting AI in specific service areas (e.g., subsidies, procurement).

For AI to succeed in anti-corruption in Pakistan, the state must balance innovation with rights-based governance, and technological ambition with legal prudence.

Policy Recommendations

Artificial Intelligence (AI) provides an opportunity to transform Pakistan with the help of modernization of the anti-corruption system, enhancement of the accountability of the public sector, and restoration of the trust in public institutions. But these weaknesses include the disjointed legal framework in the country, institutional capacity as well as low-digital maturity is still a challenge. This section presents hard hitting policy recommendations based on international best practices, and challenges in Pakistan on the nature of governance challenges and a final reflection.

Develop a National AI Governance Policy

The general AI management policy that can be applied in Pakistan should contain transparency regulatory standards, algorithmic responsibility regulatory standards, data privacy regulatory standards, and human control. The policy must match the international ethical framework as UNESCO Recommendation on the Ethics of Artificial Intelligence (2021) and the OECD AI Principles.[37]

2. Establish a Central AI Oversight Authority

There should be a specific regulatory agency possibly at the ministry of IT and Telecommunication that works in collaboration with the ministry of law to oversee the implementation of AI in national departments. This oversight ought to lay down criteria of audit procedures on AI tools, monitor adherence to data protection laws, and provide legal redress to the aggrieved citizens.[38]

3. Upgrade Data Infrastructure and Interoperability

Pakistan also needs to invest in well-organized, machine understandable, and interoperable government databases to be able to use AI comprehensively. This entails the achieving of convergence of land, tax, procurement and biometric systems with open-data at the national level and available to authorized institutions.[39] Block-chain has also to be explored in the areas of land registries and procurements so that even due diligence can be performed in real-time and minimize fraud.

[37] "Vision and Strategies."
[38] "Final Draft Personal Data Protection Bill May 2023."
[39] Cheema, Mahnoor, and Zahid, "Advancing Good Governance."

ISSN E: 2709-8273
ISSN P:2709-8265
JOURNAL OF APPLIED LINGUISTICS AND TESOL

Enhance Institutional Coordination

Collaboration amongst agencies like the National Accountability Bureau (NAB), the Federal Board of Revenue (FBR) and other provincial Anti-Corruption Establishments should be compelled to exchange statistics and technical skills. It is possible to set up a central anti-corruption AI lab that could assist these agencies in real-time analytics, predictive modeling, and digital forensics.

Train Judiciary and Public Servants

The court system should have the capability to learn and evaluate the evidence of algorithms. Similarly, civil servants should be trained on AI illiteracy and ethics as well as management of data to prevent technocratic abuse and opposition. Such capacity-building undertakings must be institutionalized by way of public service academies as well as judicial training institutes.[40]

6. Ensure Civic Participation and Oversight

Pakistan should establish transparency in its AI design so that abuse of the AI is prevented. Decision-logs of an algorithmic should be made available to citizens, particularly in grievance redressal and welfare deliveries. Whistleblower protection should be increased so that corruption should be reported safely in digital systems. The civil society and the academia should also be employed as watchdogs and partners.

Conclusion

The inclusion of Artificial Intelligence into the process of anti-corruption governance is not a technological inevitability, it is a political and legal decision. Pakistan is at a crossroad: the choice is between either applying AI towards automating the maladies of today or shaping a new future where transparency, integrity and rights-based governance can be supplemented by intelligent systems.

The partial digitalization of the country and the choice of accountability prove that technology cannot be used as a solution to corruption, but only as one of its aspects. Of importance is the institutional intent, legal design, and citizenship involvement that goes alongside such tools. The country of Pakistan would benefit a great deal in learning on the models applied on a global scale where they integrate the good parts of the models of Estonia, India and China and avoid the issues of not being an authoritarian and control the level of experimentation.

It is the perfect time to move towards digital audits, algorithmically explainable complexity, and proactive prevention instead of reactive enforcement. Under the right measures, AI can be a formidable instrument that does not act as a panacea but complements the anti-corruption inf-field as well as transforms the belief of the masses in the state.

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