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**RESEARCH PAPER**

## The Impact of Artificial Intelligence on Governance: Evaluating Opportunities and Challenges in Pakistan

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**ABSTRACT**

This research aims to explore the impacts of AI intelligence on the governance system of Pakistan by evaluating its opportunities and challenges. It further examines the AI governance model of China, the United States, Singapore and the United Arab Emirates to bring substantial lessons for the country. This study is carried out by utilizing qualitative and analytical methodology. Primary and secondary sources are reviewed to present a thorough grasp of AI's impacts on Pakistan governance. The results find that AI brings various opportunities, including administrative efficiency and economic modernization. In contrast, it also poses various challenges for the country as well, comprising institutional constraints and cybersecurity concerns, among many others. The study suggests that responsible governance practices and sustainable technological development International best practices should be adopted through comparative policy learning from global AI governance practices. It is recommended to strengthen digital infrastructure, promoting ethical governance and cross-national policy learning.

**KEYWORDS** Artificial Intelligence, Governance System, Administrative Efficiency, Cybersecurity, Development

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**Introduction**

Artificial intelligence is reshaping the political, social, and economic systems across the globe, and it has emerged as one of the most revolutionary technologies of the twenty-first century. AI is impacting the way the government makes its policies, delivers its services and interacts with citizens as it provides the various services like automatic decision-making, smart public services and analytics to the digital governance. In order to improve efficiency, transparency, accountability and public sector performance, both developing and devolved states are investing in AI-driven governance models. In this way, AI is not restricted to the domain of modern technology, and rather, it has become a central component of public administration and governance (Lan, 2022; Batool, et al., 2023; Malik, et. al., 2023). AI can modernize the governance structure of Pakistan by accelerating the decision-making process, improving the communication between the state and citizens and by enhancing transparency. On the other side, Pakistan faces numerous challenges in adopting the AI-driven models, including cybersecurity concerns, low digital literacy and ethical concerns regarding surveillance. Therefore, the unequal distribution and the misuse of AI technologies can only deepen the existing social inequalities without any proper strategic planning (UNESCO, 2021; Muzaffar, & Choudhary, 2017). By examining the impact of AI on governance in Pakistan, the study seeks to explore how AI can positively enhance the efficiency of governance in Pakistan.

## Literature Review

The use of AI in the governance system of Pakistan can produce revolutionary changes by enhancing the process of decision-making and by improving the administrative efficiency. But there are various obstacles in adopting this system in Pakistan; it includes technical difficulties with machine learning models and a lack of artificial intelligence expertise. Other reasons include the absence of cloud computing systems and slow internet connections in rural areas; due to this, the implementation of AI happens slowly in rural areas. This situation can be improved by adopting the appropriate bias management system and improving the quantitative understanding of AI by public servants, as it improves the policy decisions. Digital infrastructure must be built in Pakistan along with strict data security laws. The formulation of formal policies and fair implementation will make AI reach its governance potential. (Khan & Ullah, 2024).

In order to establish a more responsive governance system, governments are greatly investing to integrate AI into sectors like taxation and public services. According to the research, AI assists the government in processing large amounts of data and automating the bureaucratic procedures. However, scholars believe that AI also raises various ethical, institutional and legal challenges that require oversight and careful regulation. Recent studies also show that despite the rapid global transition toward digital governance, Pakistan's policymaking institutions remain slow in adopting the emerging technologies (Ahmed, Elahi, & Khan, 2025).

Pakistan's National AI policy passed in July is the country's first comprehensive strategy for digital sovereignty and AI-driven first socioeconomic revolution. Pakistan's National AI policy passed in July is the country's first comprehensive strategy for digital sovereignty and AI-driven first socioeconomic revolution. This policy is based upon six strategic pillars which include

- i. Innovation ecosystem
- ii. Awareness and readiness
- iii. Secure and ethical AI
- iv. Sectoral transformation
- v. Nationwide infrastructure
- vi. International collaborations

This policy also sets various targets, which include training one million AI professionals and launching AI national funds. However, this policy also includes various weaknesses, such as:

- Lack of binding data protection laws
- Institutional fragmentations
- Weak enforcement mechanism
- Infrastructural deficiencies
- Limited implementation capacity

However, for sustainable AI governance in Pakistan, a transparent monitoring system, multi-stakeholder engagement and stronger regulatory institutions are necessary (Burfat, Lanjwani, & Oad, 2026).

By analyzing 9,931 publications on artificial intelligence, the study has found that AI has become a major academic interest due to increasing influence of governments and societies. In the study, author discussed that various topics become area of interest for governments including fairness, transparency and the responsible use of AI, a balance approach should be adopted that integrates technologies with ethical principles. (Wang & Xie, 2026).

AI technology is increasingly influencing the whole world. So, it is our moral obligation to ensure that it benefits humanity as whole, also we have to deal with the issues that arise from the technology such as security and military uses, job displacement and manipulation. As AI is affecting the whole world, only national regulation is not sufficient. As, the effects are cross boarders, global governance is the only mean to fully exercise the moral responsibility. (Coeckelbergh, 2025, Muzaffar, et. 2024). The aim of this study is to analyse the role of AI in Pakistan's governance system and explore its potential opportunities and risks associated with its implementation.

### Theoretical Framework

This study is based on the ethical AI governance framework and digital governance theory, which determine the influence of artificial intelligence on modern governance systems through digital services, including digital public service delivery, automation and data-driven policy making. Digital Governance Theory argues that accountability, efficiency, administrative performance and transparency can be improved through Artificial Intelligence by enhancing the decision making process and reducing the bureaucratic delays. While on the other hand, ethical AI governance addresses issues like cybersecurity risk, surveillance, misuse of citizen data and algorithm bias and emphasizes the importance of privacy protection, transparency and fairness. This study applies this theoretical framework to highlight the need for responsible and ethical AI by exploring both the opportunities and challenges of AI integration in Pakistan's governance system.

### Conceptual Framework

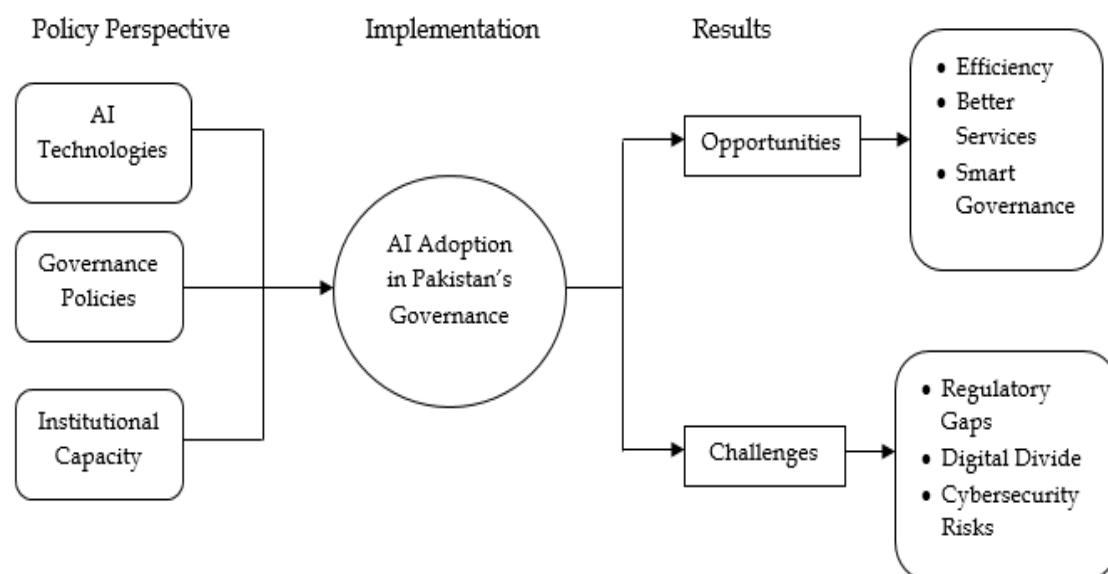


Figure 1: Conceptual Framework

## **Material and Methods**

The research has been carried out by applying the analytical and qualitative research approach. Qualitative methods are used for the completion of the research. It relies on secondary sources to analyse the influence of AI on governance in Pakistan. The secondary sources policy reports, academic journal articles and government publications. In addition, for the completion of research, the researcher has also utilized internet material.

## **International Use of AI in Governance**

The international practices of AI in governance are as follows:

### **AI Governance Model of China**

China takes artificial intelligence as an important tool for the growth of the economy, international influence and national security. By 2030, China aims to become the world's leading AI innovator through policies like the Generation AI development plan (2017). In order to strengthen international competitiveness and technological capabilities, China has invested in robotics, healthcare and digital infrastructure. China is also focusing on AI development for achieving good governance. In this regard, the government introduced various policies, including ethical norms for new-generation AI and some rules for generative AI services; these steps are taken in order to make the AI more controlled and secure. China also encourages the concept of "good AI" to ensure social stability and the use of AI for public welfare purposes. China also takes part in various global discussions through different organizations such as the United Nations and BRICS (Xiao, 2025).

### **AI Governance Model of the United States of America**

The United States focuses on responsible AI development by following an innovation-driven AI governance strategy. The US does not follow a centralized system in AI innovation and policymaking; rather, its model gives a major role to universities and research institutions. Through digital infrastructure and research funding, the government supports AI development. The US governance model also prioritizes the protection of civil liberties; thus, it follows ethical AI development. In this regard, the US introduced various policies such as the AI Bill of Rights and AI Risk Management in order to ensure accountability, transparency and privacy protection. The main aim of these policies is to ensure that the use of AI remains safe and beneficial for society. But the US AI governance model also faces some challenges, as there is no AI federal law which could regulate the AI nationwide. Despite this challenge, the US is still contributing as one of the leading AI powers in the world due to the research capabilities it holds. (Davtyan, 2024).

### **AI Governance Model of Singapore**

The AI model of Singapore prioritizes responsible use of technology, innovation and collaboration. Singapore considers AI a crucial driver of the economy under its Smart Nation vision. The country follows strict legal regulations; in this regard, it introduces soft law to regulate ethical and voluntary governance that encourages transparency and accountability in AI models. To ensure reliability in AI models, various initiatives were taken, such as AI Verify. Singapore not only focuses on the challenges raised by AI technologies; rather, it adopts a policy of responsible optimism towards AI, in which it

focuses on both opportunities and safeguards. The country also supports the use of AI in various sectors such as education, public administration, healthcare and industries. The state invests in various AI technologies to prepare the citizens for technological transformation; high public trust in government institutions encourages such investments. Singapore adopted an updated AI version introduced in 2023, named NAIS 2.0, in order to build a trusted AI system. So, Singapore not only regulates the AI models but also facilitates them through great investments. However, there are certain concerns related to AI models, including privacy concerns and misinformation. (Allen, Loo, & Luna, 2025).

### AI Governance Model of United Arab Emirates

For integrating AI into national development and public administration, the United Arab Emirates follows the AI model based on an innovative-driven framework. To compete with technological advancement, the UAE launched the National Strategy for Artificial Intelligence 2031. Through this plan, the use of AI is introduced throughout the nation's various sectors, including public services, education and transportation. The UAE model of AI follows a balanced approach based on ethical AI practices and technological advancement (AI Risk Aware, 2026).

**Table 1**  
**Comparison between the AI governance models of China, the United States, Singapore and the United Arab Emirates**

Characteristics	China	United States	Singapore	United Arab Emirates
Approach	State centered approach	Decentralized approach	Collaborative approach	State led approach
Purpose	National security	Global leadership	Economic development	Smart Governance
Regulation System	Strict regulations	Flexible regulations	Soft law regulations	Balance regulations
Government's Role	Active role in policy making	Government play active role as facilitator	Government works with collaboration	Introduce and implement strategies
Key Policies	New Generation AI Development Plan	AI Bills of Rights	Model AI Governance Framework	UAE National AI Strategy 2031

### Lessons for Pakistan

In order to develop an effective AI model, Pakistan can take several lessons from China, the United States of America, Singapore and the United Arab Emirates. From China, Pakistan can learn the strong role of the state in AI development and the importance of long-term planning. China achieves the advancement in technology and national competitiveness through heavy government investments in research, technology and infrastructure. Pakistan can achieve similar objectives by adopting a similar approach of digital infrastructure development through the support of the public, private sectors and research institutions (Muzaffar, et al., 2023; Robert et al., 2021).

The United States follows the AI Governance Model of mutual collaboration between public and private sectors; it encourages the leadership of both sectors and focuses on academic collaboration. It not only focuses on collaboration but also protects the democratic values, civil rights and the privacy of individuals. (National institute of Standards and Technology [NIST], 2023). Pakistan can benefit by following the US approach towards an AI governance model, as it requires lesser investment for university-industry partnerships, which is a plus point for a third-world country like

Pakistan. Not only collaboration, but also Pakistan can ensure the protection of citizens from discrimination and misinformation by following the US model of AI governance.

Singapore follows an AI governance model which is ethical and human-centered; Pakistan can take a number of lessons from it. Through the models like the AI Governance Framework, Singapore ensures stability and accountability in AI development; Pakistan can also take the benefits by adopting similar ethical policies which could not prove beneficial for public sectors only but also for the private sectors as well. Pakistan can take one more lesson from Singapore by following its policies which are established to train the society for AI-driven transformation (Infocomm Media Development Authority Singapore, 2020).

The AI Governance Model of the UAE teaches the importance of future-orientated governance and the role of government in promoting AI development. As the UAE has integrated AI in various public and private sectors, including healthcare, education, agriculture and public service delivery, Pakistan can follow the same pattern in order to achieve economic productivity and efficiency (AI Risk Aware, 2026).

### **AI Governance Model in Pakistan: Opportunities**

The AI governance model can provide a lot of opportunities for Pakistan. Some of them are as follows:

1. It is essential for improvement in administrative efficiency. Administrative efficiency can be improved through the following ways: by reducing the bureaucratic delays, automating the routine tasks of government and improving the performance of institutions. This model helps to process a large amount of data quickly; this helps the government to make the decisions faster and deliver the public delivery efficiently as well (Khan et al., 2026).

2. AI reduces the interference of humans in the administrative process, so there are lesser chances of corruption. In this way, it enhances transparency and accountability. Corruption, irregularity of finance or any misuse of public resources can be easily detected through digital monitoring tools and automated systems. It also keeps the records which protect the government from any bribery or manipulation (Khan & Ullah, 2024)..

3. AI can easily analyses large-scale public data, and the trends of governance through this evidence-based policymaking become easier. Also, AI tools like predictive analytics assist the government in forecasting any issue more effectively, including healthcare needs, social issues or economic patterns. (Burfat, Lanjwani, & Oad, 2026).

4. AI also provides healthcare technologies such as disease prediction, telemedicine, medical data management and patient diagnosis; this assists Pakistan in improving its healthcare services. In some areas of Pakistan, such as the remote area where there is less access to hospitals, AI medical technologies can be utilized there. This improves the access to medical services and also reduces the pressure on hospitals (Khan et al., 2026)..

5. The AI governance model can modernize the education sectors of Pakistan through smart education platforms, especially in the rural areas where the resources of education are limited. AI can also improve the economic growth of Pakistan by strengthening the sectors of IT, and this ultimately results in higher employment rates.

Also, it advances Pakistan's transition towards the digital transformation which can enhance the e-governance system in Pakistan (Wang & Xie, 2026).

### **AI Governance Model in Pakistan: Challenges**

The AI governance model creates a lot of challenges for Pakistan as well. Some of them are as follows:

1. AI governance requires fast internet connectivity, sufficient cloud computing systems and access to digital technologies, but Pakistan lacks a strong digital infrastructure. Weak digital infrastructure is one of the major problems for Pakistan to fully integrate AI into governance. Various sectors would remain out dated due to the absence of advance digital infrastructure such as public administration, education and healthcare.(Khan & Ullah, 2024).

2. One more challenge is that there is a lack of such laws which can regulate artificial intelligence in Pakistan. The integration of AI models in governance requires various laws, such as cybersecurity laws, data protection laws and ethical AI policies. In the absence of such laws and policies, the risk of misuse of citizen data increases, and it also raises the concern of data privacy. (Burfat, Lanjwani, & Oad, 2026).

3. There is one more concern in regard to integrating AI in the governance system in that when AI systems are trained on incomplete datasets, they produce discriminatory outcomes. This can put its negative impacts on many sectors of Pakistan, including law enforcement and wealth distribution, which can create further challenges for the country. So, in the absence of ethical AI governance, instead of creating opportunities, it creates even more challenges (Wang & Xie, 2026).

4. For integrating AI model in the governance system of Pakistan, digital expertise are required but the country lack such skilled professionals. As the literacy rate of the country is low at a general level, this absence makes the adoption and implementation of AI laws ineffective, and it also creates problems for sustainable AI development and an efficient governance system in the country (Khan & Ullah, 2024).

5. One more challenge which can be raised in Pakistan through the AI model is that if the AI model is utilized by elite social areas and urban societies only, then it can create even more disparities in Pakistan. Due to limited access to the internet, rural areas can face exclusion from utilizing the opportunities created by AI models (Khan et al., 2026).

### **Conclusion**

Artificial intelligence has great influence on the governance system across the world in the modern era. This study explores the impact of artificial intelligence on the governance system of Pakistan by evaluating its opportunities and challenges. This study further evaluates the AI governance of China, the US, Singapore and the UAE and brings valuable lessons for Pakistan. It has been found that an AI governance model can bring various opportunities in Pakistan, such as healthcare, education and economic growth. On the contrary, it brings numerous challenges for the country as well, including misuse of citizens' data, algorithm bias and the weaknesses of the institutions to adopt the AI governance model. This study provides practical insights for addressing such challenges.

**Recommendations**

- Pakistan should make such laws through which the legal, ethical and institutional guidelines related to AI governance become easier to adopt. Also, the country needs to build and strengthen digital infrastructure by investing heavily in smart governance technologies.
- Implementing laws is not enough until the data of the citizens is secured. So, Pakistan needs to introduce such laws which ensure the protection of citizens' data by preventing unauthorized data access and misuse of AI technologies.
- The next step after implementing the laws is to establish the public-private collaboration in order to accelerate the AI governance development. This collaboration brings various opportunities, including improved digital expertise and the implementation mechanisms.
- Pakistan should take valuable lessons from the AI governance model of other countries. From China, Pakistan can learn the development of digital infrastructure; from the US, the research ecosystem; from Singapore, the ethical model of AI governance; and from the UAE, Pakistan can learn the initiatives like smart governance.
- Pakistan can improve its AI governance model by actively taking part in AI governance discussions; through this, Pakistan can get regulatory knowledge and investment opportunities.

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