

ARTIFICIAL INTELLIGENCE AND THE ADMINISTRATION OF JUSTICE IN BANGLADESH: LEGAL CHALLENGES AND FUTURE PROSPECTS

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ABSTRACT

Artificial Intelligence (AI) is rapidly transforming legal systems across the world by improving judicial efficiency, enhancing case management, supporting legal research, and facilitating access to justice. Many jurisdictions have introduced AI-assisted technologies to reduce case backlogs, improve administrative functions, and increase the efficiency of court services. While AI has the potential to strengthen judicial administration, its integration into the justice system also raises significant legal, ethical, and constitutional concerns relating to transparency, accountability, algorithmic bias, data protection, and judicial independence. In Bangladesh, the judiciary has made considerable progress in digitalizing court services through initiatives such as virtual courts, e-filing, and digital case management systems. However, the application of AI in judicial administration remains at a preliminary stage, and the country currently lacks a

comprehensive legal framework governing the responsible use of AI within the justice sector. This regulatory gap creates uncertainty regarding the protection of fundamental rights, due process, and judicial accountability.

This article critically examines the prospects and challenges of integrating Artificial Intelligence into the administration of justice in Bangladesh. It analyzes the existing constitutional and legal framework, evaluates international developments concerning AI governance, and explores the legal and institutional reforms necessary to ensure that AI serves as a tool to support, rather than replace, judicial decision-making. The article argues that a transparent, accountable, and human-centred regulatory framework is essential for promoting innovation while preserving judicial independence, the rule of law, and public confidence in the justice system.

Introduction

Artificial Intelligence (AI) has emerged as one of the most influential technological developments of the twenty-first century, fundamentally transforming public administration, healthcare, education, finance, and legal services. The justice sector is no exception. Across the world, courts and judicial institutions are increasingly adopting AI-assisted technologies to improve case management, conduct legal research, automate administrative processes, and enhance access to justice (Sourdin, 2021). Although AI offers significant opportunities for improving the efficiency and effectiveness of judicial administration, its growing use has also generated complex legal, ethical, and constitutional questions regarding fairness, transparency, accountability, privacy, and judicial independence.

The administration of justice requires impartiality, reasoned decision-making, procedural fairness, and strict adherence to the rule of law. Judicial decisions frequently

involve interpreting statutes, evaluating evidence, assessing witness credibility, and balancing competing constitutional rights. These functions require legal reasoning, ethical judgment, and human discretion that cannot easily be replicated by automated systems. Consequently, while AI can assist judges and court officials by providing analytical support and improving administrative efficiency, excessive reliance on algorithmic decision-making may undermine public confidence in the judiciary and weaken the protection of fundamental rights (UNESCO, 2021). In recent years, numerous countries have introduced AI-powered tools within their judicial systems. These technologies are used for document classification, predictive legal research, scheduling hearings, case allocation, transcription, language translation, and digital evidence management. Some jurisdictions have also experimented with algorithmic risk assessment in criminal justice, although such practices have generated considerable debate concerning discrimination, explainability, and accountability (European Commission for the Efficiency of Justice [CEPEJ], 2018).

Bangladesh has also undertaken significant initiatives to modernize its justice sector through judicial digitalization. The introduction of virtual courts during the COVID-19 pandemic, electronic filing systems, online cause lists, and digital case management reflects the judiciary's commitment to improving access to justice through technology. Nevertheless, the use of Artificial Intelligence remains largely unexplored, and no comprehensive legislation currently regulates AI applications within the justice system. As discussions surrounding AI governance continue to evolve globally, Bangladesh faces the challenge of embracing technological innovation while ensuring compliance with constitutional guarantees, procedural fairness, and internationally recognized human rights standards (Susskind, 2019). Given these developments, there is an urgent need to examine whether the existing legal framework in Bangladesh is capable of regulating AI-assisted judicial processes. Questions concerning algorithmic transparency, liability for automated decisions, and protection of personal data,

cybersecurity, judicial ethics, and institutional accountability require careful legal analysis before AI can be safely integrated into judicial administration.

This article therefore critically examines the opportunities and legal challenges associated with the use of Artificial Intelligence in the administration of justice in Bangladesh. It evaluates the constitutional implications of AI adoption, reviews emerging international regulatory approaches, and proposes legal and institutional reforms aimed at ensuring the responsible, transparent, and human-centred use of AI within the Bangladeshi justice system.

STATEMENT OF THE PROBLEM

Artificial Intelligence has the potential to improve the efficiency, accessibility, and transparency of judicial administration. However, the absence of a comprehensive legal framework governing AI-assisted judicial processes in Bangladesh presents significant legal and institutional challenges. Existing laws were enacted before the emergence of AI technologies and therefore provide limited guidance regarding algorithmic decision-making, automated legal research, judicial accountability, data governance, and protection against algorithmic bias.

Furthermore, concerns remain regarding whether AI systems can adequately respect constitutional guarantees such as equality before the law, due process, judicial independence, and the right to a fair hearing. Without appropriate legal safeguards, the adoption of AI may inadvertently increase discrimination, reduce transparency, and undermine public confidence in the justice system. These challenges highlight the need for a comprehensive examination of Bangladesh's legal preparedness for integrating AI into the administration of justice.

RESEARCH OBJECTIVES

General Objective

To critically examine the legal challenges and future prospects of integrating Artificial Intelligence into the administration of justice in Bangladesh.

Specific Objectives

- To explain the concept and role of Artificial Intelligence in judicial administration.
- To examine the existing legal and constitutional framework governing AI in Bangladesh.
- To identify the legal and ethical challenges associated with AI-assisted judicial processes.
- To evaluate international developments relating to AI governance in the justice sector.
- To assess the future prospects of AI in improving judicial efficiency and access to justice.

RESEARCH QUESTIONS

This study seeks to answer the following questions:

1. What role can Artificial Intelligence play in the administration of justice in Bangladesh?
2. Does the existing legal framework adequately regulate AI-assisted judicial processes?
3. What constitutional and human rights concerns arise from the use of AI in judicial administration?
4. What lessons can Bangladesh learn from international approaches to AI governance?
5. What reforms are necessary to ensure the responsible and ethical use of AI within the justice sector?

RESEARCH METHODOLOGY

This study adopts a qualitative doctrinal research methodology. Primary sources include the Constitution of the People's Republic of Bangladesh, relevant statutes, judicial decisions, and international instruments relating to Artificial Intelligence, digital governance, and human rights. Secondary sources include peer-reviewed journal articles, academic books, reports published by UNESCO, the Council of Europe, and the European Commission for the Efficiency of Justice (CEPEJ), the OECD, and other authoritative international organizations (Creswell & Creswell, 2018).

The research employs analytical and comparative approaches to evaluate Bangladesh's existing legal framework alongside emerging international standards on AI governance.

The study further assesses how responsible AI regulation can strengthen judicial efficiency while protecting constitutional rights, judicial independence, and the rule of law.

LITERATURE REVIEW

The integration of Artificial Intelligence (AI) into judicial systems has become an important area of legal scholarship in recent years. Researchers generally agree that AI has the potential to improve judicial efficiency, reduce case backlogs, enhance legal research, and facilitate access to justice. However, they also caution that the use of AI in judicial decision-making raises significant concerns regarding transparency, accountability, algorithmic bias, judicial independence, and the protection of fundamental rights. Sourdin (2021) argues that AI should primarily function as a tool to assist judges rather than replace judicial reasoning. According to the author, AI technologies can significantly improve court administration through automated case management, legal analytics, and document review, but final judicial decisions should always remain under human control. Similarly, Susskind (2019) predicts that digital technologies, including AI, will fundamentally reshape legal services and judicial institutions, requiring legal systems to adapt to technological innovation while preserving procedural fairness and public trust.

The European Commission for the Efficiency of Justice (CEPEJ, 2018) has emphasized that AI applications within judicial systems must comply with five fundamental principles: respect for fundamental rights, non-discrimination, quality and security of data, transparency, and user control. These ethical principles have become internationally recognized benchmarks for the responsible use of AI in courts. UNESCO (2021) further highlights that AI governance must be human-centred and rights-based. The Recommendation on the Ethics of Artificial Intelligence stresses that governments should establish legal safeguards to ensure transparency, accountability, fairness, and effective human oversight whenever AI is used in public decision-making, including judicial administration.

Within the Bangladeshi context, scholarly research on AI in the justice sector remains limited. Existing studies primarily focus on judicial digitalization, e-governance, and virtual court systems rather than AI-assisted judicial processes. Consequently, there is a noticeable gap in the literature regarding Bangladesh's legal preparedness for AI integration within the judiciary. This study seeks to address that gap by critically examining constitutional principles, existing legislation, international standards, and emerging regulatory challenges relating to AI in the administration of justice.

CONCEPT OF ARTIFICIAL INTELLIGENCE IN THE ADMINISTRATION OF JUSTICE

Artificial Intelligence refers to computer systems capable of performing tasks that normally require human intelligence, including learning, reasoning, language processing, pattern recognition, and decision support (Russell & Norvig, 2021). Within the justice sector, AI is generally used to assist not replace judicial decision-making by improving efficiency and supporting court administration. The administration of justice encompasses all activities involved in resolving legal disputes, including case registration, document management, legal research, scheduling hearings, evidence management, and judicial decision-making (Islam, 2029). AI technologies can contribute to these functions by automating repetitive administrative tasks, organizing large volumes of legal information, identifying relevant precedents, and improving the overall efficiency of court operations.

Several countries have already implemented AI-assisted judicial technologies. Common applications include:

- Intelligent case management systems;
- AI-assisted legal research platforms;
- Automated document review;
- Speech-to-text transcription during hearings;
- Digital evidence analysis;
- Machine translation for multilingual court proceedings;
- Predictive analytics for case scheduling and workload management.

However, AI should not be viewed as a substitute for judicial reasoning. Judicial decision-making often requires the interpretation of constitutional principles, evaluation of witness credibility, consideration of social context, and the exercise of judicial discretion. These functions depend upon human judgment, ethical reasoning, and legal interpretation that cannot be fully replicated by algorithms (Sourdin, 2021). Consequently, most scholars advocate a "human-in-the-loop" approach, under which AI provides analytical support while judges retain ultimate responsibility for legal decisions.

EXISTING LEGAL FRAMEWORK IN BANGLADESH

Unlike several developed jurisdictions, Bangladesh has not yet enacted a comprehensive statute specifically regulating Artificial Intelligence. Nevertheless, several constitutional provisions and existing laws indirectly govern issues relevant to AI in judicial administration. The Constitution of the People's Republic of Bangladesh guarantees equality before the law, protection of life and personal liberty, and due process under Articles 27, 31, and 32. These constitutional guarantees would continue to apply regardless of whether judicial decisions are supported by AI technologies (Constitution of Bangladesh, 1972).

The Information and Communication Technology Act, 2006 and the Cyber Security Act, 2023 establish important legal rules concerning digital technologies, cybersecurity, electronic information, and cyber offences. Although these laws do not specifically regulate AI, they provide a partial legal framework for protecting digital infrastructure and electronic information used within judicial institutions (ICT Act, 2006 & Cyber Security Act, 2023).

The Evidence Act, 1872 also becomes increasingly relevant as AI-assisted systems generate, process, and analyse digital evidence. Questions concerning the admissibility, authenticity, reliability, and integrity of AI-generated evidence will require careful judicial interpretation (Evidence Act, 1872).

Furthermore, Bangladesh has adopted various policies promoting digital transformation under the vision of Smart Bangladesh 2041, encouraging the modernization of public administration through emerging technologies. However, no comprehensive legislation currently regulates algorithmic accountability, automated decision-making, AI liability, explainability, or ethical standards governing AI use within courts (Islam, 2019).

As a result, significant regulatory gaps remain regarding transparency, judicial accountability, data governance, privacy protection, and human oversight. Addressing these gaps will be essential before AI can be responsibly integrated into the administration of justice.

ETHICAL AND HUMAN RIGHTS ISSUES OF AI IN JUDICIAL ADMINISTRATION

Although Artificial Intelligence (AI) offers significant opportunities to modernize judicial administration, its implementation also raises complex ethical and human rights concerns. Since judicial decisions directly affect individual rights, liberty, and access to justice, the use of AI within courts must be carefully regulated to ensure compliance with constitutional principles and international human rights standards.

Algorithmic Bias and Discrimination

One of the most significant challenges associated with AI is algorithmic bias. AI systems learn from historical data, and where such data contain existing social, economic, or institutional biases, AI may reproduce or even amplify discriminatory outcomes (European Commission for the Efficiency of Justice [CEPEJ], 2018). Within the justice system, biased algorithms may disproportionately affect marginalized communities and undermine the constitutional principle of equality before the law.

For Bangladesh, where socio-economic inequalities already influence access to justice, preventing algorithmic discrimination should be a fundamental requirement before AI is integrated into judicial processes.

Transparency and Explainability

Judicial decisions must be transparent, reasoned, and capable of judicial review. Many AI systems, particularly those based on machine learning, operate as "black-box" models, making it difficult to explain how a particular recommendation or prediction has been generated (UNESCO, 2021). Such lack of explainability may violate procedural fairness because litigants have the right to understand and challenge decisions affecting their legal rights.

Therefore, any AI system used by Bangladeshi courts should incorporate explainable AI (XAI) principles that allow judges and litigants to understand the reasoning behind algorithmic outputs.

Judicial Independence

Judicial independence is one of the cornerstones of the rule of law. Although AI can assist judges by providing legal research, identifying precedents, and managing cases, it should never replace judicial discretion. Judges must remain free to accept or reject AI-generated recommendations based on legal reasoning and the facts of each individual case (Sourdin, 2021).

Accordingly, AI should function only as a decision-support tool, while final judicial authority must always remain with human judges.

Data Privacy and Cybersecurity

AI applications require access to substantial amounts of judicial data, including personal information, court records, witness statements, and digital evidence. Without appropriate safeguards, these data may become vulnerable to unauthorized access, cyberattacks, or misuse (OECD, 2019). Protecting sensitive judicial information is therefore essential for maintaining public confidence in digital justice systems.

Bangladesh currently lacks a comprehensive data protection law specifically addressing AI governance, making privacy regulation an important area for future legislative reform.

COMPARATIVE ANALYSIS

A comparative analysis demonstrates that several jurisdictions have already developed regulatory frameworks for the responsible use of Artificial Intelligence within judicial systems.

European Union

The European Union has taken a global leadership role in regulating AI through the EU Artificial Intelligence Act, which adopts a risk-based approach to AI governance (European Union, 2024). Under this framework, AI systems used within judicial administration are classified as high-risk systems because they directly affect fundamental rights. Such systems must satisfy strict requirements concerning transparency, human oversight, accuracy, accountability, and risk management. The European approach illustrates how technological innovation can be balanced with the protection of constitutional rights.

United Kingdom

The United Kingdom has increasingly incorporated AI into court administration, particularly for document management, legal research, and administrative efficiency. However, judicial decision-making continues to remain under human supervision. British courts emphasize that AI should support not replace judicial reasoning, thereby preserving judicial independence and public confidence (Judiciary of England and Wales, 2023).

Singapore

Singapore has emerged as one of the leading jurisdictions in digital justice. The judiciary employs AI-assisted technologies for legal research, court scheduling, document automation, and case management while maintaining robust ethical guidelines and judicial oversight (Supreme Court of Singapore, 2023). Singapore's experience demonstrates that careful planning and institutional capacity-building are essential for successful AI integration.

Lessons for Bangladesh

The experiences of these jurisdictions provide several important lessons for Bangladesh:

- AI should be introduced gradually through pilot projects before nationwide implementation.
- Comprehensive AI legislation should establish clear rules concerning accountability, transparency, and human oversight.
- Judicial officers require specialized training regarding AI technologies and digital evidence.
- Independent regulatory mechanisms should monitor AI applications used within the justice sector.
- Human judges must retain ultimate authority over every judicial decision.

By adopting these lessons, Bangladesh can modernize its justice system while ensuring compliance with constitutional principles and international best practices.

FUTURE PROSPECTS OF AI IN BANGLADESH'S JUSTICE SYSTEM

Despite existing legal and institutional challenges, Artificial Intelligence possesses considerable potential to improve the administration of justice in Bangladesh. If implemented responsibly, AI could significantly reduce case backlogs, improve court efficiency, strengthen legal research, and expand access to justice.

Potential future applications include:

- AI-assisted legal research for judges and lawyers;
- Intelligent case allocation and scheduling systems;
- Automated transcription of court proceedings;
- AI-powered translation services for multilingual litigation;
- Digital evidence management;
- Online dispute resolution (ODR) platforms supported by AI;
- Predictive case management to reduce judicial delay.

The successful implementation of these technologies, however, will depend upon comprehensive legal reforms, judicial training, institutional capacity, robust cybersecurity measures, and strong ethical governance. AI should therefore be viewed not as a replacement for judges but as an

innovative tool capable of supporting a more efficient, transparent, and accessible justice system.

CHALLENGES TO THE IMPLEMENTATION OF AI IN THE ADMINISTRATION OF JUSTICE IN BANGLADESH

Although Artificial Intelligence (AI) offers significant opportunities for improving judicial administration, its successful implementation in Bangladesh is likely to encounter several legal, institutional, technological, and socio-economic challenges.

Absence of a Comprehensive Legal Framework

One of the primary obstacles is the absence of a comprehensive legal framework governing AI. Existing laws, including the Information and Communication Technology Act, 2006 and the Cyber Security Act, 2023, regulate certain aspects of digital technologies but do not specifically address AI governance, algorithmic accountability, automated decision-making, or liability arising from AI-assisted judicial processes (UNESCO, 2021). Consequently, courts lack clear legal guidance regarding the permissible scope and limits of AI applications.

Inadequate Technological Infrastructure

The effective implementation of AI requires reliable digital infrastructure, secure databases, cloud computing facilities, and advanced cybersecurity mechanisms. Although Bangladesh has made notable progress in judicial digitalization, many district courts continue to face inadequate technological resources, unstable internet connectivity, and limited digital facilities. These infrastructural limitations may significantly hinder the widespread adoption of AI within the judiciary.

Limited Technical Expertise

Another major challenge is the shortage of professionals possessing expertise in both law and Artificial Intelligence. Judges, lawyers, prosecutors, and court officials generally

receive limited training regarding AI technologies, algorithmic decision-making, and digital evidence. Without continuous professional education and institutional capacity-building, AI systems may be underutilized or improperly applied, thereby reducing their effectiveness (OECD, 2019).

Public Trust and Acceptance

The legitimacy of judicial decisions depends largely upon public confidence in the justice system. If litigants perceive AI-generated recommendations as biased, inaccurate, or incomprehensible, public trust may decline. Therefore, transparency, explainability, and meaningful human oversight are essential prerequisites for ensuring public acceptance of AI-assisted judicial processes (CEPEJ, 2018).

Cybersecurity Risks

Judicial institutions maintain highly sensitive personal information, confidential legal documents, and digital evidence. AI-powered judicial systems may become targets of cyberattacks, unauthorized access, ransomware, or data manipulation. Effective cybersecurity policies and robust data protection measures are therefore indispensable for safeguarding judicial integrity and protecting individual privacy.

RECOMMENDATIONS

To facilitate the responsible integration of Artificial Intelligence into Bangladesh's justice system, the following recommendations are proposed:

1. Bangladesh should adopt a dedicated Artificial Intelligence Act establishing clear legal principles relating to transparency, accountability, explainability, human oversight, and liability for AI-assisted decision-making.
2. The Supreme Court, in collaboration with relevant government agencies, should formulate ethical guidelines governing the use of AI within courts and judicial administration.
3. Regular training programmes should be introduced to enhance judges', lawyers', prosecutors', and court officials'

- understanding of AI technologies, digital evidence, cybersecurity, and algorithmic accountability.
4. AI should function solely as a decision-support mechanism. Final judicial decisions must always remain under the authority of independent judges exercising their own legal judgment.
 5. Comprehensive legislation governing personal data protection and judicial information security should be enacted to safeguard confidential court records and maintain public confidence.
 6. Before nationwide implementation, AI applications should be tested through carefully monitored pilot projects in selected courts to evaluate their effectiveness, accuracy, and compliance with constitutional principles.
 7. Bangladesh should collaborate with international organizations, academic institutions, and technologically advanced jurisdictions to adopt international best practices concerning AI governance and judicial modernization.

CONCLUSION

Artificial Intelligence has the potential to fundamentally transform the administration of justice by improving judicial efficiency, reducing case backlogs, strengthening legal research, and enhancing access to justice. As demonstrated by developments in the European Union, Singapore, and the United Kingdom, AI can serve as an effective tool for supporting judicial administration when accompanied by appropriate legal safeguards and institutional oversight. For Bangladesh, the adoption of AI represents both an opportunity and a challenge. Although important progress has been achieved through judicial digitalization, the country remains at an early stage of AI integration. The absence of a comprehensive regulatory framework, limited technological infrastructure, concerns regarding algorithmic bias, privacy, cybersecurity, and judicial independence continue to present significant barriers to implementation.

This study argues that Artificial Intelligence should complement rather than replace human judges. Judicial reasoning, constitutional interpretation, and the exercise of

judicial discretion remain inherently human functions that cannot be delegated entirely to automated systems. Accordingly, AI should be utilized only to enhance administrative efficiency and decision-support while preserving judicial independence, due process, and the rule of law. Ultimately, the future of AI in Bangladesh's justice system will depend upon the development of a transparent, accountable, and human-centred regulatory framework. Through comprehensive legal reform, institutional capacity-building, robust ethical safeguards, and meaningful judicial oversight, Bangladesh can harness the benefits of Artificial Intelligence while ensuring that technological innovation remains fully consistent with constitutional values and internationally recognized human rights standards.

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