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**ARTIFICIAL INTELLIGENCE AND ESG REPORTING IN EMERGING
ECONOMIES: CHALLENGES, OPPORTUNITIES, AND THE CASE OF
UZBEKISTAN**

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Abstract: *The fast-paced development of artificial intelligence technology has had an impact on how companies approach sustainability reporting and ESG disclosures. This paper explores the potential of AI as a tool for making ESG reporting more accurate, transparent, and efficient, especially in the case of developing countries such as Uzbekistan. It was found that while AI brings a number of benefits to ESG reporting, including automation, predictive analytics, and sustainable real-time monitoring, there are still a number of issues, including governance issues, lack of ethical regulation, increased energy consumption, and data accuracy. In conclusion, developing nations should consider strengthening their institutions, digital capabilities, and IFRS Sustainability Disclosure Standards for maximum benefit.*

Keywords: *artificial intelligence, ESG reporting, IFRS S1, IFRS S2, sustainability disclosure, Uzbekistan, emerging economies, corporate governance.*

INTRODUCTION

The global shift towards sustainable economic development makes Environmental, Social and Governance (ESG) reporting essential for organizations. In addition, AI-based technologies are changing financial analytics, corporate governance, and sustainability disclosure practices. International investors need transparent and comparable information about companies' sustainability disclosed in real-time; therefore, companies incorporate AI-based technologies into their ESG reporting.

According to the International Monetary Fund (IMF), AI technologies can increase the global GDP by approximately 0.5 percent annually during the period from 2025 to 2030, regardless of increased energy consumption linked to AI technologies.[1] Meanwhile, international sustainability reporting standards such as IFRS S1 and IFRS S2 created by the International Sustainability Standards Board (ISSB) become international standards in the field of sustainability disclosures.[2]

For emerging economies, incorporating AI technologies in the ESG system becomes more difficult due to institutional factors, unequal access to technology, and lack of relevant regulations. Therefore, Uzbekistan becomes a country that deserves special attention due to rapid economic reforms, digitalization, and willingness to attract foreign investments.

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This article aims to assess the effect of AI on ESG reporting in emerging economies and identify opportunities and risks associated with AI adoption in sustainability disclosure systems.

Literature Review. When we look at what other people have studied we can see that there is a connection between international reporting standards, the quality of corporate governance and how transparent companies are. For example in countries that are still developing using International Financial Reporting Standards (IFRS) makes the market work better. Companies are more open about what they are doing.[3]

Lately people who study these things have been looking into how Artificial Intelligence (AI) can be used for Environmental, Social and Governance (ESG) reporting. Xu said in 2024 that AI makes a difference in how companies assess risks analyze sustainability and make reports especially for banks.[4] Lee and his team also made a framework in 2024 to see how AI affects ESG reporting. They found out that when AI is used in a responsible way investors trust companies more and companies are better at taking care of sustainability.[5]

At the same time some experts are warning us about the problems that can come with using AI. According to Reuters and the International Monetary Fund (IMF) many countries do not have rules in place to make sure AI is used in a responsible way.[6] Also as AI is used more and more it uses a lot of electricity and produces a lot of carbon emissions because of the big data centers that are needed.[7]

Some studies have shown that in emerging economies companies are not very ready to report on sustainability and they are not following the IFRS S1 and IFRS S2 standards well. However when companies do use reporting standards they usually become more transparent have better governance and investors trust them more. This is what happens when companies use reporting standards like IFRS and it is good for Environmental, Social and Governance (ESG) reporting and for Artificial Intelligence (AI) applications, in this area.[9]

Methodology. This research uses an analytical approach to study international sustainability reporting and AI adoption trends.

The study is based on:

- statistics from the IMF;
- publications from the IFRS Foundation;
- analytical reports from Reuters;
- academic articles that have been peer-reviewed;
- studies on sustainability and governance in emerging economies.

The research method involves:

- comparing AI and ESG adoption trends;
- evaluating how IFRS sustainability disclosures are implemented;
- analyzing challenges in emerging markets;
- interpreting case studies for Uzbekistan.

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The research covers data from 2024 to 2026. Recent developments, in sustainability disclosures.

Results.

1. AI Applications in ESG Reporting

Artificial intelligence improves ESG reporting in several strategic areas:

Table 1

AI applications in ESG reporting systems

AI Function	ESG Reporting Impact	Practical Outcome
Machine learning analytics	Detection of sustainability risks	Improved risk management
Natural language processing	Automated disclosure preparation	Reduced reporting costs
Predictive analytics	Climate scenario forecasting	Better investment planning
Real-time monitoring	Continuous ESG data collection	Higher transparency
Fraud detection systems	Identification of greenwashing	Increased reporting reliability

AI technologies enable corporations to process large volumes of sustainability data significantly faster than traditional reporting methods. Thomson Reuters reports that AI adoption is increasingly viewed as a solution to ESG data management challenges under the EU Corporate Sustainability Reporting Directive (CSRD).[10]

2. Global ESG and AI Development Trends

The growing integration of AI into sustainability reporting has generated both economic benefits and environmental concerns.

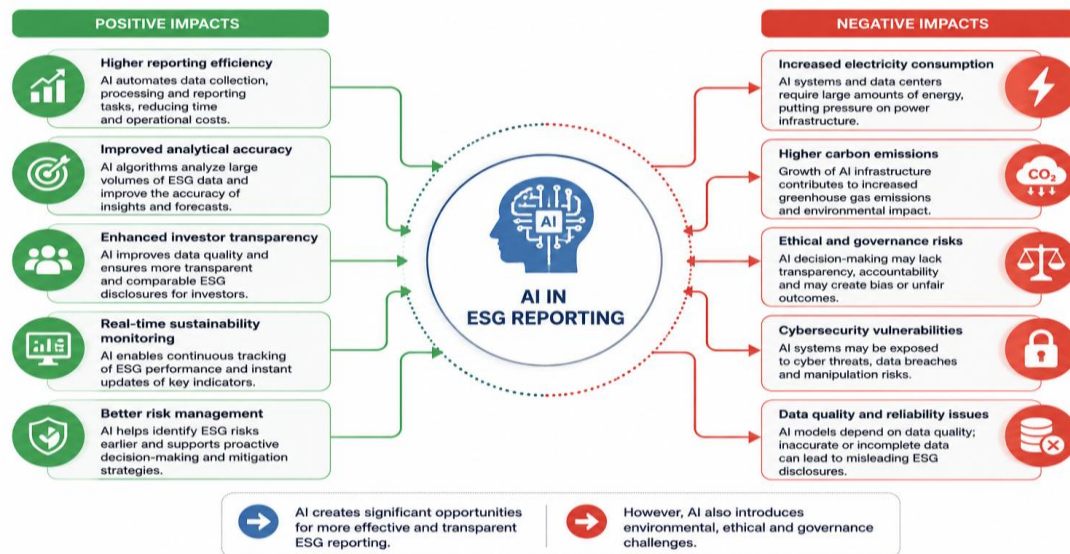


Figure 1 — Major effects of AI on ESG reporting

This figure demonstrates the effect that artificial intelligence can have when used for ESG reporting, showing the positive influence of AI as well as the systemic risks associated with its use.

While AI can act as a catalyst that can help improve ESG reporting significantly, it must be noted that AI will bring significant benefits to sustainability reporting only under certain conditions, namely through the establishment of governance practices, sustainable technology infrastructure, and effective data security.

3. IFRS Sustainability Standards and Emerging Markets

The introduction of IFRS S1 and IFRS S2 created a unified framework for sustainability disclosures. The IFRS Foundation emphasizes that these standards establish a globally comparable sustainability reporting baseline.[12]

Research on emerging markets demonstrates that implementation readiness remains uneven because of technological, institutional, and governance limitations.[13]

4. Uzbekistan’s Position in AI and Sustainability Transformation

Uzbekistan has recently accelerated economic reforms and digital transformation initiatives. According to the IMF, Uzbekistan’s GDP growth reached approximately 6.5% in 2024, supported by structural reforms and investment expansion.[14] In 2025, Uzbekistan announced plans to create a tax-free AI investment zone to attract foreign investors into artificial intelligence and digital infrastructure projects.[15]

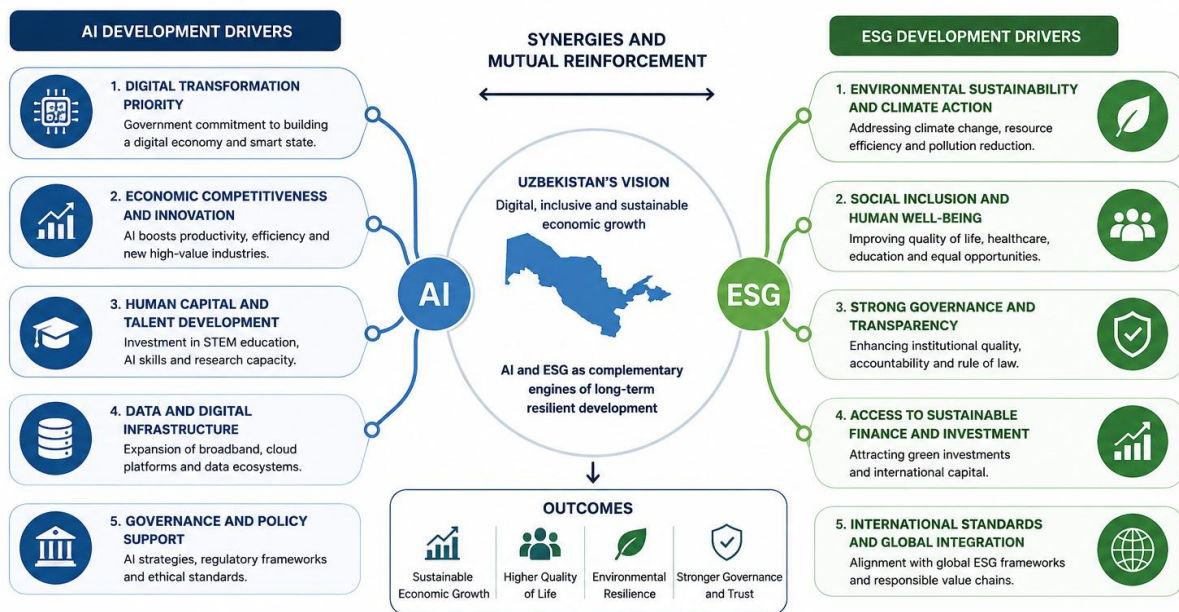


Figure 2 — Strategic drivers of AI and ESG development in Uzbekistan

AI and ESG are mutually reinforcing strategic drivers for Uzbekistan. AI accelerates innovation, efficiency and data-driven decision-making, while ESG ensures that growth is sustainable, inclusive and well-governed. Together, they create a foundation for a competitive, resilient and future-ready economy.

However, significant barriers remain:

Table 2

Main barriers to AI-driven ESG reporting in Uzbekistan

Challenge	Impact on ESG Development
Limited AI infrastructure	Weak data processing capabilities
Regulatory gaps	Reduced investor confidence
Lack of ESG expertise	Low reporting quality
High energy demand	Environmental sustainability risks
Incomplete disclosure frameworks	Reduced international comparability

To build a resilient and future-ready economy, Uzbekistan must prioritize infrastructure development, establish robust regulatory frameworks, and invest in local ESG expertise to successfully mitigate these risks and unlock the full potential of AI-driven sustainability reporting.

5. Statistical Analysis

New findings from international research show that about 72 percent of companies listed on the S&P 500 revealed their governance of artificial intelligence (AI) in 2025, while just 12 percent did so in 2023.[16] Global energy usage for AI could increase threefold between 2023 and 2030.[17] Over 90 percent of cross-listed emerging-market firms now obtain external assurance for sustainability reporting.[18]



Diagram 1 — Growth of AI-related sustainability disclosures (2023–2025)

Statistics show a fast pace of development of AI governance and sustainability reporting practices on international markets.

Discussion. Indeed, the results prove that the use of AI technology has turned out to be transformative within ESG reporting system. It raises the level of disclosure, increases its accuracy, and allows conducting sustainability management in real time mode. As for emerging countries, their use of AI can be beneficial for accessing the global capital market.

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Nonetheless, there are risks in terms of AI governance, as lack of regulations creates governance issues and raises moral concerns. In addition, implementation of such technology results in higher energy consumption and CO2 emissions, which contradicts sustainability goals and targets.

As for Uzbekistan, it has all the prerequisites for adopting the technology within sustainability reporting system, but for achieving international competitiveness in ESG reporting, the following measures should be taken:

1. implementation of IFRS sustainability standards;
2. governance regulation of AI;
3. developing renewable energy;
4. expanding ESG education and training;
5. raising transparency.

The paper confirms the need for including responsible AI governance in sustainability policy.

Conclusion. AI is revolutionizing the sustainability reporting framework worldwide. AI enhances sustainability reporting data, streamlines analysis techniques, and ensures transparent information reporting mechanisms. At the same time, AI poses novel governance, ethical, and environmental challenges necessitating regulation.

The potential for developing nations such as Uzbekistan to leverage artificial intelligence to enhance sustainability reporting is enormous. This will contribute to increased transparency, international harmonization, and investor confidence. However, successful implementation will depend on regulatory preparedness and digitalization, among other factors.

Thus, the incorporation of AI into the sustainability reporting process must be considered not just a technical revolution but also part of sustainable economic development and corporate governance reforms.

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