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Examining Diplomacy for Environmental Sustainability in Interaction with Artificial Intelligence

[1]Prof, Dr. Mohammad Ekram YAWAR, [2]Dr. Ramazan Ahmadi, [3]Muaiyid Rasooli PhD, [4]Lec. Abdul Jamil Sharify

https://orcid.org/0000-0003-3198-5212 https://orcid.org/0000-0002-8299-7080 https://orcid.org/0009-0000-8968-8910
https://orcid.org/0009-0001-0727-6726

[1]Dean of the Faculty of Law, International Science and Technology University, Warsaw, Poland

[2]Department of Sociology, Faculty of Social Sciences, Bamyan University, Afghanistan.

[3]School of Law, Xi'an Jiaotong University.

[4]Head of Department of Management Information Systems, International Science and Technology University, Warsaw, Poland.

***Corresponding Author :Prof, Dr. Mohammad Ekram YAWAR**

"Dean of the Faculty of Law, International Science and Technology University, Warsaw, Poland"

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Abstract: Today's world is witnessing the confrontation between new technologies and the developing biosphere. The role of this confrontation is played by artificial intelligence on the one hand and the inhabitants of the biosphere on the other. In fact, artificial intelligence provides the ability of a system to correctly interpret external data and create the basis for its use to achieve specific goals and tasks through flexible adaptation.

In this regard, citizens of the global community voluntarily experience the ground for entering this technological space. While from one perspective this two-way interaction can be a positive experience and environmental protection can be successfully carried out, from another perspective, excessive reliance on this technology may disrupt the field of international interactions.

The present study is based on up-to-date studies and sources and is written in a descriptive manner.

This study takes an introductory look at the process of technological diplomacy for environmental protection through regional and international interactions.

Keywords: *Environmental Diplomacy, Artificial Intelligence, Sustainable Development, Resilience.*

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Introduction

Artificial intelligence technology is widely used in all industrial and scientific fields. The increasing use of artificial intelligence in the 21st century affects social and economic changes, including the increased use of automated systems, data-driven decision-making, and the integration of artificial intelligence systems in various sectors and areas of the economy, including the labor market, healthcare, industry, and education.

Over the past few years, significant progress has been made in the field of artificial intelligence, which has increasingly become a part of our daily lives.These developments are expected to have an impact on various political, economic, social, diplomatic, and infrastructure areas, and are increasingly being paid attention to by governments, the international community, and private sector actors around the world.This process can help in the field of global diplomacy as an effective tool.

Artificial intelligence diplomacy focuses on the impact of artificial intelligence on geopolitics, diplomatic work, and diplomacy.In the field of geopolitics, countries with advanced AI can exert greater military, economic, and social power.

AI is also a topic on the diplomatic agenda, where various agreements and treaties are negotiated.Finally, AI is a practical tool in diplomacy, used to support decision-making, drafting, translation, negotiation support, and analysis of future trends and developments.

A closer look is necessary because AI will have a significant impact on international relations, considering issues such as placing new issues on the international agenda, challenging geostrategic relationships, serving as a tool for diplomats and negotiators, and creating new opportunities and concerns for the protection of human rights.

Policy Implications of Artificial Intelligence

Artificial intelligence has significant potential for economic growth. Artificial intelligence systems used in manufacturing processes bring about automated systems. They also make processes smarter, faster, and cheaper, leading to savings and increased efficiency.

There is concern that automated systems will make some jobs obsolete and lead to unemployment. However, from one perspective, advances in AI will create new jobs that will replace lost jobs without affecting the overall employment rate (Diplo, 2024).

Applications of AI in the physical world (e.g., in transportation) raise issues of human safety and the need to design systems that can respond appropriately to unforeseen situations and have minimal unintended consequences. AI also has implications for cybersecurity. On the one hand, there are cybersecurity risks specific to AI systems; on the other hand, AI is applied in cybersecurity, such as filtering spam, identifying serious cybersecurity vulnerabilities, and countering cyber threats.

AI systems work with huge amounts of data, which raises concerns about privacy and data protection. Such concerns illustrate the increasingly important interaction between AI and big data. Developers of AI systems are asked to ensure the integrity of the data used and to embed privacy and data protection guarantees in AI applications.

In this regard, it is recommended that this technology not undermine ethics, fairness, justice, transparency, and accountability.Therefore, when the discussion of AI governance was raised, it became clear that this issue requires legal and supervisory frameworks that must be applied at national, regional, and international levels (Taibi, 2017, 38).

The Role of Artificial Intelligence in Diplomacy

It seems that artificial intelligence can help diplomats monitor a wide range of foreign media news in different languages at times to become aware of emerging political risks and changes. However, there is a point to consider: artificial intelligence cannot play the role of a diplomat.In other words, artificial intelligence can be a useful tool for diplomats, but diplomacy requires human skills such as building trust and making difficult decisions that artificial intelligence is not able to perform. In this regard, certain human elements such as empathy and emotional intelligence, creativity and innovation, interpersonal communication, and delicate and complex decision-making are not replaceable by artificial intelligence.However, the most important capacity of artificial intelligence is that it can help diplomats in negotiations.

Tools	How to act
Data analysis	Artificial intelligence tools can quickly analyze large amounts of data and provide insights that can help negotiators better understand each party's strengths and weaknesses and develop strategies.
Language processing	AI can recognize language patterns and identify key topics and issues, which can help diplomats identify areas of agreement and develop strategies to overcome obstacles.
Scenario modeling	AI can simulate different scenarios and provide predictions about the likely outcomes of different negotiation strategies. This can help diplomats develop contingency plans.
Immediate support	Artificial intelligence can support real-time negotiations by providing real-time analysis and recommendations based on conversations. Using the power of AI and language processing, negotiators can gain a deeper understanding of the negotiation process and develop strategies to achieve their goals.
Foresight	AI also has the potential to help diplomats in other areas, such as predictive modeling and cultural understanding.

However, it is important to note that the human element of negotiation, such as building rapport, understanding nonverbal cues, and managing emotions, will continue to be important factors in successful negotiations.

Therefore, AI cannot build the trust and relationships that are essential for effective diplomacy, and AI cannot replicate personal interaction, active listening, and empathy. While AI can provide data and analysis, it cannot always fully conduct negotiations, which require an understanding of the historical, cultural, and political nuances of the negotiation context that are key to successful outcomes (Alexis, 2024: 3).Ultimately, diplomacy requires decision-making. While AI can provide information and ideas, it cannot make decisions on behalf of diplomats, and AI is not capable of making specific, complex decisions.

Artificial Intelligence and International Interactions

Diplomacy is usually used as a driving tool for real-world negotiations and provides methods to achieve its goals. Strengthening communication for presence in the negotiation space is also on the agenda, which results in international documents.

This approach has its roots in international relations, which has always been a complex and tense environment that requires quick and accurate decision-making. Also, the international nature of many issues necessitates this need to be considered in global processes (Tayyib Namian, 2023, 14).

Artificial intelligence in this field can play various roles, including data analysis, predicting different scenarios, and helping decision-

makers in this field.In foreign policy, artificial intelligence can be used as an assistant in diplomatic affairs and diplomacy of countries.

Today, with the increase in the volume of data, we are faced with the limitations of the human mind to analyze a large amount of changing at an ever-increasing pace and requires instant responses and decisions, and has provided the opportunity for dramatic changes in international computing (Marwala & Ndzendze, 2023, 78).

However, this technological support also brings risks. One of the important risks of this phenomenon in the field of international relations is a new form of imbalance called the "global digital divide," in which some countries benefit from the benefits of artificial intelligence while others are left behind. For example, estimates for 2030 show that North America and China are likely to experience the greatest economic gains from artificial intelligence, while developing countries (with lower rates of adoption of artificial intelligence) will register moderate economic growth. Artificial intelligence may also change the balance of power between countries.

In this regard, there are concerns about a new arms race, especially between the United States and China, and the need to master AI. Although, without a doubt, AI will also have a significant impact on international relations, such as putting new issues on the international agenda, challenging geostrategic relationships, serving as a tool for diplomats and negotiators, and creating new information.Decision-makers, especially in foreign policy institutions, can move directly to the judgment and decision-making stage in their diplomatic interactions and negotiations by delegating computationally time-consuming tasks to an intelligent assistant. This time-saving feature is significant in a world that is

opportunities and concerns on human rights issues (Salemi, 2023, 2).

Artificial Intelligence and the Environment

Artificial intelligence can help combat climate change by examining data on greenhouse gas emissions, weather patterns, and other environmental factors. This can help inform policies and strategies to reduce greenhouse gas emissions and mitigate the effects of climate change.

In this regard, all types of climate resilience and climate adaptation also benefit from AI. AI can also be used for complex analysis and tracking progress on pollution prevention or waste reduction goals, such as those related to air quality and companies' carbon footprints.

Therefore, AI can contribute to environmental sustainability by reducing energy consumption. It can also study energy consumption patterns and provide insights into reducing and improving consumption.

In this regard, several benefits of AI for environmental sustainability can be listed (Genghini, 2023, 5).

Advantages	Approaches
Energy efficiency	Artificial intelligence can help improve energy efficiency in buildings and industries by predicting energy consumption patterns and optimizing energy use. It can also identify areas of energy waste and suggest ways to reduce it.

Advantages	Approaches
Renewable Energy	Artificial intelligence can help develop renewable energy sources such as wind and solar power by predicting energy production, optimizing performance, and improving maintenance.
Smart grids.	Artificial intelligence can help create smarter energy grids by analyzing data from sensors, meters, and other devices. This can help utilities better manage electricity supply and demand, reduce energy waste, and improve reliability.
Sustainable Agriculture	Artificial intelligence can help sustainable farming practices by analyzing soil data, predicting crop yields, and identifying pest and disease outbreaks. This can help farmers optimize their crop production while reducing the use of pesticides and fertilizers.
Waste Management	Artificial intelligence can help improve waste management by analyzing data related to waste generation, collection, and disposal. This can help cities and municipalities optimize their waste management systems, reduce waste, and increase recycling rates.
Water Management	Artificial intelligence can help by studying data on water consumption, quality, and availability

Advantages	Approaches
	Help with water management. This can help cities and municipalities better manage water resources, reduce water waste, and improve water quality.
Climate Change	Artificial intelligence can help combat climate change by examining data on greenhouse gas emissions, weather patterns, and other environmental factors. This can help inform policies and strategies to reduce greenhouse gas emissions and mitigate the impacts of climate

	change.
Biodiversity Conservation	Artificial intelligence can help conserve biodiversity by examining data on species populations, habitats, and threats. This can help inform conservation strategies and improve our understanding of the complex relationships between different species and the conservation of their biodiversity. Artificial intelligence for environmental sustainability uses advanced algorithms to analyze biodiversity data and track changes in ecosystems. This technology plays an important role in the protection and conservation of vital natural habitats.

Sustainable Development Goals and Artificial Intelligence

Artificial intelligence can play a significant role in achieving the Sustainable Development Goals adopted by the United Nations in 2015. The Sustainable Development Goals aim to end poverty, protect the planet, and ensure prosperity for all.

Artificial intelligence can help achieve these goals by improving efficiency, reducing waste, and promoting innovation across sectors. For example, AI can help improve access to healthcare and education, reduce poverty, and boost economic growth.

It can also help achieve environmental goals such as reducing greenhouse gas emissions, preserving biodiversity, and promoting the sustainable use of natural resources. However, organizations must carefully manage the adoption of AI to ensure that they avoid negative impacts on sustainable development. This includes ensuring that AI is used ethically and responsibly, protecting privacy and security, and extending benefits to all, including marginalized communities.

In this regard, AI-supported sustainability may face risks (Flanagan, 2023, 5)

Risks	Approaches
Energy Consumption	AI systems require significant energy for operation and model training, which contributes to greenhouse gas emissions. As the use of AI expands, it is crucial to prevent increased energy consumption and greenhouse gas emissions. Striking a balance between AI growth and environmental sustainability is crucial.
E-waste	The development and use of AI technologies can contribute to e-waste, which can have harmful environmental impacts. To minimize e-waste, it is crucial to design AI hardware and components for durability, repairability, and recyclability.
Bias and Discrimination	If AI systems are trained on biased or incomplete data, they can perpetuate bias and discrimination. This can have negative social and ecological impacts by perpetuating inequalities and contributing to environmental injustices.
Privacy and Security	AI systems often rely on personal data and, if not properly protected, can compromise individuals' privacy and security. This can have negative impacts on social and environmental well-being.
Job Displacement	The use of AI technologies could lead to job displacement, particularly in industries such as manufacturing and transportation. This could have negative social and economic impacts, especially in communities that rely on these industries.
Dependence on Technology	As the use of artificial intelligence continues to grow, there is a danger of over-reliance on technology. By reducing human interaction with the natural environment and contributing to social isolation, artificial intelligence may hinder our ability to create sustainable and inclusive societies.

The Role of Artificial Intelligence in Environmental Regulations

Environmental regulations are complex, time-consuming, and costly, and artificial intelligence can help make regulations more efficient and effective. In this regard, some cases can be listed.

A. Predicting environmental risks is one of the cases that can help executive institutions prepare for possible incidents and respond more quickly and effectively. For example, predicting oil spills or natural disasters. This is notable in the context of the precautionary and preventive principles (Collins, 2023, 7).

B. Informing policy decisions, where AI can help identify areas for improvement.
For example, in assessing the impact of proposed policies and laws by simulating different scenarios and predicting outcomes.This is also important in terms of informing and assessing environmental impacts.

C. Monitoring compliance with environmental laws is another area of discussion in this context.
One of the key benefits of AI in monitoring compliance with environmental laws is its ability to facilitate real-time monitoring and enforcement. AI systems can be used to maintain air and water quality and detect illegal dumping of waste. By providing real-time data, AI can help enforcement agencies quickly identify areas that need intervention, leading to more effective and efficient enforcement efforts.

It is clear that this poses challenges for enforcement agencies in terms of prioritizing performance objectives, allocating resources, creating a reputation for location and management. For example, data analysis of drone footage, satellite images, and social media posts (Genghini, 2023, 8).

It seems that environmental regulations, whether in the form of domestic laws or international treaties, have never taken a developmental and technological perspective into account and have usually focused on scientific research for the future. Artificial intelligence is also considered one of these technological perspectives, which was mentioned in this discussion.

Conclusion

To realize environmental protection in the diplomacy process, it is essential to develop and use AI technologies responsibly, focusing on sustainability, equity, and social and environmental well-being. To achieve this goal, it is important to invest in research and development to minimize the environmental impact of AI.

Furthermore, the design of AI systems must be prioritized to ensure access for all users, regardless of their background or abilities.Privacy and security must also be protected to maintain public trust in AI systems.

Implementing effective measures requires organizations to ensure that decision-makers understand the risks and benefits of AI in sustainability strategies.This awareness-raising should reach all levels and involve managers and employees who play a key role in integrating sustainability into daily operations. By providing training to increase awareness of sustainability issues, organizations can foster a culture based on the responsible use of AI.

This culture, with its focus on responsibility and sustainability, brings benefits not only to the company but also to society as a whole.Ultimately, real people who prioritize sustainability and social responsibility should guide the powerful tool that is AI.By integrating these values into the development and use of AI technologies, we can ensure that they contribute to a more sustainable and equitable future for all.

All of this can be effective in preserving the biosphere. This tool can also be considered a strong arm for environmental diplomacy.In this regard, it should be acknowledged that regulatory and supervisory mechanisms, both at the national and international levels, can provide the basis for the benefit and efficiency of AI, which will have a positive impact on the upcoming normative framework.

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