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Public Perception of Artificial Intelligence and Its Role in Achieving the Sustainable Development Goals

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Abstract

Artificial Intelligence (AI) has emerged as a transformative force with the potential to drive progress toward the United Nations' Sustainable Development Goals (SDGs). By addressing global challenges in healthcare, education, climate action, and economic development, AI can significantly contribute to sustainable solutions. However, public perception of AI remains multifaceted, shaped by both optimism and apprehension. While AI is recognized for enhancing problem-solving capabilities, improving efficiency, and elevating the quality of life across industries, concerns persist regarding privacy, ethics, algorithmic transparency, and job displacement. These mixed perceptions influence AI adoption and its integration into sustainability-driven initiatives. This paper examines public attitudes toward AI within the context of specific SDGs, drawing on recent research and public opinion data. It highlights the opportunities AI presents, the challenges it faces, and strategies for fostering trust, ensuring transparency, and promoting ethical AI policies. Establishing public trust is paramount for AI to be widely embraced as a reliable tool in achieving the SDGs, thus paving the way for a more inclusive, ethical, and sustainable future.

Keywords: Artificial Intelligence, Sustainable Development Goals, Public Perception, Data Privacy, Ethics

Introduction

Artificial Intelligence (AI) has become a defining feature of the 21st century's technological transformation, revolutionizing every sector from agriculture to aerospace. As the world grapples with urgent global challenges, AI has positioned itself as a powerful enabler of the Sustainable Development Goals (SDGs) established by the United Nations (Nahar, 2024). Its capabilities span automating complex processes, analyzing large datasets, predicting outcomes, and optimizing systems in ways that human cognition alone cannot achieve. However, the rapid advancement and integration of AI have provoked widespread discussions on how society perceives, accepts, and regulates this emerging force. Public perception plays a critical role in shaping the adoption, ethical deployment, and long-term sustainability of AI technologies (Moch, 2023). While the promises of AI evoke hope for a smarter and more equitable future, concerns about algorithmic bias, transparency, surveillance, and job automation have led to cautious optimism. These perceptions are not uniform across regions, demographics, or professional sectors, reflecting varied experiences and expectations. Hence, a good understanding of these perceptions is essential in navigating the social dimensions of AI and ensuring its alignment with humanity's broader developmental aspirations.

This paper explores the intersection of public perception, artificial intelligence, and sustainable development. It aims to clarify core concepts, analyze the evolution of AI, investigate current public sentiments, and propose strategic directions for aligning AI with ethical norms and global development goals.

Conceptual Clarifications

Public perception:

Public perception refers to the collective opinion or social consensus on a given topic, shaped by media representation, cultural values, education, lived experiences, and

institutional narratives (ref). In the context of AI, Seth, (2024) described public perception as what encapsulates how people understand, feel about, and respond to its applications and implications.

Artificial Intelligence:

AI is a multidisciplinary field within computer science that seeks to create systems capable of performing tasks that typically require human intelligence (Duan et al., 2019). These tasks include learning, reasoning, decision-making, visual recognition, and natural language processing. AI can be categorized into Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI), each representing a progression in capabilities and autonomy. AI models, often called predictive models, leverage vast amounts of data, employing machine learning algorithms to analyze patterns and predict outcomes that can support quality decision-making (Mirbabaie et al., 2021).

Sustainable Development Goals (SDGs):

The SDGs are a set of 17 interconnected global objectives adopted by the United Nations in 2015 to address pressing global challenges such as poverty, inequality, climate change, and peace by the year 2030. This paper suggests that AI has the potential to catalyze progress in nearly all of these goals through its transformative impact on education, health, governance, industry, and environmental sustainability.

The Evolution and Concept of Artificial Intelligence

The concept of Artificial Intelligence (AI) dates back to the 1950s when it was defined as the capability of machines to perform tasks traditionally requiring human intelligence. The practical applications of AI are evident in self-driving cars, robotics, conversational AI such as ChatGPT, and image-generation technologies (Jungwirth & Haluza, 2023). AI involves the simulation of human cognitive functions through machines,

enabling them to engage in problem-solving, decision-making, and autonomous learning (Duggal, 2023).

The foundation of AI can be traced to Alan Turing's theoretical framework, introduced in 1937 with the "Turing Machine." This laid the groundwork for computational intelligence. However, early AI applications were constrained by limited processing power. Significant progress was made in the 1980s with the advent of artificial neural networks (ANNs), which emulated the structure of the human brain, facilitating improved machine learning capabilities (Sharma et al., 2020).

John McCarthy formally introduced the term "Artificial Intelligence" in 1955, describing it as "the science and engineering of making intelligent machines, particularly intelligent computer programs" (Gurkaynak et al., 2016). AI is commonly classified into three categories: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI). ANI refers to AI systems designed for specific tasks, AGI denotes AI with human-like cognitive abilities, and ASI represents a level of AI that surpasses human intelligence, sparking both anticipation and ethical concerns (Soviany, 2018).

The integration of AI into various domains, including library systems, has revolutionized information retrieval, improved data accessibility, and enhanced decision-making processes (Oyetola, 2023). As AI technologies continue to evolve, their applications are expected to reshape industries and redefine human-machine interactions.

Public Perception of AI: Opportunities and Concerns

AI's ability to enhance efficiency, precision, and scalability has positioned it as a key driver of innovation. In fields such as healthcare, education, and environmental management, AI has been instrumental in optimizing services and addressing complex global challenges (Brauner et al., 2023). Public attitudes toward AI, however, are shaped by a mix of enthusiasm and skepticism. Araujo et al. (2020) looked at how valuable people thought AI was in three different fields: media, health, and law. Their results indicate that,

in contrast to the automated driving scenario, individuals are generally worried about the dangers of AI and doubt its use and its justice to society. This means that end-user perceptions and risk assessments should be considered at both the individual and societal levels in order to achieve suitable and widespread adoption of AI technology.

On one hand, AI is perceived as a tool capable of improving daily life by enhancing convenience and addressing societal challenges. For example, AI-driven healthcare innovations facilitate early disease detection and personalized treatment plans (Kumar et al., 2023). Similarly, AI-powered educational platforms personalize learning experiences, making education more accessible and effective (Kehinde et al., 2021; Mubarak, 2019). These advancements foster an optimistic outlook on AI's role in sustainable development.

Conversely, concerns persist regarding AI's implications for employment, privacy, and ethics (Varsha, 2023). Automation has led to fears of job displacement, particularly in industries reliant on routine tasks. Additionally, AI systems are often criticized for biases embedded within algorithms, raising ethical concerns about fairness and transparency (Kaplan et al., 2023). Issues such as data privacy and surveillance also contribute to public apprehension, as individuals fear the potential misuse of AI-driven technologies (Varsha, 2023).

To maximize AI's contributions to the SDGs, it is crucial to address these concerns through ethical frameworks, regulatory policies, and public engagement initiatives that promote responsible AI development and deployment.

The Way Forward: To Harness AI's Full Potential while Mitigating its Risks

Several strategic steps must be taken:

1. Ethical Frameworks: Governments and institutions must establish clear ethical guidelines for AI development and deployment, emphasizing fairness, accountability, and transparency.

2. Public Engagement: Awareness campaigns, inclusive policy dialogues, and education initiatives can help bridge the gap between AI developers and the general public, fostering informed discourse.
3. Capacity Building: Investments in digital literacy, especially in low-income and marginalized communities, will empower broader participation in AI-driven economies and governance.
4. International Collaboration: Cross-border cooperation is essential for setting global AI standards and ensuring equitable access to AI technologies and benefits.
5. Monitoring and Evaluation: Continuous assessment of AI impacts, guided by data and feedback loops, can inform adjustments and improvements in policy and practice.

Conclusion

AI's role in shaping the future of sustainable development is undeniable, offering immense opportunities while presenting significant challenges. Public perception remains a critical factor in determining AI's integration into SDG-driven initiatives. Addressing ethical concerns, promoting digital inclusivity, and implementing transparent policies are essential steps toward fostering public trust in AI technologies.

For AI to catalyze sustainable development, stakeholders including policymakers, researchers, and technology developers must engage the public in meaningful discussions, ensuring AI solutions align with societal needs and ethical standards. By promoting responsible AI practices and emphasizing human-centric development, AI can emerge as a transformative force for a more sustainable and equitable future.

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