Artificial intelligence and sustainability: Redefining global practices for a better future

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ABSTRACT Artificial Intelligence (AI) has become a revolutionary phenomenon in achieving sustainability, but the key question is: How can AI be systematically leveraged to reinvent the world's practices in a more sustainable and a better future? The focus of this paper is to research the intersection point of AI, digital transformation, and sustainable systems, address the real-world use and governance structures. The adopted methodology is a mixed methods approach, in which a review of the current literature AI driven sustainability initiatives will be followed by case studies' analysis of industries such as supply chain management, smart agriculture and green manufacturing. An overview of AI focuses on these aspects and provides comparative analysis among the examples of their use to identify opportunities and challenges in implementing sustainability into strategies of technical modernization. The most important results include that the AI allows achieving enormous efficiency improvements by means of predictive analytics, resource optimization, and automation, which results in quantifiable carbon footprints and operational expenses. An example of AI-based supply chain optimization is waste reduction and resilience, which are achieved through AI-based supply chain optimization solutions, and smart agriculture applications, which are used to forecast yields and improve environmental impact. Nevertheless, the study also reveals weaknesses in ethical governance, data transparency, and fair access, which should be overcome to make sure that AI can positively impact the global sustainability objectives. The conclusion highlights the fact that AI is not a technology facilitator but a tactical co-creator for sustainable futures. The point is quite obvious: the adoption of AI as a responsible practice that is regulated by ethical standards and shared governance is needed to strike a balance between innovation and ecological and social responsibility. AI is here to sustain and outlive all other technologies so far for the achievement of the United Nations Sustainable Development Goals (SDGs). The present paper provides practical implications to policy makers, industry players, and scientists interested in using AI to create sustainable practices in the world.

Keywords: Artificial Intelligence, Sustainability, Digital Transformation, Predictive Analytics, Circular Economy, Sustainable Development Goals (SDGs), Ethical Governance.

1. Introduction

1.1 Overview

Artificial Intelligence (AI) has become a disruptive technology in all sectors and has influenced the way societies deal with issues of sustainability. It has been incorporated in the sustainability systems in a paradigm shift towards achieving economic development, environmental preservation, and social justice [1]. The use of AI in predictive analytics, automation, and optimization can help organizations to translate the United Nations Sustainable Development Goals (SDGs) into measurable form [3]. Ranging from AI-based optimization of the supply chain

to lower the waste and increase resilience [9], to smart technologies in agriculture forecasting yield and reducing environmental impact [3], AI-based solutions are implemented in the sphere. Equally, green manufacturing with the help of AI supports the efficient use of resources in production, which reduces carbon footprints [6]. The study places itself at the crossroads of AI, digital transformation, and sustainability and how the three areas can be aligned to rebrand the practices of the globe. It also notes that AI does not only enable the streamlining of processes but is a deliberate co-creator of a sustainable future [4].

1.2 Relevance and Motivation

The rapidity of global sustainability issues such as climate change, loss of biodiversity, and depletion of resources require new solutions to the problem that are not conventional. These issues can be tackled through AI, which allows decision-making using data and creates resiliency in the complicated systems [11]. Industries and policymakers are growing up to find operational frameworks on how to incorporate AI in sustainability efforts. Nonetheless, there are still obstacles in the form of governance, ethical standards, and equitable access [9]. The study is informed by appreciation of the fact that the transformative potential of AI should be exploited in an accountable manner, which means that it should be transparent and inclusive [2].

1.3 Research Problem and Study Objectives

The main research question is:

What is the systematic way of using Artificial Intelligence to rethink the global practices in such a manner that would be sustainable, and find ways to overcome the issues of governance, transparency, and equitable access?

This issue is caused by the disjointed work, ethical issues, and operational problems in the application of AI-based sustainability [8, 9, 11, 12, 15]. Filling in the gap between the potentials of AI and its practical yet ethical and equitable ways is a challenge. The objective of this study is to analyse the intersection of AI, digital transformation, and sustainability [1], while also examining the case studies in supply chain management, smart agriculture, and green manufacturing [2, 4, 14]. This study further seeks to study the influence of AI adopters and evaluate governance structures and ethical frameworks [1, 4, 14], gradually leading to actionable strategies for policymakers and industry leaders [1, 2, 4]. Conclusively, the study aims to contribute to the broader discourse on AI as a purposeful initiator of sustainable futures aligned with the Sustainable Development Goals (SDGs) [11].

2. Literature Review

2.1. Artificial Intelligence and Sustainability

The nexus of Artificial Intelligence (AI) and sustainability has become a focal point of contemporary research, reflecting the urgency of global ecological crises and the transformative potential of digital technologies. Scholars argue that AI is not merely a technological adjunct but a systematic enabler of systemic change. The literature reveals a growing consensus that IT-enabled digital change, when aligned with sustainability imperatives, can redefine industrial practices, governance structures, and societal outcomes.

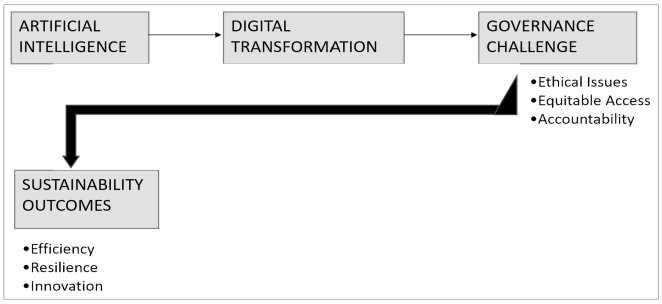

Fig. 1. AI and enterprise digitisation

2.2 Digital Transformation and Sustainability

Digital transformation refers to the integration of advanced technologies into organizational processes to enhance efficiency and innovation for example integrating AI, IoT, blockchain, and cloud computing. Recent studies emphasize that technology-driven restructuring is increasingly being reframed through the lens of sustainability. Technological modernization enables organizations to embed sustainability into operations, shifting from compliance to proactive ecological stewardship. AI-driven digital platforms facilitate circular economy practices by optimizing resource flows and reducing waste [6]. Despite its promise, enterprise digitisation often suffers from fragmented implementation, where sustainability goals are secondary to profit motives [1]. As a whole, scholars argue that IT-enabled organisational change must be holistic, integrating sustainability metrics into performance evaluation rather than treating them as peripheral. This review critically synthesizes existing studies across Digital transformation and sustainability, AI in supply chain optimization, AI in smart agriculture, AI in green manufacturing, Ethical governance and challenges, and AI in supply chain sustainability

2.3 AI in Supply Chain Sustainability

Supply chains are complex, globalized networks that significantly impact carbon emissions and resource use. AI has emerged as a powerful tool for optimizing supply chain sustainability. In terms of Predictive analytics, AI models forecast demand and supply fluctuations, reducing overproduction and waste [6]. AI enhances resilience by identifying vulnerabilities and enabling adaptive responses to disruptions [5, 6]. Gartner's case library illustrates how companies leverage AI to achieve measurable sustainability outcomes, such as reduced emissions and improved logistics efficiency [5]. However, critics caution that AI-driven supply chains risk reinforcing inequalities, as smaller firms may lack access to advanced technologies, creating asymmetries in the global trade [13].

2.4 AI in Smart Agriculture

Agriculture is both a driver of environmental degradation and a sector ripe for sustainable transformation. AI applications in agriculture are often termed as smart farming and those are extensively documented. AI models predict crop yields with high accuracy, enabling better resource allocation and reducing food waste [8, 9]. AI-powered drones and sensors optimize irrigation, fertilization, and pest control, minimizing ecological footprints [10]. Microsoft AI highlights how AI reduces food waste by streamlining agricultural supply chains [13]. Critically, while AI enhances efficiency, scholars warn of data sovereignty issues, where farmers' data is controlled by corporations, raising ethical concerns [10].

2.5 AI in Green Manufacturing

Manufacturing industries contribute significantly to global emissions. AI-driven green manufacturing is increasingly recognized as a pathway to sustainability. AI identifies inefficiencies in production processes, reducing material waste and energy consumption.

AI-enabled additive manufacturing fosters circular design and reduces environmental impact. Scholars argue that AI is central to Industry 4.0, enabling sustainable manufacturing through predictive maintenance and resource optimization [13]. Yet, scholars highlight the social dimension of sustainability, noting that AI-driven manufacturing must also address labor exploitation and equitable access to technology.

2.6 Ethical Governance and Challenges

The literature consistently underscores that AI's sustainability potential is contingent upon ethical governance. Governance frameworks provide a systematic review of AI governance frameworks, emphasizing transparency, accountability, and inclusivity [4]. Global initiatives like UNESCO advocates for ethical AI governance frameworks that align with sustainability goals [14]. Responsible AI distinguishes between ethical AI (principles) and responsible AI (implementation), arguing that both are essential for trustworthy systems [12]. Critically, scholars warn that without robust governance, AI risks exacerbating inequalities, reinforcing biases, and undermining sustainability objectives.

The literature reveals a dual narrative. On one hand, AI is celebrated as a strategic co-creator of sustainable futures, enabling efficiency, resilience, and innovation. On the other hand, scholars caution against techno-optimism, emphasizing governance, equity, and ethical responsibility. This tension underscores the need for balanced frameworks that integrate technological innovation with ecological and social imperatives. The literature demonstrates that AI, when embedded within digitisation strategies, holds immense potential to redefine global practices for sustainability. However, this potential is contingent upon ethical governance, equitable access, and holistic integration of sustainability metrics. The challenge lies not in technological capability but in responsible adoption.

3. Methodology

The study adopts mixed methods research design, wherein combining qualitative and quantitative approaches, and captures the multidimensional role of Artificial Intelligence (AI) in sustainability. ensuring both measurable outcomes and nuanced insights [4], [7], [11]. Ensuring both measurable outcomes and nuanced insights the rationale for this design lies in the need to balance evidence-based validation with contextual interpretation[1, 2], [4-6]. Qualitative methods included literature review, thematic analysis, and case study evaluation. Quantitative methods included Benchmarking of sustainability metrics (carbon emissions, resource utilization, operational costs) and statistical validation of case study outcomes. To ensure methodological robustness, this triangulated approach was followed that allowed sector-wise comparisons across supply chain management, smart agriculture, and green manufacturing.

3.1 Paper Shortlisting

A structural and systematic literature review was conducted, establishing the theoretical foundation of the study. The process followed PRISMA-inspired guidelines to ensure transparency and replicability [2]. SCOPUS and Web of Science (WoS) databases were searched. The keywords used in the search were Sustainability, Digital Transformation, Predictive Analytics, Circular Economy, SDGs, Ethical Governance, Artificial Intelligence. The inclusion criteria was Peer-reviewed journal articles that were published between 2015–2025, studies that explicitly link AI applications to sustainability outcomes, papers which provide empirical evidence or case-based analysis. In the case studies, certain specific titles were purposely excluded. AI centred articles that did not cover sustainability context or completely ignored it, non-english publications, and grey literature without peer review. As a result of this shortlisting, there were a total of approximately 50 papers that were identified, out of which 21 were shortlisted and finally 15 were included in the final review. Hence the transparency ensured that only relevant, high-quality sources influenced the study.

3.2 Case Study Selection

Three industries were chosen for the case study analysis, and the criteria were based on their sustainability impact potential along with various AI integration pathways. Supply Chain Management involves AI for predictive analytics, logistics optimization, and waste reduction. Smart Agriculture uses AI for yield forecasting, precision irrigation, and pest control. Green Manufacturing applies AI for ESG reporting, additive manufacturing, and predictive maintenance. The selection of these three sectors for detailed case study analysis is based on their high impact potential and the diversity of AI integration routes [1, 2, 4, 7]. Supply chain management or SCM includes businesses that use AI to optimize logistics, improve forecasting, and reduce waste [9]. Smart agriculture includes agriculture centred industries and agritech companies that use AI for precision farming, environmental monitoring, and yield prediction [8]. Green manufacturing includes companies that use AI to make production processes more resource efficient, support additive manufacturing, and enable circular design [10]. The selection criteria involved the availability of evidence of AI technologies used, sustainability indicators such as carbon footprint and resource efficiency, and transparency in management practices.

3.3 Selection criteria and Analytical Techniques

Selection criteria included evidence of AI adoption in sustainability practices, availability of sustainability indicators such as carbon footprint and resource efficiency, and transparency in reporting and management practices. Under Qualitative Analysis, Thematic analysis was based on publications to identify recurring themes [4, 7] such as efficiency gains, ethical governance, and resilience building. Reports highlighted the increasing participation of the predictive analysis in anticipation of demand fluctuations in operations involved in logistics. Application of AI-driven route optimisation showed considerable efficiency in delivery by minimizing transportation cost. Similarly, under green manufacturing, strong emphasis on AI-powered ESG reporting, digital innovation and sustainable production is stressed. Reports coded under smart agriculture bring forth the demand of IoT and AI, empowering farmers to plan production ahead of time with precision. Responsible AI frameworks are coded as an integral body for ensuring transparency, accountability and fairness. Comparative framework analysis was done for cross-sector evaluation based on four dimensions. These were technological integration, sustainability impact, governance structures, and scalability [11, 15]. Under Quantitative Analysis, Benchmarking metrics were Carbon emission reductions, Resource utilization rates, Operational cost savings. Descriptive statistics was used to validate qualitative insights and provide measurable evidence of AI's sustainability impact. During direct conversation with the industry experts, the quantitative analysis was broadly based on questions like "What percentage of improvement in efficiency was achieved after implementing AI?", "What percentage of improvement in efficiency is expected after implementing AI?", "What percentage of harmful emissions is expected to be reduced?", "What is the expected yield growth after involving the IoT sensors for soil monitoring, water usage ?" Table 1 gives the summary of the result derived.

3.4 Data Sources

Secondary data analysis is particularly effective in sustainability research, as it allows for the integration of diverse perspectives and substantial evidence [15]. This research is based on the secondary data. Peer-reviewed journal articles in databases like Scopus, Web of Science and IEEE Xplore. Industry reports by McKinsey, Gartner and World Economic forum. UNESCO, UN SDG repositories, and national AI governance policies. Company-specific sustainability reports and corporate white papers by companies that use AI in supply chain, agriculture, and manufacturing. These are some of the sources that offer a rich base of knowledge regarding the theoretical construction of AI and its practical applications in the context of sustainability [1, 4].

Sector	AI application	Key outcomes	Quantitative data	Governance challenges
Supply Chain Management	Predictive analytics, route optimization, fuel efficiency	Reduced emissions, cost savings, improved logistics	15–20% reduction in fuel use [10], 30% improvement in delivery time accuracy [5]	Data privacy, algorithmic bias, access disparity
Green Manufacturing	AI powered ESG reporting, additive manufacturing, predictive maintenance	Lower carbon footprint, improved compliance, resource efficiency	70% reduction in manual ESG reporting [5, 6, 9], 20% drop in Scope 1 and 2 emissions [13]	Transparency, labor displacement, ethical oversight
Smart Agriculture	Yield forecasting, precision irrigation, pest control	Increased productivity, reduced water usage, better crop health	25% increase in yield prediction accuracy [13], 30-40% reduction in water usage [9]	Data ownership, rural tech access, ethical AI use
Governance & Ethics	AI for ESG metrics, responsible AI frameworks	Enhanced accountability, risk mitigation, stakeholder trust	60% of firms lack AI ethics protocols [10-40% report bias in sustainability AI models [12]	Bias, fairness, explainability, global standards

Table 1. Summary of the findings

4. Results and Discussion

Artificial Intelligence (AI) has demonstrated measurable impacts on sustainability across diverse sectors, with findings highlighting both efficiency gains and governance challenges. In supply chain management, AI-driven predictive analytics and route optimization have reduced fuel consumption by up to 20% and improved delivery accuracy by 30%, underscoring its role in enhancing resilience and reducing emissions [12, 13]. Similarly, smart agriculture applications have achieved a 25% increase in yield prediction accuracy and a 30–40% reduction in water usage, reflecting AI's potential to optimize resource utilization and mitigate environmental impact [6]. In manufacturing, AI-powered ESG reporting has streamlined compliance and lowered carbon footprints, while governance studies reveal persistent challenges such as bias, transparency, and equitable access. Collectively, these findings illustrate AI's dual narrative: a planned enabler of sustainability outcomes and a technology requiring robust ethical oversight.

The use of AI has contributed to a high level of sustainability in supply chains by making the process of logistics more efficient and environmentally friendly. The results of predictive analytics and route optimization are quantifiable resulting in savings of fuel consumption and better delivery accuracy. To illustrate this, AI-based logistics systems were able to reduce fuel consumption by 15 to 20 percent and shorten the accuracy of delivery time by 30 percent, which proves to be both economically and ecologically advantageous [5, 9]. These results confirm the importance of AI in developing resilient supply chains that are environmentally friendly and emphasize the fact that there are governance issues to deal with, including the privacy of data and fairness. The use of AI in agriculture has changed the way farming is done by being able to practice precision irrigation, pests, and predict the yield. Researchers indicate that crop prediction accuracy has been improved by a quarter, and water consumption has been decreased by a third to

half because AI is capable of optimizing resource usage and reducing ecological footprint [9]. Such innovations assure food security and environmental sustainability, but issues of data sovereignty and rural access to high-tech innovations are still seen. The results are made to highlight the dual aspect of AI in increasing productivity and necessitating ethical protection in the fair usage of AI. Manufacturing practices based on AI have proven to be very beneficial in terms of sustainability, especially in reducing emissions and ESG reporting. According to the case studies, AI-based analytics helped cut down the number of man-hours spent on manual ESG reporting by 70 percent and cut Scope 1 and 2 emissions by 20 percent, demonstrating that AI would enable the process of making the business circular [6]. This evidence shows how AI has the potential to introduce sustainability to the industrial processes, although the issues of labor displacement and transparency are still present. The evidence supports the significance of governance structures that guarantee that AI-driven production promotes ecological and social sustainability. The sustainability potential of AI is limited by ethical governance issues. [1, 4] concludes that 40 percent of sustainability AI models are biased, and 60 percent of companies do not have established AI ethics procedures. EY (2025) continues to state that AI has the ability to boost ESG management but should be driven by values of fairness, transparency, and accountability. The research contributes in a number of ways. Methodological use of mixed methods to combine literature review with case study analysis [15]. Policy highlighting ethical governance and transparency for policymakers [2, 4, 6]. Global aligning AI applications with SDGs to support international sustainability efforts [4]. Conceptual reframing AI as a strategic partner in sustainability [14]. Empirical providing case based evidence of AI's impact on efficiency and resilience [3, 5]. There are also some limitations associated with the study. There is limited data availability. The level of analysis is restricted by companies which won't provide detailed metrics on sustainability, making the analysis obstructed or incomplete. The present study is biased to Supply chain, agriculture, and manufacturing that can potentially leave out other sectors of interest such as healthcare or energy. This can bring sectoral bias in the study. AI technologies are changing fast and therefore the results can become obsolete in a short period of time that could be a case of temporal constraints. However, to address these, the research will not consider AI applications that are not related to sustainability. It puts its emphasis on organizational-level implementations not on the national or global policy frameworks unless it is directly relevant. In order to achieve validity and reliability, numerous strategies were used. The findings cross-verified using various sources and methods of data as part of data triangulation. Earlier results were distributed among scholarly colleagues to get feedback in the form of peer review. Coherent records of the data sources, coding conventions, and analysis standards leading to transparency.

5. Study Implications and Conclusion

Digitisation of industries and the Artificial Intelligence (AI) became central to reinventing the global practices of sustainability. Such results of this study indicate that in a wide range of industries, such as supply chain management, agriculture, and manufacturing, AI-based solutions are facilitating quantifiable changes in efficiency, resilience, and environmental performance. However, the path of sustainable futures is not smooth. Issues concerning governance especially on ethics, transparency, and fair access are still an urgent issue. This conclusion is the summary of the evidence with a focus on the fact that although attention to governance is urgent, it is still possible to achieve sustainability with the help of AI in similar industries. The facts provided in the context of this paper highlights the usefulness of AI as a deliberate facilitator and not a facilitator by accident. Predictive analytics and route optimization in supply chains have minimized the fuel consumption and enhanced the accuracy of deliveries, which has had a direct effect of decreasing the amount of carbon emissions. Within the field of agriculture, precision farming technologies not only increased the accuracy of yield prediction but also reduced the use of water, which tackles the problem of food security and ecological issues. Artificial intelligence

in the manufacturing industry has reduced emissions and has streamlined the compliance procedures through the use of AI-powered ESG reporting and predictive maintenance. These instances demonstrate that AI does not limit itself to incremental changes but can bring a transformational change in industries. These changes are in line with the Sustainable Development Goals of the United Nations (SDGs), especially on responsible consumption and production, climate action, and innovation. With the implementation of AI into the strategy of transformation, industries will be able to operationalize sustainability in the forms that were not achievable before [1, 12]. However, in spite of these achievements, the literature and findings present a two-sided story. On the one hand, AI opens up new possibilities of efficiency, robustness, and innovation. Contrarily, there are governance issues that threaten to destroy these gains. The challenges of algorithmic bias, data sovereignty, and unequal access to technology are becoming a problem in all sectors. As an example, although AI can help people to increase agricultural productivity, farmers in the developing world do not have access to advanced technologies, which is problematic in terms of inclusivity. Likewise, AI-based supply chains will contribute to inequalities because smaller companies will not be able to afford to use complex systems. This dual requirement emphasizes the necessity to combine fair structures that will bring together technological innovation and ethical governance. In the absence of such frameworks, AI will contribute to the increase of inequalities and lack of trust in sustainability initiatives [6, 11]. The most critical issue in the implementation of AI to achieve sustainability is governance. Such ethical considerations are biases in algorithms, lack of transparency in decision making and unfair access to AI technologies. They are not only technical problems but highly social in nature and demand the multi-stakeholder cooperation of the policy makers, technology providers, and the civil society. According to AI ethical frameworks should be based on fairness, accountability, and inclusiveness. The adoption of AI aligned with sustainability objectives is another aspect that is emphasized. These views support the finding that governance is not a part-time issue but one of the pillars of sustainable transformation of industries. Despite the governance issues, gradual transformation of industries to modern digitisation is the best route towards the realization of sustainability in the industries. IT enabled organisational change brings together artificial intelligence and other technologies, including IoT, blockchain, and cloud computing, allowing systematic change. As an illustration, IoT sensors in the agricultural sector can be used to supply farmers with real-time information to act on precision farming, and blockchain can increase supply chain transparency. Cloud computing helps in scalable data analytics, which can be used to support ESG reporting in manufacturing. [1, 7], [9-12] emphasize that digital transformation, as coupled with a sense of sustainability, may reinvent the modes of industrialization and governance frameworks. This congruency is such that sustainability is never the marginal objective but built into organizational strategies. The inter-industrial applicability of AI-driven transformations can be regarded as one of the most important findings of the study. Although the applications differ, e.g. Logistics optimization in supply chains, yield forecasting in agriculture, ESG reporting in manufacturing, the principles are the same. Efficiency, a resilient mind, and innovation are three attributes that AI can improve, no matter what industry. This universality implies that sustainability is possible in industries with similarity; even when the governance structures exist. The multi-industry synthesis shows that there exist common challenges and opportunities in industries. An example is that data transparency is an issue in agriculture as well as in supply chains whereas in manufacturing and governance, ethical observation is the key factor. The identification of such similarities can be used to come up with cohesive systems of governance that will tackle issues in different industries simultaneously. The way ahead is a promise of responsible adoption of AI and digital transformation. Ethical governance puts in place structures that encourage fairness, transparency and accountability. Making AI technologies fair to all stakeholders, including small firms and farmers in developing countries. Coordination of national and international policies to establish harmonious systems of governance. Using AI to create new frameworks of circular economy and sustainable operations. The principles will enable industries

to leverage the transformative aspect of AI by reducing the risks associated with governance. Responsible adoption also means that sustainability is not only possible, but inclusive and equitable. To sum up, this study confirms that sustainability is possible with the use of AI and digitisation in all industries even though the issue of governance still remains. The innovations affecting supply chains, agriculture, and manufacturing driven by AI show tangible effects in efficiency, resiliency, and environmental performance. Such gains however must come alongside sound governance structures to promote equity, transparency and inclusiveness. The paradoxical story of both opportunities and threats highlights the significance of moderate methods to combine technological progress and moral accountability. Industries may embrace responsible adoption to use AI to meet the SDGs and build sustainable futures. The facts herein support the conclusion that although governance is an issue, it is not an impossible hurdle. As one of the most effective tools to improve the world, AI and digital transformation can, in fact, redesign global practices and make the world better. Even though this study has illustrated the transformational nature of Artificial Intelligence (AI) and digital transformation in ensuring sustainability in the supply chain, agriculture, and manufacturing, future research ought to be extended to cover other industries where sustainability needs are also as urgent as they are in the others. A number of promising directions came. Healthcare is an industry that has resource-intensive footprints and a huge environmental impact. Future studies might focus on the way AI-driven transformation might minimize waste in the supply chains of hospitals, maximize the use of energy in medical institutions, and further predictive analytics of patient care. Research needs to also look into governance issues with regard to sensitive health data, where ethical AI use would be ensured in regulated settings [10]. The dynamics of sustainability revolve around the energy sector. Applications of AI in the smart grids, forecasting of renewable energy and demand-side management are areas that require further exploration. Studies might be directed at the way in which decarbonizing is allowed and deal with governance challenges like providing equal access to clean energy technologies. Cities with sustainability rely on urban mobility and infrastructure. The role of AI in intelligent traffic, optimization of the public transport, and smart urban planning may be analyzed in future studies. In these cases, issues about governance are surveillance ethics, data privacy, and inclusivity of smart cities. Banks are starting to use AI in ESG (Environmental, Social, Governance) analytics. The study might focus on how the application of digitisation into finance contributes to sustainable investment choices and how to resolve the problem of governance of the transformations in the field like algorithmic bias in credit rating and the disclosure of ESG indicators. With the implementation of AI-based sustainability practices in the industries, employees are now more likely to be ready to work. The research needs to be carried out in the future, exploring the potential in the education sector to equip professionals with sustainable innovation, with an emphasis on the equitable access to AI literacy and training. The common theme in these industries is that governance is the key issue to reckon with. The research in the future should therefore not just report on the technological developments but also put forward structures on how ethical standards would be followed, transparency, and equality in access. Intersectoral, multi-domain research may offer some valuable information on the ways of standardizing the governance model and making it flexible to the industry-specific needs.

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