

A Study on AI as a Tool for Advancing Sustainable Development Goals with Special Reference to Chennai

Shahin M

Bba., Llb (Hons), Saveetha School of Law Saveetha Institute of Medical and Technical Sciences (Simats)

Abstract—AI as a Tool for Advancing Sustainable Development Goals (SDGs) refers to the application of artificial intelligence technologies to address global challenges and promote sustainable development. The study aims to know the potential to accelerate progress across various SDGs, such as ending poverty, ensuring quality education, advancing gender equality, combating climate change, and promoting responsible consumption. The objective to analyse the implications of adopting AI for sustainable development challenges. The research methods discussed in this study are empirical research. This study is done by a convenient sampling method. The total number of responses is 204 samples from people aged between teenagers and adults. The independent variables are age, gender, educational qualification, place of residence. Dependent variable whether AI can play a role in addressing climate change environmental sustainability, government in taking necessary steps to attain sustainable development because 2030 or not, advancing AI in sustainable development goals has long term societal and environmental outcome, uses of AI sustainable growth. The study finds the relationship between AI's role in addressing climate change and environmental sustainability, considering gender perspectives. The results indicate that perceptions about AI's effectiveness in climate action may vary by gender. It concludes AI has a significant role in advancing sustainable development, particularly in addressing climate change and environmental sustainability. However, perceptions about AI's effectiveness differ across demographic groups, including gender.

Index Terms—Sustainable development goals (SDGs), AI, Environment, Challenges, Technology.

I. INTRODUCTION

Artificial Intelligence (AI) is emerging as a transformative tool for advancing the United Nations' Sustainable Development Goals (SDGs). By harnessing the power of machine learning, data analytics, and automation, AI is helping address

complex global challenges, including poverty, climate change, healthcare, education, and clean energy. The main aim of this study is to evaluate public perceptions of AI as a tool for advancing Sustainable Development Goals (SDGs) and assess the effectiveness of government initiatives in leveraging AI to achieve these goals. By analyzing demographic variations and levels of awareness, the study seeks to identify gaps in public understanding and inform strategies for implementing inclusive, ethical, and impactful AI-driven solutions for sustainable development.

The evolution of AI as a tool for advancing Sustainable Development Goals (SDGs) has progressed from a conceptual phase to increasingly practical applications. Initially, AI's role in sustainable development was largely theoretical, with early discussions focusing on its potential to address issues like poverty and inequality. Over time, AI technologies have become more integrated into sectors such as healthcare, agriculture, education, and environmental management, providing data-driven solutions to complex challenges. From optimizing energy consumption and improving disaster response to enhancing access to quality education and healthcare, AI is now being actively used to monitor and track progress towards SDGs. As technology evolves, AI's role continues to expand, offering more innovative and scalable solutions that promote sustainable growth and development, while also raising ethical and governance considerations.

The Indian government has taken several initiatives to leverage AI for advancing Sustainable Development Goals (SDGs) and addressing critical development challenges. Key initiatives include: National Strategy for Artificial Intelligence (NSAI): Launched by NITI Aayog in 2018, this strategy aims to drive AI adoption

across key sectors like healthcare, education, agriculture, smart cities, and infrastructure. It emphasizes the role of AI in achieving SDGs by promoting innovation and inclusivity. AI for Good and SDGs: The Indian government has partnered with international organizations like the United Nations to use AI for addressing global challenges. The AI for Good initiative focuses on harnessing AI to combat climate change, enhance education, improve health services, and promote sustainable agriculture.

Several factors influence the successful integration of AI for advancing Sustainable Development Goals (SDGs), particularly in developing countries like India were Infrastructure and Technology Access, Data Availability and Quality, Human Capital and Skills, Ethical and Regulatory Frameworks, Cultural and Social Acceptance: Cultural attitudes toward technology, particularly AI, can significantly influence its adoption. In countries like India, where there is a deep-rooted reliance on traditional methods and skepticism toward new technologies, overcoming social barriers and promoting the acceptance of AI is crucial. Additionally, addressing concerns about job displacement due to automation is essential for gaining societal support.

Currently AI is playing an increasingly central role in advancing Sustainable Development Goals (SDGs) across sectors such as healthcare, agriculture, education, and environmental sustainability. In India, AI is being harnessed to tackle climate change by optimizing energy use, managing water resources, and predicting natural disasters, which aligns with SDG 13 (Climate Action) and SDG 6 (Clean Water and Sanitation). Similarly, AI is transforming agriculture by enabling precision farming techniques that optimize resources like water and reduce pesticide use, directly supporting SDG 2 (Zero Hunger) and SDG 12 (Responsible Consumption and Production).

Comparing Both India and China are rapidly advancing AI adoption for SDGs, but China is ahead in terms of large-scale AI applications, especially in sectors like healthcare, agriculture, and environmental monitoring. India is still in the process of scaling AI technologies to achieve SDGs. The Chinese government plays a major role in AI innovation, with national strategies focused on using AI to promote sustainable development, such as AI-driven

environmental management and precision agriculture. India's government is similarly involved but still working on building the necessary infrastructure for large-scale AI deployment. India focuses on inclusivity and affordability in AI applications, whereas China has leveraged AI for large-scale smart city projects and environmental management at a much faster pace, directly contributing to SDG 13 (Climate Action) and SDG 11 (Sustainable Cities). India faces issues related to infrastructure, data collection, and digital literacy, while China faces concerns about privacy, surveillance, and data transparency in AI systems.

II. OBJECTIVES

- To analyse the implications of adopting AI for sustainable development challenges.
- To evaluate the use of AI in sustainable growth.
- To determine the long term societal and environmental outcomes.

III. REVIEW OF LITERATURE

1. Mialhe & Hodes (2019) The Objective is to investigate AI's role in accelerating SDG implementation and its potential benefits and risks. The Findings revealed are AI can drive progress in SDGs, but lack of regulatory oversight can lead to risks such as inequality, bias, and ethical concerns. The Methodology were review of SDG implementation frameworks and AI's potential role. The Conclusion revealed that AI's integration into SDG initiatives should be accompanied by regulatory policies to ensure transparency and fairness.

2. Vinuesa & Azizpour (2020) The Objective is to highlight the need for regulatory frameworks in AI-driven sustainable development. The Findings revealed are AI can accelerate SDG progress but requires ethical oversight and policy frameworks to prevent transparency and security risks. The Methodology is conducted by Thematic literature review focusing on AI governance. The Conclusion revealed that AI should be supported by strong regulations to prevent misuse and unintended consequences.

3.Goralski (2020) The Objective is to examine AI's impact on business strategy and policymaking for sustainable development.The Findings revealed are AI has both disruptive and enabling effects on businesses, governance, and society.The Methodology has Policy analysis combined with business strategy assessment.It has concluded with AI-driven policies should be aligned with sustainability and economic growth goals.

4.Palomares & Martinez Camara (2021) The Objective is to explores the role of AI in achieving the Sustainable Development Goals (SDGs) by conducting a SWOT analysis to identify AI's strengths, weaknesses, opportunities, and threats in this context.This study found AI presents numerous opportunities for SDG implementation, such as improving efficiency, predictive capabilities, and resource management. However, it also poses risks, including ethical concerns, data biases, and lack of transparency.The Methodology has conducts a comprehensive literature review followed by a structured SWOT analysis to assess AI's role in SDG facilitation and hindrance.The study Concluded that AI has the potential to drive progress toward SDGs, but ethical concerns and data-related issues must be addressed to ensure equitable and sustainable implementation.

5.Mhlanga (2022) The Objective is to examine what it means to develop human-centered AI and its role in sustainability and SDG achievement.The Findings revealed are A human-centered AI approach ensures AI systems benefit society by aligning with ethical, social, and environmental goals.The Methodology were a systematic literature review was conducted, focusing on human-centered AI strategies.The Conclusion revealed that AI should be designed and implemented with a human-centered approach to maximize its contributions to sustainability.

6.Steingard & Balduccini (2022) The Objective is to introduce a framework for standardizing AI models in SDG-related applications, ensuring they align with sustainability goals.The Findings revealed which proposed SDG-Intense Evaluation framework (SDGIE) helps structure AI models to optimize their effectiveness in addressing SDGs. The framework focuses on data collection, algorithmic decision-

making, and measurable outcomes to ensure AI solutions contribute meaningfully to SDG implementation.The Methodology is from Development and analysis of the SDGIE framework, which integrates AI applications with computational models for sustainable development.The study has Concluded that AI models should be aligned with SDG-specific requirements to maximize their real-world impact, and standardized evaluation methods should be adopted to ensure effectiveness.

7.Rane (2023) The Objective of the study assesses the role of ChatGPT and similar AI tools in supporting SDGs, particularly in education, healthcare, and knowledge dissemination.The Findings revealed enhance learning experiences (SDG 4) through personalized education and facilitates knowledge sharing in agriculture (SDG 2) and healthcare (SDG 3). However, accessibility challenges, misinformation risks, and ethical concerns remain barriers.The Methodology has qualitative analysis of AI-driven tools and their applications in SDGs.The Conclusion revealed that the AI, especially chatbots, can be instrumental in achieving SDGs, provided concerns like misinformation and accessibility are effectively managed.

8.Ziesche & Agarwal (2023) The Objective is to explore the role of AI in multi-stakeholder partnerships for SDG implementation, with a focus on sustainability initiatives.The Findings revealed innovative solutions for sustainable agriculture and data-driven decision-making, but challenges in coordination and policy integration persist.Methodology were literature review on AI applications in sustainability and stakeholder collaboration.The Conclusion revealed that AI must be effectively incorporated into multi-stakeholder partnerships to maximize its impact on sustainable development.

9.George & Issac (2023) The Objective is to explore AI's current and future role in sustainable development, focusing on its direct applications.The findings revealed which AI has vast potential in sustainability, but strategic planning is necessary to ensure its effective use.The Methodology is Content analysis of existing AI applications.The Conclusion

has revealed that AI integration into SDGs requires careful design and governance.

10.Kulkov & Kulkov (2023) The Objective is to analyze AI's role in economic development within the framework of SDGs.The Findings revealed are AI contributes to economic sustainability but faces ethical and implementation challenges.The Methodology is Empirical review of 57 studies on AI's economic applications.The Conclusion revealed that Strategic deployment of AI is essential for achieving long-term economic sustainability.

11.Peng & Ahmad (2023) The Objective is to evaluate AI's role in financial decision-making for SDG fulfillment.The Findings revealed are AI-driven automation improves financial operations, aiding SDGs like economic growth (SDG 8) and innovation (SDG 9).The Methodology is Literature review on AI's financial applications.The study Concluded AI must be carefully regulated to ensure its financial benefits align with sustainability.

12.Leong How & Cheah (2023) The Objective is to investigate how AI democratization can be leveraged for social good, enabling non-experts to use AI tools for addressing global challenges.The Findings revealed are AI can be used to tackle various global challenges, including economic inclusion, financial accessibility, and food security. A user-friendly, low-code approach can empower individuals who lack technical expertise to implement AI solutions for social impact.The Methodology were the study utilizes a probabilistic modeling approach to evaluate AI's applications in economic and social problem-solving.The Conclusion revealed that Making AI accessible to a broader audience can significantly enhance its impact on global challenges, particularly in underprivileged communities.

13.Lau & Nandy (2023) The Objective is to assess AI's contributions to women's healthcare and determine whether AI-driven healthcare solutions are adequately addressing gender-specific health concerns.The Findings revealed are AI has advanced medical diagnostics and treatment, many applications remain gender-biased, with limited focus on women's healthcare needs. This gap in AI healthcare solutions could hinder progress toward gender equality (SDG 5)

and good health (SDG 3).The Methodology is a systematic literature review (SLR) was conducted to evaluate AI's role in medical and biomedical applications, with a specific focus on women's health.The Conclusion of the study revealed that is AI should be tailored to address gender-specific healthcare challenges, ensuring inclusivity and equal access to medical advancements.

14.Gupta & Degbelo (2023) The Objective is to explore AI's role in sustainable urban development (SDG 11) and assess its potential for improving city planning and infrastructure.The Findings revealed are AI applications in smart cities—such as intelligent traffic management, energy efficiency, and waste management—have immense potential but remain underexplored. There is a lack of empirical data on how AI is being effectively integrated into urban sustainability projects.The Methodology is literature review on AI's contributions to urban development, analyzing its applications in various smart city initiatives.The study Concluded that it is more empirical research is needed to understand the practical applications of AI in sustainable urban planning, ensuring its integration is both effective and scalable.

15.Yadav & Millan Tudela (2024) The Objective is to examines AI's contributions and risks in achieving SDGs, particularly its transformative role in data analysis, climate prediction, and resource optimization.The Findings revealed has AI significantly enhances progress in SDGs like zero hunger (SDG 2) by predicting agricultural outcomes and in climate action (SDG 13) through early warning systems. The Methodology were a thematic analysis of AI's influence across various SDGs was conducted, identifying both benefits and challenges.It has Concluded that AI's potential can only be fully realized if deployed ethically, with human-centered approaches that mitigate risks like bias and job displacement.

16.Leal Filho & Mbah (2024) The Objective is to evaluate AI's role in achieving SDG 11 (sustainable cities and communities).The Findings revealed that AI optimizes energy usage, improves waste management, enhances transportation systems, and contributes to overall urban sustainability.The Methodology were

Expert-driven literature review and case study analysis. The Conclusion revealed that AI can be a key tool in building sustainable urban environments, provided it is implemented responsibly.

17. Obaideen & Albasha (2024) The Objective is to analyze AI's contributions to SDG 7 (clean energy) and SDG 3 (healthcare). The Findings are AI optimizes energy use and enhances healthcare accessibility, but requires better integration. The Methodology were Bibliometric analysis of 19,235 publications. The study Concluded that AI should be leveraged for energy efficiency and healthcare improvements in sustainable ways.

18. Satornino & Du (2024) The Objective is to examine AI's role in addressing the complexity of SDG challenges, particularly the interdependencies and trade-offs among the 17 SDGs. The Findings revealed are AI-driven innovations can provide sustainable solutions; however, they often involve trade-offs between different SDGs. For example, AI-driven automation may improve efficiency (SDG 8) but also lead to job displacement (SDG 1). The Methodology is a literature review of AI's role in sustainable innovation, analyzing case studies of AI-driven advancements across industries. The Conclusion of the study revealed that AI must be integrated into sustainability strategies in an ethical manner, ensuring that trade-offs between different SDGs are balanced effectively.

19. Regona & Yigitcanlar (2024) The Objective is to analyze how AI can be integrated into different phases of project development to enhance sustainability efforts. The Findings revealed which AI plays a crucial role in the planning, design, development, and operational stages of urban and infrastructure projects. It can optimize resource allocation, improve efficiency, and reduce environmental impact. However, AI is often underutilized in the early planning stages. The Methodology is a systematic review of AI applications across different stages of project development, focusing on sustainability outcomes. The Conclusion of the study revealed that

the AI should be incorporated at all stages of development projects to maximize its benefits in sustainability and long-term urban planning.

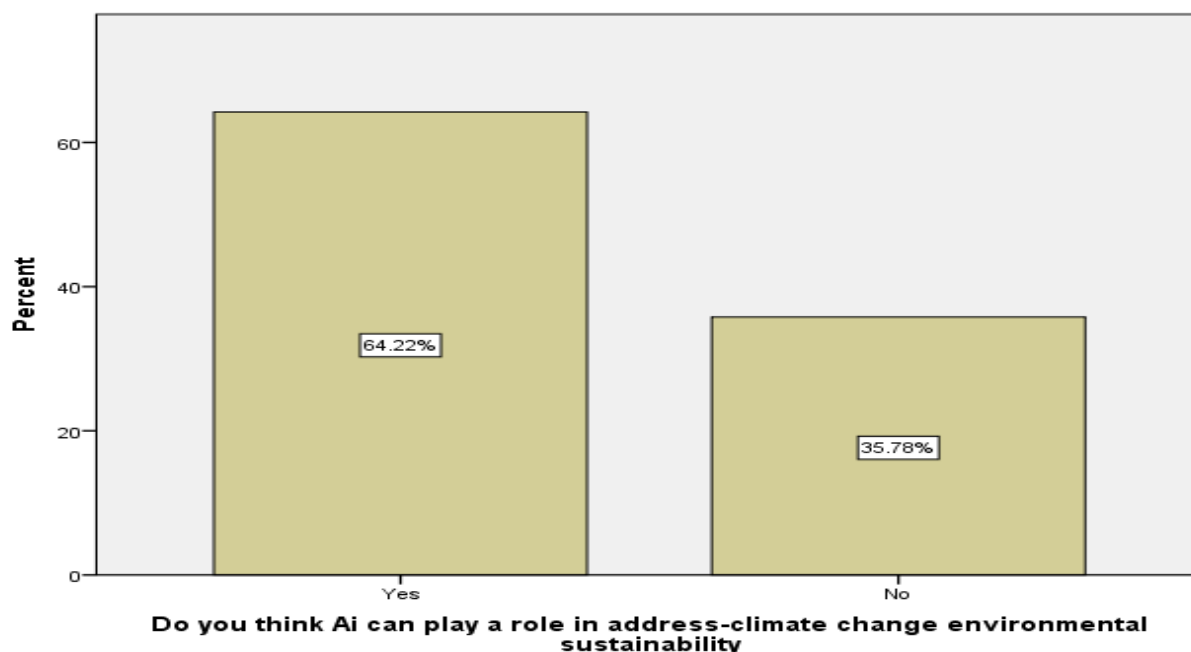
20. Sahari (2024) The Objective is to examine AI's impact on higher education and how it contributes to sustainable development goals related to education (SDG 4). The Findings revealed are that AI improves education accessibility through personalized learning, automated assessments, and adaptive learning technologies. However, concerns over data privacy, algorithmic bias, and ethical implications in education remain significant barriers. The Methodology is a qualitative review of academic databases, analyzing AI's role in modern education systems and sustainable learning strategies. The Conclusion of the study revealed is AI can greatly enhance higher education and learning accessibility, but ethical considerations and data protection measures must be prioritized to ensure responsible AI implementation.

IV. METHODOLOGY

The research methods discussed in this study are empirical research. This study is done by a convenient sampling method. The total number of responses is 204 samples from people aged between teenagers and adults. I collected samples within the surroundings of Chennai and not beyond. The independent variables are age, gender, occupation, place of residence, educational qualification. The dependent variable is whether AI can play a role in addressing climate change environmental sustainability, government in taking necessary steps to attain sustainable development because 2030 or not, advancing AI in sustainable development goals has long term societal and environmental outcome, uses of AI sustainable growth (good health and well being, quality education, decent work and economic growth, industry, innovations, infrastructure, sustainable cities and communities), government initiatives in advancing AI to attain sustainable development goals. The statistical tools used are simple bar graph, clustered bar graph, cross tabulation, one sample t test, and Anova.

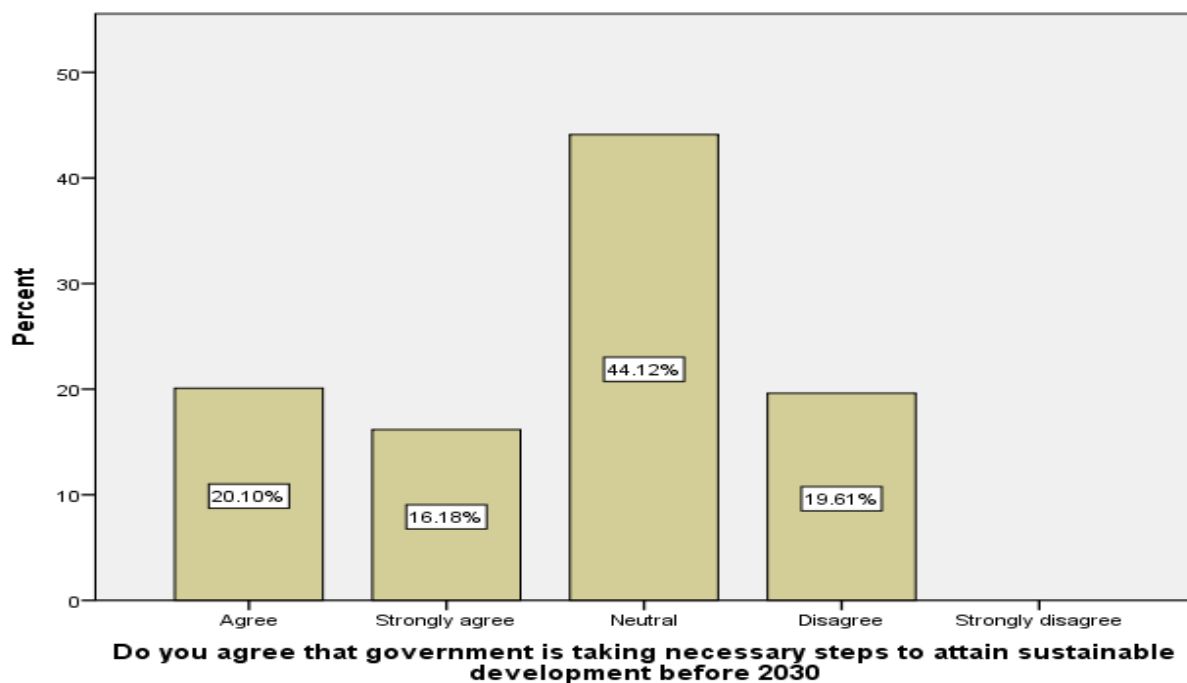
DATA ANALYSIS :

FIGURE 1 :



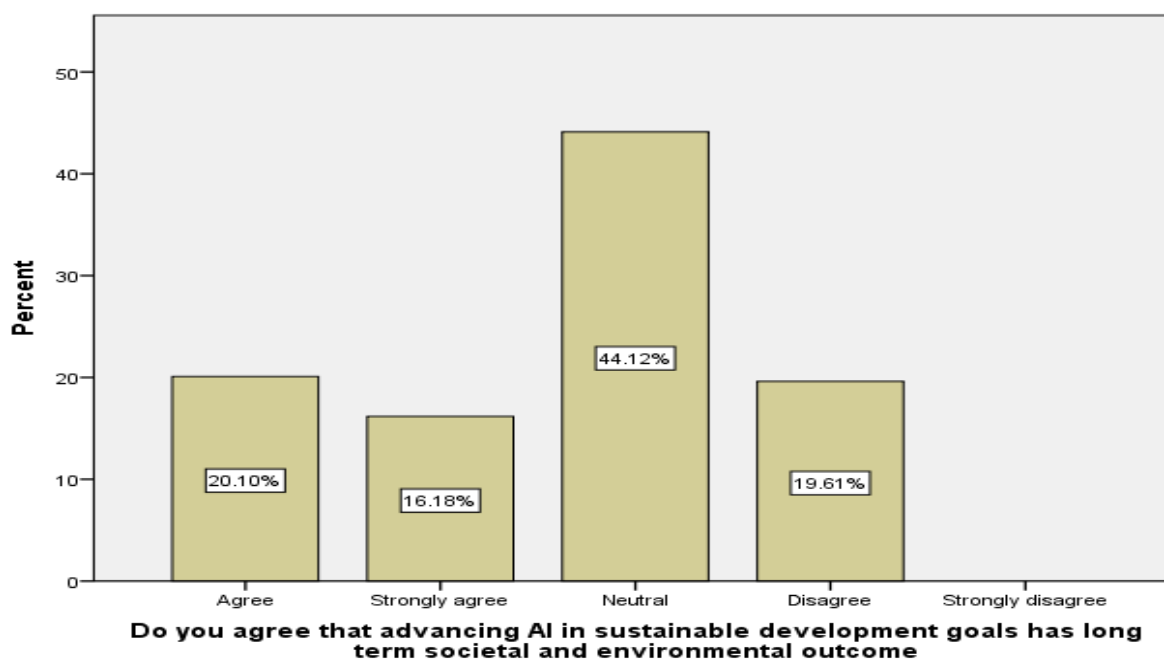
LEGEND : The figure 1 represents that AI can play a role in addressing climate change, environmental sustainability or not?

FIGURE 2 :



LEGEND : The figure 2 represents whether the government is taking necessary steps to attain sustainable development goals before 2030 or not?

FIGURE 3 :



LEGEND : The figure 3 represents the advancing AI in sustainable development goals has long term societal and environmental outcome or not?

FIGURE 4 :



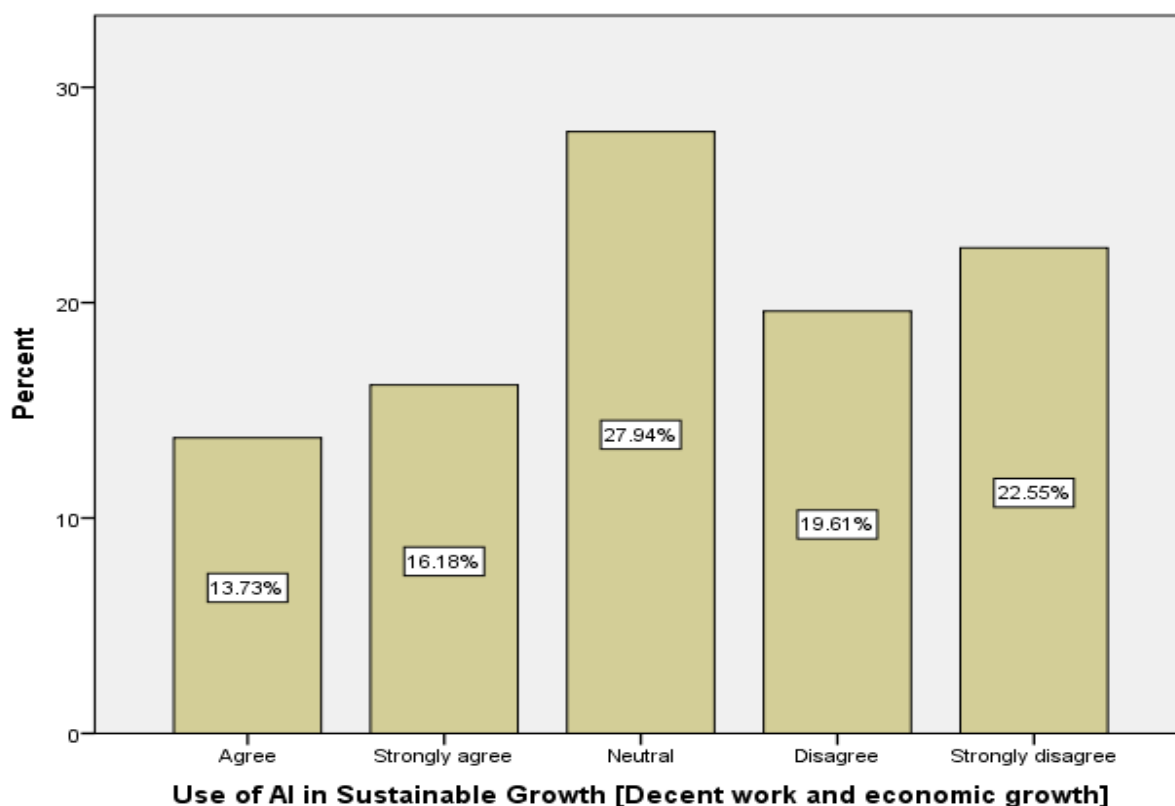
LEGEND : The figure 4 represents use of AI in sustainable growth in good health and well being.

FIGURE 5 :



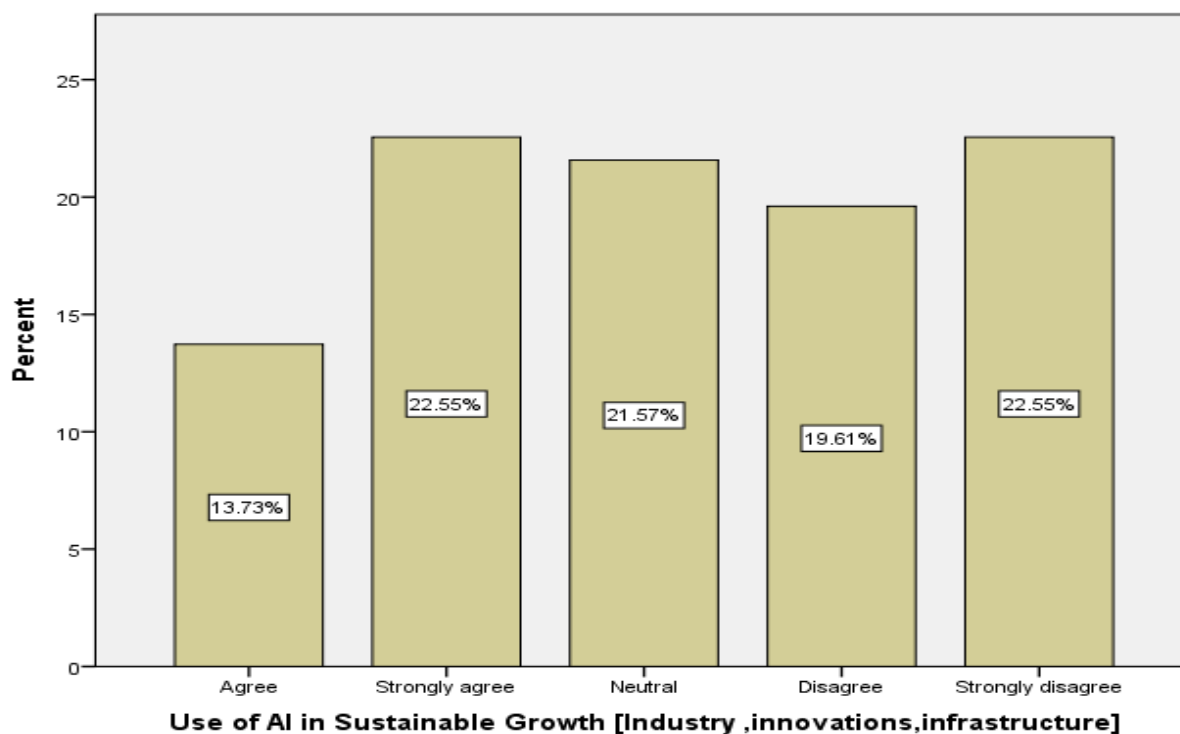
LEGEND : The figure 5 represents use of AI in sustainable growth in quality education.

FIGURE 6 :



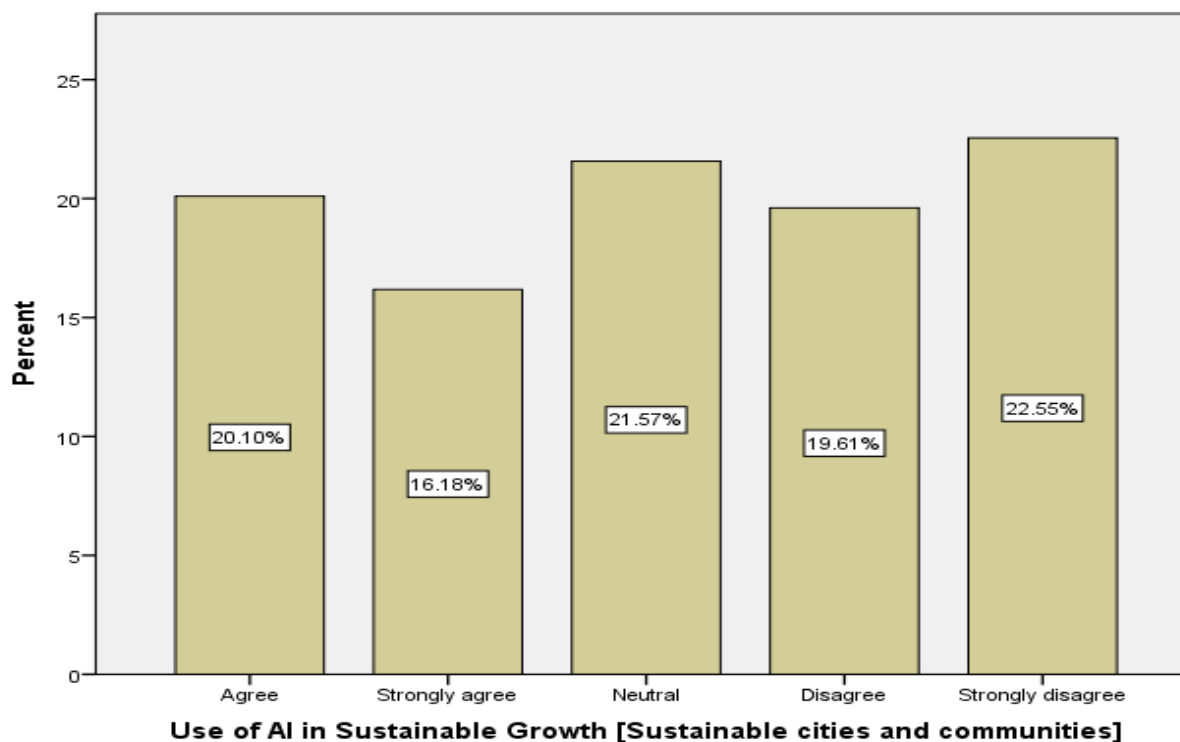
LEGEND : The figure 6 represents use of AI in sustainable growth in decent work and economic growth.

FIGURE 7 :



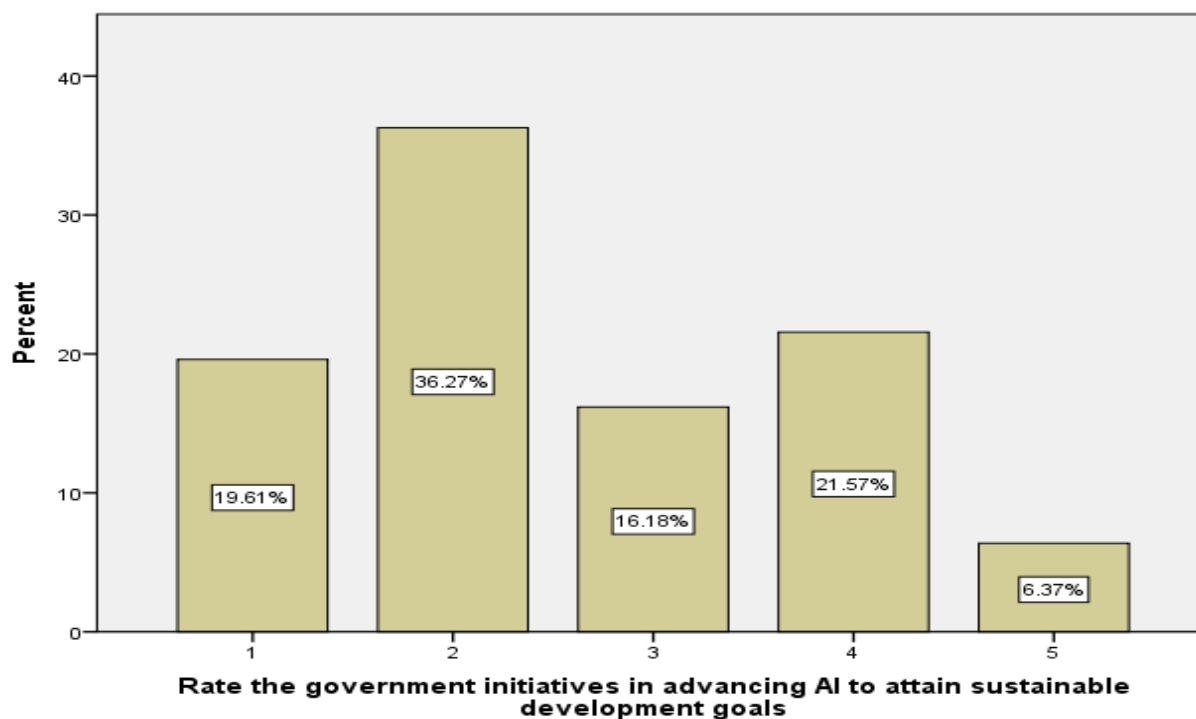
LEGEND : The figure 7 represents use of AI in sustainable growth in industry, innovations, and infrastructure.

FIGURE 8 :



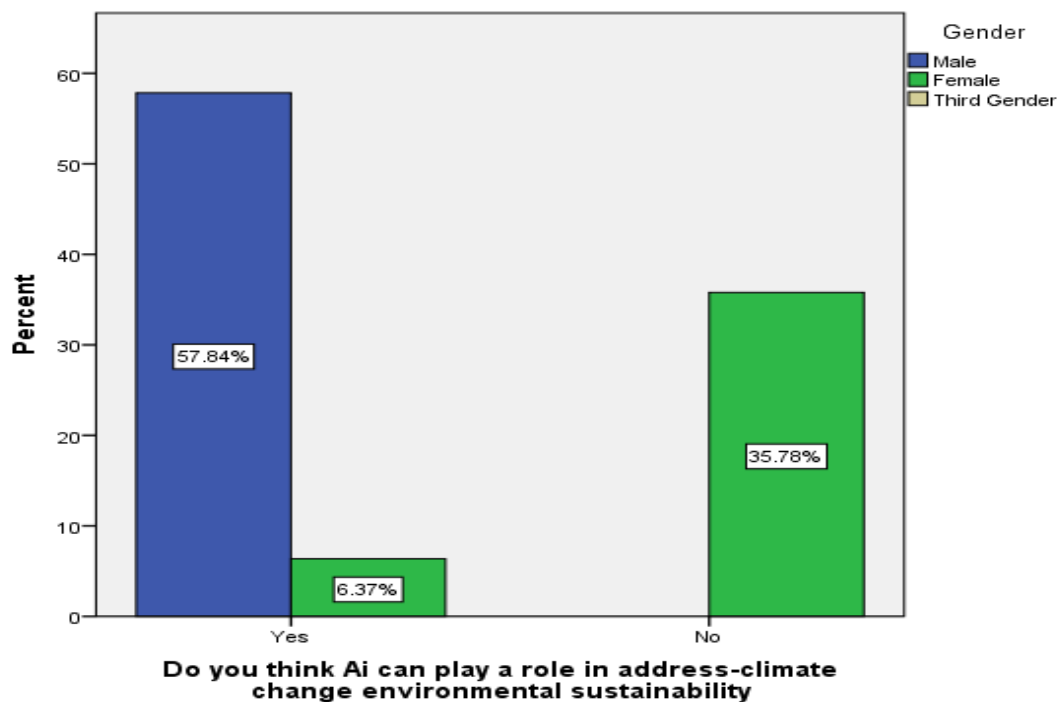
LEGEND : The figure 8 represents use of AI in sustainable growth in sustainable cities and communities.

FIGURE 9 :



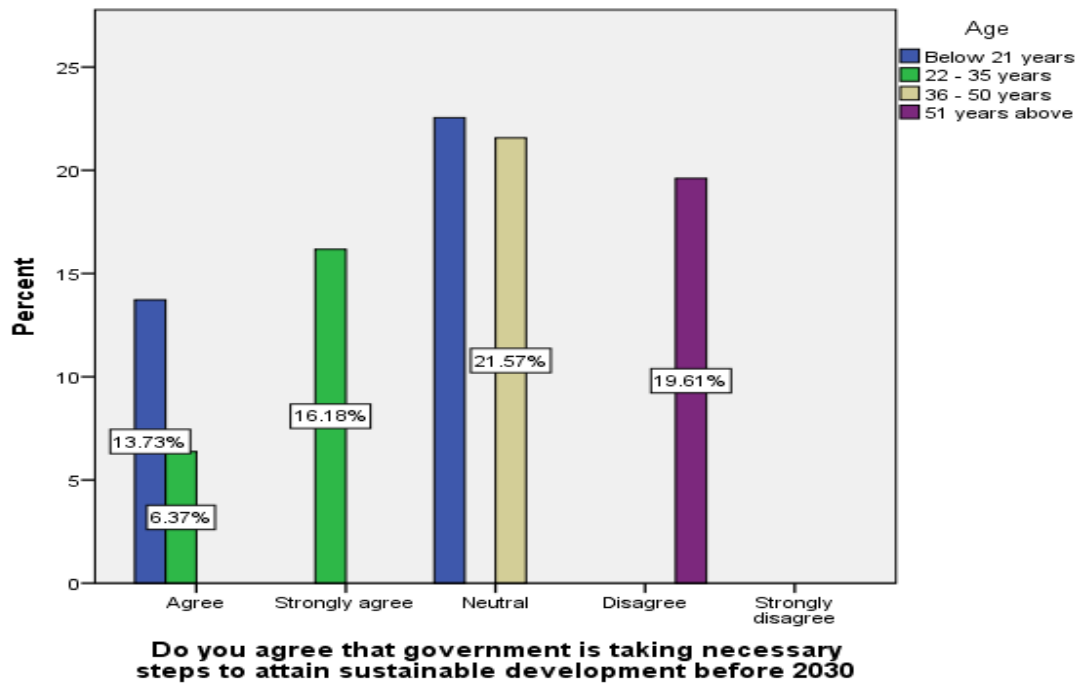
LEGEND : The figure 9 represents the rate scale of government initiatives in advancing AI to attain sustainable development goals.

FIGURE 10 :



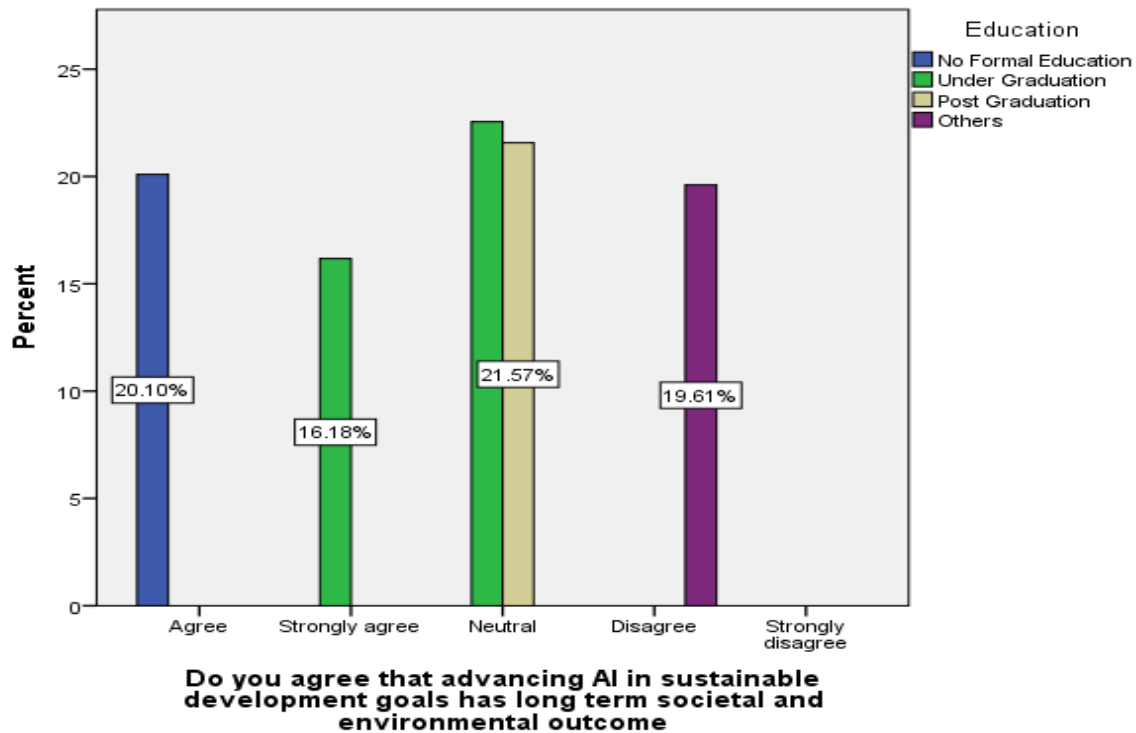
LEGEND : The figure 10 represents that AI can play a role in addressing climate change, environmental sustainability or not compared with the gender of the respondents.

FIGURE 11 :



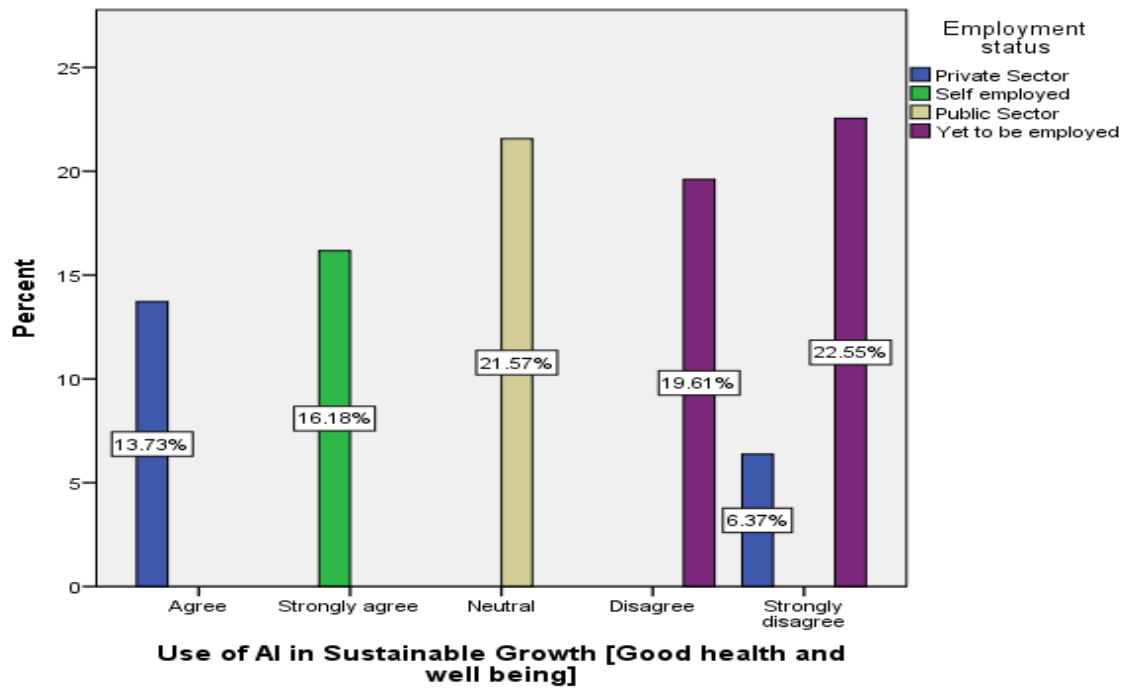
LEGEND : The figure 1 represents whether the government is taking necessary steps to attain sustainable development goals before 2030 or not compared with the age of the respondents.

FIGURE 12 :



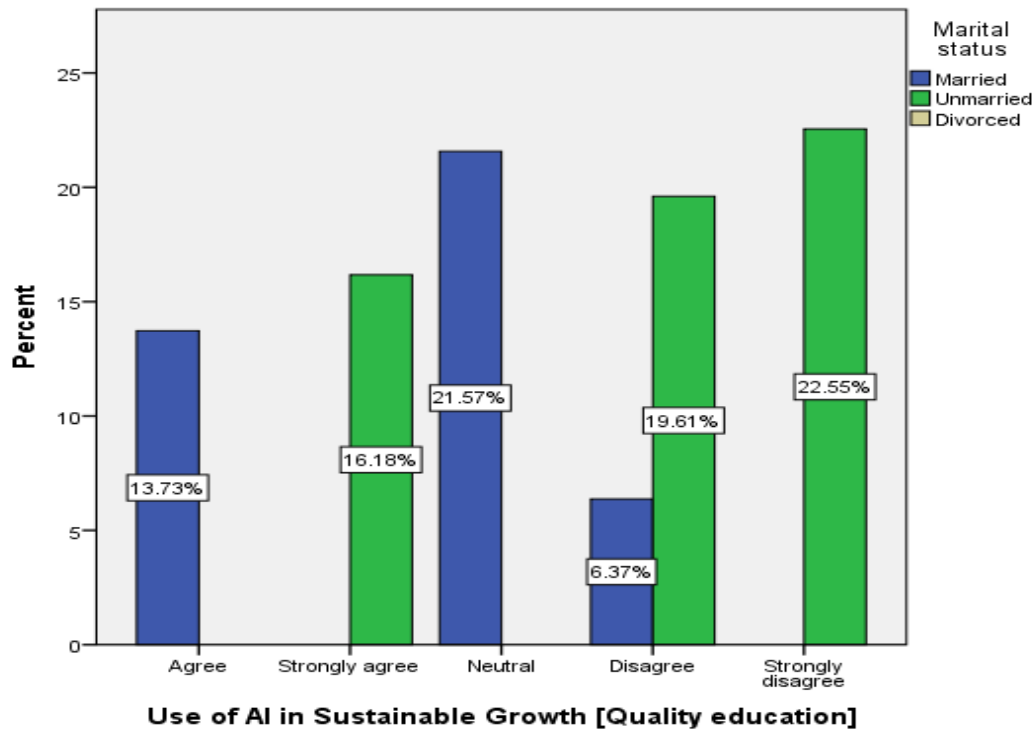
LEGEND : The figure 13 represents the advancing AI in sustainable development goals has long term societal and environmental outcome or not compared with educational qualification of the respondents.

FIGURE 13 :



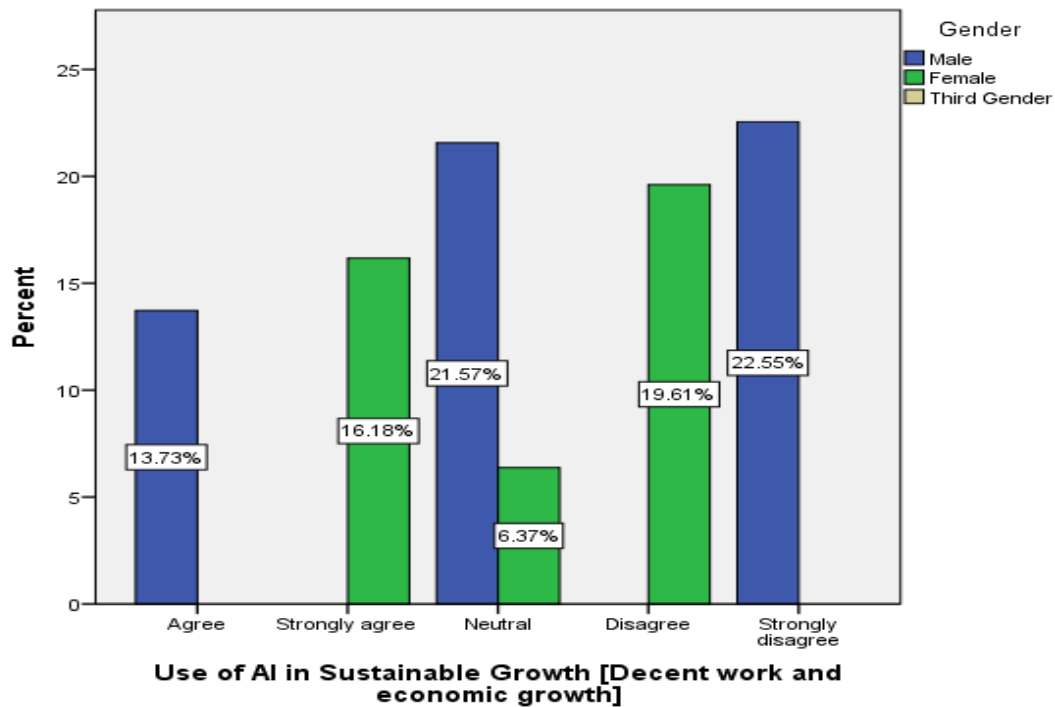
LEGEND : The figure 13 represents use of AI in sustainable growth in good health and well being compared with employment status of the respondents.

FIGURE 14 :



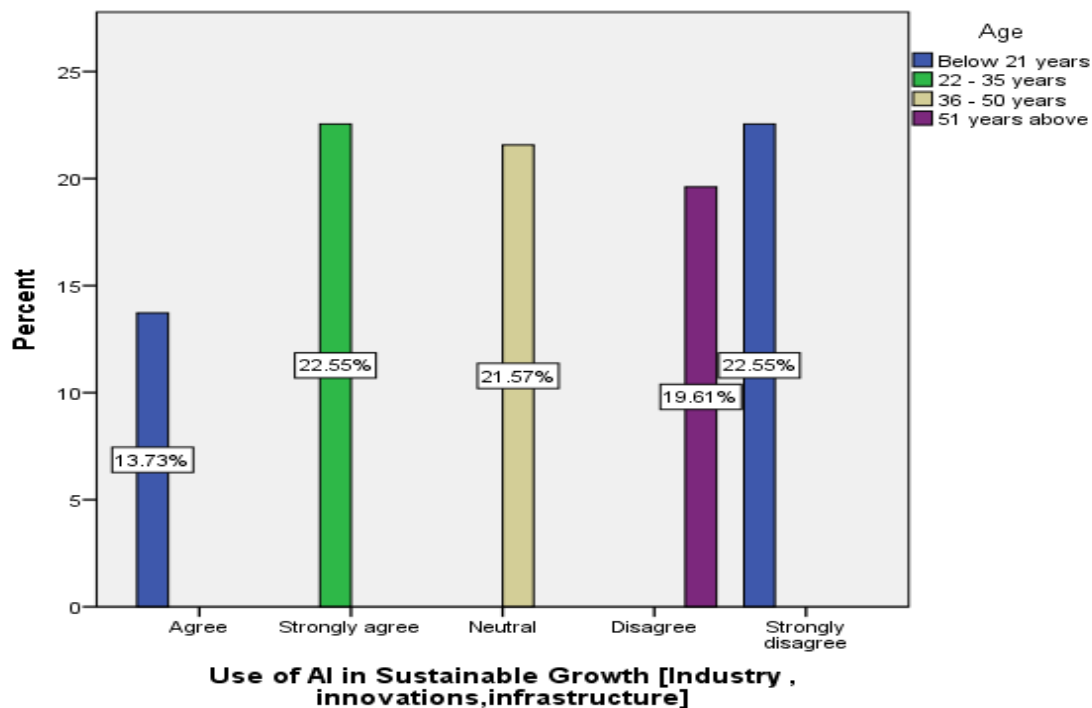
LEGEND : The figure 14 represents use of AI in sustainable growth in quality education compared with the marital status of the respondents.

FIGURE 15 :



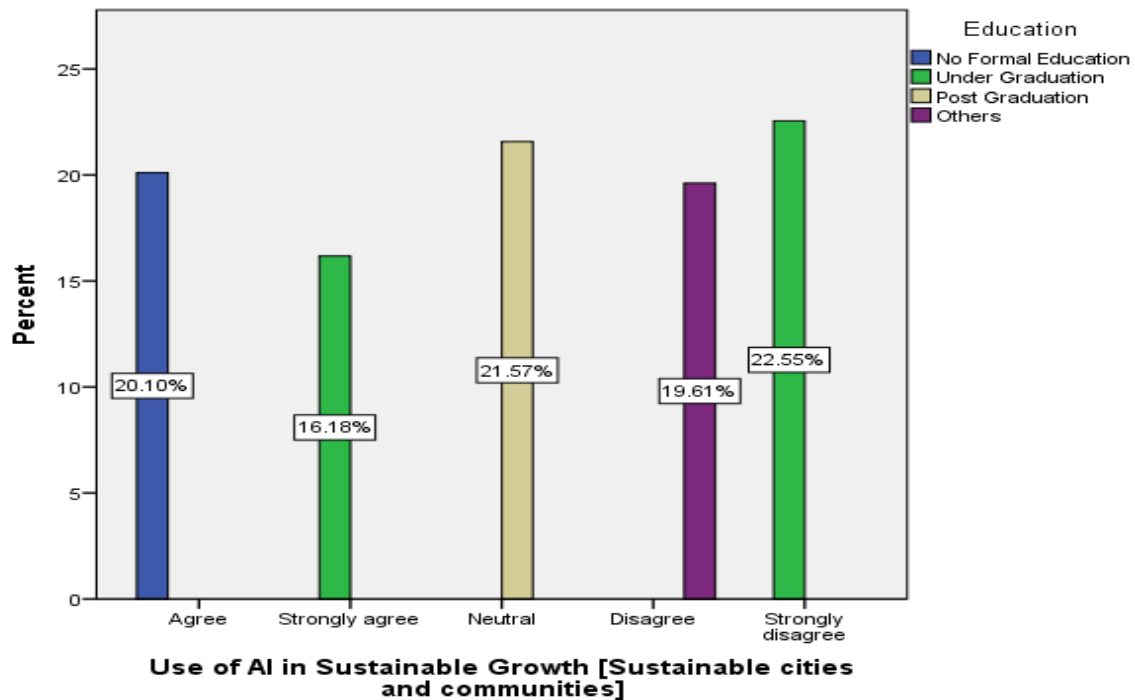
LEGEND : The figure 15 represents use of AI in sustainable growth in decent work and economic growth compared with the gender of the respondents.

FIGURE 16 :



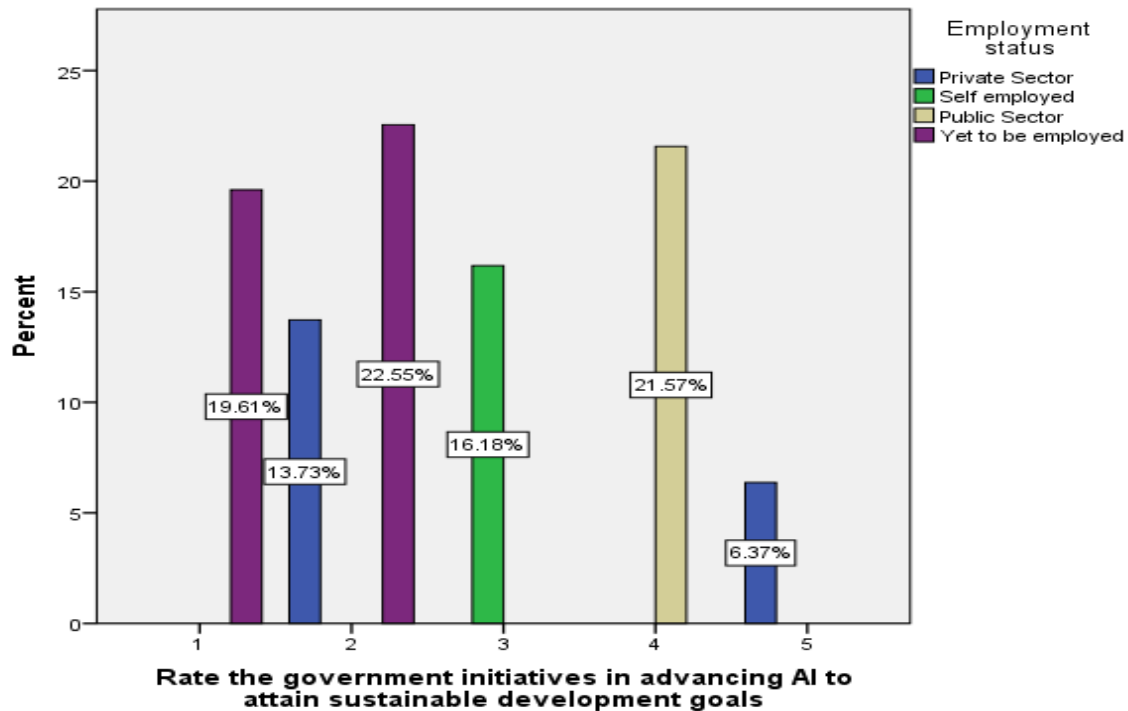
LEGEND : The figure 16 represents use of AI in sustainable growth in industry, innovations, and infrastructure compared with the age of the respondents.

FIGURE 17 :



LEGEND : The figure 17 represents use of AI in sustainable growth in sustainable cities and communities compared with the educational qualification of the respondents.

FIGURE 18 :



LEGEND : The figure 18 represents the rate scale of government initiatives in advancing AI to sustainable development goals compared with the employment status of the respondents.

FIGURE 19 :

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Do you think Ai can play a role in address-climate change environmental sustainability * Gender	204	100.0%	0	0.0%	204	100.0%

Do you think Ai can play a role in address-climate change environmental sustainability * Gender Crosstabulation

Count		Gender		Total
		Male	Female	
Do you think Ai can play a role in address-climate change environmental sustainability	Yes	118	13	131
	No	0	73	73
Total		118	86	204

LEGEND : The figure 19 is a tabular column representing cross tabulation.

HYPOTHESIS

Null Hypothesis (H_0): There is no significant association between gender and the perception that AI can play a role in addressing climate change and environmental sustainability.

Alternative Hypothesis (H_1): There is a significant association between gender and the perception that AI can play a role in addressing climate change and environmental sustainability.

FIGURE 20 :

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Do you agree that government is taking necessary steps to attain sustainable development before 2030	204	2.63	1.016	.071

LEGEND : The figure 20 is a tabular column representing one sample T test.

HYPOTHESIS

Null Hypothesis (H_0): The mean response (2.63) does not significantly differ from the neutral point (usually 3 in a Likert scale), meaning there is no strong agreement or disagreement regarding the government's efforts.

Alternative Hypothesis (H_1): The mean response significantly differs from the neutral point, indicating that respondents either disagree or agree that the government is taking necessary steps toward sustainable development.

FIGURE 21 :

ANOVA					
Rate the government initiatives in advancing AI to attain sustainable development goals					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	258.107	3	86.036	461.264	.000
Within Groups	37.304	200	.187		
Total	295.412	203			

LEGEND : The figure 21 is a tabular column represents Anova.

HYPOTHESIS

Null Hypothesis (H_0): There is no significant difference between the groups in their ratings of government initiatives for AI and sustainable development.

Alternative Hypothesis (H_1): At least one group's rating of the government initiatives significantly differs from the others.

V. RESULTS

In figure 1 64.22% of the respondents responded yes saying that AI can play a role in addressing climate change, environmental sustainability. In figure 2 44.12% of the respondents stand neutral saying that the government is taking necessary steps to attain sustainable development goals before 2030. In figure 3 20.10% of the respondents agree saying that advancing AI in sustainable development goals has long term societal and environmental outcomes. In figure 4 28.92% of the respondents strongly disagree that the use of AI in sustainability is not good health and well being. In figure 5 25.98% of the respondents disagree that quality education is not a use of AI in sustainable growth. In figure 6 27.94% of the respondents stand neutral saying that decent work and economic growth can be or cannot be a use of AI in sustainable growth. In figure 7 22.55% of the respondents strongly agree that industry, innovations, and infrastructure are the use of AI in sustainable growth. In figure 8 20.10% of the respondents agree saying that sustainable cities and communities use AI in sustainable growth. In figure 9 36.27% of the respondents rate 2 on the scale of 5 saying that initiatives taken by the government in advancing AI to attain sustainable development goals is low. In figure 10 35.78% of the female respondents responded no by saying that AI cannot play a role in addressing climate change, environmental sustainability. In figure 11 19.61% of the respondents of age 51 years above disagree saying that the government is not taking necessary steps to attain sustainable development goals before 2030. In figure 12 21.57% of the undergraduate respondents stand neutral saying that advancing AI in sustainable development goals may have or may not have long term societal and environmental outcomes. In figure 13 22.55% of the respondents yet to be employed strongly disagree that the use of AI in sustainability is not good health and well being. In figure 14 22.55% of the unmarried respondents strongly disagree that quality education is not a use of AI in sustainable growth. In figure 15 13.73% of the male respondents agree saying that decent work and economic growth can be a use of AI in sustainable growth. In figure 16 21.57% of the respondents of age 36 - 50 years stand neutral saying that industry, innovations, and infrastructure can or

cannot be a use of AI in sustainable growth. In figure 17 20.10% of the respondents with no formal education agree saying that sustainable cities and communities use AI in sustainable growth. In figure 18 21.57% of the respondents rate 4 on the scale of 5 saying that initiatives taken by the government in advancing AI to attain sustainable development goals are high. In figure 19 The calculated value is 0.000 <0.05, Null Hypothesis is rejected. So, there is a significant association between variables. In figure 20 The calculated value is 0.000 <0.05, Null Hypothesis is rejected. So, there is a significant association between variables. In figure 21 The calculated value is 0.000 <0.05, Null Hypothesis is rejected. So, there is a significant association between variables.

VI. DISCUSSION

In Figure 1 The majority (64.22%) of respondents believe AI can significantly contribute to addressing climate change and environmental sustainability. This highlights strong public confidence in AI's potential to enhance climate action efforts, such as monitoring environmental data and improving energy efficiency. The result reflects growing awareness of AI's transformative role in achieving Sustainable Development Goal (SDG) 13 (Climate Action). In Figure 2 The respondents remaining neutral about the government's actions toward achieving SDGs by 2030, there seems to be uncertainty or lack of information about the effectiveness of ongoing initiatives. This indicates a need for greater transparency, communication, and public engagement from the government regarding its strategies for sustainable development. In Figure 3 Only 20.10% of respondents agree that advancing AI in SDGs has long-term societal and environmental benefits. This low agreement suggests skepticism or limited awareness about AI's capabilities to provide sustainable outcomes, such as improving public health or reducing inequalities. In Figure 4 A significant proportion (28.92%) strongly disagrees that AI in sustainability is not linked to good health and well-being. This indicates strong belief among respondents that AI can positively influence SDG 3 (Good Health and Well-being) through applications like disease prediction, telemedicine, and efficient healthcare resource management. In Figure 5 With 25.98% of

respondents disagreeing that quality education is not a use of AI in sustainable growth, there is notable acknowledgment of AI's role in enhancing educational opportunities, such as personalized learning and improved access to resources, aligning with SDG 4 (Quality Education). In Figure 6 The neutral stance of 27.94% regarding AI's role in decent work and economic growth indicates mixed perceptions about whether AI can promote SDG 8. This highlights a lack of clarity about AI's potential for creating jobs, enhancing workplace productivity, and driving economic growth. In Figure 7 A strong agreement (22.55%) that industry, innovation, and infrastructure are areas where AI supports sustainable growth highlights optimism about AI's ability to contribute to SDG 9. Applications in smart manufacturing, infrastructure planning, and innovation ecosystems are recognized as drivers of development. In Figure 8 The 20.10% agreement that AI aids in building sustainable cities and communities shows growing acceptance of AI's role in urban planning, waste management, and smart city solutions, which align with SDG 11 (Sustainable Cities and Communities). In Figure 9 The 36.27% of respondents rating 2 out of 5 for government initiatives in advancing AI for SDGs reflects public dissatisfaction or a perception of insufficient progress. This indicates a need for increased investment, policy support, and visible efforts by the government in integrating AI for sustainable development. In Figure 18 The 21.57% of respondents rating government efforts as 4 out of 5 indicates that a segment of the population views these efforts as effective, though there remains room for improvement. In Figures 19, 20, 21 The rejection of the null hypothesis (calculated value $0.000 < 0.05$) in all three cases indicates significant associations between the variables under study. This underscores meaningful relationships, such as demographic factors influencing perceptions of AI's role in achieving SDGs, which should be further analyzed to guide future policies and interventions.

VII. LIMITATIONS

The study on AI as a tool for advancing Sustainable Development Goals (SDGs) faces several limitations. One major challenge is the availability and quality of data, as AI systems rely on comprehensive, unbiased datasets, which are often lacking in developing

regions, leading to gaps in implementation. Additionally, ethical concerns and biases in AI models can reinforce existing inequalities, affecting SDGs related to fairness and inclusion. The lack of standardization in AI-driven SDG strategies also creates difficulties in assessing its real impact across different sectors and regions.

SUGGESTIONS :

To effectively use AI as a tool for advancing the Sustainable Development Goals (SDGs), several measures must be taken. First, equitable access to AI technologies must be prioritized to ensure that both developed and developing nations can benefit from these innovations. Governments, private organizations, and international bodies should invest in infrastructure, training, and resources to bridge the digital divide. Collaboration between stakeholders can foster knowledge-sharing, enabling AI tools to address diverse challenges such as poverty alleviation, healthcare delivery, and renewable energy optimization. Furthermore, efforts should focus on creating AI systems that are inclusive, addressing cultural and regional needs to maximize their impact globally.

VIII. CONCLUSION

AI has emerged as a transformative tool for advancing Sustainable Development Goals (SDGs) by addressing critical challenges in areas such as climate change, education, healthcare, and urban sustainability. The Objective of the study examines the implications of adopting AI for sustainable development challenges. However, The findings of the study above reveals a mixed perception among respondents regarding the effectiveness and progress of AI in driving sustainable development. While a significant majority acknowledges AI's potential in climate action and environmental sustainability, skepticism persists about its long-term societal and economic outcomes and the adequacy of government initiatives. Several demographic insights also highlight varying degrees of trust and awareness about AI's role in sustainability. Similarly, respondents recognize AI's potential in healthcare and education, where it can revolutionize service delivery through personalized learning, telemedicine, and efficient resource management. However, perceptions vary across demographics, with older individuals and

women expressing skepticism about AI's societal and economic impact. This suggests a gap in visible action and communication, which could hinder public trust and engagement. On the other hand, the significant association between variables, such as demographics and opinions, underscores the diverse perspectives on AI's role in sustainability. The future scope indicates a pressing need for broader outreach and awareness programs to showcase AI's benefits in achieving SDGs. Moreover, the findings highlight concerns about the adequacy of government initiatives, with many respondents remaining neutral or dissatisfied with efforts to advance AI for sustainable development. Bridging these gaps the conclusion of the study that require collaborative efforts among governments, private sectors, and civil society to develop ethical, inclusive, and scalable AI solutions. Transparent policies, robust infrastructure, and widespread digital literacy are crucial to ensuring AI becomes a transformative tool for sustainable development, delivering equitable and long-term benefits by 2030.

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PLAGIARISM :

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Result

Abstract :

AI as a Tool for Advancing Sustainable Development Goals (SDGs) refers to the application of artificial intelligence technologies to address global challenges and promote sustainable development. AI has the potential to accelerate progress across various SDGs, such as ending poverty, ensuring quality education, advancing gender equality, combating

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