

GREEN TECHNOLOGY IMPLEMENTATION FOR ENVIRONMENTAL SUSTAINABILITY; APPLICATIONS AND CHALLENGES

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Abstract: Green technology implementation plays a pivotal role in the pursuit of environmental sustainability by aligning human activities with the preservation of our planet. It encompasses a spectrum of innovative approaches aimed at minimizing the ecological footprint of industries, infrastructure, and everyday life. By focusing on resource efficiency, pollution reduction, and the utilization of renewable energy sources, green technology contributes to mitigating the adverse impacts of human actions on the environment. Energy-efficient practices and smart infrastructure promote responsible energy consumption, minimizing waste and conserving natural resources. Moreover, green technology's influence extends to waste management, sustainable agriculture, and transportation, fostering practices that reduce pollution, promote circular economies, and minimize the depletion of finite resources. While challenges exist, including initial costs and technological maturity, the implementation of green technology signifies a collective commitment to fostering a harmonious coexistence between human progress and environmental health. It holds the potential to reshape industries, economies, and societies, steering them towards a more sustainable and ecologically conscious future.

Keywords: Green Technology, Environmental Sustainability, Technological development, Radical innovation.

Introduction The ability of humans and other animal species to self-regulate and adapt to their natural environments is significantly hampered by the presence of various technologies that are more prevalent in our world. The influence of technology on society and its environment has been multifaceted, helping to the development of economies, most notably the economy that exists now on a global scale, and making it possible for a leisure class to form, despite the possibility that it may also promote tendencies towards sloth and lethargy. These contributions have been made possible by the proliferation of diverse technologies. These technological improvements have had a revolutionary effect on people's ways of life, making them more comfortable and convenient in the process. It is necessary to take into consideration the long-term viability of the environment in which one resides in order to ensure the health and happiness of individuals within a society. Technology is an area of scientific knowledge that comprises the creation, implementation, and use of technical methods, as well as their interconnection with human existence, societal dynamics, and the natural world. Technology was first defined as the application of scientific knowledge to the development, implementation, and use of technical methods. This field makes use of many different fields of study, including engineering, applied science, pure science, and industrial arts. Numerous technological processes result in the production of unwanted byproducts, which in turn causes the occurrence of pollution and the depletion of natural resources, which in turn has a negative impact on the ecology of the Earth. Because the introduction of new technological developments has such a tremendous impact on the cultural and value systems of a given civilization, it inevitably results in the emergence of brand-new ethical conundrums. A dedication to sustainability and the capacity to produce zero greenhouse gas emissions are two of the defining qualities of ideal technology. These characteristics, along

with their alignment with the concepts of green technology, make ideal technology one of the distinguishing characteristics of ideal technology. The aim of the study is to provide a concept for strengthening the long-term viability of technologies through the introduction of environmentally friendly components. By integrating these components, technology has the potential to slow the degradation of the environment and transition towards environmentally friendly technologies, so assuring that future generations will inherit a clean environment. In addition to this, the paper investigates the opportunities and challenges presented by green technology in a variety of fields, such as agriculture, potable water, renewable energy, buildings, aircraft and space exploration, industrial automation, computers and communication, education, food processing, and health and medicine, in the context of the 21st century. These fields include agriculture, potable water, renewable energy, buildings, aircraft and space exploration. The influence of technology on society and the environment has been diverse, and this has contributed to the development of economies, most notably the modern economy on a worldwide scale. These technological improvements have had a revolutionary effect on people's ways of life, making them more comfortable and convenient in the process. It is absolutely necessary for the members of a society to make the sustainability of the surrounding environment and the protection of it a top priority in order to ensure that its members will have a high quality of life and be satisfied with it. This study makes a recommendation for improving the long-term viability of technologies by incorporating environmentally friendly components. The goal is to slow down the destruction of the environment and turn these technologies into alternatives that are less harmful to the natural world in order to preserve a pristine environment for future generations. Within the context of the 21st century, this article investigates the various opportunities and challenges associated with the implementation of green technology in a variety of industries, such as the agricultural sector, drinking water, energy from renewable sources, buildings, aircraft and space exploration, education, food processing, and health and medicine. These industries include agriculture, aircraft and space exploration, education, health and medicine.

Research Background Given the escalating global challenges, including climate change, population expansion, environmental contamination, and the unsustainable utilisation and depletion of natural resources, nations must adopt technologies and strategies for economic activities that are less detrimental to the environment and promote resource conservation. Sustainable development is characterized by a reduced impact on the environment and is facilitated by inclusive and holistic policies, which can be implemented at both the international and national levels, and consider the interests of future generations. Within this set of policies, there are various recommendations that propose the utilisation of environmentally friendly technologies. Green technology plays a pivotal role in fostering sustainable development, encompassing the identification of ecologically sound avenues for economic growth, the cultivation of novel environmentally-friendly enterprises, and the generation of employment opportunities and technological advancements. In order to attain sustainable economic growth, it is imperative to enhance investments and foster innovations, as these factors serve as the bedrock for sustainable development and create novel avenues for economic advancement. Therefore, in order to advance the green economy, it is imperative to do comprehensive research on the reasons that contribute to its establishment, the elements that shape its structure, and its influence on the sustainable growth of a nation. Stakeholders invested in green economic development encompass commercial entities, who priorities economic gains, governmental bodies responsible for establishing environmental objectives aligned with sustainable development, and the public, serving as representatives of social community interests. In order to effectively pursue the objectives of sustainable

development, it is imperative to foster and implement innovative approaches. The implementation of sustainable innovation enables the organisation to remain abreast of technological advancements. The primary objective of sustainable green innovations is to develop innovative goods of superior quality that have the potential to minimise their impact on the environment. The recognition of the significance of green inventions remains widespread as long as environmental concerns continue to emerge. This variable represents the influence of environmental elements, specifically innovations, on the overall environmental condition. The empirical evidence supports the notion that market orientation and the adoption of technology have a significant influence on environmental performance, resulting in a favourable outcome for the latter. The incorporation of eco-innovation ideals empowers organisations to effectively address difficulties posed by competitors within the market. The heightened allocation of resources towards the disclosure of environmental and social information within corporate entities serves to enhance operational advancement. The integration of sustainable green technology significantly contributes to the establishment of a sustainable society by concurrently fostering environmental preservation and facilitating economic advancement. Furthermore, it is imperative to give careful consideration to the factors that contribute to the creation of sustainable green technology, as well as the disparities in development priorities among these drivers. However, it is important to note that the collective contributions of individuals involved in the leader follower supply chain, particularly in relation to sustainable eco-innovations, have a significant impact on the development of sustainable green innovations. Additionally, the equitable distribution of resources and benefits among these participants also plays a crucial role in this process. The aforementioned issue presented significant obstacles for all stakeholders involved in the supply chain, including but not limited to supply and demand discrepancies, adverse environmental impacts, and disparities in employment distribution. In this manner, the adoption of green employee behaviour and the cultivation of green values will assume a mediating function in mitigating the environmental impact.

Discussion Green Technology (GT) refers to a form of technology that aims to mitigate the negative environmental impacts caused by various products and technologies designed for human convenience. There is a prevailing belief that genetic technology (GT) holds the potential to enhance the profitability of agricultural operations. Green technologies, also known as sustainable technologies, are characterized by their ability to minimise or eliminate environmental impact when employed in various processes or applications. Green technologies promote the utilisation of natural organic resources while minimizing the emission of greenhouse gases. Additionally, they exhibit reduced resource consumption and do not contribute to the overall increase in entropy within the cosmos. Green technologies are not conducive to any form of environmental deterioration.

Conclusion In order to be classified as environmentally friendly, technology must adhere to the following criteria: it must minimise the negative impact on the environment, decrease the emission of greenhouse gases (GHG), preserve natural resources, and promote the utilisation of renewable energy sources. The market, encompassing both online and offline spaces, exhibits a substantial need for green and sustainable technology. Consequently, the reputation of enterprises is contingent upon their capacity to actively participate in the promotion of environmentally friendly strategies and instruments. The continuous development of new technologies is leading to an increasing number of novel assertions on environmental conservation. The progression of electric automobiles serves as a prominent illustration of environmentally friendly technology throughout various domains. Hence, notwithstanding the encountered difficulties, the adoption of green technology facilitates

environmental preservation and enhances sustainability on a comprehensive level. Efforts to transition current technologies into environmentally friendly and sustainable alternatives should be pursued through individual and organisational endeavors. The importance of prioritizing the conservation of energy and natural resources to achieve environmental sustainability should be underscored by business entities, both public and private, within their vision and mission statements. Organisations are required to disclose the level of advantage derived from the implementation of green technology within their Corporate Social Responsibility (CSR) reports. For instance, the degree to which products are recycled and the level of energy efficiency achieved, among other factors. The implementation of green technology holds significant promise for achieving environmental sustainability by reducing the ecological footprint of human activities. Green technology, also known as clean technology or eco-friendly technology, encompasses a range of innovations designed to minimize resource consumption, reduce pollution, and promote sustainable practices across various sectors.

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