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A STUDY ON GREEN MARKETING INITIATIVES AND CHALLENGES IN THE ERA OF INDUSTRY 4.0 AND INDUSTRY 5.0

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ABSTRACT

In the dynamic landscape of contemporary business, the integration of sustainable practices has become crucial for business corporations aiming to attain a competitive edge. This research investigates the intersection of green marketing with Industry 4.0 and Industry 5.0, exploring how sustainable competitive advantage can be achieved in the context of advanced industrial paradigms. Industry 4.0, characterized by the fusion of digital technologies with physical systems, has revolutionized traditional manufacturing processes, leading to increased efficiency and connectivity. Building upon this foundation, Industry 5.0 emphasizes human-machine collaboration and further integrates technologies such as artificial intelligence and advanced robotics. Within this evolving industrial landscape, green marketing emerges as a potent strategy for organizations to align with societal expectations and distinguish them from competitors. By promoting environmentally friendly products and services, organizations can improve brand reputation and appeal to eco-conscious consumers. The research aims to investigate the efficiency of green marketing strategies in enhancing brand value and market positioning within Industry 4.0 and Industry 5.0 environments. It also seeks to estimate the impact of digital technologies on the implementation and management of green marketing initiatives, as well as examine the challenges and opportunities associated with integrating green marketing practices into advanced industrial frameworks. The study contributes to both academic and practical understanding by shedding light on the synergies between green marketing and advanced industrial paradigms. It offers valuable insights for organizations seeking to leverage sustainable practices for competitive advantage in the era of Industry 4.0 and Industry 5.0. Ultimately, the research underscores the importance of embracing environmental stewardship and leveraging digital innovations to drive sustainable growth in the global marketplace.

***KEYWORDS**: Green Marketing, Sustainable Development, Competitive Advantage, Industry 4.0, Industry 5.0.*

Introduction

In the contemporary business landscape, the integration of sustainable practices has become imperative, not only as a response to environmental concerns but also as a critical approach to gaining a competitive advantage. With the advent of Industry 4.0 and the evolving paradigm of Industry 5.0, there is a compelling need to explore how green marketing strategies can serve as a potent source of sustainable competitive advantage for organizations operating in these advanced industrial environments. Industry 4.0, characterized by the fusion of digital technologies with physical systems, has revolutionized

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traditional manufacturing processes, leading to increased efficiency, automation, and connectivity. This paradigm shift has paved the way for Industry 5.0, emphasizing human-machine collaboration and furthering the integration of technologies such as artificial intelligence, the Internet of Things (IoT), and advanced robotics.

Industry 4.0, marked by the convergence of cyber-physical systems, artificial intelligence, and the Internet of Things (IoT), has revolutionized industrial processes, supply chains, and consumer behaviours. The transition toward Industry 5.0, with its emphasis on human-centric innovation and collaboration between humans and machines, further underscores the need for businesses to embrace sustainability as a core strategic imperative [1]. Green marketing serves to align technological innovations with environmental sustainability goals, promoting positive societal and environmental impact while fostering economic growth and competitiveness. The development of green marketing practices mirrors the shifting paradigms of sustainability and consumerism over the decades. From its nascent beginnings as a niche concept championed by environmental activists and socially liable businesses, green marketing has evolved into a mainstream phenomenon embraced by multinational corporations and small enterprises alike [2].

The growth of green marketing can be traced through various stages, including product-centric environmentalism, stakeholder engagement, corporate social responsibility (CSR), and sustainable value creation [3]. Green marketing offers a strategic framework for integrating sustainability considerations into product design, manufacturing processes, distribution channels, and marketing communications, thereby mitigating environmental risks and enhancing brand reputation [4]. In the context of Industry 4.0 and Industry 5.0, green marketing enables businesses to harness the transformative potential of technology to create value that is not only economically viable but also socially and environmentally sustainable. In this rapidly evolving industrial landscape, organizations are faced with unprecedented opportunities and challenges, particularly concerning sustainability and environmental stewardship. One significant hurdle is the lack of standardized metrics and frameworks for measuring and reporting environmental performance and impact [5]. Without transparent and verifiable indicators, businesses may struggle to communicate their sustainability efforts effectively to stakeholders and consumers. Additionally, greenwashing—the practice of misleadingly portraying products or companies as environmentally friendly—poses a credibility threat to genuine green marketing initiatives [6].

Moreover, the complexity of global supply chains, regulatory inconsistencies consumer scepticism present formidable obstacles to the widespread acceptance of green marketing methods. Incorporating environmental factors into their marketing strategies allows organizations to improve their brand reputation, attract environmentally conscious consumers, and stand out from their competitors. Moreover, green marketing initiatives contribute, to environmental conservation and address pressing global issues such as climate change and resource depletion. The convergence of green marketing with Industry 4.0 and Industry 5.0 presents unique opportunities for organizations to leverage technology-driven solutions in pursuit of sustainability objectives. Advanced digital technologies enable real-time monitoring of environmental impacts across the supply chain, facilitating the implementation of eco-friendly practices and the optimization of resource utilization. Additionally, Industry 5.0 focuses on human-centred innovation, leading to the creation of sustainable products and services that meet the varied needs and preferences of consumers.

Literature Review

Saniuk (2022) It is essential to remember that Industry 5.0 requires the involvement of various stakeholders such as policymakers, colleges, and labour unions. The integration of these stakeholders is critical since Industry 5.0 is primarily a technological phenomenon, and it is difficult to accomplish the intended goals without systematic technology governance imposed by stakeholders. This is due to the socio-environmental values associated with Industry 5.0 cannot be fully realized without the involvement and cooperation of all stakeholders.

Breque (2021) The Society 5.0 concept is gaining popularity and the European Commission has expanded on it by introducing Industry 5.0 as a structural shift toward a sustainable future industry. Unlike Industry 4.0, Industry 5.0 is not a mere continuation but rather an expansion of its predecessor. It adds socio-environmental components to the Industry 4.0 model, making it more sustainable and socially responsible. The European Commission believes that Industry 5.0 will complement Industry 4.0 and provide a better model for a sustainable and equitable future.

Sarfraz (2021) Industry 4.0 is a concept that utilizes digital transformation and value-generation processes to improve industrial operations. However, it may lead to various issues in society in the future, such as mass unemployment. Additionally, the recent epidemic has raised additional concerns, pushing us towards mass personalization under a new Industrial Revolution.

Upadhyay (2021) Society is moving towards the Digital and Green Economy, which work together to support sustainable development. Although Industry 4.0 technologies are highly beneficial, they can also raise new global concerns. Blockchain is an emerging technology that can facilitate the creation of a circular economy by enhancing supply chain management and reducing carbon footprints across the value chain.

Syafei (2020) states that green marketing is a strategy that can assist marketers in promoting their products and services while fulfilling their core business goals. It emphasizes the creation of tangible environmental benefits. Genetic modification can aid individuals and communities in realizing their needs and wants while reducing their negative environmental impact. A surge in green marketing initiatives can be driven by either internal or external factors. External factors that can give rise to such initiatives include rising environmental pollution levels and responding to consumer demand.

Sanker and Janani (2020) discuss how different awareness programs, such as green market tools, environmentally friendly labelling, and packaging, need to be based on environmentally friendly features to attract customers to participate in green marketing. Green marketing strategies are closely related to product attractiveness, culture, and marketing effectiveness.

Edeh (2020) found green marketing aims to raise consumer awareness about environmental issues through the products or services they purchase. This helps individuals become more ecologically conscious. By changing their buying habits, consumers can contribute towards protecting the environment.

Tanwari & Burhan (2020) studied businesses to effectively sell their products in a market where customers do not believe the product being marketed is environmentally friendly; a lack of adequate consumer understanding about environmental issues is a major challenge.

Liao and Teixeira (2019) The combination of additive manufacturing, Industry 4.0, and sustainable human manufacturing offers numerous benefits to the environment, economy, and society. Additive manufacturing reduces waste, Industry 4.0 enables efficient production, and sustainable human manufacturing ensures balanced production.

Ganimete and Fatos (2019) found that among the most difficult tasks for businesses is figuring out how to grow a marketing communication mix platform that is both environmentally friendly and fosters direct interaction and customer trust, specifically when it comes to green marketing operations. Consumers are on the lookout for new eco-value market offerings and analyze them based on various green marketing factors such as product characteristics, quality, origin, flavour, price, packaging, labelling, performance, durability, service, and any other environmental features that may be relevant to them.

Objectives

- To explore the different green practices adopted by various companies.
- To understand the challenges that exist in applying green practices.
- To propose strategic recommendations and best practices for businesses to leverage green marketing.

Methodology

A qualitative analysis of secondary data was done to achieve research objectives. The data for this research paper has been collected using secondary data sources from journals, reference books, online blogs, websites, articles and various other secondary sources to study the challenges and opportunities of Green Marketing and Sustainable Development to better understand the topic.

The Beginnings of Green Marketing

The term Environmental Marketing, also known as Green Marketing, gained popularity in the late 1980s and early 1990s. It started in Europe when certain products were identified as harmful to the environment, leading to the introduction of new "green" products that were less damaging. Green marketing has become increasingly significant in today's market, emerging as a crucial concept in India and other parts of the world. It is viewed as an essential strategy for promoting sustainable development.

Table 1: The Evolution of Green Marketing (Source: Solvalier, 2010) [19]

Stages	Decade	Important milestones in Green Marketing history
1st stage	1980s	The introduction of ecological products, which were essentially synonymous with green products, coincided with very low levels of green consumption.
2nd stage	Early 1990s	There is significant concern about environmental issues, yet the consumption of green products remains low. Companies are increasingly focusing on reducing their use of raw materials and minimizing waste. They are also actively engaging in recycling, improving energy efficiency, and taking on corporate responsibility initiatives.
3rd stage	Late 1990s	Changes in production processes, technology and resourcing; sustainability marketing; Total quality management involves environmental issues.
4th stage	2000	Green products and services are staging a comeback, with increasing popularity among both companies and consumers for eco-friendly and sustainable options. This trend has also led to the emergence of the term "sustainable green marketing."

Peattie (2001), green marketing has evolved through three distinct phases. The first phase, called "Ecological" green marketing, focused on addressing and remedying environmental issues through marketing activities. The second phase, known as "Environmental" green marketing, emphasized clean technology and the development of innovative products designed to tackle pollution and waste problems. The third phase, "Sustainable" green marketing, became prominent in the 1990s and early 2000s [20]. Table 1 outlines the key characteristics of each decade in the evolution of green marketing over the past thirty years.

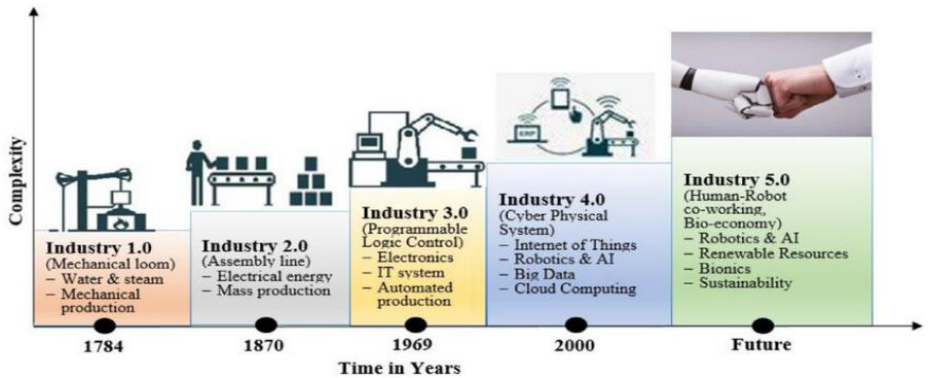
Current Scenario of Green Marketing in India

Green marketing refers to promoting goods and services that are environmentally friendly. In India, the market for green goods and services has been expanding due to rising consumer awareness and concern about environmental issues. According to market research by FMI, the market for green building materials is expected to grow at a rate of 11.2% over the forecast period, with a projected value of US$ 334 billion in 2023, and expected to exceed US$ 962 billion by 2033. The Indian government has also been supportive of green building methods and has set a target for all new construction to be green by 2022, resulting in increased demand for green building products and services.

The renewable energy industry in India has also grown rapidly in recent years, with the installed capacity of renewable energy reaching 165.94 GW, exceeding the set goal of 175 GW by 2022, according to the Ministry of New and Renewable Energy. The Ministry is also working towards achieving a goal of 500 GW of installed power capacity from non-fossil sources by 2030, following the Prime Minister's announcement at COP26.

Overall, there is a positive outlook for India's green market, with increasing consumer awareness and government support for green goods and services. However, there are still challenges that need to be addressed to make green marketing more mainstream. As businesses continue to adopt environmentally friendly methods and consumers become more aware of the impact of their utilization on the environment, green marketing is anticipated to gain more momentum in India.

Industry 1.0- Industry to 5.0



Industrial révolutions from Industry 1.0 to Industry 5.0 **(Researchgate.com)**

Industrial Revolutions: Lifecycle and Value Propositions

"The term 'revolution' refers to a significant and rapid change. It comes from the Latin word 'revolution', which means 'a complete turn'. Revolutions can vary greatly in terms of methods, duration, reasons and ideals, but usually lead to significant changes in response to issues within an existing system. Early studies of revolutions focused on events in European history. Similarly, the first Industrial Revolution in Great Britain saw the adoption of new manufacturing technologies, marking a turning point in history. It is not surprising that the German government has introduced Industry 4.0 in central Europe. Scholars argue that it represents a new industrial revolution, although Industry 4.0 was created over a decade ago and has not yet matured fully due to ongoing development". Industry 4.0 is still in its early stages of development, and there are many years ahead for technological advancements. However, based on the conventional cycle for emerging new industrial revolutions that usually take decades, it has been revealed that Industry 5.0 is currently underway and is being driven by Europe. This development is paving the way for sustainable growth.

"From Industry 1.0 to 5.0: A Historical Evolution"

- **Industry 1.0: The Birth of the Industrial Revolution**

Industry 1.0, also referred to as the first industrial revolution, commenced in the late 18th century and lasted until the mid-19th century. This era was marked by the widespread use of automated manufacturing, the utilization of energy sources such as coal and steam power, and the establishment of the earliest factories. This revolution facilitated mass production and witnessed the growth of the first industrial giants, including cotton mills and ironworks.

- **Industry 2.0: The Era of Mass Production**

The second wave of industrialization, often known as Industry 2.0, was characterized by the advent of electricity and new technologies, such as the assembly line. This revolution led to increased productivity, efficiency, and improved quality of industrial output, particularly in the automotive sector.

- **Industry 3.0: The Rise of Automation**

The digital revolution, also known as Industry 3.0, involved the integration of electronic technologies to establish computerized systems, automated factories, and robotic production lines. This revolutionary evolution paved the way for the emergence of the internet and fostered the development of cutting-edge technologies such as 3D printing, big data, and cloud computing.

- **Industry 4.0: Technology-Driven Mass Personalization**

Industry 4.0 refers to the digital and connected production paradigm that is transforming the manufacturing industry, resulting in the creation of smart factories. It is often used interchangeably with other terms such as the fourth industrial revolution, Industrial IoT, cyber-physical systems, smart manufacturing, advanced manufacturing, and RAMI 4.0-compliant. Regardless of the varied terms, Industry 4.0 presents companies with an opportunity to offer affordable and scalable personalization in the digital era. However, it remains uncertain whether and when personalization will become a minimum product characteristic. In the past, personalization was not a significant concern, and most manufacturers operated under Henry Ford's philosophy that "you can have any colour as long as it is black." Nevertheless, as the unique value proposition of personalization describes how a business can offer a more tailored customer experience to address individual needs, it has become increasingly important. While mass personalization in digital media is widely practised, the manufacturing industry has faced challenges in fulfilling individuals' requirements. However, Industry 4.0 enables smart machines and augmented humans to create cognitive and physical improvements that bridge the gap between the physical and digital worlds. (Kosch 2022).

- **Industry 5.0: Human-centric mass personalization**

Industry 5.0 is a new approach to manufacturing that prioritizes individual needs. Unlike traditional "automation" which relies on machines with limited human interaction, Industry 5.0 aims to create a collaborative environment where humans and machines work together effectively. The goal is to build trustworthy human-centric collaboration with autonomous robots, preferably in the same workspace. People today want products and services that cater to their unique needs and are affordable. Industry 5.0 is driven by the desire for mass personalization, which maximizes value by combining human intervention with technology. This new approach to manufacturing may usher in the next wave of industrial revolution. The concept of mass customization assumes that personalized products can be manufactured at a low

cost. However, some product categories, such as drywall anchors, do not necessarily require personalization. There is also a concern about robots displacing workers due to the increasing trend of personalization. However, Industry 5.0 supports the use of cobots, which require a large staff, enabling businesses to fulfil basic human desires and create a distinct value proposition. Instead of replacing labour, cobots assist businesses in achieving their goals.

Highlights of Industry 1.0 to Industry 5.0

Highlights of Industry 1.0 versus Industry 5.0

1st Industrial Revolution	2nd Industrial Revolution	3rd Industrial Revolution	4th Industrial Revolution	5th Industrial Revolution
Mechanisation	Electrification	Automation and Globalisation	Digitalisation	Personalisation
Occurred during the 18th and 18th centuries, mainly in Europe and North America	From the late 1800s to the start of the First World War	The digital revolution occurred around the 1980s	Start of the 21st century	2nd decade of the 21st century
Steam engines replacing horse and human power	Production of steel, electricity and combustion engines.	Computers, digitisation and the internet,	AI, robotics, IoT, blockchain and crypto.	Innovation purpose and inclusivity.
Introduction of mechanical production facilities driven by water and steam power	Division of labour and mass production, enabled by electricity.	Automation of production through electronic and IT systems	Robotics, artificial intelligence, augmented reality, virtual reality	Deep, multi-level cooperation between people and machines. Consciousness.

Source: pinterest.com

Opportunities in Green Marketing

- **Attracting New Customers and Segments**

Green marketing is a valuable strategy that can help businesses reach out to customers who are interested in the environment. This marketing approach can enable companies to expand their consumer base and attract groups such as women, millennials, and ethical shoppers. These customers are willing to pay more for environmentally friendly products and services or switch to companies that share their values.

Demand Changes

Many companies view changes in consumer demand as opportunities to gain a larger share of the market and gain an advantage over competitors who do not offer eco-friendly products. To better serve their customers, several companies have made an effort to become more environmentally conscious. Here are a few examples of such companies:

McDonald's stopped using clamshell packaging and switched to waxed paper due to rising public concern regarding the production of polystyrene and the depletion of ozone.

Tuna producers modified their fishing methods in response to increasing concerns about dolphin deaths caused by driftnet fishing.

Xerox launched a line of recycled photocopier paper labelled as "high quality" in response to businesses seeking more environmentally friendly options.

A Rise in the Production and Consumption of Eco-Friendly Products

The potential for green marketing has drastically increased as modern consumers prefer more health-sensitive and environmentally friendly products. Businesses are now using this opportunity to gain a competitive edge over less environmentally conscious businesses. In India, the prospects of green marketing are being highlighted by companies such as LG's consumer durables and the water-saving detergent Surf Excel, which promotes the motto "Do bucket Paani Roz Bachaana." These companies' messaging effectively combines environmental and financial goals, helping them to increase their market share and generate additional revenue.

- **Cost Reduction**

The cost of the finished product will decrease with less detrimental waste produced during manufacturing, which will result in lower costs for the company. Because disposing of waste has become such a problem, some businesses have established symbiotic relationships in which the waste or by-products of one business are utilised as raw materials by the other. For instance, fly ash, which is formed when coal is burned, was originally released into the atmosphere, posing environmental and health risks, but it is now used as a raw material by the cement and brick industries as well as by building firms

- **Government Pressure**

The primary objective of the government is to ensure the safety and well-being of its citizens. To achieve this, the government creates numerous regulations that are aimed at protecting the public from any harm. These regulations also ensure that businesses do not make fraudulent or deceptive statements that could harm customers. The Indian government has introduced several environmental permits that have enabled it to take proactive measures against the production of harmful items and byproducts. These measures have successfully reduced the production of hazardous items and have encouraged customers to take greater responsibility for protecting their health and the environment. The government is working to educate citizens so that they can make informed decisions and assess the claims made by businesses.

Corporate Social Responsibility

The importance of Corporate Social Responsibility (CSR) has been increasing in the Indian market. CSR means that companies should conduct their business ethically, contribute to economic development, and enhance the standard of living in society. In other words, companies should not just focus on making profits but also on environmental objectives. An example of a company that invests in recycling activities as part of its CSR is Coca-Cola. As responsible members of society, we expect businesses to provide goods and services efficiently and act as responsible members of the community. Organizations should also strive to have a positive impact on society while minimizing their negative impact. This can be obtained by finding new ways to dispose of garbage, recycle, and reuse packaging.

Initiatives towards Green Marketing in India: Efforts by Government and Other Organization

Given the importance of the environment for people, the Indian government and many other organizations are implementing "green initiatives" for the preservation and sustainability of the environment.

Initiatives Taken by Organizations

The following are some of the measures that different organizations have taken to adopt environmentally friendly or "green" practices:

Myntra	Myntra, India's biggest fashion retailer has eliminated single-use plastic from its packaging. They have replaced bubble wrap, plastic tape, and plastic covers with shredded materials, paper tape, and paper boxes and covers. Through these steps, they have been able to divert 670 tonnes of plastic as of September 2021.
HCL	HCL has launched the HCL ME 40, an eco-friendly notebook line, claiming to be free from polyvinyl chloride (PVC) and receiving a five-star rating from the Bureau of Energy Efficiency.
Starbucks	Offers fair trade coffee, promotes recycling and sustainable products. They also offer discounts to customers who bring in their reusable cups
Amazon	Amazon had pledged to take several steps to eliminate the usage of single-use plastic across its fulfilment centres in India. As per Amazon, they have started using paper cushions in their packaging instead of bubble wraps and air pillows from December 2019 onwards.
Wipro	Wipro has launched eco-friendly desktops as part of the Wipro Green Ware project, which aims to reduce e-waste. The launched systems are toxin-free and follow a total recycling policy.

HUL	HUL partnered with Banyan Nation to create recyclable packaging for Surf Excel Matic liquid detergent. Since August 2019, Surf Excel has been using 50% recycled plastic in their bottles.
SBI	SBI's new ATMs are eco-friendly, utilize less electricity, and result in cost savings and carbon credits.
Pidilite	Pidilite has launched an eco-friendly synthetic resin glue called Fevicol AC Duct King Eco Fresh. Marketed as India's first green adhesive, it boasts an all-in-one formula.
Nike	Promotes sustainable materials and production processes. They also make customers recycle their old sneakers through their Reuse-A-Shoe program
IBM	IBM makes tech tools to reduce energy usage and promote sustainability.
ACC	ACC has introduced Concrete+, their environmentally friendly brand. As fly ash disposal is a significant environmental issue, this brand employs fly ash, a hazardous industrial waste, to help save natural resources.
Nerolac	Nerolac, a paint manufacturer, is attempting to eliminate dangerous heavy metals from their paints. These heavy metals, such as lead, chromium, and mercury, can hurt human health.
P&G India	Compact detergents for Ariel and Tide were introduced by P&G India in India using less packaging and raw materials while maintaining excellent consumer value. Additionally, P&G India updated the Olay pump container, which is 25% lighter and uses less plastic than the previous design
MRF	To improve fuel efficiency for car owners, MRF introduced the environmentally friendly tubeless tyres MRF ZSLK. These tyres are comprised of special silica-based rubber compounds.
Godrej	Green products, Eco-friendly materials, Green supply chain, Process reengineering and adopting clean technology.

Initiatives taken by the Government

The following are the initiatives taken by the Government of India:

Years	Initiatives taken by Government
2021	The Indian government has introduced Mission LiFE (Lifestyle for Environment), which lists 75 lifestyle habits categorized into seven areas. These include conserving energy and water, using less single-use plastic, promoting sustainable food systems, reducing waste, adopting healthy lifestyles, and managing e-waste. The goal of the program is to promote climate-friendly behaviour among citizens.
2019	In 2019, India announced its plan to increase its installed renewable energy capacity to 450 GW by 2030. The Indian government additionally introduced the Production Linked Incentive Program (PLI) to boost the industrial sector and support the production of raw materials for renewable energy.
2019	The PM-KUSUM (Pradhan Mantri-Kisan Urja Suraksha evam Utthaan Mahabhiyan) initiative is a scheme that aims to provide farmers with both financial and water security. The goal is to generate 25,750 MW of solar energy by 2022. One example of distributed power at the consumer's doorstep is the solarization of water pumps.
2016	India aims to achieve net-zero carbon emissions by 2030 by implementing of "green railways" in place of Indian Railways.
2015	India has established ambitious targets to combat climate change. By the end of the decade, the nation aims to reduce its carbon intensity by at least 45%, while increasing the share of renewable electricity to 50% by 2030. The ultimate goal is to achieve net-zero carbon emissions by 2070. To achieve this, India plans to install 500 GW of renewable energy capacity by 2030.
2012	As part of its "Green Initiative," the Reserve Bank of India has asked Non-Banking Financial Companies (NBFCs) to stop using post-dated checks in their regular business transactions. The bank has requested NBFCs to gradually phase out the use of checks and adopt proactive measures and initiatives to raise the use of electronic payment systems. Green Initiative Master Circular, **(**2012).
2012	India's spending on green IT and sustainability programs was estimated to be over US$45 billion in 2012. This could increase to US$70 billion by 2015, as the government aims for greater adoption. (Yap, 2012).
2011	In the Union Budget for 2011, the Finance Minister allocated 600 crore towards green initiatives, with a major focus on maintaining and regenerating forests and protecting the environment. (i-Government, 2011).
2010	India is a world leader in renewable energy and has the potential to generate $20 billion for the clean energy sector. As per the Ministry of Power's Division of Energy, this sector could create around 10 million jobs by 2025. Additionally, the government provides various tax incentives to support this initiative.

Challenges in Green Marketing

Implementation of green marketing may pose some challenges for an organization.

- **Need for Standardization:** Research indicates that many "Green" marketing campaigns contain misleading information, with only 5% of their claims being entirely accurate. Currently, there is no standardized procedure to authenticate these assertions, making it challenging to certify a product as organic. Without oversight from regulatory agencies, there is no guarantee of the accuracy of these claims. To resolve this problem, the establishment of a quality control board with standardized labelling and licensing is essential.

- **New Concept:** Literate and urban Indian consumers are increasingly recognizing the benefits of eco-friendly products like Patience and Perseverance, but for many, this concept is still new. There's a pressing need to educate consumers about environmental risks and make the green movement more accessible to the masses, which will take considerable time and effort. However, Indian consumers already value natural and herbal beauty products due to the country's Ayurvedic heritage. Moreover, they are familiar with healthy lifestyles like yoga and natural food consumption, indicating their readiness to embrace and use green products in these areas.
- **Patience and Perseverance:** Investors and corporations should start considering the environment as a significant long-term investment opportunity. Marketers should also focus on the long-term benefits of the green movement. However, this will require patience as the results will not be immediate. Since this is a new idea and concept, it will take some time for it to be fully accepted.
- **Avoiding Green Myopia:** To achieve success in green marketing, it is essential to emphasize the benefits that customers seek when making purchasing decisions. This approach can encourage customers to transition to environmentally friendly alternatives, even if it entails paying a premium. However, it is imperative to ensure that green products also meet the standards for customer satisfaction, as mere eco-friendliness is insufficient. Pricing is a critical consideration, as excessively high prices can diminish the market acceptance of green products. Overlooking these factors can result in green myopia, which is unfavourable for businesses striving to promote sustainability.
- **Lack of Standardization:** In 2012, Mohan Sundaram conducted a study that only 5% of the marketing statements made by green initiatives were found to be truthful. There are currently no standards in place to verify these claims. Therefore, marketers must ensure that any eco-friendly claims they make about their products or services are accurate. They should verify how the product is "green," whether the packaging is eco-friendly, and whether the manufacturing process is environmentally friendly. Consumers are now more aware of green products and services, and they will seek authenticity before paying a premium for them. False claims can harm a company's reputation and its green policies.

Green marketing is a relatively new concept in India. Marketers need to take an active role in educating and raising awareness among consumers about environmentally friendly products. While setting premium prices for such products, businesses should keep in mind that cost is still a significant factor in the Indian market. Additionally, companies must ensure that their products meet the needs and desires of customers while providing environmental benefits.

Way Forward

Moving forward, businesses need to adopt a proactive approach to integrating green marketing strategies into their business activities to stay competitive in the changing landscapes of Industry 4.0 and Industry 5.0. Firstly, organizations should prioritize R&D investment to create eco-friendly products and services that align with the preferences of environmentally conscious consumers. By utilizing technologies such as IoT, AI, and data analytics, businesses can gain valuable insights into consumer preferences and market trends, enabling them to develop customized green solutions that meet evolving demands.

Furthermore, collaboration and partnerships across industries and sectors are crucial for driving systemic change and fostering innovation in green marketing practices. Businesses should seek opportunities to collaborate with suppliers, distributors, and other stakeholders to optimize resource utilization, reduce environmental footprint, and create shared value along the supply chain. By adopting a collaborative approach, businesses can leverage collective expertise and resources to overcome common challenges and accelerate progress towards sustainability goals.

Conclusion

This research has shed light on the critical role of green marketing as a driver of sustainable competitive advantage in the rapidly evolving landscapes of Industry 4.0 and Industry 5.0. Through an examination of current practices, challenges, and opportunities, this study has provided valuable insights into how businesses can leverage green marketing strategies to thrive in an era defined by technological disruption and heightened environmental consciousness

The findings of this research underscore the importance of integrating green principles into business strategies to enhance competitiveness and foster long-term sustainability. In the context of Industry 4.0 and Industry 5.0, where digitalization and automation are reshaping industries, green marketing emerges as a strategic imperative for businesses seeking to align technological advancements with environmental sustainability goals. By adopting eco-friendly practices, developing sustainable products, and engaging with consumers on environmental issues, businesses can not only enhance their brand reputation but also create shared value for stakeholders.

However, the implementation of green marketing initiatives is not without its challenges. Regulatory complexities, consumer scepticism, and the risk of greenwashing pose significant hurdles for businesses seeking to communicate their sustainability efforts effectively. Addressing these challenges requires a multifaceted approach, including standardized metrics, transparent reporting, and genuine commitment to sustainability principles.

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