GBS IMPACT Volume 11, Issue - 01, January - June 2025, ISSN: 2454- 8545

https://doi.org/10.58419/gbs.v11i1.1112512

E-WASTE MANAGEMENT: A CRITICAL ANALYSIS OF BEST PRACTICES WITH REFERENCE TO 3R'S

Aikya B. P.
Research Scholar, Business Management,
Sri Padmavati Mahila Visvavidyalayam Tirupati Andhra Pradesh (New)
bpaikya@gmail.com

Vijayalakshmi Bhadrachari
Professor, Business Management,
Sri Padmavati Mahila Visvavidyalayam Tirupati, Andhra Pradesh (Old)

ABSTRACT

E-waste is one of the fastest growing solid waste streams in the world. In 2022, an estimated 62 million tonnes of e-waste were produced globally. Only 22.3% was documented as formally collected and recycled. There are three small words Reduce, Reuse and recycle are pivotal to managing waste and helping to combat climate change. Reduce means to make smaller/less in amount. Reuse means to use something again, either for its original purpose or repurposed for a different task. Recycle means to convert waste into material that can be used to remake the item, or to make something else. The aim of the study is to analyse the ways and means of E- waste management initiative that helps to reduce the amount of waste that send to landfill and reduce the amount of products being produced unnecessarily.

Keywords: *e- waste management, best practices, reduce, reuse, recycle.*

1. INTRODUCTION

Marketing research is the function that links the consumer, customer, and public to the marketer through information—information used to identify and define opportunities and problems; generate, refine, and evaluate actions; monitor performance; and improve understanding of it as a process. It specifies the information required to address these issues, designs the method for collecting information, manages and implements the data collection process, analyzes the results, and communicates the findings and their implications. Businesses are increasingly looking for ways to market and appeal to them. As this new generation comes into their prime working and earning years, it becomes more and more essential for businesses to understand how they make decisions and purchase products and services. And many businesses are urgently trying to master new generation marketing before that happens. The first thing to remember is that no generation is a monolith. Even though different age groups have some common values and traits, a big-picture generational analysis is not a replacement for more detailed demographic data-based targeting. However, because

marketing to younger generations is a hot topic, many marketing managers and business owners may have misconceptions. Basing your marketing strategy on these misconceptions (without doing further research and analysis) can be devastating to the future of your business. On the whole, consumers are very passionate about their values. Because social media lets them connect and empathize with others from various backgrounds and identities from a young age, consumers are passionate about racial justice, rights, and environmental protection, and often expect the brands they buy from to support these causes, as well. Eco-innovation is the development of products and processes that contribute to sustainable development, applying the commercial application of knowledge to elicit direct or indirect ecological improvements. This includes a range of related ideas, from environmentally friendly technological advances to socially acceptable innovative paths towards sustainability. The field of research that seeks to explain how, why, and at what rate new "ecological" ideas and technology spread is called eco-innovation diffusion.

2. ECO- INNOVATION

Eco innovation is important seeing as it is essential for people and businesses alike to alter the products and habits of their daily lives to elicit the necessary changes needed to combat climate change once and for all.

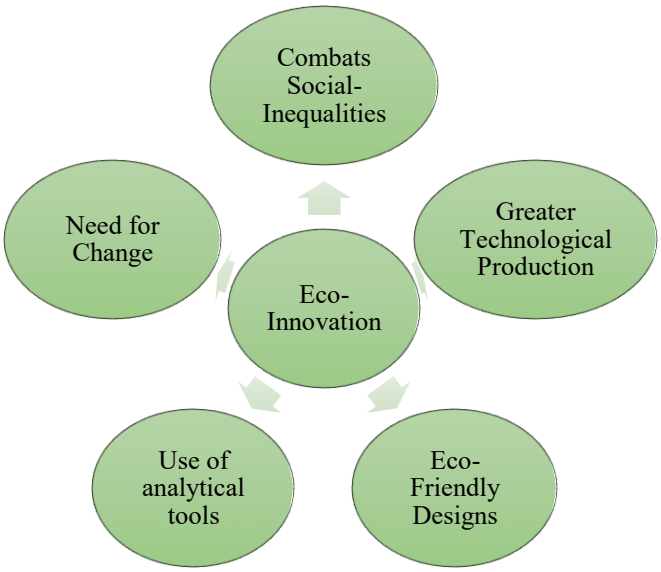
Therefore, the main goal of eco innovation is to help mitigate excess emissions and aid in the climate change crisis – as making our daily habits and products used to be more environmentally friendly can help to drastically reduce our carbon footprint. A few other reasons why eco innovation is important include:

- Helps to combat various social inequalities.
- Raises awareness regarding the need for change.
- Encourages greater technological production and future eco-friendly designs.
- Promotes the use of analytical tools to help measure and reduce emissions in conjunction with creating products in line with eco innovation.

The term, "eco innovation" makes use of the word "innovation" in order to accentuate the need for rapid action and adjustments for the sake of companies looking to improve their environmental, economic, and social pillars.

The green imperative goes beyond a checklist of brand attributes—it has become a defining factor in shaping consumer perceptions. Brands that understand and respond to this imperative stand to gain more than just market share; they build trust and loyalty with a consumer base increasingly discerning about the environmental impact of their choices. In this dynamic landscape, sustainability is not just a bonus; it's a key driver in influencing purchasing decisions. Brands that embrace this shift and integrate sustainability into their marketing considerations position themselves as leaders in responsible business practices, resonating with consumers who prioritize the health of the planet. As we delve into the green imperative in marketing, it's essential to recognize the transformative power it holds. Beyond the conventional elements of product quality and pricing, environmental responsibility has

emerged as a significant differentiator. Consumers are seeking brands that share their commitment to sustainability, and marketing has become the vehicle through which this commitment is communicated. Understanding the nuances of this imperative allows brands not only to stay relevant but also to proactively shape the narrative, contributing to a paradigm where conscious consumerism and environmental stewardship converge in a powerful synergy.



Eco-friendly marketing is a way for businesses to promote their environmentally friendly practices and encourage customers to do the same. Eco-creative marketing can help a brand stand out in the minds of environmentally conscious consumers. Here are some ways to incorporate eco-friendly creativity into marketing:

Create impactful visuals: Use visuals of sustainability and wildlife to capture the essence of your brand's commitment. For example, Greenpeace used aerial cinematography in their television commercials to raise awareness about the dangers of seismic surveying and deep-sea drilling.

Partner with charitable brands: Support environment-centered charitable brands to promote your brand and create goodwill in the community.

Encourage eco-friendly behavior: Offer discounts for customers who bring in their own reusable bags or promote paperless billing and transactions.

Use digital marketing: Digital marketing can enhance brand visibility and reinforce sustainability commitments while minimizing carbon footprints.

Reduce packaging impact: Redesign your product packaging to reduce its environmental impact.

Optimize supply chain sustainability: Make your supply chain sustainable.

Promote your sustainability initiatives: Promote your brand's sustainability initiatives as part of your marketing campaigns.

Be transparent: Maintain transparency with your audience so you can build brand credibility and trust.

Make products accessible: Ensure consumers can make environmentally conscious choices with ease.

Waste management or waste disposal includes the processes and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment, and disposal of waste, together with monitoring and regulation of the waste management process and waste-related laws, technologies, and economic mechanisms.

3. E- WASTE MANAGEMENT

E-waste management is the process of handling and managing electronic waste, such as computers, tablets, and phones. It is important to manage e-waste because it is the world's fastest-growing waste stream and can be harmful to the environment and human health if not handled properly.

Here are some reasons why e-waste management is important:

Environmental sustainability: Recycling electronics prevents harmful materials from entering landfills and contributes to environmental sustainability.

Reduces pollution: Recycling responsibly can reduce air, water, and land pollution.

Preserves ecological balance: E-waste management helps preserve the ecological balance and reduce landfills.

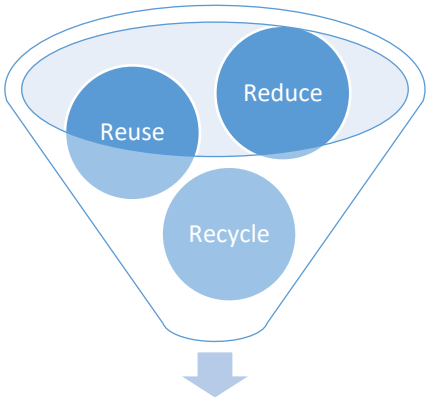
4. BEST PRACTICES- 3R'S

Here are some best practices for e-waste management:

Reduce: Use fewer electronics and only buy what you need. You can also look for energy-efficient products.

Reuse: Find other uses for old devices or give them to someone else.

Recycle: Check with your local authorities to learn how to properly recycle electronic devices. You can also partner with a certified e-waste recycler.



Best Practices of E-Waste Management: 3R's

And yet the other few practices of e-waste management are:

Learn about e-waste: Spread awareness about the environmental impact of e-waste. You can also learn about how electronic products are engineered.

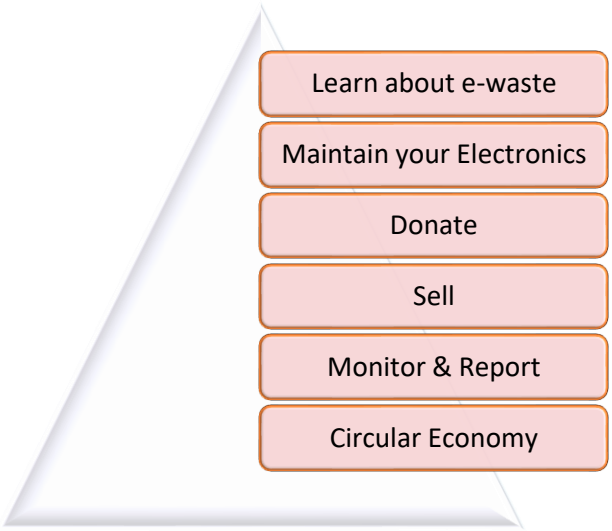
Maintain your electronics: Maintain your current electronic equipment.

Donate: Donate unwanted electronics to charities.

Sell: Sell unused electronics to companies that buy products in exchange for money.

Monitor and report: Track the progress of e-waste management and report on any issues.

Circular economy: Adopt a circular economy strategy that incorporates repairability, upgradeability, and recyclability.



5. E- WASTE WARRIORS IN INDIA

E-Waste Warriors Private Limited: A company registered in India on June 28, 2023. Their registered address is 8 Biswa Jatwara Mohalla, Nazafgarh Road Bahadurgarh, Bahadurgarh Jhajjar HR 124507 IN.

5.1. Other e-waste warriors

Goonj: A New Delhi-based NGO that converts used clothing and materials into products for communities in need.

GreenCiti: A Mumbai-based waste warrior that focuses on reducing, reusing, and recycling waste materials.

Greensole: A Mumbai-based waste warrior that repurposes waste footwear to create new pairs for those in need.

Renew IT: A Bangalore-based waste warrior that refurbishes and repurposes discarded electronic equipment.

Jaipur-Based Artist Recycles E-Waste From Banks Into 10-Feet-Tall Statue. Installed at the entrance of the Mall Road branch of State Bank of India (SBI) in Kanpur, the statue, ‘Matraka’, shows a woman sitting with folded hands and crossed legs atop a 5-ft-high platform. Over 250 desktops and 200 motherboards, cables, 15,000 rivets and more than 9,000 screws — no, this isn’t a list of items at a junkyard but e-waste that has been given a second life as a 10-ft-tall statue by a Jaipur-based artist. Installed at the entrance of the Mall Road branch of State Bank of India (SBI) in Kanpur, the statue, ‘Matraka’, shows a woman sitting with folded hands and crossed legs atop a 5-ft-high platform. The face of the statue is represented by the SBI logo.

21-year-old Rahul Pareek, a student of K. C. Das Commerce College in Guwahati creates portraits using electronic waste including old keypad phones, wires, and motherboard. Ever thought of making a portrait from old mobile phones, discarded cables, motherboards, and other electronic waste? That might sound like a tall order but Rahul Pareek from Guwahati is not only making such art pieces but winning hearts as well. In January 2020, 21-year-old Rahul, a student of K. C. Das Commerce College in Guwahati created a portrait of Indian Cricketer Virat Kohli using scraps like old keypad phones, wires and paper pins on a canvas.

India is the third largest generator of e-waste in the world, and only 20% of it is formally recycled. The main sources of e-waste in India are the government, public and private sectors, and individual households.

As the world marked International E-Waste Day, India's burgeoning e-waste stance is emerging as crucial to the global narrative. The nation's rapid urbanization and technological advancements have positioned it as a significant contributor to the global e-waste crisis. According to the Global E-Waste Monitor, in 2022, a staggering 62 billion kilograms of e-waste were generated worldwide—enough to fill 1.55 million trucks lined up around the equator. India's share was substantial, generating 1,601,155 tonnes of e-waste in 2021-2022.

6. RISING E-WASTE GENERATION AND THE ROLE OF INFORMAL SECTOR

E-waste has become the fastest-growing waste stream in India, with an alarming 3.2 million tonnes generated annually, ranking third globally after China and the USA, according to the 'Global E-Waste Monitor 2020.' The rapid expansion of the ICT sector and frequent upgrades of electronic devices contribute significantly to this increase. According to the Ministry of Electronics and Information Technology (MeitY), there are improvements in recycling rates—from 22.07% in 2019-20 to 32.9% in 2021-2022. However, a considerable portion of e-waste remains unprocessed. The informal sector, which handles around 95% of India's e-waste, plays a crucial role but often operates under hazardous conditions. Ramakrishnan, managing director of Primus Partners, emphasized, "India processes only about 14.5 lakh tons of ~32 lakh tons of e-waste that it generates annually." The challenges surrounding policy, reverse supply chain, financial viability, and capacity continue to hinder effective e-waste management.

7. CONCLUSION

Every year millions of electrical and electronic devices are discarded as products break or become obsolete and are thrown away. These discarded devices are considered e-waste and can become a threat to health and the environment if they are not disposed of and recycled appropriately. Electronic waste (e-waste) is one of the fastest growing solid waste streams in the world. Less than a quarter of e-waste produced globally in 2022 was known to be formally recycled; however, e-waste streams contain valuable and finite resources that can be reused if they are recycled appropriately. E-waste has therefore become an important income stream for individuals and some communities. People living in low- and middle-income (LMICs), particularly children, face the most significant risks from e-waste due to lack of appropriate

regulations and enforcement, recycling infrastructure and training. Despite international regulations targeting the control of the transport of e-waste from one country to another, its transboundary movement to LMICs continues, frequently illegally. E-waste is considered hazardous waste as it contains toxic materials and can produce toxic chemicals when recycled inappropriately. Many of these toxic materials are known or suspected to cause harm to human health, and several are included in the 10 chemicals of public health concern, including dioxins, lead and mercury. Inferior recycling of e-waste is a threat to public health and safety. National and international actions are essential to protect communities from unsound e-waste recycling activities. Actions that can be taken include: adopting and enforcing high-level international agreements; developing and implementing national e-waste management legislation that protects public health; incorporating health protection measures into national legislation; monitoring e-waste sites and surrounding communities; implementing and monitoring interventions that improve informal e-waste recycling activities, protect public health and ensure vital sources of community revenue; educating health workers across all levels on e-waste-related child health issues; eliminating child labour.

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