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Underused Perceptivity of Planned Obsolescence and Its Descendants: A Conceptual Approach in the Smartphone Industry

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ABSTRACT

In an era marked by technological advancements, the lifecycle of people who use electronic gadgets, notably smartphones has come under greater attention. This portent has significant environmental implications, particularly in India, a consumer-driven country with a rapidly growing population, high literacy rates, and a population that is increasingly technically savvy and prone to adopting the latest technologies. In this context, investigating the perceptivity of Planned Obsolescence (PO); a strategy of designing and manufacturing products in such a way that it limits the lifespan of products (Habib, 2023) and its descendants or subsequent environmental impact within the sphere of electronic waste generation in the smartphone industry is prevalent because its contemporary manifestations remain underexplored. This conceptual paper of secondary data aims to unveil a comprehensive understanding of phenomenon above and its underused perceptual dimensions; functional, aesthetic, psychological, technological, and postponement and its descendants specifically by examining how a manufacturer subtly influences consumer perception of product desirability, functionality, and life span, that would gain a deeper understanding of the mechanisms of driving consumption and its broader societal and environmental consequences specifically in the smartphone industry.

Keywords: *Perceptivity, Planned obsolescence, Descendants*

INTRODUCTION

As technology evolves rapidly, manufacturers often design products with limited lifespans to increase consumer turnover. The concept of Planned Obsolescence (PO) is often attributed to Bernard London's 1932 pamphlet proposing it as a solution to the Great Depression, (Satyro, 2018). Planned obsolescence is the conscious decision taken by a company to produce a product that will become obsolete in a predefined timeframe (Barros, 2021). This can be achieved through various means, including limiting the durability of materials, designing products that are difficult or impossible to repair, or introducing new models with features that make older versions seem outdated. While the economic arguments for and against planned obsolescence have been widely discussed, the focus on the perceptual aspects of this strategy remains surprisingly limited. It's essential to understand how manufacturers cultivate a consumer mindset that accepts, or even anticipates, the premature obsolescence of their products. Hence, this paper argues that understanding the underused perceptivity of planned obsolescence – the subtle ways in which consumers are influenced to perceive their products as needing replacement – is crucial for a comprehensive understanding of modern consumption patterns. Furthermore, the traditional understanding of planned obsolescence as solely focused on functional degradation is becoming increasingly inadequate. Manufacturers have evolved more nuanced strategies, which would result in descendants of planned obsolescence. These strategies focus on creating a perception of obsolescence even when the product is still functionally sound. In this context, this paper will conceptually explore these contemporary manifestations and their underlying perceptual mechanisms in the smart smartphone industry.

SIGNIFICANCE OF THE STUDY

The Indian economy is dominated by the electronic industry. Most of the technological updates happen on smartphones. The changes occur in the design, dynamic components, and device models rapidly. However, this technological evolution brings with it a pressing concern (Stieglitz, 2003). The 21st century is primarily distinguished by the technological advancement humans have achieved and this achievement comes with a huge price. As the population increases, their wants and needs also increase uncontrollably making our country a consumer-driven country. In the case of a smartphone, just allowing down its performance or making components unavailable, then the device becomes obsolete. There is a relationship between planned obsolescence and e-waste generation is a significant concern in today's consumer-driven Indian society (Makov, 2021).Various studies have found that consumer education is gaining much importance in resisting planned obsolescence. Many of the earlier studies did not deal with planned obsolescence in smartphones and they gave more emphasis on other electronic gadgets. Hence the present study becomes significant to knowing the perceptivity level of planned obsolescence or built-to-break mechanism and its descendants (Oraee, 2024). To put it into a nutshell, the area covered in this sphere remains underexplored comprehensively resembling the importance of the study.

SCOPE OF THE STUDY

Nowadays smartphones are part of our routine lives. The rapid changes or updates in smartphones cause many problems in consumerism. The content area of the study focused on planned obsolescence, its perceptivity, and its descendants that influence the sustainable environment. The outcome of the study will be useful to the research community as well as the other stakeholders including policymakers, manufacturers of smartphones, and government authorities to know about the conceptual ideology of planned obsolescence and the environmental challenges posed by e-waste as descendants of the former. On the other way, the present study focuses on how far the concept of planned obsolescence generates electronic waste not by focusing on environmental sustainability from the perspective of the entire smartphone industry unveils the scope of the study. The study also intends to investigate the role of planned obsolescence in electronic waste generation. The methodology used by the researchers for the study is exploratory which is drawn from secondary data sources such as article reports, research papers, websites, etc.

REVIEW OF LITERATURE

(Supriadi, 2024) Conducted a study on “Financial strategies to mitigate planned obsolescence risk: a sustainable investment model the study. This study explores financial strategies that mitigate risks associated with planned obsolescence; ensuring companies maintain long-term profitability while addressing consumer and environmental concerns. This qualitative case study relies on a literature review as the primary data source, analysing prior studies and regulatory frameworks on planned obsolescence. The study adopts a structured approach to identify financial strategies for mitigating obsolescence risks and preserving brand loyalty.

(Bilici, 2024) This study aims to reveal the effects of planned obsolescence application types perceived by consumers on consumer satisfaction and subsequent consumer behavior. The research aims to present the effects of planned obsolescence, which is divided into sub-types as perceived quality obsolescence, perceived technological obsolescence, and perceived psychological obsolescence, on consumer satisfaction and satisfaction on consumer behaviors. According to the research results, the significant effect of perceived technological obsolescence on satisfaction can be interpreted as consumers expecting technological innovation from smartphone manufacturers. The negative effect of perceived psychological obsolescence on satisfaction can be interpreted as supporting psychological obsolescence through advertising and marketing efforts, creating dissatisfaction in consumers.

(Thomas Gomez, 2024) He investigates how sustainable modular smartphone companies integrate convivial principles into product design and production to resist planned obsolescence. Planned obsolescence in electronics leads to increased e-waste, unethical mining practices, and reduced user autonomy. By examining Fair Phone and Shift Phone through a literature review, the study assesses how these brands incorporate convivial principles. A survey of users further explored perceptions of technological conviviality in smartphones. The findings show that while modular smartphones offer greater autonomy and reparability, challenges such as complex supply chains hinder full alignment with convivial values. The research also emphasizes the importance of evaluating smartphones through a convivial lens for a more sustainable, socially responsible future.

(Hamatake, 2024) The study investigates that smartphones are the fastest-growing stream of electronic waste due to frequent replacement of still-functioning devices. Premature replacement is heavily attributed to planned obsolescence, where companies encourage faster repurchases through functional, perceived, and economic obsolescence. This study explores consumer awareness of smartphone obsolescence and how it affects purchasing decisions, especially with sustainable alternatives available.

(**Widarmanti, 2024**) This study investigates the controversial practice of planned obsolescence in the electronics industry. The study explores how frequent new model releases affect smartphone pricing and consumer loyalty, along with factors influencing smartphone upgrades such as perceived necessity, technological advancements, and pricing incentives. The research aims to understand consumer perspectives on planned obsolescence using Venkatesh's decision-making theory in dynamic purchase conditions. Key questions include defining planned obsolescence, dissecting the innovation and consumer behavior model, and examining how these concepts relate to purchasing the next smartphone version.

The literature and references used for the study elucidate that it touches on some aspects of planned obsolescence, but fails to cover inclusive perceptivity and its consequences, thereby pinpointing the research gap of the study. The study also advocates for consumer awareness, sustainable practices by producers, and a balanced strategic business model that serves all interests while protecting the environment.

RESEARCH OBJECTIVES

- To study the perceptivity of planned obsolescence in the smartphone industry
- To understand the descendants of planned obsolescence in the smartphone industry

PERCEPTIVITY OF PLANNED OBSOLESCENCE

Planned obsolescence; is a strategy used as built to break the mechanism of the manufacturers have evolved broad perceptivity which would result in descendants of planned obsolescence as follows;

Functional Obsolescence

Functional obsolescence is the reduction of an object's usefulness or desirability because of an outdated design feature that cannot be easily changed or updated (Gregory, 2016). Functional obsolescence is also known as physical obsolescence. In other words, it simply refers to the product being designed to degenerate quickly, so each component of the product is made to last a short period, such as three years.

Technological Obsolescence

Technological obsolescence refers to the process by which once-frontier technologies lose value as new technologies emerge. Technological obsolescence simply means that a process occurs when a product becomes outdated due to technological innovation. Technological obsolescence makes an otherwise working product undesired. It generally occurs when technology brings about a new product that can replace the previous version of the product, and which consumers typically view as superior. (Seyhan, 2022).

Postponement Obsolescence

Postponement obsolescence transpires when a company selectively adds technology (or other features) to only some of its products. Postponed obsolescence is when businesses extend the lifecycle of existing products and avoid bringing new products to market, even when they can bring more advanced products to market, thereby postponing the obsolescence of the product by continuous usage. (Moyse, 2020)

Psychological obsolescence

Psychological obsolescence occurs when a product becomes less fashionable and unwanted due to newer trends. Unlike other obsolescence in the case of psychological obsolescence, the product is essentially fully functional. Psychological obsolescence occurs due to changes in the user's perceptions of the product and features, such as fashion and design. This type of obsolescence exploits the fact that consumers who follow trends may base their purchasing decisions on design, social trends, and emotions. Group pressure is more potent in some settings than in others. Within a given society, some consumers will be prone to fall victim to psychological obsolescence, while others may be less influenced by it. (Seyhan, 2022).

Aesthetic Obsolescence

Aesthetic Obsolescence also referred to as Style Obsolescence can be defined as a change in trends or fashion that causes a product to become unwanted and less valuable. Arguably this type of Obsolescence can and is influenced by marketing done in the industry itself, especially in the modern consumerist world today. (Venkatesh, 2008).

DESCENDANTS OF PLANNED OBSOLESCENCE IN THE SMARTPHONE INDUSTRY

Information and communication technology (ICT) based products have a significant effect on increasing levels of electronic waste (e-waste) due to their shorter lifespan as a result of rapid technological changes. This practice is often seen in the electronics industry, where companies release new products with minor upgrades and features, rendering the older models obsolete. Smartphones are the most popular ICT products, and their market share is increasing gradually. The connection between planned obsolescence and e-waste is a complex issue that has been causing uproar among environmentalists and consumers alike. The smartphone companies used planned obsolescence as a business strategy which forces consumers to purchase new products more often. This approach not only leads to a significant increase in e-waste but also contributes to various environmental problems. India is a country that invests very little in primary education and very little in primary health care. The majority of people of our motherland are not even aware of the harm that e-waste can cause to us and many taking advantage of lax laws in our country and government regulations to make an easy buck out of it. The term e-waste comprises obsolete computers, smartphones, and such other electronics that have reached their EOL and are of no material value to the original/end user. The rapid technological change, low initial cost, and high obsolescence rate have resulted in a fast-growing problem of discarding electronics around the globe. Presently India generates about 3, 50,000 Tons of e-waste annually. Domestic Status India is the world’s third-largest producer of electronic waste and has been on a bull run ever since. It generates a whopping 3.2 million tons of e-waste annually. Also, it is anticipated that about 5 lakhs tons (plus) of e-waste will enter our country through informal means under the guise of charity/donations, etc. (Jaiswal, 2025)

Planned obsolescence in the smartphone industry is a strategy in which products are designed to intentionally break down or become unusable after a certain amount of time, prompting customers to return for upgrades. Coupled with annual updates to products, manufacturers create an ongoing purchase-and-replace cycle, leading to accelerated waste generation. While any excessive waste generated by planned obsolescence is detrimental to our environment, its worse when that waste contains harmful chemicals. Electronic waste (E-waste), has experienced constant growth during the past two decades. It is an urgent sustainability challenge owing to the environmental pollution and resource depletion that it results in (Zhang et al. 2020). While the recycling of E-waste, especially in an informal setting, often creates air, water, soil, and noise pollution, the extraction of metals for the production of electronic equipment itself has enormous environmental implications. (aiswal, 2025).

Nevertheless, there is no denial of the fact that human's increasing reliance on smartphones and their equipment is a major characteristic of modern society. During and post the Covid-19 crisis, this dependence is expected to increase further due to the new work culture forced upon us by the pandemic. In academia alone, for instance, e-learning apps such as Zoom, Blackboard, etc. have been the primary mode of teaching activities since the turn of the year 2020. Skype, Google Meet, Microsoft Teams, etc. have found their use as official modes of interaction like never before. Accordingly, it is not unrealistic to predict that our dependence on this electronic equipment will increase further in the coming years and so will the amount of E-waste generated across the globe.
In 2019, global e-waste generation was estimated at approximately 54 Mt, with only 18% of this waste being adequately collected and recycled. This amount could rise to approximately 71 Mt by the end of 2030. (Jaiswal, 2025). E-waste presents serious environmental risks: when electronics aren't recycled properly, both usable and defunct devices wind up in landfills, where their toxic materials contribute to water and air pollution. Further, e-waste production generates significant amounts of greenhouse gasses, such as carbon dioxide. One study showed that greenhouse gas emissions associated with e-waste and electronics production increased 53% from 2014 to 2020, with 580 metric tonnes created in 2020 alone. Without intervention, 852 million metric tonnes of carbon dioxide compounds will be generated from e-waste alone by 2030 (aiswal, 2025).
The various facets of planned obsolescence make it challenging to recycle electronic devices. As products become obsolete, companies stop manufacturing replacement parts, making it difficult for consumers to repair or upgrade their devices. Consequently, this leads to a significant increase in e-waste, which is often sent to developing countries for recycling. Unfortunately, these countries lack the infrastructure and technology to handle the e-waste properly, posing a significant risk to the environment and human health. Planned obsolescence may have short-term economic benefits for companies, but it has long-term economic costs for society. The production and disposal of electronic devices contribute to various environmental problems, including pollution, habitat destruction, and climate change. These problems can have severe economic consequences, such as increased healthcare costs, property damages, and reduced productivity. The fast-paced technological advancements and the increasing demand for newer and better smartphone products manufactured by companies simply follow the technological obsolescence which in turn led to a higher rate of e-waste generation. Electronic devices contain hazardous materials that can lead to severe health problems if not disposed of properly.
Social E-waste is a rapidly growing problem in our society today, and it is much bigger than realized so far. The social impact of e-waste is far-reaching and impacts not only our environment but also our health, safety, and economy. The social impact of e-waste is significant and far-reaching. It affects not only our environment but also our health, safety, and economy. E-waste also affects our privacy and security. When dispose of electronics improperly, we risk exposing sensitive data, which can lead to identity theft and other forms of cybercrime. The improper disposal of electronic waste can have devastating effects on developing countries, where it is often dumped in

landfills or burned, releasing toxic chemicals into the air and water. This can cause a wide range of health problems, including respiratory illnesses, birth defects, and cancer. In addition, the toxic materials found in e-waste can also contaminate soil and water supplies, leading to a decline in agricultural productivity and a loss of biodiversity.

The extraction and disposal of electronic waste require significant resources, including labour, energy, and raw materials. When these resources are misused or wasted, it can hurt our economy. One of the most pressing issues related to e-waste is its economic impact. As the rate of electronic waste generation continues to grow, so does its detrimental effect on the economy. From the extraction of raw materials to the disposal of electronic devices, e-waste has a significant financial cost associated with it. The economic impacts of e-waste are felt at every stage of the electronics lifecycle, from production to disposal, and even beyond. In short, the functional, aesthetic, psychological, technological, and postponement perceptions of planned obsolescence would have broader societal and environmental consequences worldwide.

IMPLICATIONS OF THE STUDY

As technology evolves rapidly, smartphone manufacturers often design products with limited lifespans to increase consumer turnover in turn, shows the relationship between planned obsolescence and e-waste generation is a significant concern in today's consumer-driven society (Alzaydi, 2024). Addressing this issue requires a multifaceted approach that includes regulatory action, consumer education, and a commitment from manufacturers to prioritize sustainability over short-term profits. Even though many researchers explored the different perspectives of planned obsolescence, the effects of planned obsolescence on e-waste generation and environmental sustainability are not well documented. India has unique socio-economic and environmental challenges and by concentrating on this region, the study provides localized data that can influence policy-making and educational campaigns to promote sustainable practices.

Increased awareness about planned obsolescence and its consequences can empower consumers to make informed decisions, ultimately leading to more sustainable consumption habits and make more responsible and transparent smartphone industry. (Zongwe, 2023). The study might highlight opportunities for manufacturers to differentiate themselves by focusing on durability, repairability, and longer software support, potentially attracting a growing segment of environmentally and economically conscious consumers. The findings could encourage manufacturers to explore and adopt circular economy principles, such as offering repair services, facilitating device trade-ins, and using recycled materials. Findings can support local governments and organizations in developing regulations and programs aimed at reducing e-waste and promoting product longevity (Alivojvodic, 2024). The study fills a gap in existing research by focusing on the intersection of consumer behavior, sustainability, and technology in the context of a developing region, thereby contributing valuable insights for academia and industry. By examining the psychological aspects of obsolescence, the study might empower consumers to resist the urge to upgrade based on trends or perceived inadequacies rather than actual functional decline. This study seeks to address these critical areas, providing a comprehensive understanding of the implications of planned obsolescence and contributing to the broader dialogue on sustainable technology use and waste management. (Alzaydi, 2024)

Since e-waste generation and its disposal is a threatening social problem nowadays, this study investigated how electronic waste is generated from different precepts of planned obsolescence and what customers are doing with outdated smartphones. As a whole, the study enlightens society about the concept of planned obsolescence and the need to be aware of the conceptual mechanism. As planned obsolescence is a primary driver of consumption in the electronics industry, companies design products with a limited lifespan, which encourages consumers to purchase new products

more frequently. This approach not only leads to a massive increase in e-waste but also contributes to various environmental problems (Jaiswal, 2025)

India, like many regions, faces significant challenges related to electronic waste (E-waste) management. In that sense, this conceptual research work tries to discover more insights and uncover the link between smartphone obsolescence and e-waste generation, contributing to discussions on sustainability and environmental health. Focusing on smartphone users allows for a nuanced understanding of consumer attitudes, purchasing behaviors, and disposal practices (Oraee, 2024). Hence this study contributes to the ongoing discourse on responsible consumption and the urgent need for effective e-waste management strategies. It seeks to highlight the awareness levels among smartphone users regarding planned obsolescence and the environmental challenges posed by E-waste (Habib, 2023). Ultimately, this research aims to inform policymakers, manufacturers, and consumers about the critical need for sustainable practices in the smartphone industry, fostering a more responsible approach to technology consumption in the region and considering more sustainable business models. The connection between planned obsolescence and e-waste is a significant environmental issue that requires urgent attention. Consumers need to become more aware of the environmental impacts of their purchasing decisions, and companies need to adopt more sustainable business practices. Finally, the findings might support the development of regulations that promote longer product lifespans, improve repair access, and mandate clearer information for consumers. By working together, all the aforementioned authorities can reduce the amount of e-waste generated and create a more sustainable future for everyone.

CONCLUSION

Planned obsolescence has evolved beyond simply designing products to break down. Its contemporary "descendants" operate by subtly shaping consumer perceptions of value, desirability, and necessity and behavior. By focusing on the "underused perceptivity" of these strategies – how psychological, technological, and stylistic factors are leveraged to drive premature replacement – we can gain a more nuanced understanding of modern consumption patterns. Recognizing these mechanisms is crucial for fostering more sustainable consumption behaviors and promoting greater transparency and ethical practices in the design, manufacturing, and marketing of smartphones and their allied devices is the need of the hour. Further research in this area is essential to empower consumers and inform policies aimed at mitigating the negative societal and environmental impacts of planned and perceived obsolescence.

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