

Designed to Replace: A Conceptual Review of Planned Obsolescence and Consumer Behaviour in the Electronics Market.

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Abstract - The fastest growing technological industrial revolution has significantly impacted and shortened the lifespan of electronic gadgets, resulting in the development of intentional design techniques known as planned obsolescence. This conceptual review article scrutinizes existing literature to explain how planned obsolescence influences consumer behaviour, and decision making through the various mechanisms of obsolescence. This review article identified and summarized the types of obsolescence such as Planned, technological, functional, and style or psychological and how this factor influences the consumer behaviour, perceptions, brand loyalty, repurchase intention, and environmental attitudes. This paper review synthesizes evidence using secondary literature from google scholar, research papers, research Journals etc. It develops a conceptual framework that links perceived obsolescence, brand trust, environmental concern, and repurchase intention. Key gaps in the literature and future research directions are highlighted, offering insights for policymakers, marketers, and sustainability advocates.

Key Words: Planned obsolescence, consumer behaviour, electronics market, sustainability, repurchase intention.

I. INTRODUCTION

The fastest growing technological industrial revolution has significantly impacted and shortened the lifespan of electronic gadgets, resulting in the development of intentional design techniques known as planned obsolescence. Planned obsolescence is an industrial strategy of intentionally designing a product with a limited durable life, so that product becomes obsolete or no longer usable. This strategy contributes to increasing electronic waste and accelerated replacement demand, encourages repeat purchases, and helps firms maintain competitive advantage (Cooper, 2016). Consumers' understanding of obsolescence, their perceptions of product longevity, and their choices around replacing devices are central to this phenomenon.

However, planned obsolescence can also undermine consumer trust, reduce satisfaction, and contribute to the global problem of e-waste. Understanding how planned obsolescence influences consumer decision-making has therefore become a significant area of inquiry in consumer behaviour, marketing, and sustainability studies. The present paper conceptually understands the mechanisms of planned obsolescence and how these strategies influence consumer behaviour in the electronics industry.

II. LITERATURE REVIEW

A. Evolution and Concept of Planned Obsolescence

The concept of planned obsolescence was started by the world leading bulb company in Geneva 1924. Where all top executives discussed reducing the lifespan of light bulbs because of declines in sales. From 1924 to 1934 the duration of bulb light reduced from approximately 2500 hours to 1205 hours and increased its sale by 25%. And now in the modern era many industries reduced the life of product and this strategy is known as planned obsolescence.

Planned obsolescence first gained attention in the early 20th century when manufacturers began designing products with pre-determined lifespans to stimulate repeat purchases (Bulow, 1986). In the contemporary electronics market, planned obsolescence has evolved to include hardware constraints, software limitations, non-repairability, and rapid product versioning.

(Widarmanti, 2024) Study focuses and investigates the planned obsolescence in the electronic industry specially in smart phones of Apple and Samsung company. Researcher examines how planned obsolescence in smartphones through hardware limits, software updates and rapid model releases influences consumers' decision to upgrade. It integrates these elements with innovation, diffusion and consumer behaviour theories particularly using Venkatesh's decision-making factors. Ultimately proposes a unified framework linking manufacturers'

lifecycle strategies with consumers' purchase intentions in the dynamic smartphone market.

(Dr. PC Santosh Babu, Nusrath P, 2025) The reviewed literature shows that smartphone manufacturers employ planned obsolescence through design choices, software limitations, and frequent new releases that shorten product lifespans. Research also reveals how these practices shape consumer attitudes, creating perceived need for upgrades despite functional older devices. Drawing from studies on marketing strategy, innovation diffusion, and perceived obsolescence, the author analyses how these elements collectively influence consumer purchase intentions. The paper ultimately synthesizes these insights into a conceptual framework linking manufacturer-driven obsolescence with consumer behaviour dynamics in the smartphone market.

(Javier Lobo Pérez Måns Nilsson, 2022) The researchers investigated previous research on planned obsolescence in smartphones and examined how it influences consumer behaviour, especially among sustainability-oriented consumers. They reviewed research on sustainable consumption, attitudes, the behavioural–attitude gap, and psychological vs. technical obsolescence to frame how consumers respond to shortened device lifespans. The study underlines how societal pressure, emotions, brand strategies, and continuous model updates influence consumers' replacement decisions despite sustainable objectives. Overall, the study integrates past theories to explain why planned obsolescence affects sustainable consumer behaviour and generates stiffnesses between values and actual smartphone usage.

(Hartl, Kort, and Wrzaczek, 2022) examine firm strategies against planned obsolescence in durable goods, balancing demand stimulation from shorter lifespans against reputation losses, under warranty constraints. They investigated a dynamic model for a monopolistic firm to determine the optimal product durability, balancing the increased demand from a plant against the negative impact on reputation and the cost by a government mandated warranty. The final conclusion reveals that the optimal product lifetime exhibits an inverted U- shaped relationship with both the length of the warranty period and the uncertainty surrounding product breakdown. Furthermore, an increase in fraction of consumers who claim a free replacement under warranty directly increases the firm's incentive to raise the product's expected lifetime. This suggests that effort

to increase consumer awareness of warranty rights would be an effective method not regulatory method to discourage planned obsolescence.

B. Consumer Perceptions of Obsolescence

Perceived obsolescence is a key determinant of consumer behaviour. Consumers often interpret product ageing as a cue that a replacement is necessary (Cooper, 2016). Marketing communications and frequent product launches influence these perceptions by reinforcing the desirability of upgraded models.

(Tisha Taksali & Suryansh Singh, 2024) investigated consumer awareness and attitude towards planned obsolescence finding that while many users are unaware of the specific term dividedly notice they widely notice its effect like diminishing product quality across various brands. Their primary research on iPhone users categorised consumers into environmental, status seekers advocates and those who value familiarity, revealing diverse motivations for their purchasing decision and responses to the practice. Ultimately the study concludes that consumers are deeply divided with half feeling they have no choice but to continue purchasing products despite knowing about planned obsolescence.

(Penelope Ramdayals 2023) Uses a systematic approach to critically analyse the use and effects of Planned obsolescence within the consumer electronics industry. Primary cookers is on American consumerism to understand how it has facilitated PO practices becoming a crucial part of electronics sector strategies. The key objective of the work is to critique the concept of innovation in the industry when weed through the lens of the infinite growth model driven by modern and late-stage capitalism. The review ultimately analyses the role of American consumer behaviour in allowing practices like planned obsolescence to persist.

C. Planned Obsolescence and Purchase Intention

(Akbar & James, 2014) Studies have revealed that tactics causing products to become outdated impact the desire to buy, notably in the areas like smartphones and laptops. Consumers with high technology involvement are more likely to change products frequently, even when functional performance is adequate. However, repeated exposure to obsolescence may lead to dissatisfaction, brand switching, and negative word-of-mouth (Chua, 2019).

D. Psychological and Social Drivers

(Trudeau & Shobeiri, 2016) reveal that Consumers frequently decide to get newer versions of products due to social norms, their societal expectations, status display, and perceived identity benefits. Product launches, because they think it makes them look better in society and marketing through well-known people online makes people feel like they need to update their items sooner than they might otherwise.

E. Environmental Concerns and Consumer Resistance

Growing environmental awareness has led to consumer resistance to obsolescence, promoting interest in durable, repairable, and modular electronics (Bovea et al., 2018). Right-to-repair movements are also gaining momentum, influencing consumer expectations and regulatory policy.

III. RESEARCH GAPS IDENTIFIED

The existing literature reveals several research gaps that warrant further investigation. First, most studies focus on developed markets, leaving limited understanding of how planned obsolescence affects consumer behaviour in developing countries like India, where market dynamics differ significantly. Second, prior research rarely adopts longitudinal approaches, resulting in insufficient insights into how consumer perceptions evolve over time. Third, there is inadequate distinction between software-driven obsolescence and hardware deterioration, despite software updates being a major contributor to product ageing in electronics. Fourth, limited attention has been given to how circular economy awareness, repair ecosystems, and Right-to-Repair movements shape consumer decision-making. Finally, there is a scarcity of integrated models that combine technological, functional, and psychological obsolescence, highlighting the need for more holistic theoretical frameworks.

IV. RESEARCH METHODOLOGY:

This is a conceptual review based on secondary literature from journals, reports and industry analyses. Key databases such as Web of Science, Google Scholar, and ScienceDirect were considered. The review synthesizes themes rather than empirical findings, aiming to develop a theoretical understanding.

V. RESEARCH OBJECTIVES:

1. To understand the concept of Planned obsolescence and consumers behaviour.

2. To study the planned obsolescence influence on consumer behaviour in the electronic market.

VI. CONCEPTUAL UNDERSTANDING OF PLANNED OBSOLESCENCE AND CONSUMER BEHAVIOUR.

A. Definitions and types:

The term obsolescence was first introduced by the American Automotive industry in the 1900s, they used it to describe products that were outdated and not usable for a long time. In economics, obsolescence refers to a productive asset becoming outdated, hence losing its utility solely due to fashion or technological developments even though the item still is operational and functioning well (Mellal, 2020). Packard (1960) categorized obsolescence into technological, functional, and psychological forms, which remain relevant today. Scholars argue that firms intentionally incorporate features that become outdated quickly (Guiltinan, 2009), enabling product upgrades and maintaining demand.

(Keeble & Theseus, 2013) and (Hartl et al., 2022) categorized obsolescence in different types based on its characteristics as discussed below.

(1) Planned Obsolescence

Manufacturers create products or their components with the intention that they will start to break down in the coming years, requiring consumers to "inevitably" replace them. We refer to this tactic as intentional obsolescence. The product's lifetime is shortened, which shortens the time it takes a client to purchase the subsequent item in their line. A consumer will stick with a brand if marketing is done correctly, and the business will profit from a shorter lifecycle.

(2) Technological obsolesces

It involves the devaluation of an item's worth due to technological advancement, which makes employing the new technology more financially sensible and cost effective than sticking with the old, despite the old product's continued ability to operate perfectly.

(3) Functional Obsolescence

When a primary function is deteriorated or inadequate without the chance to be upgraded, it is referred to as functional obsolescence. When it comes to mobile phones, this might indicate that newer software that was

incompatible with older devices uses more storage or a faster processor.

(4) Psychological or Style Obsolescence:

Occurs when a product becomes undesirable not because it stops functioning, but because it no longer aligns with current trends or aesthetic expectations. Consumers driven by identity, fashion, and self-expression replace perfectly functional products to stay “in style.” In mobile phones, this shift began with Nokia’s personalization features, which established design and aesthetics as powerful forces that make older models feel outdated. It means that the product is no longer attractive in the market.

The handbook of operations management, Hill (2012), defines planned obsolescence as ‘A strategy of designing products to become obsolete or non-functional after a period of time also known as built-in obsolescence.’

B. Consumer Behaviour:

Consumer behaviour may be considered to be one of the most explored human behaviours; many scholars within many fields have studied it, especially economists, sociologists, psychologists, and, these days, environmentalists. Consequently, several investigative avenues have emerged focusing on consumer behaviour, aiming to understand the complexities and uncertain human attitude conduct related to purchasing. However, trying to describe any form of human activity is in itself a tough task (Ajzen, 1991).

The phenomenon of Planned obsolescence may affect the consumers' decision, especially when their goal is to make environmentally responsible choices. However, alternate concepts about sustainable consumer behaviour suggest that while companies can motivate consumers towards sustainability, they contend that although businesses have the ability to persuade customers to behave sustainably, the final decision rests with the consumer, even though this choice is affected by a number of variables. (White, Habib, and Hardisty, 2019).

(1) Planned obsolescence in electronics

Planned obsolescence is evidently used in the sphere of the electronic Market. The Electronic Industry is no different, since it is highly dependent on the quick development of technology, which results in obsolescence and shorter gadget lifespans. (Hartl, Kort,

and Wrzaczek, 2022). Electronics brands use fast product cycles, non-interchangeable components, sealed batteries, and exclusive repair systems to shorten replacement intervals. Examples include frequent smartphone releases, operating system updates that slow older devices, and premium product design aesthetics. Planning and designing products having a verifiably limited useful life is a widespread practice among several multinational corporations. This design tactic, known as “planned obsolescence,” is used when a product is specifically made to have a short lifespan, requiring customers to make additional purchases. (Bulow, 1986).

VII. INFLUENCE OF PLANNED OBsolescence ON CONSUMER BEHAVIOUR

Planned obsolescence strongly influences consumer behaviour by shaping perceptions of product usability, desirability, and performance. While consumers increasingly recognize these tactics, behavioural patterns continue to favor frequent upgrading.

In the electronics market, planned obsolescence significantly influences consumer behaviour by raising expectations of shorter product lifespans, resulting in quicker replacement cycles and increased repurchase intent. Customers frequently upgrade their devices because of functional restrictions, software updates that are no longer available, or emotional strain from design rather than because of defects. Strong brand equity frequently keeps customers loyal, while excessive obsolescence can cause them to switch brands. As consumers expect faster replacements, price sensitivity rises, leading them to Favor mid-range models or hold out for launch-based price reductions. Planned obsolescence is a key factor in electronic consumer behaviour since it is reinforced by marketing cues, trend culture, and the need for technological innovation.

VIII. CONCLUSIONS

Planned obsolescence remains a strategic yet debated practice in the electronics industry. Its influence on consumer behaviour is complex, shaped by technological advancements, psychological factors, and socio-economic expectations.

This systematic review highlights the interconnected roles of consumer awareness, perceptions of product lifespan, and replacement behaviour in understanding

planned obsolescence in electronic gadgets. This conceptual review provides a theoretical foundation for understanding these dynamics and proposes a framework to guide future empirical research. As electronics continue to evolve rapidly, it is vital to balance innovation with sustainability and ethical consumer engagement. Further research in this area is essential to import consumers and inform policy aimed at mitigating the negative societal and environmental impact of planned obsolescence.

REFERENCES

- 1 Ajzen, I. (1991). 'The Theory of Planned Behavior,' Organizational behavior and human decision processes, 50(2), pp. 179-211.
- Babu, P. S., & P, N. (2025). Underused perceptivity of planned obsolescence and its descendants: a conceptual approach in the smartphone industry. *European Economic Letter*, 15(2), 2323–5233. <http://eelet.org.uk>.
- Bovea, M. D., Pérez-Belis, V., & Que madez-Beltrán, P. (2018). Consumer perception of the environmental performance of household appliances. *Sustainable Production and Consumption*, 16, 1–12.
- Bulow, J. (1986). An Economic Theory of Planned Obsolescence, in the Quarterly Journal of Economics, New York: John Wiley & Sons, Inc. Issue N° 101 (4): p. 729–749.
- Bulow, J. (1986). An economic theory of planned obsolescence. *The Quarterly Journal of Economics*, 101(4), 729–749.
- Cooper, T. (2016). Longer lasting products: Alternatives to planned obsolescence. *Journal of Cleaner Production*, 9781315592930 <https://doi.org/10.4324/9781315592930>
- Cooper, T. (2016). Longer lasting products: Alternatives to the throwaway society. *Routledge*.
- Fischer, J., & Keane, M. (2021). Consumer trust, brand loyalty, and electronics lifetimes. *Journal of Consumer Behaviour*, 20(3), 745–758.
- Guiltinan, J. (2009). Creative destruction and destructive creations: Environmental ethics and planned obsolescence. *Journal of Business Ethics*, 89, 19–28.
- Hartl, R. F., Kort, P. M., & Wrzaczek, S. (2022). Reputation or warranty, what is more effective against planned obsolescence? *International Journal of Production Research*, 61(3), 939–954. <https://doi.org/10.1080/00207543.2021.2020929>
- Hill, A. V. 2012. The Encyclopedia of Operations Management: A Field Manual and Glossary of Operations Management Terms and Concepts. New Jersey: Pearson Education.
- Javier Lobo Pérez Måns Nilsson, 2022 Planned Obsolescence: A deal-breaker for smartphone consumers or not? A qualitative study of sustainable consumers' behaviour around Planned Obsolescence - The case of smartphones. (2022). [Master's Thesis, Uppsala University]. In *Department of Business Studies, Master's Programme of Sustainable Management*. <https://www.diva-portal.org/smash/get/diva2:1678153/FULLTEXT01.pdf> (Original work published 2022)
- Keeble, D. & Theseus. (2013). THE CULTURE OF PLANNED OBSOLESCENCE IN TECHNOLOGY COMPANIES. In Oulu University of Applied Sciences, *Business Information Technology* (p. 52) [Thesis]. https://core.ac.uk/download/pdf/38083105.pdf?utm_source=chatgpt.com
- Mellal, M. A. (2020). Obsolescence – A review of the literature. *Technology in Society*, 63, 101347. (<https://www.sciencedirect.com/science/article/pii/S0160791X2030350X>). <https://doi.org/10.1016/j.techsoc.2020.101347>
- Packard, V. (1961). *The waste makers*. LONGMANS. https://alor.org/Storage/Library/PDF/Packard_V-The_Waste_Makers.pdf
- Pérez, J. L., & Nilsson, M. (2022). *Planned obsolescence: a deal-breaker for smartphone consumers or not? A qualitative study of sustainable consumers' behaviour around planned obsolescence - the case of smartphones* [Master's Thesis, Uppsala University]. <https://www.diva-portal.org/smash/get/diva2:1678153/FULLTEXT01.pdf>.
- PC Santosh Babu, Nusrath P 2025 Underused perceptivity of planned obsolescence and its descendants: a conceptual approach in the smartphone industry. (n.d.). *European Economic Letter*, 15(2).
- Ramdayal, P.A.T. (2023). A systematic review of the effects of planned obsolescence in the consumer electronics industry: a focus on American consumerism.

Tisha Taksali & Suryansh Singh. (2024). Planned Obsolescence in Consumer Products. *Anusadhak*, 3(1), <https://sxcjpr.edu.in/wp-content/uploads/2024/08/9.-Tisha-Taksali-updatesd-Edited.pdf>.

White, K., Habib, R., and Hardisty, D. J. (2019). 'How to SHIFT consumer behaviors to be more sustainable: A literature review and guiding framework', *Journal of Marketing*.