


# Chapter 12

## Neuromarketing in the Phygital Era by Influencing Gen Z and Sustainable Consumer Behaviour in a Digitally Driven Retail World

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### ABSTRACT

*As environmental awareness grows, businesses are challenged to inspire sustainable consumer behavior that aligns with evolving digital habits—especially among Gen Z. This research explores the intersection of neuromarketing, phygital retail experiences, and green consumption, analyzing how subconscious emotional and cognitive responses influence eco-friendly purchasing decisions. By utilizing tools such as EEG, fMRI, eye-tracking, and biometric sensors, neuromarketing reveals key drivers of consumer engagement, trust, and decision-making that traditional methods often overlook. The study examines how storytelling, visual cues, brand identity, and emerging technologies like Artificial Intelligence (AI) and the Internet of Things (IoT) enhance sustainable product appeal. Case studies from global brands illustrate how neuro-informed strategies can bridge the attitude-behavior gap and foster more meaningful connections with ethically minded consumers. Neuromarketing as a powerful tool for shaping consumer behavior in a digitally-driven, environmentally conscious world.*

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# 1. INTRODUCTION

In an age where environmental concerns are reshaping consumer preferences, businesses are increasingly challenged to bridge the gap between sustainability values and actual consumer behavior (A. B. Mishra, 2025). Despite rising awareness, many individuals fail to act consistently with their ecological intentions a phenomenon known as the attitude-behavior gap (Lee et al., 2007). Traditional marketing tools often fall short in capturing the unconscious drivers behind these decisions (Usman M et al., 2023). In response, neuromarketing, an emerging interdisciplinary field combining neuroscience, psychology, and marketing, offers powerful insights into how consumers emotionally and cognitively respond to stimuli, especially those related to sustainability (A. B. Mishra & Singh, 2024a). By utilizing advanced technologies such as EEG (Electroencephalography), fMRI (Functional Magnetic Resonance Imaging), eye-tracking, and biometric analysis, neuromarketing reveals what consumers truly feel and perceive—often beyond what they express in surveys (Vrontis et al., 2021). These insights are particularly valuable when promoting eco-friendly products, which rely heavily on trust, ethical identity, and emotional resonance (Cosic, 2016). Moreover, as digital transformation, AI, and phygital experiences redefine consumer interaction, neuromarketing plays a crucial role in crafting emotionally compelling, personalized, and impactful sustainability narratives (A. B. Mishra, Satarkar, et al., 2023). This paper explores the fundamental principles of neuromarketing, its applications in promoting sustainable products, and its influence across modern technologies and demographics—especially Gen Z (Chillakuri, 2020). Through case studies, tool analysis, and behavioral insights, it aims to demonstrate how neuromarketing can drive meaningful change in consumption patterns and support the transition toward a more sustainable future.

## 2. LITERATURE REVIEW

### 2.1 Neuromarketing Fundamentals

Neuromarketing involves studying brain activity and physiological responses to understand how consumers make decisions, often beyond their conscious awareness (Seyfi et al., 2024). By analyzing how the brain reacts to marketing stimuli, researchers can identify emotional triggers, cognitive engagement, and decision-making patterns (Lee et al., 2007). Several tools are commonly used in neuromarketing research (Saarijärvi et al., 2013). Functional Magnetic Resonance Imaging (fMRI) measures changes in blood flow to detect brain activity and is useful for identifying areas associated with reward, trust, or emotional processing. Electroencephalography

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