

# Review on Impact Factors for sustainable consumption

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**Abstract.** Sustainable consumption represents a core pathway for addressing global environmental challenges and achieving the United Nations Sustainable Development Goals. This paper systematically analyses four major categories of factors influencing sustainable consumption: Firstly, intrinsic consumer factors: such as environmental awareness, value alignment, and ecological anxiety, which form the psychological foundation for behavioral shifts. These drive consumers towards selecting eco-friendly products, paying price premiums, and developing green identity recognition. Second, product and design factors: eco-design and technological innovation enhance environmental performance and market competitiveness by incorporating sustainable materials (such as renewables and recycled components), thereby lowering barriers to sustainable consumption. Third, market and information factors: brand communication, transparency, and green digital marketing foster consumer trust, reduce the inaccurate information, and promote behavior change to enable consumers to make sustainable choices. Fourth, external environmental factors: Macro pressures such as resource scarcity and climate change accelerate consumption transformation, compelling enterprises to refine production processes and implement circular economy practices. Current sustainable consumption still faces challenges including greenwashing and information opacity. It is suggested that enterprises enhance technological innovation and transparency construction. Also, the government improve the policies and market mechanism, and through differentiated communication strategies and cross-departmental cooperation. This can build a sustainable consumption ecosystem to promote the transformation of consumption patterns towards sustainability.

**Keywords:** Sustainable consumption, consumer impact, influencing factors.

## 1. Introduction

Sustainable consumption has become a decisive factor in modern consumer behavior. In the face of severe challenges such as global climate change, environmental pollution, and excessive resource consumption. Sustainable consumption not only focuses on the environmental impact throughout the product's life cycle but also strives to ensure the well-being of future generations while meeting current demands. During this process, enterprises are ensuring that from raw material to the production process, they comply with green environmental standards, sustainable packaging can reduce the use of disposable plastics and promote degradable materials. The circular economy model promotes the concept of "waste as resource" by designing durable, repairable and recyclable products, thereby directly reducing the environmental pressure from consumption. The sustainable choices of consumers are driven by a variety of motives. Environmental awareness prompts individuals to consider their actions' impact on the planet's ecosystems; value alignment and a sense of social responsibility incline people towards supporting sustainable products. Furthermore, anxiety stemming from long-term ecological concerns fosters the adoption of sustainable lifestyles. Concurrently, governments play an important role in advancing sustainable consumption. By generating the production and purchase of green products taxes, restricting the circulation of high-pollution and energy-intensive goods via legislation, promoting renewable energy technologies through subsidies, and enhancing societal environmental awareness through public education, governments are cultivating an institutional environment and social climate conducive to sustainable consumption. The shift in consumer behavior reflects not only the evolution of societal values but also the increasingly connected dynamics between technological innovation, corporate strategy, and policy initiatives. With the application of digital technologies like blockchain in supply chain

traceability, the sustained decline in renewable energy costs, and the advancement of global carbon neutrality targets, sustainable consumption is transitioning from a marginal choice to an integral component of the mainstream economy. This transformation requires collaborative efforts across all stakeholders while simultaneously offering crucial pathways and opportunities for future global sustainable development.

## **2. The Influences of Consumers' Internal Factors on Sustainable Consumption**

### **2.1. Environmental Awareness**

Environmental awareness is a cognitive construction, meaning that it is not a simple and passive response to the environment. Instead, it is a set of understanding, attitudes and tendencies about the environment and its issues that an individual actively constructs based on their own knowledge, experience, values, emotions, and external social and cultural information. It is reflected in concerns over climate change, ecological destruction, resource depletion, and similar matters. Environmental awareness influences the degree to which people engage with environmental issues and motivates them to adopt behaviors conducive to environmental protection [1]. As global concerns over climate change, ecological pollution, and excessive resource consumption intensify, consumers' awareness and behaviors are undergoing profound shifts. Numerous studies indicate that environmentally conscious consumers are more inclined to select eco-friendly products, support green brands, and pay a premium for sustainable attributes. For instance, the UK's Whole Foods Market, renowned for its high prices and stringent organic and natural standards, boasts a substantial loyal customer base. China's Hema Fresh supermarket similarly promotes premium offerings such as 'organic vegetables' and 'raw-edible eggs'. Consumers readily pay for these premium products, with organically certified produce—including vegetables, fruit, milk, and eggs—commanding price premiums ranging from 30% to 100% over conventional alternatives. Consumers are willing to pay this premium because they believe organic products are healthier (free from pesticides and chemical fertilizers) and more environmentally friendly, as they do not use chemical fertilizers or pesticides, causing less pollution to soil and water sources and avoiding harm to animals.

### **2.2. Value Alignment and Sustainable Consumption**

Values constitute an individual's attitude towards specific objects, serving as assessing and responding to external environments, thereby forming higher-level beliefs, attitudes, and behaviors. A consumer's value system—encompassing environmental stewardship awareness, notions of social equity, and ethical consumption inclinations—profoundly shapes their purchasing preferences and brand loyalty. Driven by dual pathways of social recognition and public endorsement, sustainable consumption itself evolves into a potent group norm. Public support holds multifaceted value for social movements (particularly environmental campaigns): it serves as a crucial resource for recruiting consumers who share green consumption ideals. Simultaneously, most environmental organizations possess convergent elements in their core beliefs and values. For instance: they collectively recognize that specific human actions harm the natural environment, and that environmental degradation ultimately endangers humanity itself [2]. Consequently, supporters believe action should be taken to mitigate such harmful behaviors [3]. By adhering to the norm of sustainable consumption and establishing shared values, consumers in developed nations link sustainability to specific behaviors—such as recycling, purchasing organic food, and choosing brands with explicit environmental commitments. This not only provides reassurance about the correctness of their decisions (informational influence) but also fosters group acceptance and identity formation (normative influence). Consequently, 'sustainability' is internalized from an abstract concept into a concrete symbol of a 'green identity'. Values not only guide individuals towards ethically sound consumption choices but also shape their lifestyles and consumption habits over the long term.

### **2.3. Eco-Anxiety: Emerging Psychological Drivers of Sustainable Consumption**

Eco-Anxiety denotes the chronic fear, helplessness, distress and concern arising from sustained preoccupation with ecological crises such as climate change, biodiversity loss and environmental pollution [4]. It is not a clinically diagnosable disorder, but rather a rational psychological and emotional response to real, large-scale threats [5]. Simultaneously, ecological anxiety is not a singular concept but encompasses a spectrum of diverse experiences, which can be categorized as follows: Ecological anxiety: Focuses on apprehension and dread concerning future ecological crises. ecological grief: involves sorrow and a sense of loss stemming from ecological losses that have already occurred (such as species extinction or coral bleaching). Ecological guilt: feelings of culpability arising from awareness of one's own actions causing environmental harm [6]. Within the context of 'green consumerism', current research predominantly focuses on cognitive (e.g., knowledge, cost), social (e.g., norms, peer pressure), or situational (e.g., policy, infrastructure) drivers, often overlooking the significant influence of emotional dimensions – particularly ecological anxiety – on sustainable consumption decisions. Ecological anxiety is a significant yet frequently overlooked factor that can drive sustainable consumption behavior. It functions as an arousal mechanism, prompting individuals to undertake environmentally conscious actions such as purchasing green products or reducing consumption. Such behaviors (e.g., buying eco-friendly goods) alleviate consumers' inner discomfort (anxiety or helplessness) and guilt over potentially damaging the environment [7]. Research confirms that within urban contexts, consumers are driven to purchase by cognitive, social, or situational factors, while emotional elements such as ecological anxiety equally influence consumer behavior.

## **3. The Impact of Product and Design Factors on Sustainable Consumption**

### **3.1. Eco-design**

Eco-design is a systematic approach integrating tools and methodologies, whose core principle lies in embedding sustainability considerations during the conceptual phase of product design and development. It emphasizes incorporating environmentally friendly principles throughout the product development cycle, including the use of renewable materials, enhancing energy efficiency, optimizing lifecycle management, and implementing responsible procurement practices. However, for enterprises, translating this concept into sustained organizational capability presents a significant challenge. According to research by Pigosso et al., a company's level of eco-design can be measured by its 'maturity' – that is, the comprehensive integration of eco-design into corporate strategy and product development. Enhancing this 'maturity' requires a systematic management framework encompassing product development methodologies, processes, and tools [8]. Such design not only reduces a product's negative environmental impact but also, by elevating eco-design maturity, systematically strengthens the product's market competitiveness and consumer acceptance. The application of eco-design within product development processes and systems enables more effective analysis of research outcomes towards sustainable product competitiveness, thereby encouraging sustainable consumption among consumers. Ultimately, high levels of eco-design maturity will enable enterprises to transform environmental challenges into competitive business advantages [9].

### **3.2. Technological Innovation**

Technological innovation serves as a vital driving force for sustainable consumption. For instance, BYD's Seagull model, having pioneered numerous emerging technological innovations, positions itself as a significant environmental innovation (replacing petrol vehicles). Its environmental advantages include zero tailpipe emissions, ultra-high efficiency, lightweight construction, and material conservation. Consequently, it has gained consumer favor in China and even certain European nations. Moreover, BYD's research and development team has incorporated its proprietary blade battery technology, endowing the vehicle with higher energy density, extended operational

lifespan, and enhanced durability. The most important point is that this type of blade battery is easier to recycle. The retired blade batteries can be used to store energy and eventually be dismantled. From this, valuable metals such as lithium can be extracted, achieving the recycling of resources. These innovations will encourage consumers to purchase their products. Technological innovation builds trust to change consumption policies, while combining behavioral nudges to optimize choice architectures, and amplifying the impact through social activities. For example, artificial intelligence (AI) can be used to optimize resource management and energy distribution, and blockchain technology can achieve transparent traceability of the supply chain, helping consumers verify the environmental and ethical attributes of the products [10]. These technologies not only enhance the efficiency of production and consumption processes, but also strengthen consumers' trust in brands and products [11]. Among them, a typical case is that Tesla uses AI to optimize the battery recycling process and records the financial sources through blockchain, reducing the carbon footprint of battery packs by 35%.

### **3.3. Environmental Impact**

Today, the Earth's environment on which people rely is becoming increasingly deteriorated, and at the same time, people are facing a series of survival challenges such as resource scarcity, rising temperatures, and species extinction. These situations have directly driven a series of environmental consumption behaviors, that is, those consumer behaviors that make substantive purchasing and usage choices that have an impact on the environment. According to Stern's research, this behavioral transformation is caused by multiple factors: it is influenced by the background of the times, and the shortage of resources leads to increased costs (such as the price of fossil fuels), making consumers choose green products (such as electric vehicles with lithium batteries). At the same time, consumer psychology also plays a significant role. Environmental pollution may lead to health problems, and consumers will tend to purchase green and organic products [1]. Research indicates that altering the prevailing context remains the most effective pathway to transform large-scale consumption patterns. Building upon these practices, enterprises can significantly reduce a product's environmental footprint throughout its lifecycle by refining production processes, minimizing waste emissions, and implementing circular economy models. At the same time, ethical production practices (such as fair trade, no animal testing, etc.) are also increasingly becoming an important basis for consumers to choose products driven by psychological factors (such as moral norms).

## **4. The Impact of Market and Information Factors on Sustainable Consumption**

### **4.1. Brand Communication**

By telling sustainable stories, brands transform consumer behaviors into expressions of values, helping consumers construct their "environmentalist" identities. Through transparent communication methods such as blockchain traceability and carbon labels, it reduces the information cost for consumers in identifying sustainable products. And for example, Starbucks' bring-your-own-cup initiative, through community-oriented activities initiated by the brand, enhances the sense of group belonging and promotes the habit of sustainable consumption [12].

### **4.2. Information Transparency**

Information transparency drives sustainable consumption through the establishment of a verifiable trust mechanism. Technologies such as blockchain provide traceable data throughout the product's entire supply chain (such as carbon footprint, origin), converting abstract environmental protection commitments into visual decision-making bases, significantly reducing consumers' identification costs and risk perception. This transparency directly inhibits greenwashing behavior because false claims can easily be exposed under verifiable information. More importantly, the construction of enterprise transparency builds green trust through a "signal-feedback" cycle: enterprises disclose information to demonstrate sincerity, consumers verify it to strengthen their recognition of brand

integrity, and thereby enhance their perception of product functional value and moral value. Ultimately, transparency resolves the initial skepticism of groups such as the Z Generation towards environmental claims, converting it into positive consumption behavior of paying for values, forming a complete closed loop of "credible information - trust construction - value recognition - consumption transformation".

### **4.3. Green Digital Marketing**

Green digital marketing is not a simple linear promotion process, but rather a multidimensional, bidirectional interactive strategic symbiosis. This marketing model has become central to shaping sustainable consumption culture, building trust, and ultimately driving behavioral change. Firstly, as a communicator and educator, it bridges consumers' "knowledge gap" through content marketing and SEO optimization, disseminating environmental awareness and reducing the decision-making costs associated with sustainable consumption. Secondly, as a trust-builder, it employs technologies like blockchain to achieve supply chain transparency, effectively countering "greenwashing" risks. Simultaneously, it fosters value-driven communities through social media, transforming sustainable consumption into an identity marker. Finally, as behavioral facilitators, they employ data-driven strategies for precise user targeting. Through influencer marketing and behavioral nudges in interface design—such as default options and prominent labelling—they subtly bridge the 'attitude-behavior gap' to guide eco-conscious choices. In summary, green digital marketing forms a deeply interactive strategic symbiosis with sustainable consumption through its threefold mechanisms of education, trust, and facilitation [13].

## **5. Discussion and Suggestion**

The development and promotion of sustainable consumption currently face multiple challenges, with greenwashing and information opacity being particularly prominent issues. Among these, the issues of "greenwashing" and information opacity are particularly prominent. The case of the fast-fashion brand H&M demonstrates that if a company merely conducts superficial environmental publicity to cover up unsustainable production practices, it will quickly erode consumer trust and trigger a brand crisis. Moreover, the behavior of enterprises that are reluctant to provide complete environmental information due to commercial secrets or cost considerations further intensifies consumers' doubts about whether the brand promotes sustainable consumption.

To address these issues, this article puts forward the following suggestions:

Regarding the enhancement of enterprises technological innovation and the establishment of full transparency: Enterprises should widely adopt technologies such as blockchain and the Internet of Things to build a system for traceability throughout the product lifecycle. This enables consumers to directly verify data on carbon emissions, raw material origin, and other metrics. Thereby this will effectively curbe greenwashing from the source.

Developing tailored communication strategies for distinct consumer segments: differentiated messaging based on consumer motivations. For environmentally conscious groups, emphasize specific environmental benefits (e.g., carbon reduction metrics). For value-driven consumers (e.g., Generation Z), reinforce identity through brand narratives. For ecologically anxious groups, provide actionable environmental initiatives (e.g., recycling programs) to alleviate concerns about unsustainable production practices.

Regarding aligning policy with market mechanisms: Governments must refine green certification standards while lowering price barriers for sustainable products through tax incentives or subsidies, addressing affordability concerns among low-income groups.

Regarding establishing a sustainable consumption ecosystem: it can encourage cross-sector collaboration, such as e-commerce platforms creating 'green channels or food service enterprises partnering with surplus food management applications. These programs, akin to online marketplaces, can be widely deployed across restaurants, bakeries, cafés, and supermarkets. Through such apps,

unsold food from each day can be packaged and sold at discounted prices (e.g., Too Good to Go), thereby reducing the practical costs of sustainable consumption through resource integration.

## 6. Conclusion

Sustainable consumption is the core path to achieving the United Nations Sustainable Development Goal (SDG 12), and its influencing factors are diverse and interact with each other. This study systematically examines four major types of influencing factors: Firstly, regarding the internal factors of consumers: environmental awareness, value identification, and ecological anxiety form the psychological basis for behavioral transformation. Secondly, concerning product and design factors: eco-design and technological innovation can lower the threshold for sustainable choices by enhancing environmental performance and appeal. Thirdly, market and information factors: brand communication and information transparency foster consumer decision-making by building trust and reducing information asymmetry. Finally, external environmental factors: resource scarcity and climate change accelerate consumption transformation at the macro level.

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