

## Linking Sustainability Practices to Perceived Usefulness and Consumer Perception in the Food and Beverage Industry

Odebunmi Abayomi Tunde<sup>1</sup>, Thiam Yong Kuek<sup>2</sup>, Neha Rai<sup>3</sup>, Pei Qian Loke<sup>4</sup>,  
Er Xian Looi<sup>4\*</sup>, M. Sanggita A/P Muguran<sup>4</sup>, Mafe Olumwatonmise  
Irianuoluwayimika<sup>4</sup>, Kriti Kumari<sup>5</sup>, K. Sujan Kumar<sup>3</sup>

<sup>1</sup>Osun State Polytechnic Iree, Osun, 231108 Nigeria

<sup>2</sup>Universiti Tunku Abdul Rahman, Bandar Barat, 31900 Kampar, Perak, Malaysia

<sup>3</sup>Amity University Madhya Pradesh Gwalior, Madhya Pradesh 474005, India

<sup>4</sup>University Sains Malaysia Jalan Sg Dua, 11800 Minden, Pulau Pinang, Malaysia

<sup>5</sup>IMS Ghaziabad - Business School, Ghaziabad, Uttar Pradesh 201009, India

\*Corresponding Email: [erxian@student.usm.my](mailto:erxian@student.usm.my)

### ARTICLE INFORMATION

### ABSTRACT

#### Publication information

#### Research article

#### HOW TO CITE

Tunde, O. A., Kuek, T. Y., Rai, N., Loke, P. Q., Looi, E. X., Muguran, M. S. A., ..., & Kumar, K. S. (2026). Linking sustainability practices to perceived usefulness and consumer perception in the food and beverage industry. *International Journal of Tourism and Hospitality in Asia Pasific*, 9(1), 140–156.

#### DOI:

<https://doi.org/10.32535/ijthap.v9i1.4376>

Copyright © 2026 owned by Author(s).

Published by IJTHAP



This is an open-access article.

License:

Attribution-Noncommercial-Share Alike  
(CC BY-NC-SA)

Received: 14 December 2025

Accepted: 17 January 2026

Published: 20 February 2026

Sustainability has become an important strategic issue in the food and beverage (F&B) industry as firms respond to growing environmental and social concerns. This study aims to examine how corporate sustainability practices influence perceived usefulness and consumers' perception. A quantitative, cross-sectional design was employed using survey data collected from consumers through purposive sampling. Descriptive statistics, reliability analysis, correlation, and multiple regression were applied for data analysis. The results indicate that sustainability awareness ( $\beta = 0.220$ ,  $p < 0.001$ ), perceived environmental practices ( $\beta = 0.162$ ,  $p < 0.05$ ), corporate social responsibility (CSR) ( $\beta = 0.239$ ,  $p < 0.001$ ), and sustainable packaging ( $\beta = 0.133$ ,  $p < 0.05$ ) significantly affect perceived usefulness ( $R^2 = 0.424$ ). Consumers' perception is directly influenced by CSR ( $\beta = 0.260$ ,  $p < 0.001$ ) and perceived environmental practices ( $\beta = 0.196$ ,  $p < 0.01$ ), while perceived usefulness shows no significant effect ( $\beta = -0.058$ ,  $p > 0.05$ ). The findings suggest that visible and credible sustainability practices play a central role in shaping consumer perception and support the strategic integration of sustainability into core business activities.

**Keywords:** Consumer Perception; Corporate Sustainability; Food and Beverage Industry; Perceived Usefulness; Sustainability Practices

## INTRODUCTION

Sustainability has emerged as a central concern within the global food and beverage (F&B) industry, as organizations face increasing pressure to balance environmental responsibility with economic performance and consumer trust. Growing public awareness of climate change, resource depletion, and ethical consumption has reshaped expectations toward how F&B companies design their production processes, manage supply chains, and communicate corporate values. In this context, sustainability is no longer viewed solely as a regulatory or ethical obligation, but as a strategic dimension that influences consumer perceptions, stakeholder relationships, and long-term organizational outcomes. As consumers become more informed and selective, their evaluations of corporate sustainability practices increasingly shape brand credibility and competitive positioning within the market.

Within this evolving landscape, Danone S.A. represents a relevant and illustrative case for examining how sustainability is integrated into corporate strategy and how such integration is perceived by stakeholders. Headquartered in France, Danone has developed from a small yogurt producer founded in 1919 into a multinational corporation operating in more than 120 countries, with product portfolios spanning dairy and plant-based alternatives, bottled water, early life nutrition, and medical nutrition. The company's corporate mission, "One Planet. One Health," reflects its foundational belief in the interdependence between human well-being and planetary health. This guiding principle informs Danone's approach to sustainability-oriented innovation, organizational decision-making, and external communication, positioning sustainability as a core element of its business identity rather than a peripheral initiative (Danone, n.d.).

Danone's sustainability agenda places strong emphasis on environmental responsibility, social engagement, and circular business practices. The company has articulated long-term commitments to carbon neutrality, regenerative agriculture, circular packaging solutions, and responsible sourcing (Kandpal et al., 2024). Its ambition to achieve net-zero greenhouse gas emissions across its value chain by 2050 is pursued through investments in renewable energy, low-emission logistics, and close collaboration with suppliers (Morris et al., 2023). In addition, initiatives such as the Danone Ecosystem Fund and the Livelihoods Carbon Funds aim to support farmers and local communities by promoting soil health, biodiversity preservation, and fair labor practices (Izquierdo-Yusta et al., 2023). These initiatives are designed not only to mitigate environmental impacts but also to reinforce corporate legitimacy in an industry where consumers increasingly associate brand integrity with environmental stewardship and ethical conduct. Nevertheless, the complexity of global supply chains, the intensity of resource use, and rapidly changing consumer expectations continue to pose challenges related to accountability, transparency, and perceived effectiveness of sustainability efforts (Gawusu et al., 2022).

Previous studies have consistently highlighted the importance of sustainability practices in shaping environmental outcomes and brand-related perceptions within the F&B sector. Research by Agu et al. (2024) demonstrates that consumers are becoming more attentive to environmentally sustainable attributes across food supply chains, emphasizing that transparent and responsible corporate behavior significantly enhances consumer trust and long-term loyalty. Similarly, Imran et al. (2024) find that sustainable packaging, responsible sourcing, and the use of environmentally friendly ingredients exert a meaningful influence on consumer behavior and brand image within the soft drink industry. Meanwhile, Onileowo et al. (2021) argue that continuous innovation is essential for sustaining competitive advantage in environmentally oriented business operations. While these studies provide valuable insights, much of the existing literature tends to

examine sustainability dimensions in isolation or focuses predominantly on performance outcomes. Consequently, limited attention has been given to how multiple sustainability practices interact to shape consumer perceptions and organizational implications simultaneously, particularly within the context of large multinational F&B firms such as Danone.

Addressing this gap, the present study examines sustainability practices as an integrated organizational strategy rather than as fragmented initiatives. In particular, the study focuses on four key sustainability-related dimensions, sustainability awareness, perceived environmental practices, corporate social responsibility (CSR), and sustainable packaging, as primary explanatory variables that represent how environmental responsibility, ethical sourcing, and circular production practices are communicated and perceived by consumers. These dimensions are examined in relation to two evaluative outcomes, namely perceived usefulness of sustainability initiatives, which reflects consumers' cognitive assessment of sustainability effectiveness, and consumers' perception and preferences, which capture broader perceptual and attitudinal responses. Rather than assessing sustainability solely through objective environmental indicators, this study emphasizes stakeholder-oriented outcomes that are increasingly critical in competitive markets, where sustainability claims are closely scrutinized and perceived authenticity plays a central role in shaping stakeholder attitudes.

Accordingly, this study aims to analyze Danone's sustainability practices and assess their effectiveness in relation to prevailing industry standards by examining the relationships among these variables. The research investigates how sustainability awareness, perceived environmental practices, CSR, and sustainable packaging influence perceived usefulness and consumers' perception. A quantitative research design is employed, drawing on survey data collected from consumers to capture evaluations of sustainability practices. This approach enables a systematic assessment of the relative influence of different sustainability dimensions, while situating the findings within broader theoretical and practical discussions on sustainability-driven business strategies in the food and beverage sector.

This study contributes to the literature by reinforcing the view that sustainability extends beyond ethical compliance and functions as a strategic resource within the international food and beverage industry. By explicitly linking sustainability-related practices to perceived usefulness and consumer perception, the research highlights the roles of transparency, communication, and stakeholder involvement in shaping organizational outcomes. Ultimately, the study advances understanding of how sustainability-driven strategies, when embedded into everyday organizational practices, can generate value not only for firms but also for society, supporting environmental protection and social well-being alongside long-term corporate development.

## **LITERATURE REVIEW**

### **Sustainability in the Global F&B Sector**

The global F&B industry has been subject to increasing environmental scrutiny due to its intensive use of natural resources and its contribution to pollution throughout production, distribution, and waste management processes. As a result, sustainability has evolved from a discretionary ethical consideration into a strategic imperative for firms seeking long-term legitimacy and consumer acceptance. Prior research suggests that sustainability initiatives play a crucial role in strengthening trust and aligning corporate activities with societal expectations, particularly in environmentally sensitive industries such as F&B manufacturing (Kazakova & Lee, 2022).

In this context, sustainability initiatives undertaken by multinational corporations such as Danone are unlikely to influence consumer responses through a single, direct mechanism. Instead, consumer evaluation emerges through multiple cognitive and perceptual processes, including awareness of sustainability issues, interpretation of environmental practices, assessment of specific initiatives, and judgments regarding CSR. These processes may affect consumers differently depending on whether they shape cognitive evaluations (e.g., perceived usefulness) or overall perceptions of the company.

## **Hypotheses Development**

### ***Sustainability Awareness***

Sustainability awareness refers to consumers' understanding of environmental challenges and their recognition of the role that corporations, including Danone, play in addressing these challenges. Consumers with higher levels of sustainability awareness are generally better equipped to process sustainability-related information and to distinguish between substantive initiatives and symbolic or superficial environmental claims (Jia et al., 2023). In the F&B sector, sustainability awareness has been associated with greater attention to ethical sourcing, environmental disclosures, and responsible production practices (Kamgang & Boiral, 2025).

From a theoretical standpoint, sustainability awareness is expected to function primarily as an antecedent of evaluative judgment rather than as a direct determinant of consumer perception. Awareness provides consumers with the cognitive framework necessary to evaluate whether Danone's sustainability initiatives are relevant, credible, and effective. Consequently, higher levels of awareness are likely to strengthen perceived usefulness by enabling consumers to interpret sustainability initiatives as meaningful and practically valuable. However, awareness alone may not be sufficient to directly shape consumers' overall perception of Danone unless it is reinforced by visible and credible sustainability practices.

H2: Sustainability awareness has a positive effect on the perceived usefulness of Danone's sustainability practices.

H7: Sustainability awareness has a positive effect on consumers' perception toward Danone.

### ***Perceived Environmental Practices***

Perceived environmental practices represent consumers' subjective assessments of Danone's environmental actions across sourcing, production, and distribution activities. These perceptions are strongly influenced by transparency, consistency, and the credibility of environmental communication (Chen & Chang, 2013). When environmental practices are perceived as genuine and coherent, consumers are more likely to attribute environmental responsibility and accountability to the firm (Claver et al., 2007).

Theoretically, perceived environmental practices influence consumer evaluation through two complementary pathways. First, they assist consumers in determining whether Danone's sustainability initiatives are capable of generating tangible environmental benefits, thereby enhancing perceived usefulness. Second, environmental practices may directly shape consumers' perception by reinforcing beliefs about Danone's environmental commitment and corporate integrity. Conversely, inconsistencies between communicated claims and observable actions may heighten skepticism and concerns related to greenwashing (Farooq & Wicaksono, 2021).

H1: Perceived environmental practices have a positive effect on the perceived usefulness of Danone's sustainability practices.

H6: Perceived environmental practices have a positive effect on consumers' perception toward Danone.

### ***Sustainable Packaging***

Sustainable packaging has become a prominent sustainability issue in the F&B industry due to the environmental consequences of packaging waste and plastic pollution (Operato et al., 2025). The adoption of recyclable, reusable, or biodegradable packaging materials can reduce environmental impact by limiting waste accumulation and shortening product life cycles (Magnier & Schoormans, 2015).

As packaging constitutes the most visible sustainability-related attribute at the point of purchase, it functions as an immediate environmental signal to consumers (Ketelsen et al., 2020; Zhu et al., 2022). In the context of Danone, sustainable packaging is expected to influence consumer evaluation primarily through cognitive interpretation rather than direct perceptual judgment. Consumers may interpret environmentally friendly packaging as evidence that sustainability initiatives are practical and applicable, thereby strengthening perceived usefulness. However, without reinforcement from broader environmental practices and CSR initiatives, sustainable packaging alone may have a limited influence on consumers' overall perception of Danone (Boz et al., 2020; Santos-Corrada et al., 2024).

H4: Sustainable packaging has a positive effect on the perceived usefulness of Danone's sustainability practices.

H9: Sustainable packaging has a positive effect on consumers' perception toward Danone.

### ***Corporate Social Responsibility (CSR)***

CSR refers to organizational initiatives aimed at generating social and environmental benefits beyond financial performance. CSR has long been conceptualized as a mechanism through which firms demonstrate ethical responsibility and societal commitment (Carroll, 1991). In the F&B sector, CSR initiatives commonly emphasize community development, environmental protection, public health, and sustainable livelihoods.

Empirical studies indicate that CSR initiatives exert a strong influence on consumer evaluations when they are visible, consistent, and aligned with a firm's core values (Bakar & Adzis, 2024; Cheng et al., 2024). In the case of Danone, CSR initiatives may directly shape consumers' perception by signaling ethical orientation and social commitment. At the same time, CSR initiatives may enhance perceived usefulness by reinforcing the belief that sustainability efforts generate meaningful and socially relevant outcomes. Nevertheless, consumers remain sensitive to the authenticity of CSR activities, and initiatives perceived as symbolic or misaligned with corporate behavior may undermine trust (Srivastava, 2024).

H3: CSR has a positive effect on the perceived usefulness of Danone's sustainability practices.

H8: CSR has a positive effect on consumers' perception toward Danone.

### ***Perceived Usefulness of Sustainability Practices***

Perceived usefulness reflects consumers' cognitive evaluation of whether Danone's sustainability initiatives deliver relevant, effective, and tangible environmental or social benefits. This evaluation is shaped by sustainability awareness, perceived environmental

practices, sustainable packaging, and CSR initiatives. Perceived usefulness represents a rational appraisal process through which consumers interpret sustainability-related information and assess its practical value (Shih et al., 2024).

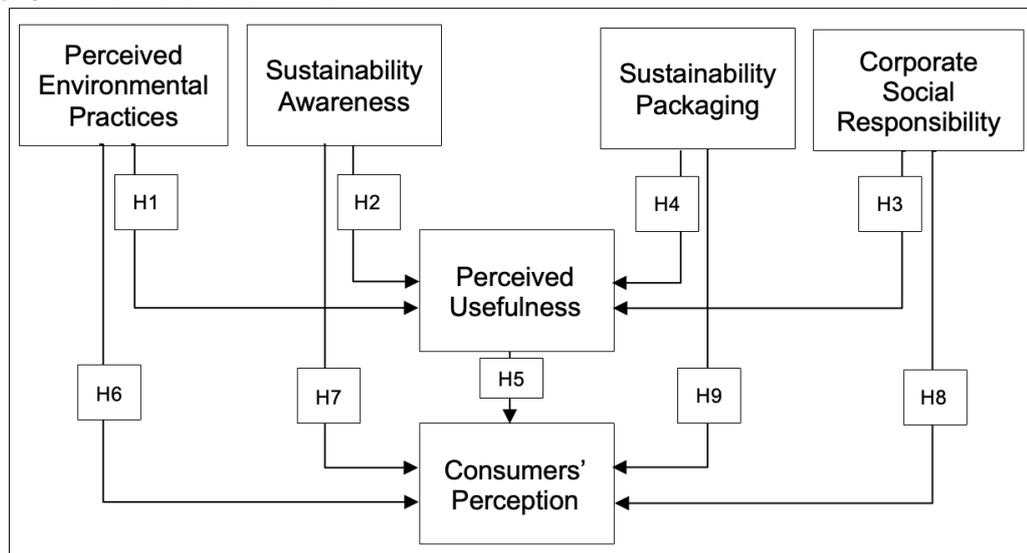
Although perceived usefulness enhances consumers' understanding of sustainability initiatives, it may not always translate directly into favorable consumer perception or preference. In markets characterized by widespread sustainability claims, consumers may rely more heavily on concrete environmental practices and visible CSR engagement when forming judgments (Kuokkanen & Sun, 2020). Accordingly, perceived usefulness may play a limited role in shaping consumers' perception of Danone, rather than functioning as a dominant determinant.

H5: Perceived usefulness of Danone's sustainability initiatives has a positive effect on consumers' perception toward Danone.

### Conceptual Framework

The study framework model is depicted in Figure 1.

Figure 1. Research Framework



## RESEARCH METHOD

### Research Design

This study adopts a quantitative, cross-sectional research design to examine the relationships between sustainability-related practices and consumer evaluation outcomes in the context of Danone. A survey-based approach was employed to capture consumers' perceptions, awareness, and evaluations of sustainability initiatives at a single point in time. This design is appropriate for testing theoretically derived hypotheses and assessing the strength and direction of relationships among multiple constructs, including sustainability awareness, perceived environmental practices, CSR, sustainable packaging, perceived usefulness, and consumers' perception. The study focuses on perceived rather than objective sustainability performance.

### Target Population

The target population of this study consists of university students and general consumers who use Danone products. This population was selected due to its relevance to the research objectives, as these groups are actively exposed to sustainability-related information and are capable of evaluating corporate environmental and social initiatives.

University students are frequently identified in sustainability research as an informed and critical consumer segment, while general consumers provide a broader representation of market-level perceptions and preferences. Together, these groups offer meaningful insights into how sustainability practices are interpreted by different consumer segments.

### Research Context and Data Collection

Data were collected using a structured questionnaire administered online through Google Forms. The questionnaire was distributed via social media platforms to reach a diverse group of respondents efficiently. Online data collection was deemed suitable given its ability to facilitate broad participation, reduce administrative costs, and ensure respondent convenience. Participation was voluntary, and respondents completed the survey anonymously, reducing potential response bias and encouraging honest evaluation of sustainability-related practices.

The questionnaire was designed to assess respondents' awareness of sustainability issues, perceptions of Danone's environmental practices, evaluations of CSR initiatives, perceptions of sustainable packaging, perceived usefulness of sustainability practices, and overall consumer perception and preferences. This approach aligns with prior studies that employ self-administered surveys to examine consumer responses to sustainability strategies within the F&B sector.

### Units of Analysis

The unit of analysis in this study is the individual consumer. Each completed questionnaire represents a single unit of analysis, reflecting the respondent's personal perceptions, evaluations, and judgments regarding Danone's sustainability practices. This level of analysis is appropriate given the study's objective of understanding how sustainability initiatives are interpreted at the individual consumer level.

## RESULTS

**Table 1.** Respondents' Profile Summary (N=125)

Response	Frequency	Percentage (%)
Gender		
Male	48	38.4
Female	62	49.6
Prefer not to say	15	12.0
Age		
Below 18 years old	9	7.2
18–25 years old	56	44.8
26–35 years old	30	24.0
36–44 years old	18	14.4
Above 44 years old	12	9.6
Ethnicity		
Malay	54	43.2
Chinese	33	26.4
Indian	25	20.0
Other	13	10.4
Occupation		
Student	38	30.4
Private Sector	21	16.8
Government Sector	44	35.2
Unemployed	7	5.6
Self-employed	15	12.0

Table 1 presents a summary of the respondents' demographic characteristics. In terms of gender, 49.6% of respondents were female, 38.4% were male, and 12.0% preferred not to disclose their gender. Regarding age distribution, the largest proportion of respondents fell within the 18–25 age group (44.8%), followed by those aged 26–35 years (24.0%) and 36–44 years (14.4%). Smaller proportions of respondents were above 44 years old (9.6%) and below 18 years old (7.2%).

With respect to ethnicity, Malay respondents constituted the largest group (43.2%), followed by Chinese (26.4%) and Indian (20.0%) respondents, while 10.4% identified as belonging to other ethnic groups. In terms of occupation, the largest proportion of respondents were employed in the government sector (35.2%), followed by students (30.4%). The remaining respondents were employed in the private sector (16.8%), self-employed (12.0%), or unemployed (5.6%).

In summary, the respondent profile represents a varied sample across gender, age, ethnicity, and occupational backgrounds, with a higher proportion of young adults, female respondents, and individuals working in the government sector or engaged in higher education. This composition offers a balanced foundation for examining consumer perspectives on sustainability practices and strengthens the credibility of the subsequent analyses.

**Table 2.** Descriptive Statistics, Cronbach's Alpha, and Zero-order Correlations for All Study Variables

Variables		1	2	3	4	5	6
1	Perceived Usefulness	0.822					
2	Sustainability Awareness	0.494**	0.784				
3	Perceived Environmental Practices	0.602**	0.624**	0.859			
4	Sustainability Packaging	0.588**	0.590**	0.801**	0.760		
5	CSR	0.598**	0.598**	0.836**	0.742**	0.839	
6	Consumer Perception & Preferences	0.264**	0.297**	0.445**	0.399**	0.450**	0.737
Mean		4.02	3.97	4.16	3.90	4.10	3.77
Standard Deviation		0.78	0.77	0.81	0.64	0.74	0.81

Note: N = 125; \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001. The bold diagonal entries represent Cronbach's Coefficient Alpha.

Table 2 presents the descriptive statistics, reliability estimates, and zero-order correlations among all study variables. The Cronbach's alpha coefficients, shown along the diagonal, indicate satisfactory to strong internal consistency for each construct, ranging from 0.737 to 0.859. Specifically, perceived usefulness ( $\alpha = 0.822$ ), sustainability awareness ( $\alpha = 0.784$ ), perceived environmental practices ( $\alpha = 0.859$ ), sustainability packaging ( $\alpha = 0.760$ ), CSR ( $\alpha = 0.839$ ), and consumer perception & preferences ( $\alpha = 0.737$ ) all exceed the commonly accepted reliability threshold of 0.70, confirming the adequacy of the measurement scales.

The mean values suggest generally favorable evaluations across all constructs. Perceived environmental practices report the highest mean score (M = 4.16, SD = 0.81), followed by CSR (M = 4.10, SD = 0.74). Perceived usefulness (M = 4.02, SD = 0.78) and

sustainability awareness (M = 3.97, SD = 0.77) also demonstrate relatively high levels. Sustainability packaging (M = 3.90, SD = 0.64) and consumer perception & preferences (M = 3.77, SD = 0.81) exhibit slightly lower, yet still positive, mean scores, indicating an overall favorable orientation toward Danone’s sustainability initiatives.

The zero-order correlation results reveal positive and statistically significant associations among all variables at the 0.01 significance level. Perceived usefulness shows moderate to strong correlations with sustainability awareness (r = 0.494), perceived environmental practices (r = 0.602), sustainability packaging (r = 0.588), and CSR (r = 0.598). In contrast, its relationship with consumer perception & preferences is weaker, though still significant (r = 0.264), suggesting that perceived usefulness is related to, but distinct from, overall consumer perception.

Sustainability awareness is moderately correlated with perceived environmental practices (r = 0.624), sustainability packaging (r = 0.590), and CSR (r = 0.598), indicating its relevance across multiple sustainability dimensions. Notably, perceived environmental practices demonstrate strong associations with sustainability packaging (r = 0.801) and CSR (r = 0.836), reflecting a high degree of interconnectedness among these sustainability-related constructs. Sustainability packaging is also strongly correlated with CSR (r = 0.742). Consumer perception & preferences exhibit weaker but consistently significant correlations with all antecedent variables, ranging from r = 0.264 to r = 0.450.

The findings indicate that although the constructs are closely associated, they remain empirically distinct, supporting their inclusion in subsequent regression analyses to examine their individual effects on perceived usefulness and consumer perception.

**Table 3.** Regression Analysis for Perceived Usefulness (N = 125)

	Variables	Perceived Usefulness (β)	Consumers' Perception (β)
1	Perceived Environmental Practices	0.162	0.196
2	Sustainability Awareness	0.220	0.084
3	CSR	0.239	0.260
4	Sustainability Packaging	0.133	-0.010
5	Consumers' Perception	-0.043	–
6	Perceived Usefulness	–	-0.058
	R <sup>2</sup>	0.424	0.222
	F Value	17.506***	6.788***
	Durbin-Watson	0.871	1.704

Note. Standardized coefficients (β) are reported. N=125, \*p< 0.05, \*\*p< 0.01 \*\*\*p < 0.001.

Table 3 presents the results of two regression models examining the determinants of perceived usefulness and consumers’ perception. The first model, with perceived usefulness as the dependent variable, demonstrates strong explanatory power, explaining 42.4% of the variance (R<sup>2</sup> = 0.424; F = 17.506, p < 0.001).

The results indicate that perceived environmental practices have a positive and statistically significant effect on perceived usefulness (β = 0.162), supporting H1. This finding suggests that visible and credible environmental actions enhance consumers’ evaluations of the usefulness of sustainability initiatives. Sustainability awareness also shows a positive and significant relationship with perceived usefulness (β = 0.220), providing support for H2 and indicating that consumers who are more knowledgeable about sustainability are more likely to perceive such initiatives as meaningful.

Furthermore, CSR exhibits the strongest positive effect on perceived usefulness ( $\beta = 0.239$ ), thereby supporting H3. This highlights the central role of CSR initiatives in shaping consumers' cognitive assessments of sustainability effectiveness. Sustainable packaging also demonstrates a positive and statistically significant effect on perceived usefulness ( $\beta = 0.133$ ), offering support for H4 and suggesting that environmentally friendly packaging serves as an evaluative cue that reinforces perceived usefulness. Collectively, these findings indicate that perceived usefulness is shaped by multiple sustainability-related signals interpreted cognitively by consumers.

The second regression model examines consumers' perception as the dependent variable and explains 22.2% of the variance ( $R^2 = 0.222$ ;  $F = 6.788$ ,  $p < 0.001$ ). The results reveal that CSR has a positive and statistically significant effect on consumers' perception ( $\beta = 0.260$ ), thus supporting H8 and confirming CSR as a key driver of favorable consumer evaluations. Perceived environmental practices also positively influence consumers' perception ( $\beta = 0.196$ ), providing support for H6 and underscoring the importance of environmental accountability in shaping brand perception.

In contrast, sustainability awareness does not exhibit a statistically significant direct effect on consumers' perception ( $\beta = 0.084$ ), leading to the rejection of H7. This suggests that awareness alone may be insufficient to shape consumer perception without being accompanied by observable sustainability practices. Similarly, sustainable packaging does not have a significant direct effect on consumers' perception ( $\beta = -0.010$ ), resulting in the rejection of H9.

Finally, perceived usefulness does not significantly influence consumers' perception ( $\beta = -0.058$ ), leading to the rejection of H5. This finding suggests that perceived usefulness does not play a significant mediating role between sustainability initiatives and consumers' perception within the tested model.

Overall, the findings show that sustainability awareness, perceived environmental practices, CSR, and sustainable packaging significantly explain perceived usefulness (H1–H4 accepted), whereas consumers' perception is directly shaped by CSR and perceived environmental practices only (H6 and H8 accepted), with the effects of sustainability awareness, sustainable packaging, and perceived usefulness found to be insignificant (H5, H7, and H9 rejected).

## **DISCUSSION**

This study investigated how sustainability-related practices implemented by Danone influence perceived usefulness and consumers' perception within the F&B sector. In line with growing global concern for environmental responsibility, sustainability has increasingly become a strategic determinant of corporate legitimacy and consumer evaluation (Imran et al., 2024). The findings provide empirical evidence that sustainability signals operate through multiple cognitive and perceptual pathways rather than through a single direct mechanism.

### **Sustainability Awareness and Perceived Usefulness (H2 Supported; H7 Not Supported)**

The results indicate that sustainability awareness has a significant positive effect on perceived usefulness, supporting H2. This finding suggests that consumers who are more knowledgeable about sustainability issues are better equipped to assess whether Danone's sustainability initiatives are meaningful and practically relevant. This aligns with prior research indicating that awareness enhances consumers' ability to process

environmental information and distinguish substantive sustainability efforts from symbolic claims (Jia et al., 2023; Kamgang & Boiral, 2025).

However, sustainability awareness does not exert a significant direct effect on consumers' perception, leading to the rejection of H7. This outcome implies that awareness alone is insufficient to shape favorable consumer perception unless it is reinforced by observable actions. This finding echoes earlier studies suggesting that informed consumers may remain skeptical when awareness is not accompanied by credible implementation, particularly in industries where greenwashing concerns persist (Chen & Chang, 2013; Farooq & Wicaksono, 2021). Thus, sustainability awareness appears to function primarily as a cognitive antecedent rather than a direct perceptual driver.

#### **Perceived Environmental Practices and Consumer Evaluation (H1 and H6 Supported)**

Perceived environmental practices demonstrate a significant positive influence on both perceived usefulness and consumers' perception, supporting H1 and H6. This result highlights the importance of tangible and visible environmental actions, such as responsible sourcing, emissions reduction, and waste management, in shaping how consumers evaluate sustainability initiatives.

Consistent with Claver et al. (2007), the findings suggest that credible environmental management practices enhance corporate evaluations by signaling accountability and long-term commitment. Moreover, the strong association between environmental practices and consumer perception reinforces the argument that consumers respond more favorably to concrete environmental performance than to abstract sustainability claims. This aligns with research emphasizing the role of transparency and consistency in reducing skepticism and strengthening brand credibility (Farooq & Wicaksono, 2021).

#### **CSR as a Central Driver (H3 and H8 Supported)**

CSR emerges as one of the strongest predictors of both perceived usefulness and consumers' perception, supporting H3 and H8. This finding underscores CSR's dual role as both a cognitive and perceptual signal. CSR initiatives appear to reinforce consumers' beliefs that sustainability efforts generate meaningful social and environmental outcomes while simultaneously shaping favorable brand evaluations.

These results are consistent with prior studies emphasizing CSR's influence on trust, reputation, and brand image within the F&B sector (Bakar & Adzis, 2024; Cheng et al., 2024). Danone's engagement in community development, public health, and sustainable livelihoods mirrors arguments that CSR aligned with core business activities is more likely to be perceived as authentic (Srivastava, 2024). Consequently, CSR functions as a critical mechanism through which sustainability strategies translate into positive consumer responses.

#### **Sustainable Packaging and Its Limited Direct Role (H4 Supported; H9 Not Supported)**

Sustainable packaging shows a significant positive effect on perceived usefulness, supporting H4, but does not directly influence consumers' perception, resulting in the rejection of H9. This pattern suggests that packaging operates primarily as an evaluative cue rather than a standalone determinant of consumer perception.

As the most visible sustainability attribute at the point of purchase, packaging helps consumers interpret sustainability initiatives as practical and applicable (Ketelsen et al., 2020; Magnier & Schoormans, 2015). However, without reinforcement from broader

environmental practices and CSR initiatives, packaging alone appears insufficient to shape overall perception. This finding is consistent with prior research indicating that packaging-related sustainability claims may be perceived as superficial if not embedded within a broader sustainability strategy (Boz et al., 2020; Santos-Corrada et al., 2024).

#### **The Role of Perceived Usefulness in Shaping Consumer Perception (H5 Not Supported)**

Contrary to expectations, perceived usefulness does not significantly influence consumers' perception, leading to the rejection of H5. This finding suggests that while perceived usefulness reflects consumers' rational evaluation of sustainability initiatives, it does not necessarily translate into broader perceptual or affective judgments.

In markets characterized by widespread sustainability messaging, consumers may rely more heavily on visible environmental practices and CSR engagement when forming perceptions, rather than on abstract evaluations of usefulness (Kuokkanen & Sun, 2020). This result indicates a limited mediating role of perceived usefulness within the proposed framework and highlights the dominance of direct sustainability signals in shaping consumer perception.

#### **Managerial and Strategic Implications**

From a managerial perspective, the findings emphasize that sustainability strategies should prioritize credibility, visibility, and integration across operational and social domains. Managers are encouraged to strengthen transparent communication and stakeholder collaboration to enhance the effectiveness of sustainability initiatives. Active engagement with suppliers, consumers, and partners can help bridge communication gaps and reinforce trust, thereby strengthening brand loyalty (Hsu, 2023; Wibawa et al., 2025).

Furthermore, sustainability-driven innovation and collaborative business models may enhance competitive advantage by aligning environmental responsibility with long-term strategic objectives (Onileowo et al., 2021; Shaik et al., 2024). These insights are particularly relevant for firms operating in environmentally sensitive industries such as F&B manufacturing.

### **CONCLUSION**

This study examined how sustainability-related practices implemented by Danone influence perceived usefulness and consumers' perception within the food and beverage industry. By empirically analyzing sustainability awareness, perceived environmental practices, CSR, and sustainable packaging, the study clarifies how different forms of sustainability information are interpreted and evaluated by consumers.

The results show that perceived environmental practices and CSR have a direct and significant effect on consumers' perception, whereas sustainability awareness and sustainable packaging mainly operate through their influence on perceived usefulness. This pattern indicates that consumers place greater weight on concrete and observable sustainability actions than on awareness or symbolic signals alone. In addition, perceived usefulness captures consumers' rational assessment of sustainability initiatives but does not extend to shaping broader perceptual judgments, suggesting that its mediating role within the model is limited.

The findings also demonstrate that sustainability should be understood as a set of interrelated dimensions rather than a single evaluative concept. Environmental management and social responsibility emerge as key drivers of consumer perception,

while awareness and packaging support consumer judgment by assisting in the evaluation of relevance and practical value. This differentiation helps explain why some sustainability initiatives generate stronger consumer responses than others.

From a managerial standpoint, the results indicate that sustainability is most effective when treated as an integrated organizational practice rather than a promotional tool. Emphasis on alignment between sustainability claims and actual environmental and social practices, supported by transparent communication and stakeholder involvement, can strengthen consumer confidence and brand credibility over time.

This study adds to the sustainability literature in the food and beverage sector by showing that consumer evaluation depends largely on the visibility and credibility of sustainability practices. Integrating sustainability into core organizational activities can help firms strengthen consumer relationships while advancing environmental protection and social responsibility.

### **LIMITATION**

Despite its contributions, this study is subject to several limitations that should be acknowledged. First, the analysis focuses on a single multinational firm, Danone, which may limit the generalizability of the findings to other companies within the F&B sector or to firms operating in different institutional and cultural contexts. Future research could extend this work by adopting comparative designs that examine multiple organizations, thereby allowing for broader cross-firm and cross-industry comparisons.

Second, the study relies on cross-sectional survey data, which captures consumer perceptions at a single point in time. As a result, causal inferences regarding the long-term effects of sustainability practices on consumer perception and organizational outcomes should be made with caution. Longitudinal research designs could provide deeper insight into how sustainability strategies evolve and how changes in corporate practices influence consumer evaluations and brand-related outcomes.

Third, while the quantitative approach enables systematic hypothesis testing, it may not fully capture the nuanced reasoning behind consumers' interpretations of sustainability initiatives. Future studies could incorporate qualitative methods, such as in-depth interviews or focus groups, to explore how different stakeholder groups interpret sustainability messages, assess credibility, and respond to corporate environmental and social actions.

Addressing these limitations would contribute to a more comprehensive understanding of sustainability-driven strategies and their implications for consumer perception and competitive positioning in the F&B industry.

### **ACKNOWLEDGMENT**

The authors gratefully acknowledge the contributions of informants, colleagues, and all individuals who supported this research through their insights and engagement. Their involvement greatly enriched the quality and depth of this study.

#### DECLARATION OF CONFLICTING INTERESTS

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

#### REFERENCES

- Agu, E. E., Iyelolu, T. V., Idemudia, C., & Ijomah, T. I. (2024). Exploring the relationship between sustainable business practices and increased brand loyalty. *International Journal of Management & Entrepreneurship Research*, 6(8), 2463-2475. <https://doi.org/10.51594/ijmer.v6i8.1365>
- Bakar, J. A., & Adzis, A. A. (2024). Fostering loyalty among young consumers: Strategic approaches for bank sustainability. *International Journal of Professional Business Review: International Journal of Professional Business Review*, 9(3), 1. <https://doi.org/10.26668/businessreview/2024.v9i3.4469>
- Boz, Z., Korhonen, V., & Koelsch Sand, C. (2020). Consumer considerations for the implementation of sustainable packaging: A review. *Sustainability*, 12(6), 2192. <https://doi.org/10.3390/su12062192>
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business horizons*, 34(4), 39-48.
- Chen, Y. S., & Chang, C. H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics*, 114(3), 489-500. <https://doi.org/10.1007/s10551-012-1360-0>
- Cheng, Y. E., Cheah, Y. Y., Jimenez, D. V. R., Chen, Y., & Chen, Y. (2024). The linked factor of customer satisfaction and loyalty in F&B industry: A study of operational performance factor. *International Journal of Tourism & Hospitality in Asia Pacific*, 7(1), 69–82. <https://doi.org/10.32535/ijthap.v7i1.2167>
- Claver, E., Lopez, M. D., Molina, J. F., & Tari, J. J. (2007). Environmental management and firm performance: A case study. *Journal of Environmental Management*, 84(4), 606-619. <https://doi.org/10.1016/j.jenvman.2006.09.012>
- Danone. (n.d.). *Our approach — Danone impact journey*. Danone. <https://www.danone.com>
- Farooq, Y., & Wicaksono, H. (2021). Advancing on the analysis of causes and consequences of green skepticism. *Journal of Cleaner Production*, 320, 128927. <https://doi.org/10.1016/j.jclepro.2021.128927>
- Gawusu, S., Zhang, X., Jamatutu, S. A., Ahmed, A., Amadu, A. A., & Djam Miensah, E. (2022). The dynamics of green supply chain management within the framework of renewable energy. *International Journal of Energy Research*, 46(2), 684-711. <https://doi.org/10.1002/er.7278>
- Hsu, C. L. (2023). Enhancing brand love, customer engagement, brand experience, and repurchase intention: Focusing on the role of gamification in mobile apps. *Decision Support Systems*, 174, 114020. <https://doi.org/10.1016/j.dss.2023.114020>
- Imran, N. F. N. B. A., Effendee, N. F. B. N., Faris, N. H. H. B. M., Puad, N. I. S. B. M., Nitin, N., Verma, V., ..., & Kee, D. M. H. (2024). The effect of eco-friendly packaging on consumer purchase intention: A study of beverage sustainable packaging practices. *Journal of The Community Development in Asia*, 7(1), 91–104. <https://doi.org/10.32535/jcda.v7i1/2539>
- Izquierdo-Yusta, A., Méndez-Aparicio, M. D., Jiménez-Zarco, A. I., & Martínez-Ruiz, M. P. (2023). When responsible production and consumption matter: The case of Danone. In *Responsible Consumption and Sustainability: Case Studies from Corporate Social Responsibility, Social Marketing, and Behavioral Economics* (pp. 199-211). Springer International Publishing. [https://doi.org/10.1007/978-3-031-30742-3\\_12](https://doi.org/10.1007/978-3-031-30742-3_12)

- Jia, T., Iqbal, S., Ayub, A., Fatima, T., & Rasool, Z. (2023). Promoting responsible sustainable consumer behavior through sustainability marketing: the boundary effects of corporate social responsibility and brand image. *Sustainability*, 15(7), 6092. <https://doi.org/10.3390/su15076092>
- Kamgang, S. E., & Boiral, O. (2025). Responsible sourcing in agri-food companies: Advancing sustainability through inter-organizational collaboration. *Corporate Social Responsibility and Environmental Management*, 32(5), 6984–7005. <https://doi.org/10.1002/csr.70072>
- Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D., & Agarwal, N. (2024). Circular economy principles: Shifting towards sustainable prosperity. In *Sustainable energy transition: Circular economy and sustainable financing for environmental, social and governance (ESG) practices* (pp. 125-165). Springer Nature Switzerland. [https://doi.org/10.1007/978-3-031-52943-6\\_4](https://doi.org/10.1007/978-3-031-52943-6_4)
- Kazakova, E., & Lee, J. (2022). Sustainable manufacturing for a circular economy. *Sustainability*, 14(24), 17010. <https://doi.org/10.3390/su142417010>
- Ketelsen, M., Janssen, M., & Hamm, U. (2020). Consumers' response to environmentally-friendly food packaging-A systematic review. *Journal of Cleaner Production*, 254, 120123. <https://doi.org/10.1016/j.jclepro.2020.120123>
- Kuokkanen, H., & Sun, W. (2020). Companies, meet ethical consumers: Strategic CSR management to impact consumer choice. *Journal of Business Ethics*, 166(2), 403-423. <https://doi.org/10.1007/s10551-019-04145-4>
- Magnier, L., & Schoormans, J. (2015). Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern. *Journal of Environmental Psychology*, 44, 53-62. <https://doi.org/10.1016/j.jenvp.2015.09.005>
- Morris, J., Chen, Y. H. H., Gurgel, A., Reilly, J., & Sokolov, A. (2023). Net zero emissions of greenhouse gases by 2050: Achievable and at what cost?. *Climate Change Economics*, 14(04), 2340002. <https://doi.org/10.1142/S201000782340002X>
- Onileowo, T. T., Muharam, F. M., Ramily, M. K., & Khatib, S. F. (2021). The Nexus between innovation and business competitive advantage: A conceptual study. *Universal Journal of Accounting and Finance*, 9(3), 352-361. <https://doi.org/10.13189/ujaf.2021.090309>
- Operato, L., Panzeri, A., Masoero, G., Gallo, A., Gomes, L., & Hamd, W. (2025). Food packaging use and post-consumer plastic waste management: A comprehensive review. *Frontiers in Food Science and Technology*, 5, 1520532. <https://doi.org/10.3389/frfst.2025.1520532>
- Santos-Corrada, M. D. L. M., Méndez-Tejeda, R., Flecha-Ortiz, J. A., & Lopez, E. (2024). An analysis of sustainable consumption practices through the role of the consumer behavior in the circular economy. *Journal of Consumer Behaviour*, 23(1), 229-242. <https://doi.org/10.1002/cb.2183>
- Shaik, A. S., Alshibani, S. M., Jain, G., Gupta, B., & Mehrotra, A. (2024). Artificial intelligence (AI)-driven strategic business model innovations in small-and medium-sized enterprises. Insights on technological and strategic enablers for carbon neutral businesses. *Business Strategy and the Environment*, 33(4), 2731-2751. <https://doi.org/10.1002/bse.3617>
- Shih, I. T., Silalahi, A. D. K., Baljir, K., & Jargalsaikhan, S. (2024). Exploring the impact of perceived sustainability on customer satisfaction and the mediating role of perceived value. *Cogent Business & Management*, 11(1), 2431647. <https://doi.org/10.1080/23311975.2024.2431647>
- Srivastava, V. K. (2024). Impact of Corporate Social Responsibility (CSR) initiatives on brand reputation: A study on how CSR activities enhance brand reputation and consumer loyalty in the context of sustainable marketing practices. *International Journal of Science and Research Archive*, 13(1), 1910-1930. <https://doi.org/10.30574/ijrsra.2024.13.1.1869>

Wibawa, M., Sundara, D., Limakrisna, N., & Susilo, W. (2025). Sustainability as a competitive advantage: A study on green marketing strategies in the FMCG sector. *Procedia of Environmental Science, Engineering and Management*, 12, 25-38.

Zhu, Z., Liu, W., Ye, S., & Batista, L. (2022). Packaging design for the circular economy: A systematic review. *Sustainable Production and Consumption*, 32, 817-832. <https://doi.org/10.1016/j.spc.2022.06.005>

### ABOUT THE AUTHOR(S)

#### 1<sup>st</sup> Author

Dr. Odebunmi Abayomi Tunde is an active scholar and researcher, currently serving as Research Director at the School of Management, Universiti Sains Malaysia (USM), George Town, Malaysia. He holds a Doctor of Philosophy (PhD) from Universiti Sains Malaysia, completed in 2022 as a full-time research student. Dr. Odebunmi has published more than 20 articles in international journals, covering topics such as artificial intelligence and customer retention in Asian e-commerce, entrepreneurial alertness among nascent entrepreneurs, and the impact of influencer marketing on Gen Z purchasing intentions. He continues to contribute significantly to the academic communities in West Africa and Malaysia through collaborative research and scholarly engagement at USM.

ORCID ID: <https://orcid.org/0000-0001-9501-3450>

#### 2<sup>nd</sup> Author

Mr. Kuek Thiam Yong is a dedicated scholar and lecturer at the Department of Business and Public Administration, Teh Hong Piow Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Malaysia. He holds a Master of Business Administration from Multimedia University and a Bachelor of Business from Victoria University of Technology. He is also a member of the Malaysian Institute of Chartered Secretaries and Administrators (MAICSA). His research interests span organizational behavior, corporate governance, management, tourism, and martial arts. Mr. Kuek has authored several notable publications, including *How Does AirAsia Survive from the COVID-19 Pandemic?*, *The Performance of Foodpanda: A Study of Customer Perspective and Satisfaction in Malaysia and India*, and *Fast-Food Consumption Patterns Among University Students*.

ORCID ID: <https://orcid.org/0000-0003-3432-6722>

Email: [kuekty@utar.edu.my](mailto:kuekty@utar.edu.my)

#### 3<sup>rd</sup> Author

Neha Rai is a climate change researcher affiliated with IIED and FAO, focusing on climate adaptation, climate finance, and sustainability policy. She has authored several highly cited works, including studies on climate change adaptation frameworks, international climate finance, and environmental resilience. Her publications have

garnered 781 citations, with an h-index of 13 and an i10-index of 19, reflecting her strong impact in the field of environmental and climate research.

**4<sup>th</sup> Author**

Loke Pei Qian is currently an undergraduate student at Universiti Sains Malaysia.

**5<sup>th</sup> Author**

Looi Er Xian is currently an undergraduate student at Universiti Sains Malaysia.

Email: [erxian@student.usm.my](mailto:erxian@student.usm.my)

ORCID ID: <https://orcid.org/0009-0002-0899-6626>

**6<sup>th</sup> Author**

M. Sanggita A/P Murugan is currently an undergraduate student at Universiti Sains Malaysia.

**7<sup>th</sup> Author**

Mafe Oluwatunmise Irianuoluwaymika is currently an undergraduate student at Universiti Sains Malaysia.

**8<sup>th</sup> Author**

Kriti Kumari is currently an undergraduate student at IMS Ghaziabad – Business School, India.

**9<sup>th</sup> Author**

K. Sujan Kumar is currently an undergraduate student at IMS Ghaziabad – Business School, India.