

Value Co-Destruction in a Sustainability Service System: How Greenwashing and Herding Behavior Shape Green Purchase Intention Through Green Brand Love

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Abstract. The bottled-water sector operates as a high-frequency, low-involvement sustainability service system in which recurring service encounters rely on external quality signals rather than direct verification. In such a system, greenwashing does more than undermine brand legitimacy — it destabilizes the trust on which value co-creation depends. Although the harmful effects of greenwashing are well documented, the affective pathways and social boundary conditions through which it propagates within concentrated service ecosystems remain poorly understood. Drawing on Service-Dominant Logic (SDL), Affect–Behavior–Cognition (ABC) theory, and Social Influence Theory (SIT), this study frames greenwashing as an information-system failure that triggers value co-destruction along two routes — a direct erosion of trust and a slower, affective erosion mediated by green brand love (GBL) — and positions herding behavior (HB) as an informal governance mechanism moderating this propagation. Survey data from 315 bottled-water consumers in Surabaya, Indonesia, were analyzed using PLS-SEM. Greenwashing significantly reduced both GBL and green purchase intention (GPI), with GBL partially mediating the effect (the affective pathway accounting for roughly 39% of greenwashing's total impact on GPI). Herding behavior shaped the direct pathway: greenwashing's negative effect on GPI was pronounced when herding was low but non-significant when herding was high — indicating that social conformity masks consumer scepticism and delays market correction. These findings clarify how information failure spreads through affective and social channels in concentrated markets and inform the design of sustainable services that pair information transparency with the management of social dynamics.

Keywords: Sustainability service systems; Greenwashing; Green brand love; Herding behavior; Value co-destruction; PLS-SEM

1. Introduction

Single-use plastic packaging has become a global structural environmental crisis. Global plastic production has surged from 359 to over 460 million metric tonnes (2018–2022), exceeding the capacity of nature and recycling infrastructure (Amankwaa & Danquah, 2025; Geyer et al., 2017). In Indonesia, the bottled water industry is at the epicenter of the crisis: four national brands; AQUA (69.2%), Club (12.2%), Cleo (10.4%), and Le Minerale (6.9%) dominate the market as high-frequency, low-engagement, and minimally considered Fast Moving Consumer Goods (FMCG) products, accounting for 6.5% of urban plastic waste (Indonesia, 2024). From a service science perspective, this sector operates as a sustainability service system in which the integration of personal resources (concern, trust, environmental values) and corporate resources (products, packaging, sustainability claims) creates experiential value (Akaka et al., 2013; S. Vargo & Lusch, 2004). Purchasing decisions here are not a matter of individual preference, but rather the result of affective interactions, market structures, and social evaluation; the core of service science and the service ecosystem (S. L. Vargo et al., 2014).

However, the gap between symbolic environmental promises and actual operational performance continues to widen, giving rise to greenwashing (GW); the selective dissemination of environmental claims that are disproportionate to actual performance (Delmas & Burbano, 2011; Torelli et al., 2019). In service science, greenwashing represents an information system failure: a mismatch between symbolic resources (sustainability claims) and operational resources (actual environmental performance) that erodes consumer trust and destabilizes the service ecosystem (Echeverri & Skålén, 2011; Smith, 2013). AQUA promotes “100% recycled” for its 330ml packaging, yet recycled material accounts for less than 15% of its total national portfolio, with the remainder being new PET (Danone Indonesia, 2023). Le Minerale claims “recyclable packaging” without a closed-loop recycling infrastructure or third-party certification. The separation of Environmental, Social, and Governance (ESG) disclosures and Environmental and Social Performance (ESP) indicators creates information asymmetry that influences consumer purchasing decisions in emerging markets with limited institutional oversight and sustainability awareness (Ismaeel & Zakaria, 2019; Zeidan, 2025).

The psychological processes by which consumers process systemic information failures during routine shopping with low engagement remain under-researched in-service science. The dominant literature on greenwashing examines cognitive mechanisms such as perceived risk (Nyilasy et al., 2014), green confusion (Tarabieh, 2020), green perceived risk (Y.-S. Chen & Chang, 2013) and negative emotional reactions (Khandai et al., 2025), yet overlooks positive affective connections as a relational service resource mediating the effects of information failure. Green brand love (GBL); an emotional attachment that integrates brand identity into the self-concept (Batra et al., 2012; Carroll & Ahuvia, 2006) has not yet been examined as a mechanism through which greenwashing weakens green purchase intention (GPI). This omission is particularly acute for low-involvement products such as bottled water, where habitual consumption minimizes cognitive evaluation and allows affective responses to become the dominant pathway (Breckler, 1985; Fazio & Williams, 1986). ABC Theory suggests that affect precedes cognitive elaboration in routine decision-making, so GBL may mediate the effect of greenwashing on sustainable purchase intentions (Breckler, 1985; Tiba et al., 2025).

Consumer responses to information failures within the service ecosystem are not isolated. Herding behavior (HB) following the majority’s choice as a substitute for personal information in the face of uncertainty (Banerjee, 1992; Bikhchandani et al., 1992); functions as a mechanism of ecosystem governance that moderates the propagation of service failures through social networks. In concentrated markets such as Surabaya’s bottled water sector, AQUA’s dominance creates near-monopolistic retail visibility and availability, leading consumers to rely on social observation rather than independent assessment of environmental claims (Cialdini & Goldstein, 2004; Kelman, 1958). SIT highlights social pressure as a substitute for information when individuals’ evaluative capabilities are limited, particularly for low-involvement products, habitual purchases, and high-frequency decisions (Spears, 2020; Yuen et al., 2022). Although theoretically significant, no previous research has examined HB as

a moderator in greenwashing from a service ecosystem perspective, leaving open the question of whether social conformity moderates or reinforces the detrimental effects of deceptive environmental claims on service relationship outcomes.

This study addresses this gap through an integrative framework that positions greenwashing as a trigger of value co-destruction within the sustainability service system. Its theoretical contribution focuses on three advances. First, it reconceptualizes green purchase intention through Service Dominant Logic not as an individual product decision, but rather as a service relationship intention; that is, the consumer's willingness to maintain resource integration with service providers within a sustainable service ecosystem. Second, it demonstrates the affective pathway (green brand love) as a relational service resource that is eroded in low-engagement sustainable consumption via ABC Theory, indicating secondary cognitive skepticism towards emotional attachment in routine shopping. Thirdly, it demonstrates herding behavior as an informal ecosystem governance mechanism through SIT in sustainability communication, responding to calls for the integration of social mechanisms into service science (Ali et al., 2021; Spears, 2020). Contextually, the focus is on Surabaya; a developing market with high plastic dependency, a concentrated brand structure, and growing sustainability awareness; offering empirical evidence of an under-represented service ecosystem. Practically, the findings inform service design to address misleading sustainability claims and guide service managers in developing authentic communication that fosters genuine emotional connections as the foundation for value co-creation.

2. Literature Review

2.1 Greenwashing

Greenwashing is the strategic communication of selective, incomplete or misleading environmental claims, creating a gap between the symbolic representation of sustainability and actual operational performance (de Freitas Netto et al., 2020; Delmas & Burbano, 2011). Unlike isolated false advertising, greenwashing is an institutionalized mechanism of disengagement whereby ESG disclosures build legitimacy without corresponding improvements in ESP (Lashitew, 2021; Pedersen & Andersen, 2023). TerraChoice (2010) identified seven sins of greenwashing: selective emphasis, baseless claims, ambiguous terminology, and false labelling. Torelli et al. (2019) emphasized greenwashing as biased sustainability reporting that highlights positive outcomes whilst concealing negative impacts. Greenwashing is particularly prevalent in the bottled water industry due to a structural reliance on single-use PET packaging and growth-oriented business models, despite sustainability rhetoric (Dagestani et al., 2024; Vollero, 2022). This study examines greenwashing through four indicators: a mismatch between environmental performance and communication; the dominance of symbolic legitimacy as a substitute for substantive change; selective disclosure; and unsubstantiated claims.

2.2 Green Brand Love

Green brand love (GBL) is a deep emotional attachment to a brand perceived as environmentally responsible, integrating the brand's identity into the consumer's self-concept (Carroll & Ahuvia, 2006; Ghorbanzadeh & Rahehagh, 2021). Unlike cognitive-transactional brand satisfaction, GBL encompasses passionate emotional engagement, self-integration, and a long-term relationship orientation (Batra et al., 2012). GBL occurs when alignment between consumers' environmental values and the brand's promises is achieved (Bergkvist & Bech-Larsen, 2010; Loureiro et al., 2012), functioning as a psychological anchor that stabilizes the consumer-brand relationship but is vulnerable to perceptions of inauthenticity (Fritz et al., 2017; Thomson & Park, 2005). Trust in the authenticity of the brand environment stabilizes the relationship (Shammout et al., 2025), yet greenwashing erodes the emotional foundation of GBL as a mechanism that undermines trust. This study measures GBL through five dimensions: positive brand evaluation, positive emotional response, emotional arousal, self-integration, and long-term relationship orientation.

2.3 Herding Behavior

Herding behavior (HB) is the tendency of individuals to align themselves with the preferences of the majority whilst limiting their own information, viewing collective decisions as more informative signals in the face of uncertainty and information asymmetry (Banerjee, 1992; Bikhchandani et al., 1992). From the SIT perspective, HB occurs through informational social influence; the behavior of others as evidence of reality and norms; and conformity fulfilling the need for social approval (Cialdini & Goldstein, 2004; Kelman, 1958). HB is particularly evident for low-involvement products: habitual purchases, minimal planning, high decision frequency (Begho & Liu, 2023; X. Chen et al., 2023). This mechanism aligns with the desire of digital consumers to imitate reference figures to reduce uncertainty (Sinh & Kiet, 2025). Whilst digital imitation influences individuals, offline herding involves collective alignment with the majority choice. The concentrated market structure of Indonesia's bottled water sector with AQUA holding 69.2%; creates a favorable environment for HB, as consumer choices are structurally constrained and social observation becomes the dominant decision-making heuristic (Soule & Sekhon, 2022). HB is operationalized using four indicators: a tendency to follow the majority, reliance on others' actions as a primary guide, a decline in trust in personal information, and a decline in self-evaluation.

2.4 Green Purchase Intention

Green purchase intention (GPI) is the psychological readiness to choose products perceived as environmentally responsible, resulting from a rational evaluation of consumption alternatives (Ajzen, 2020; Hidayah et al., 2023). The Theory of Planned Behaviour (TPB) identifies GPI as the most accurate predictor of actual green purchasing behaviour (Ajzen, 2020); however, this study uses intention, rather than behaviour, as the dependent variable. In low-involvement habitual consumption such as bottled water, organisational constraints limit the availability of viable green alternatives, so that intention more accurately reflects the cumulative effects of attitudinal and situational factors than behaviour (Arkan et al., 2024; Armitage & Conner, 2010). The scarcity of plastic-free alternatives in the Indonesian market renders actual behaviour an unreliable indicator of buyer preferences, whilst intention reflects psychological readiness under conditions of structural empowerment (Kachara & Sharma, 2025). GPI is measured using four indicators: willingness to choose green products, specific purchase plans, intention to make a purchase when available, and willingness to forgo non-green options.

2.5 Contextualization of Service Science

The theoretical contribution of this research focuses on the application of service science in sustainability management, which emphasises that an understanding of consumer behaviour cannot be separated from the design of the service system (Akaka et al., 2013). Greenwashing is not a communication phenomenon but rather an information system failure that erodes the foundation of trust for value co-creation (Echeverri & Skållén, 2011). Green brand love represents the quality-of-service relationships as an indicator of the health of the service ecosystem, whilst herding behaviour reflects the mechanism of collective evaluation within service systems constrained by information; a characteristic of developing FMCG markets. This study examines the generalisation of psychological mechanisms within service systems characterised by cognitive constraints, market dominance, and dependence on social signals, enabling a dual contribution: empirical validation of consumer behaviour models within an under-explored service context, and advancing the understanding of service science regarding how information failures influence sustainable service outcomes through affective and social pathways.

Service Dominant Logic (SDL) conceptualises economic exchange as the application of competencies for the benefit of others (S. Vargo & Lusch, 2004). Central to SDL is the co-creation of value through the integration of actors' resources within a service ecosystem: a dynamic system linked by shared institutional arrangements (S. L. Vargo et al., 2014). The consumption of bottled water is a service-for-service exchange: consumers integrate personal resources (attention, trust, environmental

values) with corporate resources (products, packaging, sustainability claims). Greenwashing represents value co-destruction: a mismatch between symbolic and operational resources creates institutional contradictions that undermine trust and destabilise the service ecosystem (Echeverri & Skålén, 2011; Smith, 2013). In the bottled water sector, this misalignment results in experiential dissonance, a perceived betrayal of the value proposition, and the destabilisation of the affective foundation of the consumer-brand relationship. This study integrates SDL as a meta-theory (service ecosystem, resource integration, value co-creation/destruction), ABC Theory (GBL as a mediator between greenwashing and service relationship intentions), and SIT (herding behaviour as informal ecosystem governance moderating the propagation of failure). This integration enables a multi-level analysis: ecosystem (SDL), individual experience (ABC), and social interaction (SIT).

Recent research on digital transformation confirms that the path to sustainability in the Industry 5.0 era requires a governance framework at the ecosystem level capable of addressing information system failures (Khanh et al., 2025). In the bottled water sector, greenwashing is precisely such an information system failure: a systematic mismatch between symbolic sustainability resources and operational environmental performance that destabilizes the institutional order necessary for value co-creation.

Furthermore, the literature on service innovation indicates that perceived quality serves as a critical mediator between sustainability-oriented service attributes and market acceptance, with information transparency acting as a prerequisite for value co-creation (Thi et al., 2025). In the context of this study, greenwashing erodes this perceived quality by creating information asymmetry, which in turn triggers value co-destruction through the erosion of relational service resources.

The above synthesis indicates that digital transformation and green service innovation are structurally interdependent: while digital channels open up opportunities for information transparency, they simultaneously amplify the risk of information system failure when sustainability claims remain unverified (Khanh et al., 2025; Thi et al., 2025). The erosion of perceived quality whether operationalized as perceived quality in service innovation research or as GBL within the framework of this study is the primary mechanism mediating the spread of information failure into a decline in service relationship intention.

2.6 Hypothesis Development

Brand loyalty develops through sustained positive interactions, creating emotional attachment and self-integration (Carroll & Ahuvia, 2006). Authentic and consistent environmental claims, aligned with personal values, strengthen emotional connections over time (Batra et al., 2012). Conversely, greenwashing undermines the fundamental legitimacy of environmentally responsible brand loyalty. A gap between environmental promises and actual performance creates inconsistent expectations, undermining trust and reducing emotional attachment (Hameed et al., 2021; Nnindini & Dankwah, 2024). Empirical evidence confirms that greenwashing has a negative impact on brand liking, image, and loyalty, with the affective dimension being particularly sensitive to inauthenticity (Ayoub & Awad, 2024; Çavuşoğlu et al., 2021). In the bottled water sector, consumers are repeatedly exposed to sustainability claims during routine purchases; accumulated perceptions of greenwashing compromise the emotional foundation of brand attachment. Therefore:

H1: Greenwashing has a negative effect on Green Brand Love.

Green brand love (GBL) is an affective mechanism that translates environmental values into behavioural tendencies. Consumers with a strong emotional attachment to green brands demonstrate an increased willingness to prioritise them, recommend them, and maintain purchasing habits despite competitive alternatives (Loureiro et al., 2012; Meathawiroon & Sudarat, 2023). Positive effects operate through a reduction in perceived switching costs, identity-based motivation for consistent behaviour, and tendencies closely linked to favourite brands (Bazzi, 2025; Khalid et al., 2023). For low-involvement products such as bottled water, where minimal cognitive elaboration and habitual patterns dominate, GBL emerges as a key psychological factor supporting green purchase intention despite

competing situational factors (Pan, 2024). Therefore:

H2: Green Brand Love has a positive effect on Green Purchase Intention.

In addition to indirect effects via affective mechanisms, greenwashing directly undermines green purchase intention (GPI) by inducing cognitive scepticism and emotional betrayal. Inconsistencies between environmental claims and corporate practices trigger defensive consumer responses that reduce the desire to engage with the brand (Nyilasy et al., 2014; Tarabieh, 2020). Perceived greenwashing increases perceived risk and green confusion, suppressing GPI even before emotional attachment is considered (Y.-S. Chen & Chang, 2013). This direct negative effect is consistent with findings that perceived risk suppresses purchase intentions in sustainability (Yeo et al., 2025). Whilst Yeo et al. (2025) identified product authenticity and measurement uncertainty as key risk drivers in green fashion, greenwashing creates a distinctive moral risk; perceived betrayal of environmental values operates independently of functional product concerns. In the bottled water industry, where product differentiation is minimal and claims are difficult to verify, exposure to greenwashing cues directly suppresses intention by triggering distrust (Kusnianti & Nanci, 2025). Therefore:

H3: Greenwashing has a negative direct effect on Green Purchase Intention.

Previous hypotheses proposed that greenwashing reduces GBL (H1), that GBL increases GPI (H2), and that greenwashing directly suppresses GPI (H3). Bringing these pathways together, GBL acts as an affective mechanism that partially mediates the negative impact of greenwashing on GPI. This mediating role is consistent with ABC Theory: affect as a psychological process mediating between environmental stimuli and behavioural responses in low-involvement consumption with limited cognitive elaboration (Breckler, 1985; Fazio & Williams, 1986). Studies indicate that brand love mediates the negative impact of greenwashing on purchase outcomes, with indirect effects accounting for the majority of the overall effect (Ayoub & Awad, 2024; Hameed et al., 2021). When greenwashing erodes the emotional core of the consumer-brand relationship, the weakening of GBL becomes a critical pathway through which misleading sustainability claims undermine the intention to make environmentally responsible purchases. Therefore:

H4: Green Brand Love mediates the relationship between Greenwashing and Green Purchase Intention.

HB moderates the relationship between greenwashing and GPI by altering the weight given to personal and social information. In a strong HB context, consumers rely on the majority's choice as a proxy for information, reducing the influence of individual scepticism regarding green claims (Banerjee, 1992; Bikhchandani et al., 1992). SIT suggests that observing others purchasing the dominant brand, despite being aware of greenwashing, creates social proof that counteracts the negative impact of deception on personal intentions (Cialdini & Goldstein, 2004; Spears, 2020). In the Surabaya bottled water market, AQUA's 69.2% market dominance creates a socially significant majority choice environment, making HB a key factor in consumer reactions to greenwashing (Soule & Sekhon, 2022; Yuen et al., 2022). Conversely, low HB allows for more independent judgement, and perceptions of greenwashing may have a stronger negative impact on GPI.

Therefore:

H5: Herding Behavior moderates the direct relationship between Greenwashing and Green Purchase Intention, such that the negative effect is weaker when Herding Behavior is high.

2.7 Conceptual Framework

Figure 1 presents an integrative service science framework. Greenwashing acts as a trigger for service failure, initiating value co-destruction via two pathways: (1) direct cognitive; the dissolution of trust immediately suppresses GPI; (2) indirect affective; gradual emotional disengagement is mediated by the erosion of GBL, a relational resource. HB, as a social boundary condition, moderates the direct pathway: high HB leads consumers to substitute social evaluation for independent judgement, thereby

weakening the negative effects of greenwashing on relationship intentions. This configuration reflects the integration of SDL (value co-creation/destruction), ABC Theory (affective experience), and SIT (eco-social governance).

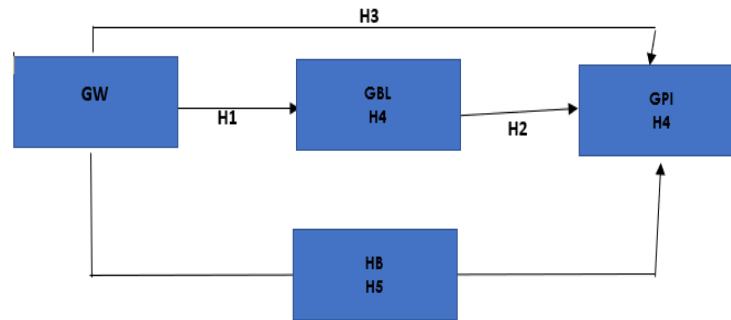


Fig 1: Research Framework

3. Methodology

3.1 Measurement Scale

The survey instrument was developed by adapting a psychometrically validated scale, calibrated for the context of routine bottled water consumption (Table 1). Items were semantically refined to maintain conceptual equivalence and accessibility for respondents with limited sustainability awareness. All constructs used reflective indicators on a 5-point Likert scale: greenwashing, ranging from “*strongly disagree*” to “*strongly agree*”, reflected differences in perception; GBL, HB, and GPI used similar phrasing. The 5-point format reflects the low involvement of the product category and reduces cognitive demands without compromising psychometric validity (Dawes, 2008). The number of items varies (4–5); GBL comprises 5 indicators due to its multidimensional affective nature.

Table 1: Measurement Items and Sources

Construct	Item no.	Item	Reference
Greenwashing	GW1	This brand makes environmental claims more prominent than actual packaging changes.	Delmas & Burbano (2011)
	GW2	This brand displays green impressions without tangible consumer impact.	Delmas & Burbano (2011); Torelli et al. (2019)
	GW3	This brand provides incomplete sustainability information.	Torelli et al. (2019)
	GW4	This brand makes environmental claims without clear operational evidence.	TerraChoice (2010)
Green Brand Love	GBL1	I like this brand compared to others.	Batra et al. (2012); Carroll & Ahuvia (2006)
	GBL2	I feel comfortable when consuming this brand.	Carroll & Ahuvia (2006); Ghorbanzadeh & Rahehagh (2021)
	GBL3	I prefer this brand over alternatives.	Batra et al. (2012); Carroll & Ahuvia (2006)
	GBL4	This brand fits my daily habits.	Batra et al. (2012); Carroll & Ahuvia (2006)
	GBL5	I feel emotionally attached to this brand.	Carroll & Ahuvia (2006); Ghorbanzadeh & Rahehagh (2021)

Herding Behavior	HB1	I observe majority choices before purchasing.	Banerjee (1992); Cialdini & Goldstein (2004)
	HB2	My social circle influences my brand selection.	Banerjee (1992); Bikhchandani et al. (1992)
	HB3	Majority usage signals sufficient safety to me.	Bikhchandani et al. (1992)
	HB4	I rarely compare brands when others converge on one.	Bikhchandani et al. (1992); Cialdini & Goldstein (2004)
Green Purchase Intention	GPI1	I intend to choose environmentally friendly bottled water.	Ajzen (2020); Arkan et al. (2024)
	GPI2	I plan to increase green bottled water purchases.	Ajzen (2020)
	GPI3	I select green options when available.	Hidayah et al. (2023)
	GPI4	I am willing to switch from conventional to green.	Arkan et al. (2024)

Note: The interaction term (Herding behavior × Greenwashing) was derived using a two-step approach with mean-centring and has been excluded from this table as a single composite indicator.

3.2 Participants and Data Collection

Data was collected via online and face-to-face surveys in Surabaya, a metropolis with high consumption of bottled water and growing awareness of sustainability. AQUA's 69.2% market share and the limited availability of sustainable alternatives created an ideal context for testing the psychological and social mechanisms underlying low-engagement consumption. Hybrid recruitment: Google Forms via controlled digital channels and field administration at modern retail outlets, transport terminals and educational institutions.

Purposive sampling respondents: regular purchasers of bottled mineral water in the last three months; aged 17–65; regularly active in Surabaya; self-reported exposure to environmental claims. Locations maximising demographic diversity; modern retail (middle-class urban areas), transport hubs (working-class areas), educational institutions (young people/students). Brief eligibility checks prior to distribution, identical screening for online respondents. Sample of 315 (177 women [56.2%], 138 men [43.8%]), October–December 2025. Unrotated Harman's factor explained 35.95% of variance, well below the 50% danger zone (Podsakoff et al., 2003).

Written consent, voluntary participation, anonymous, may be withdrawn at any time. No personal information is collected. An anonymous survey of the general population without sensitive interventions, consistent with ethical guidelines for the social sciences.

Tabel 2: Demographic Profile of Respondents

Characteristics	Category	n	%
Gender	Male	138	43,8
	Female	177	56,2
Age	17–25 years old	89	28,3
	26–35 years old	102	32,4
	36–45 years old	72	22,9
	46–55 years old	38	12,1
	56–65 years old	14	4,4
Education	Secondary School	67	21,3
	Diploma	45	14,3
	Bachelor's degree	158	50,2
	Postgraduate	45	14,3
Monthly Income	< Rp 3 million	78	24,8

Purchase Frequency	Rp 3–5 million	95	30,2
	Rp 5–10 million	98	31,1
	> Rp 10 million	44	14,0
	Daily	112	35,6
	3–4 time a week	89	28,3
	1–2 time a week	72	22,9
Brands Acquired	< 1 time a week	42	13,3
	AQUA	198	62,9
	Club	38	12,1
	Cleo	42	13,3
	Le Minerale	28	8,9
	Others	9	2,9

Source: Author's calculations.

The model was estimated using PLS-SEM in SmartPLS 4 (Ringle et al., 2024). Prediction-oriented estimators maximise the variance explained by the endogenous construct, favouring complex mediation configurations and boundary conditions (J. Hair et al., 2021; J. F. Hair et al., 2020). PLS-SEM is more flexible than classical regression in disentangling direct, indirect, and continuous mediator-moderator interaction effects.

Analysis workflow: (1) measurement quality; reliability, internal consistency, convergent and discriminant validity (HTMT); (2) 5,000 bootstrap samples; (3) GBL mediation, bias-corrected bootstrap confidence intervals; (4) two-stage moderation with mean centring, skewness analysis ± 1 SD HB (Aiken et al., 1991; Hayes, 2018).

4. Result

4.1 Reliability and Convergent Validity

The quality of the measurements was assessed using a multiple-indicator approach. The external loadings of all indicators exceeded the threshold of 0.70, confirming adequate reliability. Cronbach's alpha and composite reliability each exceed 0.70. The average variance extracted (AVE) for each latent construct exceeds 0.50, confirming that the indicators account for more of the total variance than the error variance (Table 3).

Table 3. Reliability and Convergent Validity

Construct	Item	Factor loading	Cronbach's alpha	CR	AVE
Greenwashing	GW1	0.844	0.855	0.902	0.698
	GW2	0.840			
	GW3	0.795			
	GW4	0.860			
Green Brand Love	GBL1	0.798	0.886	0.917	0.687
	GBL2	0.836			
	GBL3	0.823			
	GBL4	0.855			
	GBL5	0.833			
Herding Behavior	HB1	0.798	0.885	0.911	0.719
	HB2	0.871			
	HB3	0.859			
	HB4	0.861			
Green Purchase Intention	GPI1	0.809	0.841	0.894	0.678
	GPI2	0.783			
	GPI3	0.850			
	GPI4	0.851			

Source: Authors' calculation using SmartPLS 4.

The construct validity was examined using Fornell & Larcker (1981): the square root of the AVE for each construct exceeded the correlation with all other constructs. The diagonal elements (square

roots of the AVE) consistently dominated the off-diagonal coefficients, satisfying the cross-loading criteria (Table 4).

Table 4. Discriminant Validity (Fornell-Larcker Criteria)

	Green Brand Love	Green Purchase Intention	Greenwashing	Herding Behavior
Green Brand Love	0.829			
Green Purchase Intention	0.579	0.824		
Greenwashing	-0.466	-0.521	0.835	
Herding Behavior	0.041	-0.030	0.015	0.848

Source: Authors' calculation using SmartPLS 4

Note: The square root of the AVE is shown on the diagonal. Pearson's correlations between constructs are shown below the diagonal.

Discriminant validity was also assessed using the HTMT, the recommended standard for PLS-SEM (Henseler et al., 2015). The HTMT compares inter-trait correlations with intra-trait correlations; values < 0.90 (or 0.85 using a conservative threshold) indicate satisfactory discriminant validity. All HTMT values were well below the conservative threshold of 0.85, providing strong evidence that the four constructs are empirically distinct (Table 5).

Table 5. Heterotrait-Monotrait Ratio (HTMT)

	Green Brand Love	Green Purchase Intention	Greenwashing	Herding Behavior
Green Brand Love	—			
Green Purchase Intention	0,712	—		
Greenwashing	0,589	0,654	—	
Herding Behavior	0,062	0,048	0,021	—

Note: HTMT values below the diagonal. Threshold: < 0.85 (conservative). Source: Author's calculations using SmartPLS 4.

To address potential method bias, VIFs for full multicollinearity were assessed following Kock (2015). All VIF values were < 3.3 (1.02–2.15), indicating that potential method bias does not pose a serious threat to validity. Together with Harman's single-factor test (35.95% of variance explained), these results provide convergent evidence that general method bias is not a significant concern.

4.2 Structural Model

The parameter estimates and explanatory values are presented in Figure 2 and Table 6. R^2 indicates how well the model explains the variance of the endogenous construct: ~0.19 is moderate; 0.33 is moderate to substantial; > 0.67 indicates high practical significance (J. Hair et al., 2021).

Perceived greenwashing negatively influences GBL ($\beta = -0.466$, $p < 0.001$), explaining 21.7% of the variance ($R^2 = 0.217$), consistent with moderate expectations for exploratory research; supporting H1. GBL is a strong predictor of GPI ($\beta = 0.435$, $p < 0.001$) (H2). Greenwashing maintains its destructive power via the direct pathway ($\beta = -0.312$, $p < 0.001$) (H3). These three direct effects confirm that greenwashing weakens GPI through both emotional and direct pathways. The main effects model explains 41.4% of the variance in GPI ($R^2 = 0.414$). After including the moderating effect, the model explains 34.8% of the variance in GPI ($R^2 = 0.348$). These values indicate that both models provide adequate explanatory power for the endogenous variable.

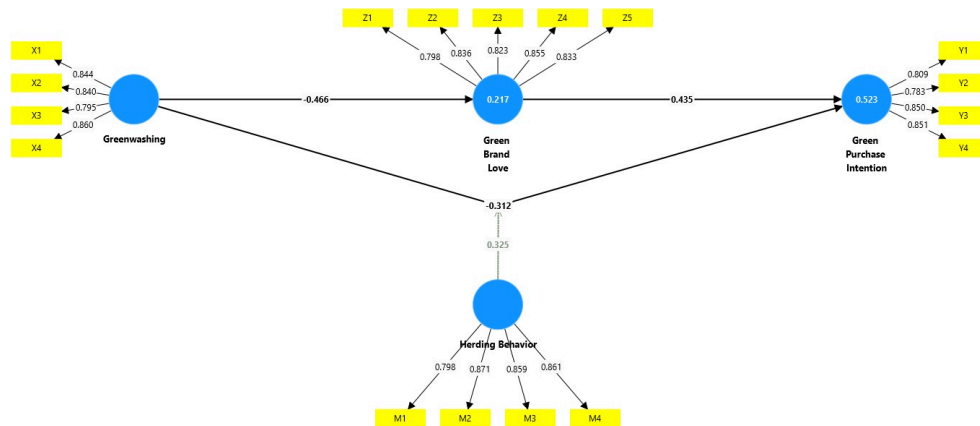


Fig. 2 Main effects

Source: Authors' calculation using SmartPLS 4

Path estimates were calculated using PLS-SEM in SmartPLS 4 (Ringle et al., 2024). Significance was

assessed using 5,000 bias-corrected bootstrap samples with 95% confidence intervals (J. Hair et al., 2021).

Table 6. Path Coefficients

Hypothesis	Path	β	t-value	p-value	Supported
H1	GW $\rightarrow$ GBL	-0.466	10.781	0.000***	Yes
H2	GBL $\rightarrow$ GPI	0.435	9.905	0.000***	Yes
H3	GW $\rightarrow$ GPI	-0.312	6.884	0.000***	Yes

Source: Authors' calculation using SmartPLS 4

Note: GW = Greenwashing; GBL = Green Brand Love; GPI = Green Purchase Intention. *** $p < 0.001$. Path coefficients were estimated using SmartPLS 4 with 5,000 bootstrap resamples.

Table 7. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Interpretation
Green Brand Love	0,217	Moderate
Green Purchase Intention (Main Effects)	0,414	Moderate to substantial
Green Purchase Intention (Moderated)	0,348	Moderate to substantial

Source: Authors' calculation using SmartPLS 4

Note: The decrease in R^2 following the addition of the interaction term (HB $\times$ GW) is a common phenomenon of variance redistribution in two-stage PLS-SEM moderation when the interaction term has a low correlation with the dependent variable ($r_{(HB-GPI)} = -0.030$). This does not indicate a model error, given that the moderation effect remains significant ($\beta = 0.325$; $p < 0.001$) (J. Hair et al., 2021).

The mediation analysis (Table 8) confirmed the indirect pathway: the effect of greenwashing via GBL on GPI was -0.203 ($p < 0.001$, 95% CI $[-0.257; -0.149]$), rejecting the null hypothesis and confirming complementary mediation (H4). Complementary mediation: both direct and indirect effects are present, with consistent directions. The indirect effect via GBL accounts for 39.4% of the total negative effect of greenwashing on GPI.

Table 8. Mediating Effect

Path	Indirect effect	p-value	95% bias corrected CI
GW $\rightarrow$ GBL $\rightarrow$ GPI	-0.203	0.000***	$[-0.257; -0.149]$

Source: Authors' calculation using SmartPLS 4

Note: GW = Greenwashing; GBL = Green Brand Love; GPI = Green Purchase Intention. *** $p < 0.001$. Indirect effects and confidence intervals were calculated using 5,000 bias-corrected bootstrap resamples.

The moderating effect of HB was tested using a two-stage mean-centred approach. The interaction between HB and greenwashing on GPI was significant ($\beta = 0.325$, $p = 0.000$) (H5). Simple slope analysis: the negative effect of greenwashing on GPI was weaker at high HB (+1 SD: -0.089 , n.s.) than at low HB (-1 SD: -0.535 , $p < 0.001$). Interaction plot: Fig 3.

Table 9. Moderating Effect

Effect	β	t-value	p-value	Supported
HB $\times$ GW $\rightarrow$ GPI	0.325	4.124	0.000***	Yes

Source: Authors' calculation using SmartPLS 4

Note: HB = Herding Behaviour; GW = Greenwashing; GPI = Green Purchase Intention. *** $p < 0.001$. Interaction terms were estimated using a two-stage approach with mean-centring; significance was tested using 5,000 bootstrap resamples.

Table 10. Simple Slope Analysis

Herding Behavior	Slope (GW $\rightarrow$ GPI)	t-value	p-value
Low (-1 SD)	-0.535	7.891	0.000***
Mean	-0.312	6.884	0.000***
High (+1 SD)	-0.089	1.245	0.213

Source: Authors' calculation using SmartPLS 4

Note: A simple slope analysis was performed at ± 1 standard deviation from the mean of the Herding Behaviour. The slope was tested using 5,000 bootstrap resamples.

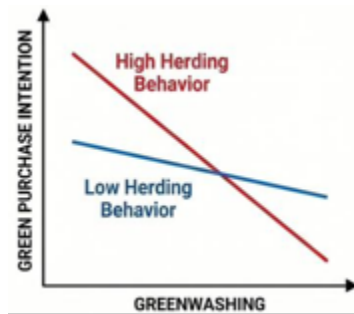


Fig. 3 Interaction Plot

Source: Authors' calculation using SmartPLS 4

Note: Herding behavior significantly moderates the relationship between greenwashing and green purchase intention, with a coefficient of 0.325 (T -statistic: 4.124).

Predictive validity was evaluated using PLSpredict with blindfolding (Shmueli et al., 2016). Q^2_{predict} : GBL = 0.142; GPI = 0.198, both > 0 , indicating acceptable predictive power. The PLS model's RMSE is lower than the LM benchmark for both constructs, indicating acceptable out-of-sample predictive capability. These results provide confidence that the model's relationship is not merely a fit to the sample data but reflects genuine predictive relevance.

Table 11. PLSpredict results

Endogenous Construct	Q^2_{predict}	PLS RMSE	LM RMSE
Green Brand Love	0,142	0,847	0,912
Green Purchase Intention	0,198	0,756	0,834

Source: Author's calculations using SmartPLS 4.

Note: $Q^2_{\text{predict}} > 0$ indicates acceptable predictive relevance. $PLS\ RMSE < LM\ RMSE$ indicates that the PLS model outperforms the linear regression benchmark.

5. Discussion

5.1 Interpretation of Main Findings

Three fundamental findings regarding value co-destruction within sustainability service systems characterised by low involvement and high market concentration, interpreted through SDL, ABC Theory, and SIT, advance our understanding of how information failure propagates through affective and social channels in service science.

First, greenwashing has direct and indirect negative impacts on GPI. The direct effect confirms systemic information failure; the gap between eco-efficiency claims and actual performance induces cognitive scepticism that suppresses the intention to integrate resources. This constitutes direct value co-destruction: the institutional contradiction between symbolic and operational resources destabilises trust in value co-creation (Echeverri & Skålén, 2011; Smith, 2013). The findings expand the greenwashing literature by focusing on cognitive mechanisms; perceived risk and green confusion (Y.-S. Chen & Chang, 2013; Nyilasy et al., 2014; Tarabieh, 2020) suggest that greenwashing operates through direct suppression of service relationship intentions and indirect emotional effects that undermine relational service resources.

Secondly, GBL, as a relational service resource, mediates the affective pathway of value co-destruction. The indirect effect of the total effect of greenwashing; emotional erosion is a central mechanism of information failure-induced loss within the service ecosystem. SDL: GBL stabilises the service ecosystem; the erosion and degradation of relational resources reduce value co-creation. Extending Ayoub & Awad

(2024) and Hameed et al. (2021): (a) erosion of relational service resources in service science; (b) the green aspects of GBL in the sustainability service system; (c) dominance of the affective pathway in low engagement; affect precedes cognitive elaboration (ABC Theory) (Breckler, 1985; Fazio & Williams, 1986).

Third, HB moderates the relationship between greenwashing and GPI; negative effects diminish as HB increases. HB is an informal ecosystem governance mechanism regulating the propagation of information failure. In the concentrated Surabaya market, AQUA's 69.2% dominance leads consumers to rely on the majority choice as a heuristic for service information that is difficult to verify (SIT) (Cialdini & Goldstein, 2004; Spears, 2020). With high HB, consumers substitute social evaluation for independent judgement; social proof counteracts the impact of deception on relationship intentions. Social conformity weakens the processing of negative information, whilst the majority choice shields individual scepticism; the boundary conditions of service communication are deceptive (Banerjee, 1992; Bikhchandani et al., 1992).

5.2 Comparison with Existing Literature

GBL mediates greenwashing on GPI resolves the service science debate. Strong emotional attachment is crucial for service relationships (Park et al., 2008) versus functional effectiveness being sufficient (Fritz et al., 2017). The results support the first position: GBL's relational service resources critically mediate systemic information failures that destabilise the service ecosystem. Emotional erosion explains how greenwashing undermines brands investing in sustainability; consumers are committed due to self-identity values, the integration of core resources, and value co-creation within the SDL (S. Vargo & Lusch, 2004).

The moderating role of HB challenges the common view that universal social proof reinforces positive information. HB specifically weakens the processing of negative information, with majority choices protecting individual scepticism; this extends the influence of informational social proof (Cialdini & Goldstein, 2004) as a governance mechanism within the service ecosystem to regulate collective information failure. In concentrated markets constrained by information, HB accelerates the adoption of innovation whilst slowing the correction of misleading signals; this has significant implications for the design of transparency policies within sustainable service ecosystems.

5.3 Theoretical Mechanisms

Complementary mediation supports the view that greenwashing constitutes a dual-pathway information system failure. The TPB provides rational intent as a predictor of behaviour (Ajzen, 2020), yet the dominance of the affective pathway in GBL within a high-frequency, low-involvement service system indicates that affect dominates cognition; this is consistent with and apply the TPB (Han & Kim, 2010; Yadav & Pathak, 2016). Contribution: affective mediators as eroded service resources, rather than individual psychological variables.

The mediating role of GBL identified in this study aligns with recent findings in the literature on green service innovation, where perceived quality mediates the relationship between service innovation attributes and consumer acceptance (Thi et al., 2025). Conceptually, GBL operates as a relational service resource that is functionally analogous to perceived quality: both constructs capture the affective-evaluative foundation of the consumer-service provider relationship, and both are vulnerable to erosion when information system failures create a mismatch between symbolic promises and operational reality.

Direct path: cognitive scepticism, breach of service encounter expectations. Indirect path: weakened GBL, service resources eroded due to a mismatch between symbolic and operational resources (Echeverri & Skålén, 2011; Smith, 2013). HB: social information substitution replaces personal interaction. Critical for low-involvement products, where consumers are less motivated by independent information; a common condition in the evolving FMCG service ecosystem.

5.4 Implication for Service Science and Service Design

Implications for service science and sustainable service design in the FMCG sector: GBL confirms that affective experience is a critical component of service relationship quality within high-frequency service systems. The unverified claim is that a failure in service design erodes relational service resources, destabilising the service ecosystem. Verification of environmental claims must form part of the service infrastructure, rather than merely marketing communications.

The recommendation to integrate environmental claim verification into service infrastructure rather than treating sustainability communications as a peripheral marketing function is supported by research on digital pathways to sustainability, which emphasizes information governance at the ecosystem level as a prerequisite for industrial transformation (Khanh et al., 2025). This perspective shifts the policy focus from individual consumer protection toward systemic transparency institutions capable of addressing collective information failures in concentrated markets.

HB moderation: sustainable service design must consider the social dynamics of the service ecosystem. In the concentrated Surabaya market, transparency interventions must account for collective evaluation processes; social conformity buffers individual negative reactions, delaying market corrections. Regulation of sustainability claims requires an ecosystem-level approach, not merely individual consumer protection.

Sustainable service innovation requires the integration of consumer psychology and service ecosystem structures; interdisciplinary service science (Akaka et al., 2013; S. L. Vargo et al., 2014). Consumer behaviour constructs within service science validate generalisations of psychological mechanisms whilst advancing our understanding of the propagation of information failures through affective and social channels in concentrated FMCG markets.

5.5 Practical Implications

Regulator: Strict oversight of FMCG environmental claims with low engagement and broad public impact. Consumer protection is insufficient for individual complaints; social compliance mitigates negative reactions. Proactive monitoring, third-party verification and transparency tools are essential to address information asymmetry.

For service managers, empirical evidence on green service innovation shows that investments in transparency and verified environmental improvements yield dual returns: such investments enhance perceived quality (Thi et al., 2025) while strengthening relational service resources that protect the ecosystem from value co-destruction (Khanh et al., 2025). Given that emotional engagement, once eroded through the deterioration of GBL, has proven difficult to restore, preventive strategies through authentic communication and third-party verification are more efficient than ex post remediation.

6. Conclusion

The study examines greenwashing as an information system failure that triggers value co-destruction through psychological and social mechanisms. The integration of SDL, ABC Theory, and SIT positions GBL as an eroded relational service resource and HB as informal ecosystem governance that moderates the propagation of failure. Empirical evidence from 315 consumers in Surabaya: systemic information failure weakens service relationship intention through immediate cognitive suppression of GPI and gradual emotional release mediated by GBL. HB acts as a contextual buffer; high social observation, the negative impact of fraud detection is insignificant; social conformity buffers individual reactions within a concentrated service ecosystem.

Three advances: (1) SDL reconceptualizes GPI as service relationship intention, shifting analysis to the service ecosystem; (2) ABC Theory: the affective pathway dominates the cognitive pathway in low-

involvement consumption; erosion of key relational service resources; (3) SIT via HB as a boundary condition and governance mechanism, advancing understanding of the propagation of social information failure in concentrated markets. Validating the generalization of psychological mechanisms within service systems remains under-explored, as does value co-destruction in sustainability.

Practical implications at three levels: (1) Policy; ecosystem-level regulation of sustainability claims; HB delays market correction; (2) Service managers; GBL as a relational service resource; transparency and verification in service design infrastructure; (3) Digital platforms; transparency tools and blockchain verification as institutional arrangements to reduce information asymmetry and strengthen value co-creation.

Limitations and directions for future research: (1) Cross-sectional design limits causality; longitudinal studies are needed to examine the erosion/recovery of relational service resources; (2) The Surabaya sample limits cultural generalization; (3) GBL's R^2 indicates other antecedents of service resources (e.g., service quality, institutional trust); (4) TPB is not fully incorporated; integration of TPB variables into future service ecosystems; (5) Platform-mediated ecosystems (e-commerce, social commerce) with different digital HB mechanisms.

References

- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple Regression: Testing and Interpreting Interactions*. SAGE Publications. <https://books.google.co.id/books?id=EAnvAAAAMAAJ>
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2. <https://doi.org/10.1002/hbe2.195>
- Akaka, M. A., Vargo, S. L., & Lusch, R. (2013). The Complexity of Context: A Service Ecosystems Approach for International Marketing. *Journal of International Marketing*, 21. <https://doi.org/10.1509/jim.13.0032>
- Ali, M., Amir, H., & Shamsi, A. (2021). Consumer Herding Behavior in Online Buying: A Literature Review. *International Review of Management and Business Research*, 10, 345–360. [https://doi.org/10.30543/10-1\(2021\)-30](https://doi.org/10.30543/10-1(2021)-30)
- Amankwaa, E. F., & Danquah, M. (2025). Balancing the ban: Navigating the economic and environmental trade-offs of single-use plastics in Ghana. *Journal of Environmental Management*, 388, 126020. <https://doi.org/https://doi.org/10.1016/j.jenvman.2025.126020>
- Arkan, I., Artanti, Y., & Iriani, S. . (2024). The Influence of Terminal Value, Instrumental Value, And Green Brand Positioning on Green Purchase Intention Through Green Attitude as A Mediating Variable (Study on Automotive Companies Implementing Green Company). *International Journal of Economics, Business and Accounting Research (IJEBAAR)*, 8(4), 1195–1205. <https://doi.org/10.29040/ijebar.v8i4.15595>
- Armitage, C., & Conner, M. (2010). Efficacy of the Theory of Planned Behaviour: A Meta-Analytic Review. *British Journal of Social Psychology*, 40, 471–499. <https://doi.org/10.1348/014466601164939>
- Ayoub, D., & Awad, R. (2024). The Effect of Greenwashing on Consumers' Green Purchase Intentions. *The Arab Journal of Administration*, 44(6), 319–340. <https://doi.org/10.21608/aja.2024.279587.1616>
- Banerjee, A. V. (1992). A Simple Model of Herd Behavior. *The Quarterly Journal of Economics*, 107(3), 797–817.
- Batra, R., Ahuvia, A., & Bagozzi, R. P. (2012). Brand Love. *Journal of Marketing*, 76(2), 1–16.

<https://doi.org/10.1509/jm.09.0339>

Bazzi, A. (2025). Electric vehicles purchase intentions pave the road toward a green sustainable future. *Discover Sustainability*. <https://doi.org/10.1007/s43621-025-02401-4>

Begho, T., & Liu, S. (2023). Does social proof and herd behaviour drive food choices of consumers? *British Food Journal*, 126, 1050–1064. <https://doi.org/10.1108/BFJ-08-2023-0676>

Bergkvist, L., & Bech-Larsen, T. (2010). Two Studies of Consequences and Actionable Antecedents of Brand Love. *Journal of Brand Management*, 17 (7), 504-518, 17. <https://doi.org/10.1057/bm.2010.6>

Bikhchandani, S., Welch, I., & Hirshleifer, D. (1992). A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *Journal of Political Economy*, 100(5), 992–1026.

Breckler, S. (1985). Empirical validation of affect, behavior, and cognition as distinct components of attitude. *Journal of Personality and Social Psychology*, 47, 1191-1205. *Journal of Personality and Social Psychology*, 47, 1191–1205. <https://doi.org/10.1037//0022-3514.47.6.1191>

Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. *Marketing Letters*, 17(2), 79–89. <https://doi.org/10.1007/s11002-006-4219-2>

Çavuşoğlu, S., Demirağ, B., & Durmaz, Y. (2021). Investigation of the effect of hedonic shopping value on discounted product purchasing. *Review of International Business and Strategy*, 31(3), 317–338. <https://doi.org/10.1108/RIBS-04-2020-0034>

Chen, X., Chen, R. R., Wei, S., & Davison, R. (2023). Herd behavior in social commerce: understanding the interplay between self-awareness and environment-awareness. *Internet Research*, 35. <https://doi.org/10.1108/INTR-05-2022-0359>

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>

Cialdini, R., & Goldstein, N. (2004). Social Influence: Compliance and Conformity. *Annual Review of Psychology*, 55, 591–621. <https://doi.org/10.1146/annurev.psych.55.090902.142015>

Dagestani, A. A., Alnafrah, I., Smutka, L., Bilan, Y., & Chen, P. (2024). Greenwashing and stakeholder theory in China: an empirical evidence of corporate social responsibility and firms performance. *Environment, Development and Sustainability*, 27, 21683–21708. <https://doi.org/10.1007/s10668-024-04849-2>

Danone Indonesia. (2023). *Sustainability Report Danone Indonesia 2023 ID*. <https://danone.co.id/downloadable/sustainability-report-danone-indonesia-2023-id/>

Dawes, John. (2008). Do Data Characteristics Change According to the Number of Scale Points Used? An Experiment Using 5-Point, 7-Point and 10-Point Scales. *International Journal of Market Research*, 50(1), 61–104. <https://doi.org/10.1177/147078530805000106>

de Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. da L. (2020). Concepts and forms of greenwashing: a systematic review. *Environmental Sciences Europe*, 32(1), 19. <https://doi.org/10.1186/s12302-020-0300-3>

Delmas, M. A., & Burbano, V. (2011). The Drivers of Greenwashing. *California Management Review*, 54(1), 64–87. <https://doi.org/10.1525/CMR.2011.54.1.64>

- Echeverri, P., & Skålén, P. (2011). Co-creation and Co-destruction: A practice Theory Based Study of Interactive Value Formation. *Marketing Theory*, 11, 351–373. <https://doi.org/10.1177/1470593111408181>
- Fazio, R., & Williams, C. (1986). Attitude Accessibility as a Moderator of the Attitude-Perception and Attitude-Behavior Relations: An Investigation of the 1984 Presidential Election. *Journal of Personality and Social Psychology*, 51, 505–514. <https://doi.org/10.1037/0022-3514.51.3.505>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. In *Journal of Marketing Research* (Vol. 18, Issue 1, pp. 39–50). American Marketing Association. <https://doi.org/10.2307/3151312>
- Fritz, K., Schoenmueller, V., & Bruhn, M. (2017). Authenticity in branding – exploring antecedents and consequences of brand authenticity. *European Journal of Marketing*, 51, 324–348. <https://doi.org/10.1108/EJM-10-2014-0633>
- Geyer, R., Jambeck, J., & Law, K. (2017). Production, use, and fate of all plastics ever made. *Science Advances*, 3, e1700782. <https://doi.org/10.1126/sciadv.1700782>
- Ghorbanzadeh, D., & Rahehagh, A. (2021). Emotional brand attachment and brand love: the emotional bridges in the process of transition from satisfaction to loyalty. *Rajagiri Management Journal*, 15(1), 16–38. <https://doi.org/10.1108/RAMJ-05-2020-0024>
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110. <https://doi.org/https://doi.org/10.1016/j.jbusres.2019.11.069>
- Hair, J., Hult, G. T. M., Ringle, C., Sarstedt, M., Danks, N., & Ray, S. (2021). *Evaluation of Reflective Measurement Models* (pp. 75–90). https://doi.org/10.1007/978-3-030-80519-7_4
- Hameed, I., Hyder, Z., Imran, M., & Shafiq, K. (2021). Greenwash and green purchase behavior: an environmentally sustainable perspective. *Environment, Development and Sustainability*, 23(9), 13113–13134. <https://doi.org/10.1007/s10668-020-01202-1>
- Han, H., & Kim, Y. (2010). An investigation of green hotel customers' decision formation: Developing an extended model of the theory of planned behavior. *International Journal of Hospitality Management*, 29(4), 659–668. <https://doi.org/https://doi.org/10.1016/j.ijhm.2010.01.001>
- Hayes, A. F. (2018). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach (Methodology in the Social Sciences)* (2nd ed.). New York, NY: The Guilford Press.
- Henseler, J., Ringle, C., & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-based Structural Equation Modeling. *Journal of the Academy of Marketing Science*, 43, 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hidayah, A., Iriani, S., & Artanti, Y. (2023). Investigasi Komponen Green Marketing Terhadap Green Purchase Intention Produk UKM Jawa Timur: (Studi Pada Konsumen Green Product UKM Khas Jawa Timur). *Value : Jurnal Manajemen Dan Akuntansi*, 18, 546–556. <https://doi.org/10.32534/jv.v18i2.4142>
- Indonesia, M. of E. of. (2024). *Waste Management Statistics*. <https://sampahnasional.kemennlh.go.id/>
- Ismaeel, M., & Zakaria, Z. (2019). Perception of preparers of sustainability reports in the Middle East: Contrasting between local and global. *Meditari Accountancy Research, ahead-of-p*. <https://doi.org/10.1108/MEDAR-03-2019-0459>

- Kachara, A., & Sharma, T. (2025). *Factors Influencing Ethiopian Consumers' Preferences for Specific Bottled Water Brands*. <https://doi.org/10.13140/RG.2.2.28101.36320>
- Kelman, H. C. (1958). Compliance, identification, and internalization three processes of attitude change. *Journal of Conflict Resolution*, 2(1), 51–60. <https://doi.org/10.1177/002200275800200106>
- Khalid, A., Awan, R. A., Ali, R., & Sarmad, I. (2023). The antecedent cognitions of brand love and its impact on brand loyalty: the moderating role of sustainability marketing. *Corporate Governance: The International Journal of Business in Society*. <https://api.semanticscholar.org/CorpusID:261444045>
- Khandai, S., Zupic, I., Singh, H., Sonia, K., & Renu, K. (2025). Greenwashing and its consequences : the role of skepticism , brand embarrassment , and brand hate in shaping purchase intentions. *Quality & Quantity*, 0123456789. <https://doi.org/10.1007/s11135-025-02132-8>
- Khanh, T., Khoa, B. T., Bui, D., & Cuong, X. (2025). Digital Pathways to Sustainability: Empirical Evidence of Tourism Industry Transformation in the Industry 5.0 Era. *Journal of Management Changes in the Digital Era*, 2, 110–119. <https://doi.org/10.33168/JMCDE.2025.0108>
- Kock, N. (2015). Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach. *Int. J. e Collab.*, 11, 1–10. <https://api.semanticscholar.org/CorpusID:5550005>
- Kusnianti, S. L., & Nanci, F. (2025). Feeling of Betrayal as a Mediator in the Effect of Greenwashing Perceptions on Environmentally Friendly Product Purchase Decisions : Evidence from Bottled Water Consumers. *American Journal of Economic and Management Business*, 4(10), 1743–1754.
- Lashitew, A. (2021). Corporate Uptake of the Sustainable Development Goals: Mere Greenwashing or an Advent of Institutional Change? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3789574>
- Loureiro, S., Kaufmann, H. R., & Vrontis, D. (2012). Brand emotional connection and loyalty. *Journal of Brand Management*, 20(1), 13–27. <https://doi.org/10.1057/BM.2012.3>
- Meethawiroon, C., & Sudarat, K.-A. (2023). The Role of Green Advertising on Green Brand Love, Green Perceived Value, and Green Purchase Intention in the Hotel Industry. *Thammasat Review*, 26(2), 297–321. <https://sc01.tci-thaijo.org/index.php/tureview/article/view/240664>
- Nnindini, S., & Dankwah, J. (2024). Describing brown as green: an examination of the relationship between greenwashing and consumer negative emotive outcomes. *Cogent Business & Management*, 11. <https://doi.org/10.1080/23311975.2024.2367781>
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived Greenwashing: The Interactive Effects of Green Advertising and Corporate Environmental Performance on Consumer Reactions. *Journal of Business Ethics*, 125. <https://doi.org/10.1007/s10551-013-1944-3>
- Pan, Y. (2024). *Sustainability, Trust, and Emotional Attachment: Unveiling the Drivers of Brand Loyalty in Hospitality*. <https://doi.org/10.2139/ssrn.4993523>
- Park, C. W., MacInnis, D. J., & Priester, J. (2008). Brand Attachment: Constructs, Consequences, and Causes. *Foundations and Trends in Marketing*, 1(3), 191–230. <https://doi.org/10.1561/17000000006>
- Pedersen, E., & Andersen, K. (2023). Greenwashing: A Broken Business Model. *Journal of Business Models*, 11. <https://doi.org/10.54337/jbm.v11i2.7352>
- Podsakoff, P., MacKenzie, S., Lee, J.-Y., & Podsakoff, N. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*,

88, 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>

Ringle, C. M., Wende, S., & Becker, J.-M. (2024). SmartPLS 4. *SmartPLS*.

Shammout, E., Megdadi, O., Shammout, A. B., & Alshaketheep, K. (2025). Sustainable Marketing's Impact on Purchase Intentions: The Roles of Brand Image, Trust, and Customer Engagement. *Journal of Logistics, Informatics and Service Science*, 12(6), 31–44. <https://doi.org/10.33168/JLISS.2025.0602>

Shmueli, G., Ray, S., Velasquez Estrada, J., & Chatla, S. (2016). The elephant in the room: Predictive performance of PLS models. *Journal of Business Research*, 69. <https://doi.org/10.1016/j.jbusres.2016.03.049>

Sinh, N. H., & Kiet, N. T. (2025). How Social Media Influencers Drive Purchase Intentions: A Stimulus-Organism-Response Analysis of Vietnamese Consumers' Psychological Responses. *Journal of Logistics, Informatics and Service Science*, 12(4), 58–74. <https://doi.org/10.33168/JLISS.2025.0404>

Smith, A. (2013). The value co-destruction process: a customer resource perspective. *European Journal of Marketing*, 47, 1889–1909. <https://doi.org/10.1108/EJM-08-2011-0420>

Soule, C., & Sekhon, T. (2022). Signaling Nothing: Motivating the Masses with Status Signals That Encourage Anti-Consumption. *Journal of Macromarketing*, 42, 027614672210932. <https://doi.org/10.1177/02761467221093228>

Spears, R. (2020). Social Influence and Group Identity. *Annual Review of Psychology*, 72. <https://doi.org/10.1146/annurev-psych-070620-111818>

Tarabieh, S. (2020). The impact of greenwash practices over green purchase intention: The mediating effects of green confusion, Green perceived risk, and green trust. *Management Science Letters*. <https://doi.org/10.5267/j.msl.2020.9.022>

TerraChoice. (2010). *The Sins of Greenwashing Home and Family Edition*.

Thi, H., Uyen, B., Thi, D., Ly, T., & Kiet, L. Q. (2025). Green Service Innovation and Premium Acceptance : The Mediating Role of Perceived Quality in Emerging Service Economy. *Journal of Service, Innovation and Sustainable Development*, 6(2), 43–56. <https://doi.org/10.33168/SISD.2025.0204>

Thomson, M., & Park, C. (2005). The Ties That Bind: Measuring the Strength of Consumers' Emotional Attachments to Brands. *Journal of Consumer Psychology - J CONSUM PSYCHOL*, 15, 77–91. https://doi.org/10.1207/s15327663jcp1501_10

Tiba, A., Drugaș, M., Sirbu, I., Simona, T., Bora, C., Miclăuș, D., Voss, L., Sanislav, I., & Ciurescu, D. (2025). The ABC Model of Positive Feelings: A Preliminary Test. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 43(1), 14. <https://doi.org/10.1007/s10942-024-00578-7>

Torelli, R., Balluchi, F., & Lazzini, A. (2019). Greenwashing and environmental communication: Effects on stakeholders' perceptions. *Business Strategy and the Environment*, 29, 407–421. <https://doi.org/10.1002/bse.2373>

Vargo, S. L., Wieland, H., & Akaka, M. A. (2014). Innovation through institutionalization: A service ecosystems perspective. *Industrial Marketing Management*, 44. <https://doi.org/10.1016/j.indmarman.2014.10.008>

Vargo, S., & Lusch, R. (2004). Evolving to a New Dominant Logic. *Journal of Marketing*, 68, 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>

Vollero, A. (2022). *Greenwashing: Foundations and Emerging Research on Corporate Sustainability and Deceptive Communication*. <https://doi.org/10.1108/9781801179669>

Yadav, R., & Pathak, G. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production*, 135, 732–739. <https://doi.org/10.1016/j.jclepro.2016.06.120>

Yeo, S. F., Tan, C. L., Lim, K. B., Subramanian, N. S., & Nasreen, F. (2025). Sustainable Choices in Fashion: Insights into Gen Z's Purchasing Behaviour. *Journal of Logistics, Informatics and Service Science*, 12(6), 202–213. <https://doi.org/10.33168/JLISS.2025.0611>

Yuen, K. F., Tan, L., Wong, Y., & Wang, X. (2022). Social determinants of panic buying behaviour amidst COVID-19 pandemic: The role of perceived scarcity and anticipated regret. *Journal of Retailing and Consumer Services*, 66, 102948. <https://doi.org/10.1016/j.jretconser.2022.102948>

Zeidan, R. (2025). *The Green Banking Transition Manual Navigating the Sustainable Finance Landscape*. Palgrave Macmillan, Singapore.