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The moral compass of the consumer: How social performance forges sustainable loyalty in the green building sector

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Abstract: This study rigorously investigates the psychological mechanisms that link corporate sustainability initiatives to long-term customer loyalty in the high-involvement residential construction sector. Anchored in the Stimulus-Organism-Response (S-O-R) paradigm, the research empirically tests whether Perceived Sustainable Value (PSV) acts as a mediator between a firm's Triple Bottom Line (TBL) performance and customer loyalty. Employing an explanatory sequential mixed-methods design, the study combines Partial Least Squares Structural Equation Modeling (PLS-SEM) with qualitative reflexive thematic analysis, using 412 recent homebuyers in Thailand and 12 follow-up interviews. The quantitative results establish that PSV fully mediates the pathway from TBL stimuli to behavioral loyalty. Notably, Perceived Social Performance emerged as the most dominant predictor of value, challenging the traditional environmental bias prevalent in green marketing literature. The qualitative findings reveal that consumers utilize a firm's social performance as a primary heuristic for moral integrity and structural safety, while independent green building certifications act as crucial credibility signals to bridge information asymmetry. Ultimately, the study confirms that sustainable business practices must be actively translated into multidimensional psychological value to cultivate enduring customer loyalty successfully.

Keywords: customer loyalty; green building; perceived sustainable value; PLS-SEM; triple bottom line

1. Introduction

The global transition toward an environmentally sustainable and socially equitable future fundamentally reshapes the operational and marketing paradigms of the private sector. Guided by international macro-environmental frameworks, most notably the United Nations 2030 Agenda for Sustainable Development and the Paris Agreement [1,2], industries with profound ecological footprints are under unprecedented pressure to align their strategic practices with universal sustainability targets. Among these, the construction and real estate sector occupies a critical position. Responsible for approximately 40% of global energy-related carbon emissions, the built environment is a primary locus where sustainable urbanism, resource efficiency, and social equity intersect [3–5].

Despite the rapid proliferation of sustainable construction practices and green building certifications, a significant gap remains in academic understanding of consumer behavior in this high-involvement sector. Specifically, the psychological mechanisms through which corporate sustainability initiatives translate into tangible consumer outcomes—such as enduring customer loyalty—remain theoretically underexplored and empirically ambiguous [6,7]. Previous literature frequently treats

sustainability as a monolithic construct, assuming that mere adherence to environmental standards directly stimulates consumer demand and loyalty. This reductionist assumption overlooks the multidimensional nature of corporate sustainability. It fails to account for the complex cognitive and emotional processes that govern high-risk, high-investment consumer decisions, such as residential property purchases.

This study strictly positions itself as an empirical testing paper. It eschews broader attempts to develop foundational theory or translate public policy, focusing exclusively on the precise empirical measurement of consumer psychological mechanisms. The primary objective of this research is to empirically test whether Perceived Sustainable Value (PSV) serves as the critical, full mediator linking a firm's multidimensional sustainability performance—conceptualized via the Triple Bottom Line (TBL)—to subsequent customer loyalty [8,9]. Within this tightly focused empirical framework, the Sustainable Development Goals (SDGs) are deliberately not operationalized as distinct variables within the measurement model. Instead, the SDGs are treated strictly as the macroeconomic background framing; they represent the prevailing global normative environment that shapes modern consumer awareness and heightens market sensitivity to sustainable business practices [10,11].

To address gaps in the literature and rigorously test the mediating role of PSV, this research draws on the Stimulus-Organism-Response (S-O-R) paradigm. The firm's TBL performance (disaggregated into environmental, social, and economic dimensions) serves as the strategic stimulus. The consumer's holistic evaluation, encapsulated as Perceived Sustainable Value, represents the internal organismic state. Customer loyalty represents the behavioral response. High-involvement purchases are characterized by significant information asymmetry, perceived risk, and high financial stakes. In such contexts, corporate claims of sustainability do not automatically translate into consumer loyalty. This research hypothesizes that loyalty is achieved strictly through the formation of PSV.

By employing an explanatory sequential mixed-methods design (QUAN → qual)—combining Partial Least Squares Structural Equation Modeling (PLS-SEM) with qualitative follow-up interviews—this research offers an exhaustive empirical investigation into the antecedents of sustainable customer loyalty in an emerging economy context (Thailand) [12–14]. The findings are intended for a primary audience of empirical researchers in consumer behavior and sustainability marketing, providing essential insights into how specific dimensions of sustainability performance are psychologically processed, valued, and rewarded by the modern conscious consumer.

1.1. Theoretical background and hypotheses development

This research is theoretically anchored in the Stimulus-Organism-Response (S-O-R) paradigm, a foundational framework in environmental psychology that has been increasingly adopted in complex consumer behavior research [12,13]. Within this paradigm, external environmental cues (Stimuli) influence a consumer's internal cognitive and emotional states (Organism), which subsequently drive their behavioral intentions and actions (Response). In this study, the firm's Triple Bottom Line (TBL) performance dimensions serve as strategic stimuli. The consumer's holistic evaluation,

encapsulated as Perceived Sustainable Value (PSV), represents the internal organismic state. Finally, customer loyalty represents the behavioral response. This model is further supplemented by Expectation-Confirmation Theory (ECT), which posits that consumer satisfaction and value perceptions are driven by the confirmation of pre-purchase expectations regarding a firm's sustainability claims [15].

1.2. The triple bottom line as strategic stimuli

The Triple Bottom Line (TBL), introduced as a fundamental departure from peripheral corporate social responsibility (CSR), integrates sustainability into a firm's core operational strategy through three inseparable pillars: environmental performance (Planet), social performance (People), and economic performance (Prosperity) [8]. While the global normative framework provided by the SDGs serves as the background context that heightens consumer sensitivity to these issues, it is the firm's localized execution of the TBL that acts as the direct stimulus evaluated by the consumer.

Environmental performance (planet): In the residential construction sector, environmental performance refers to verifiable corporate practices that minimize ecological degradation [16,17]. This includes energy-efficiency optimization, sustainable site planning, responsible waste management, and the use of eco-friendly, low-carbon materials [18–20]. These actions represent the localized application of macro-environmental goals such as climate action and responsible consumption. Consumers who perceive a residential builder as highly dedicated to environmental preservation are likely to experience heightened functional and emotional value, as the home provides both tangible energy savings and the intangible psychological benefit of ethical consumption. Based on the S-O-R framework, consumers process environmental stimuli to form a value perception.

Social performance (people): Evaluates the ethical treatment of internal and external stakeholders. In the construction industry, this pillar is uniquely critical due to the sector's historic reliance on vulnerable labor populations, the high physical risks associated with on-site work, and the disruptive impact of construction on local communities [21]. Social performance encompasses fair labor practices, stringent worker safety protocols, equitable wages, and positive community engagement [21,22]. Empirical research increasingly indicates that consumers use a firm's social performance as a cognitive heuristic for organizational morality, overall competence, and trustworthiness. When consumers perceive a firm as actively protecting worker well-being, this generates a profound sense of trust, thereby enhancing the perceived value of the delivered physical product.

Economic performance (prosperity): Moving significantly beyond traditional models of shareholder profitability, economic performance within the sustainable TBL framework emphasizes shared, long-term prosperity, resilience, and industrial innovation [23]. In sustainable homebuilding, this manifests as reductions in life-cycle impacts, the adoption of circular-economy principles (such as modular construction or the use of recycled-aggregate concrete), and localized economic stimulation [24]. High-involvement purchases like real estate require consumers to project value over the long term. When homebuyers perceive that a firm operates with advanced

economic foresight and innovative resilience, they are more likely to perceive the resulting product as a secure, long-term financial investment rather than a depreciating physical asset [25].

1.3. Perceived sustainable value (PSV) as the mediating organism

Perceived value is universally recognized in marketing literature as a paramount driver of consumer decision-making and post-purchase behavior [15]. However, in the context of green marketing and high-involvement sustainable purchases, traditional unidimensional value paradigms (typically focusing merely on price versus quality) are insufficient. Perceived Sustainable Value (PSV) is a multidimensional construct that captures the consumer's holistic assessment of utility based on perceptions of what is received versus what is given, viewed explicitly through the lens of ethical and sustainable consumption [26].

PSV transcends mere financial calculus. It incorporates functional value (tangible benefits such as reduced utility bills, lower maintenance costs, and superior indoor air quality), emotional value (the psychological comfort, pride, and “feel-good” factor associated with ethical living), and social value (the ability to express one's identity, values, and status to peer groups through highly visible eco-conscious purchasing). According to the S-O-R framework and Expectation-Confirmation Theory, corporate sustainability actions cannot directly mandate a behavioral response; they must first be accurately processed and translated into this multidimensional value structure within the consumer's psyche. Therefore, it is hypothesized that consumer perceptions of all three TBL dimensions will positively and significantly influence the formation of PSV.

H1a: Perceived Environmental Performance (Planet) has a significant positive influence on Perceived Sustainable Value.

H1b: Perceived Social Performance (People) has a significant positive influence on Perceived Sustainable Value.

H1c: Perceived Economic Performance (Prosperity) has a significant positive influence on Perceived Sustainable Value.

1.4. Customer loyalty as the behavioral response

In the high-involvement residential construction sector, customer loyalty extends far beyond the probability of a direct, immediate repeat purchase, given the highly infrequent and capital-intensive nature of homebuying. In this context, customer loyalty is defined as a deep psychological devotion to the brand, manifesting as an intense willingness to recommend the firm to others (positive word-of-mouth), resilience to negative market information, and a strong predisposition to engage with the firm for subsequent investments, upgrades, or secondary property purchases [27].

Extensive empirical evidence across various sectors consistently demonstrates that perceived value is the strongest antecedent to brand loyalty [15,26]. When consumers derive substantial functional, emotional, and social value from a sustainable purchase, cognitive dissonance is minimized, and post-purchase satisfaction solidifies into long-term advocacy. Crucially, to answer the call for a radically narrowed empirical focus, this study hypothesizes that PSV acts as the central,

indispensable mechanism through which TBL practices generate loyalty. This suggests a fully mediated relationship in which objective sustainability claims generate subjective loyalty only if they successfully cultivate perceived value.

H2: Perceived Sustainable Value has a significant positive influence on Customer Loyalty.

H3 (Mediation): Perceived Sustainable Value fully mediates the relationship between Triple Bottom Line performance (Environmental, Social, Economic) and Customer Loyalty.

2. Materials and methods

2.1. Methodology: An explanatory sequential mixed-methods design

To rigorously test the proposed S-O-R empirical model and investigate the underlying psychological mechanisms of the value-action gap, this study adopted an explanatory sequential mixed-methods design (QUAN → qual) [28,29]. This strategy is particularly robust in complex consumer behavior and marketing research. The initial quantitative phase tests the predictive relationships. It establishes the structural validity of the constructs (the “what”), while the subsequent qualitative phase elucidates the cognitive reasoning behind the statistical phenomena (the “why” and “how”).

2.2. Quantitative phase: Sampling and data collection

The target population for the quantitative phase comprised individuals who had purchased a newly constructed residential property in Thailand within the preceding three years. The Thai context provides an excellent empirical setting for this test. As a rapidly urbanizing emerging economy, Thailand features a burgeoning conscious consumer segment. Furthermore, the market is influenced by unique cultural parameters—specifically the national Sufficiency Economy Philosophy (SEP), which emphasizes moderation, reasonableness, and holistic human-centric development—that, in theory, heighten consumer sensitivity to integrated sustainability frameworks [30].

A purposive sampling technique was employed to ensure data relevance and quality. The survey instrument was administered to homebuyers associated with leading residential developers that are officially recognized for integrating sustainability into their corporate operations and for utilizing green building certifications (such as LEED or the national TREES standard) [31–33]. A total of 412 valid responses were collected. This sample size significantly exceeds the minimum thresholds required for PLS-SEM analysis (typically calculated using the “10 times rule” or G*Power a priori power analysis), ensuring robust statistical power for complex model estimation and mediation analysis [34].

2.3. Measurement scales and operationalization

The survey instrument utilized established multi-item scales adapted from high-impact green marketing and construction management literature. All items were measured on a 5-point Likert scale ranging from “Strongly Disagree” (1) to “Strongly

Agree” (5). To ensure face validity, the instrument was pre-tested with a small pilot group of industry professionals and academic experts before full deployment.

Environmental performance (planet) was operationalized using three items assessing perceptions of the builder’s commitment to energy efficiency, construction waste management, and the integration of eco-friendly building materials.

Social performance (people) was operationalized using three items that assessed the firm’s perceived commitment to on-site worker safety, fair labor practices, and broader community welfare initiatives.

Economic performance (prosperity) used three items measuring perceptions of the firm’s long-term economic foresight, the use of innovative construction methodologies (e.g., modular integration), and the generation of shared economic value.

Perceived sustainable value (PSV) was measured as a multidimensional construct utilizing three items that captured the functional (cost savings), emotional (ethical pride), and social (peer signaling) value dimensions derived from the purchase.

Customer loyalty was assessed using three items focusing on the propensity for positive word-of-mouth recommendations, psychological brand devotion, and expressed resistance to competitive alternatives in future real estate interactions.

2.4. Analytical strategy: PLS-SEM justification

Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected as the primary analytical technique for the quantitative data. PLS-SEM is a variance-based, composite modeling approach that is exceptionally well-suited for estimating complex models involving intricate mediation effects, theory testing in evolving empirical domains, and predicting target constructs. Unlike covariance-based SEM (CB-SEM), which primarily focuses on model fit indices (e.g., RMSEA, CFI) to confirm established theory, PLS-SEM is designed to maximize the explained variance (R^2) of the endogenous latent variables. This makes it the optimal choice for the highly predictive and exploratory objectives of this research, specifically in isolating the predictive weight of the distinct TBL dimensions on PSV.

Furthermore, PLS-SEM does not require the strict assumption of multivariate normality, making it highly robust for survey-based consumer behavior data. Data analysis was conducted using SmartPLS 4 software, following the systematic two-step approach recommended in the literature: evaluating the measurement model for reliability and validity first, then assessing the structural model for hypothesis testing [34].

2.5. Qualitative phase: In-depth exploration

Following the completion of the quantitative PLS-SEM analysis, the qualitative phase was initiated to explain the structural paths and statistical anomalies identified by the model. A purposive sub-sample of 12 “information-rich” respondents from the initial survey cohort was selected for in-depth, semi-structured interviews. Selection criteria targeted individuals who exhibited extreme values or unique variances in specific constructs (e.g., highly loyal customers who reported only moderate

environmental perceptions, or respondents who rated social performance exceptionally high).

The PLS-SEM output directly informed the interview protocol. Participants were prompted to articulate how they weighed different sustainability practices during their purchase decision, how they mentally calculated value beyond monetary terms, and the specific cognitive processes that justified their subsequent brand loyalty. The interview data underwent rigorous reflexive thematic analysis, a robust six-phase qualitative methodology designed to ensure analytical lucidity and depth, allowing the subjective consumer psyche to contextualize the objective statistical findings [35].

3. Results and discussion

3.1. Quantitative results: Measurement model assessment

The rigorous evaluation of the reflective measurement model is a mandatory prerequisite to structural path analysis to ensure the reliability and validity of the construct measures. The assessment criteria employed in this study strictly adhere to established PLS-SEM methodological thresholds, detailed in **Table 1**.

Table 1. Assessment criteria for reflective measurement models (PLS-SEM).

Assessment criteria	Indicator/metric	Description & significance	Threshold/cut-off value
Indicator reliability	Outer loadings	Proportion of the variance of an indicator explained by its construct.	>0.708
Internal consistency reliability	Cronbach's alpha (α)	Conservative measure of intercorrelation among indicators.	>0.70
	Composite Reliability (ρ_c)	Robust estimate of reliability accounting for varying outer loadings.	>0.70
Convergent validity	Average variance extracted (ave)	Average variance explained by the construct relative to measurement error.	>0.50
Discriminant validity	Fornell-larcker criterion	Compares the square root of a construct's ave with correlations to other constructs.	$\sqrt{\text{ave}} > \text{correlation}$
	Heterotrait-Monotrait Ratio (HTMT)	Estimates true correlation between constructs; lower values indicate distinctiveness.	<0.90

3.2. Reliability and convergent validity

As demonstrated in **Table 2**, the measurement model exhibits exceptionally robust indicator reliability. All outer loadings for the measurement items exceed the stringent 0.708 threshold, indicating that each latent construct explains more than 50% of the variance in its respective indicators. Internal consistency is also highly satisfactory, with Cronbach's Alpha (α) values ranging from 0.866 to 0.938, and Composite Reliability (ρ_c) scores ranging from 0.905 to 0.956, well above the 0.70 minimum. Furthermore, convergent validity is firmly established, as the Average Variance Extracted (AVE) for all latent variables exceeds 0.50. The AVE ranges from 0.704 for Economic Performance (Prosperity) to 0.842 for Customer Loyalty, confirming that the constructs converge adequately on their intended theoretical targets.

Table 2. Reliability and convergent validity results.

Construct / latent variable	Indicator	Outer loadings	Cronbach's alpha (α)	Composite reliability (ρ_c)	Average variance extracted (ave)
Planet (environmental)	Env1	0.855	0.879	0.915	0.729
	Env2	0.901			
	Env3	0.798			
People (social)	Soc1	0.920	0.925	0.948	0.821
	Soc2	0.891			
	Soc3	0.909			
Prosperity (economic)	Eco1	0.825	0.866	0.905	0.704
	Eco2	0.863			
	Eco3	0.817			
Perceived sustainable value (psv)	Psv1	0.903	0.908	0.935	0.782
	Psv2	0.915			
	Psv3	0.840			
Customer loyalty	Loy1	0.929	0.938	0.956	0.842
	Loy2	0.935			
	Loy3	0.891			

3.3. Discriminant validity

Discriminant validity confirms that each latent variable is statistically distinct from the others within the empirical model, ensuring that the survey items are not inadvertently measuring the same phenomenon. This was assessed using both the traditional Fornell-Larcker criterion and the more contemporary, statistically rigorous Heterotrait-Monotrait (HTMT) ratio.

Table 3 presents the Fornell-Larcker assessment. The square root of the AVE for each construct (represented by the bold values on the diagonal) is strictly greater than its highest correlation with any other construct in the model (the off-diagonal values in the corresponding rows and columns). This satisfies the criterion and provides initial evidence of discriminant validity.

Table 3. Discriminant validity results (Fornell-Larcker criterion).

	Planet	People	Prosperity	PSV	Loyalty
Planet	0.854				
People	0.645	0.906			
Prosperity	0.591	0.620	0.839		
PSV	0.710	0.790	0.705	0.884	
Loyalty	0.611	0.702	0.560	0.801	0.918

To rigorously confirm these findings, the HTMT ratio was analyzed (**Table 4**). The HTMT approach estimates the true correlation between two latent constructs if they were perfectly measured. All HTMT values fall comfortably below the conservative threshold of 0.90 (with the highest value being 0.891 between PSV and

Loyalty), confirming beyond statistical doubt that the constructs in the S-O-R model measure distinct theoretical concepts.

Table 4. Heterotrait-Monotrait ratio (HTMT).

	Planet	People	Prosperity	PSV	Loyalty
Planet					
People	0.715				
Prosperity	0.685	0.711			
PSV	0.805	0.875	0.799		
Loyalty	0.699	0.779	0.645	0.891	

3.4. Quantitative results: Structural model and mediation analysis

Following the successful validation of the measurement model, the structural model was evaluated to test the hypothesized relationships. The predictive power of the empirical model was exceptionally strong. The structural model accounted for 65.2% of the variance in Perceived Sustainable Value ($R^2 = 0.652$) and 63.7% of the variance in Customer Loyalty ($R^2 = 0.637$). The predictive relevance of the model was further established using the blindfolding procedure, which yielded Q^2 values significantly above zero for all endogenous variables.

Significance testing for the path coefficients was conducted using a non-parametric bootstrapping procedure with 5,000 subsamples. The path analysis (**Table 5**) reveals two vital empirical insights. First, all three independent variables comprising the Triple Bottom Line exert a positive and highly significant influence on Perceived Sustainable Value, fully supporting hypotheses H1a, H1b, and H1c. Second, Perceived Sustainable Value exerts a massive, highly significant impact on Customer Loyalty ($\beta = 0.798$, $p < 0.001$), firmly supporting H2.

A critical, somewhat unexpected finding emerges from the comparative weights of the TBL dimensions. While environmental and economic performance are significant, Perceived Social Performance (People) stands out as the strongest empirical predictor of PSV ($\beta = 0.388$), outpacing the environmental dimension traditionally championed in green marketing literature.

Table 5. Structural path coefficients and hypothesis testing results.

Hypothesis	Path	Path Coefficient (β)	p -value	Result
H1a	Planet $\rightarrow$ PSV	0.315	<0.001	Supported
H1b	People $\rightarrow$ PSV	0.388	<0.001	Supported (Strongest Effect)
H1c	Prosperity $\rightarrow$ PSV	0.291	<0.001	Supported
H2	PSV $\rightarrow$ Loyalty	0.798	<0.001	Supported

Figure 1 illustrates the empirical results of the Stimulus-Organism-Response (S-O-R) framework, mapping how a firm's sustainability performance leads to customer loyalty.

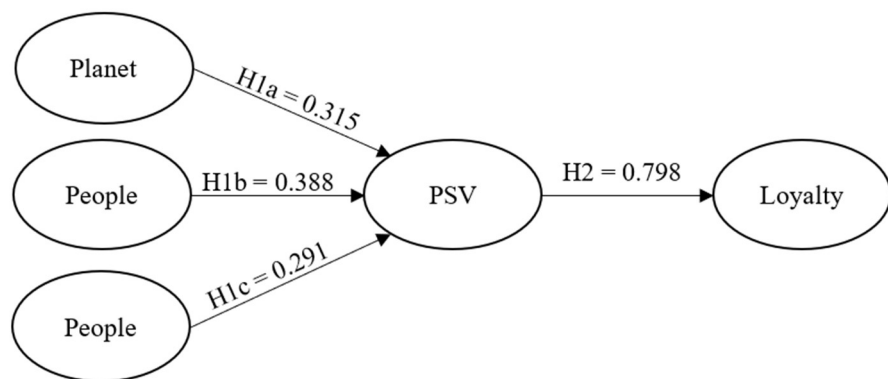


Figure 1. The S-O-R structural model of sustainable customer loyalty.

3.5. Mediation assessment

To rigorously evaluate the proposed S-O-R framework, a formal mediation analysis was conducted using PLS-SEM bootstrapping. The analysis tested the direct paths from the three TBL dimensions to Customer Loyalty while controlling for the mediator (PSV). The results revealed that the direct paths from Planet, People, and Prosperity to Customer Loyalty were statistically non-significant when Perceived Sustainable Value was included in the model. The total effect of the TBL stimuli on the loyalty response is funneled entirely through the PSV organismic state. This empirical result confirms H3, demonstrating that Perceived Sustainable Value acts as a full mediator in the relationship between corporate sustainability performance and customer loyalty within the high-involvement construction sector. Sustainability claims that fail to generate perceived value will fail to generate loyalty.

3.6. Qualitative elucidation: Interpreting the empirical value-action gap

While the PLS-SEM provided a robust, predictive structural architecture, the explanatory sequential design requires qualitative integration to unpack the cognitive realities driving the statistics. The statistical data answers “what” is happening, but the subjective consumer psyche explains “why.” The reflexive thematic analysis of the follow-up interviews yielded three distinct themes that directly illuminate the underlying logic behind the PLS-SEM findings, particularly the dominance of the social dimension and the full mediation mechanism of PSV.

3.6.1. Theme 1: The moral equation of homebuilding (the primacy of social performance)

The most striking statistical anomaly in the structural model was that Social Performance ($\beta = 0.388$) eclipsed Environmental Performance ($\beta = 0.315$) and Economic Performance ($\beta = 0.291$) as the primary driver of value. In an industry historically fixated on “green” materials, energy efficiency metrics, and environmental certifications, the qualitative data provides a compelling psychological explanation for this outcome. Consumers in high-risk, high-involvement scenarios utilize a firm’s social conduct as a highly visible, tangible proxy for general morality and product quality.

Environmental metrics (such as the embodied carbon in concrete or the exact U-value of insulated windows) are largely invisible to the naked eye and difficult for

laypeople to verify. Conversely, social variables—such as the physical treatment of site laborers, safety protocols, and community engagement—are observable and highly emotionally resonant. As one participant articulated during the interviews:

“I cannot see the recycled steel in the walls, but I can see the faces of the workers on site. If the company cuts corners on its safety, what else are they cutting corners on? Knowing they are well-cared for offers me peace of mind”.

The residential home is fundamentally viewed as a sanctuary. Consumers subconsciously equate the ethical foundation of the construction process with the physical safety and structural integrity of the final product. Thus, social performance acts as a paramount risk-mitigation heuristic, forming the bedrock of consumer trust.

3.6.2. Theme 2: Value beyond the monetary (deconstructing the psv mediator)

The PLS-SEM definitively established that PSV fully mediates the relationship between corporate sustainability actions and loyalty. The qualitative findings elucidate the anatomy of this psychological construct, revealing that consumers do not measure sustainable value purely in instrumental, monetary terms (e.g., standard return on investment or utility bill savings). Instead, PSV is highly multidimensional, with intrinsic and social rewards heavily weighted.

The interviews highlighted an emotional return, described organically as a “feel-good factor of ethical consumption”. One participant summarized the shift from functional to emotional value seamlessly:

“It is not simply about saving on electricity bills. It is the pride of living in a home that does not harm the planet. Our choice reflects who we are”.

Furthermore, sustainable homeownership functions as a powerful mechanism for social self-expression. Aligning with a highly reputable sustainable builder signals the consumer’s progressive identity to peer groups, fulfilling a deep-seated psychological need for group affiliation:

“Choosing a home from a company with a reputation for this is like telling others that we care. We are part of a group that wants to see a better society”.

This rich matrix of functional, emotional, and social rewards explains why PSV is the mandatory gateway (full mediator) to achieving deep psychological loyalty. Without these emotional and social dimensions, simple cost savings are insufficient to generate true brand devotion.

3.6.3. Theme 3: Overcoming the price wall through credibility signals

A persistent challenge in sustainable marketing literature is the “value-action gap,” where positive consumer attitudes toward the environment routinely fail to translate into a willingness to pay a price premium at the point of purchase. The qualitative data revealed that independent, third-party green building certifications (such as the internationally recognized LEED standard or the localized TREES standard in Thailand) serve as vital catalysts in overcoming this gap.

Because the benefits of the “Planet” and “Prosperity” dimensions are often highly abstract or delayed in their return, these certifications function as crucial credibility signals that bridge information asymmetry. They translate complex technical data into objective, digestible proof, giving consumers the psychological confidence to view a higher price point as a strategic investment rather than a sunk cost.

“At first, I was hesitant about the premium cost. Nevertheless, when I saw that the project was LEED certified and that the salesperson could explain the energy savings information, I gained confidence to spend more”.

When coupled with a long-term financial rationale (such as circular-economy benefits and reduced maintenance), the perception of initial cost shifts to enduring value.

4. Discussion

4.1. Discussion: Synthesizing S-O-R in sustainable marketing

By explicitly modeling and testing the S-O-R paradigm, this study advances the empirical understanding of sustainable consumer behavior. The discussion synthesizes the quantitative and qualitative outputs, anchoring the findings against broader conceptual frameworks, such as Expectation-Confirmation Theory, to provide nuanced theoretical and practical insights.

4.2. The mediating dominance of perceived sustainable value

The most consequential theoretical finding of this study is the empirical confirmation of Perceived Sustainable Value (PSV) as a full mediator. In the high-involvement real estate sector, sustainable business practices do not inherently have the capacity to generate customer loyalty. If a developer invests heavily in the Triple Bottom Line—utilizing expensive eco-materials and fair-trade labor—but fails to translate these technical achievements into recognizable functional, emotional, and social value propositions for the end-user, the behavioral response (loyalty) will fail to materialize.

This finding challenges the direct-effect assumptions prevalent in the macro-level CSR literature. It firmly supports the S-O-R theory’s central premise that internal cognitive processing is the indispensable engine of behavior. PSV operates as a multidimensional psychological filter. When consumers recognize that a home reduces environmental impact (Planet), safeguards human dignity (People), and utilizes innovative resource efficiency (Prosperity), they synthesize these distinct stimuli into an intricate value composite. Only when this composite value threshold is met does the consumer transition from a transactional buyer to a devoted, long-term brand advocate.

4.3. The unseen power of social performance

A profound insight generated by the PLS-SEM pathway analysis is the statistical superiority of the social dimension ($\beta = 0.388$) in driving value perceptions. This finding significantly enriches current empirical literature, which has traditionally over-indexed on environmental attributes (“greenness”) while marginalizing the social pillar of the TBL.

This empirical dominance can be understood through two contextual lenses. Firstly, from a psychological risk-assessment perspective, high-stakes financial decisions demand exceptional trust. Consumers interpret a firm’s ethical treatment of laborers and local communities as an uncompromising indicator of overarching

corporate integrity [36]. A firm that demonstrably cares for its most vulnerable stakeholders is implicitly trusted to care for its consumers and deliver a high-quality product.

Secondly, this finding reflects a consumer base whose awareness is increasingly shaped by macro-level normative frameworks that serve as background conditions. While the SDGs were not operationalized as variables, the global discourse surrounding SDG 8 (Decent Work and Economic Growth) shapes consumer expectations [21,22]. Furthermore, Thailand's localized Sufficiency Economy Philosophy explicitly emphasizes human-centric progress, moderation, and ethical conduct. Consequently, consumers are culturally and globally conditioned to prioritize social welfare. When a firm operationalizes principles aligned with these background norms, it resonates deeply with consumers, significantly impacting perceived value.

4.4. Bridging information asymmetry via eco-labeling

The empirical data indicate that while Environmental and Economic performance are significant drivers of PSV, their technical opacity necessitates strategic translation. Consumers embrace the macro-concepts of climate action and circular production, but they cannot independently verify the embodied carbon or life-cycle efficiency of a physical structure.

The qualitative integration reveals that green building certifications are the critical mechanisms that dissolve this information asymmetry. These certifications do not merely serve as technical compliance checklists for architects; they function as powerful marketing stimuli. By providing independent, third-party validation, certifications mitigate consumer skepticism and rising concerns about greenwashing [37]. They serve as the objective proof consumers need to confidently integrate the "Planet" and "Prosperity" dimensions into their psychological value calculations, thereby unlocking their willingness to accept premium pricing.

4.5. Theoretical and managerial implications

In strict adherence to the study's narrowed empirical focus, the implications discussed are confined to theoretical advancements in consumer behavior and actionable managerial strategies for industry practitioners, deliberately excluding broad public policy prescriptions.

4.6. Theoretical implications

This research makes several robust contributions to the academic literature on sustainable marketing and consumer behavior. First, it successfully transitions the Triple Bottom Line from a descriptive corporate reporting framework into an empirically validated, predictive model of consumer psychology. By operationalizing TBL dimensions as perceptual constructs within an S-O-R architecture, this study maps the exact nomological network linking corporate actions to consumer reactions in high-involvement settings.

Second, it provides rigorous empirical evidence resolving the much-debated "value-action gap" in sustainability markets. By isolating Perceived Sustainable Value as a full mediator, the research proves that the breakdown between consumer intent

and actual purchasing behavior occurs precisely when firms fail to construct multidimensional value. Finally, the study challenges the heavy environmental bias in existing sustainability literature by providing compelling statistical evidence that Social Performance is the preeminent driver of trust and value in high-risk purchasing scenarios.

4.7. Managerial implications

The empirical findings deliver highly actionable intelligence for marketing executives and strategic decision-makers in the residential construction and real estate sectors:

Adopt integrated value storytelling: Marketing communications must pivot away from merely listing “green” features or technical specifications (e.g., “We use low-VOC paint” or “solar panels included”). Instead, firms must deploy integrated storytelling that explicitly connects technical achievements to the multidimensional facets of PSV. Marketers should articulate how environmental designs yield financial savings (functional value), contribute to ethical living (emotional value), and elevate the owner’s standing in the community (social value).

Elevate and broadcast social performance: Given that social practices are the strongest empirical predictors of perceived value, firms must stop treating labor safety and community welfare merely as back-office compliance issues or human resources footnotes. Marketers should proactively highlight fair labor practices, exemplary worker safety records, and local community investments as primary pillars of their brand identity. Trust is the ultimate currency in real estate, and social performance is its strongest guarantor.

Leverage certifications to counter skepticism: To combat the rising tide of consumer skepticism about greenwashing, developers must invest in recognized third-party certifications (e.g., LEED, TREES). These should not be hidden in technical appendices but prominently featured in frontline marketing campaigns as objective guarantors of the brand’s environmental and economic claims, providing the tangible proof necessary for consumers to cross the price-premium threshold.

4.8. Limitations and future research directions

While this study offers an exhaustive empirical investigation, certain methodological boundaries delineate clear pathways for future academic research. Firstly, the reliance on cross-sectional survey data captures consumer perceptions at a single, static point in time. Given that the financial and functional benefits of sustainable homes—such as durability and utility savings—accrue over decades, future research should employ longitudinal designs. Longitudinal tracking would enable observation of how Perceived Sustainable Value and customer loyalty dynamically evolve over the lifecycle of homeownership.

Secondly, the empirical context is geographically confined to Thailand. In this specific setting, cultural paradigms (such as the Sufficiency Economy Philosophy) likely amplify consumer sensitivity to the social dimension of the TBL. To determine the strict universality of the social performance dominance identified in this model, cross-cultural comparative studies utilizing multigroup analysis (PLS-MGA) are

required, specifically comparing emerging economies with developed Western markets.

Finally, while the S-O-R model explained a substantial degree of variance ($R^2 = 0.652$ for PSV), future empirical models could incorporate objective firm-level data (e.g., audited ESG scores, actual emission reductions, or worker safety incident rates) alongside perceptual survey data, using advanced multi-level modeling. This would permit researchers to examine the precise accuracy of consumer perceptions and identify the specific corporate communication strategies that most efficiently translate objective corporate data into subjective perceived value.

5. Conclusion

As heavy industries navigate the complex transition toward global sustainability, understanding the precise psychological mechanisms that govern consumer behavior is paramount. This research provides an exhaustive empirical investigation into the creation of sustainable customer loyalty within the high-involvement residential construction sector. By radically narrowing the focus to test a Stimulus-Organism-Response model using PLS-SEM and qualitative integration, this study unequivocally establishes that corporate commitments to the Triple Bottom Line do not directly yield customer loyalty.

Instead, the impact of sustainability claims is entirely mediated by Perceived Sustainable Value—a multidimensional psychological construct comprising functional, emotional, and social rewards. Crucially, the empirical findings challenge traditional environmental biases by revealing that Social Performance acts as the ultimate bedrock of consumer trust and value creation in high-stakes purchasing decisions. By embracing a holistic approach to the TBL, utilizing third-party certifications to bridge information gaps, and strategically cultivating multidimensional value, firms can successfully navigate the value-action gap. In doing so, they not only secure lasting competitive advantage and profound customer loyalty but also validate the empirical reality that sustainable marketing must be rooted in deep psychological value creation.

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