






Identification and Evaluation of the Customer Engagement Model with Domestic Home Appliance Brands

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Abstract

The purpose of this study was to identify and evaluate the customer engagement model with domestic home appliance brands. The research was conducted using an exploratory and survey-based design. In the qualitative phase, the Delphi method was employed, and in the quantitative phase, the Interpretive Structural Modeling (ISM) method and Structural Equation Modeling (SEM) were used. In the qualitative section and the ISM method, the population consisted of managers and experts in the home appliance industry in 2024, from which 16 individuals were selected through judgmental and convenience sampling. Using library research techniques, the components influencing the model were identified. First, the identified components were screened and evaluated using the Delphi technique. Subsequently, modeling was performed using both the Delphi method and the interpretive structural approach. The software tools used were EXCEL and MICMAC. The quantitative population consisted of customers of domestic home appliance brands, considered to be an unlimited population. Using Cochran's formula, a sample of 384 participants was selected. A total of 1,000 questionnaires were distributed, of which 384 acceptable questionnaires were selected for analysis. Based on a researcher-made questionnaire derived from qualitative analysis, data analysis was carried out through coding and path analysis. Data were analyzed using coding and path analysis. Subsequently, to validate the proposed model, Structural Equation Modeling was applied in SMARTPLS software. Based on the Delphi technique, the six categories include: customer interaction status, customer positioning, interaction purposefulness, interaction orientation, interaction strategy, and interaction review. As a result, in the customer engagement model with domestic home appliance brands, the statement "interaction purposefulness and customer positioning are the most influential components" implies that these two components play a key and vital role in establishing and strengthening the relationship between the brand and its customers. Purposeful interaction refers to designing and guiding interactions in a way that accurately and effectively meets customer needs and expectations. This component helps the brand utilize every engagement opportunity purposefully, ensuring not only that customers' immediate needs are satisfied but also that a long-term and sustainable relationship is formed. Purposeful interactions make customers feel that the brand understands and values them, which enhances their engagement and loyalty to the brand.

Keywords: Marketing, Brand Management, Customer Engagement, Home Appliance Industry.

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1. Introduction

Customer engagement has emerged as a central construct in contemporary marketing and brand management, reflecting the shift from transactional exchanges to relational, experiential, and co-creative interactions between firms and their customers [1]. In multi-actor service ecosystems, engagement captures customers' cognitive,

emotional, and behavioral investments in brand-related activities, which in turn shape value co-creation, relationship quality, and long-term performance outcomes [1]. Over the past decade, a rich body of research has conceptualized customer engagement as a dynamic and multidimensional process that unfolds across multiple touchpoints, channels, and stages of the customer journey, emphasizing its strategic



role in building sustainable competitive advantage for brands operating in highly competitive markets [2, 3].

This growing interest has led to the development of diverse theoretical frameworks and empirical models that explain how engagement is formed and how it influences outcomes such as loyalty, advocacy, and brand equity. For example, in the context of family firms, customer engagement has been theorized as a core mechanism through which firms communicate their identity, values, and relational orientation, thereby fostering trust and long-term relational bonds with customers [3]. In parallel, research on customer readiness, psychological engagement, and behavioral engagement has shown that engagement mediates the relationship between pre-engagement states and post-engagement behaviors such as retention, cross-buying, and word-of-mouth [4]. These insights underscore that engagement is not merely a by-product of satisfaction but a distinct construct that requires deliberate design and ongoing management at the strategic and process levels [5].

Digital transformation has significantly expanded the scope and mechanisms of customer engagement by multiplying interaction channels and reshaping the nature of brand–customer relationships. Social media platforms allow brands to interact with customers in real time, personalize content, and stimulate interactive conversations that go far beyond traditional one-way communication [6]. Empirical research in the film industry, for example, demonstrates that social media–driven customer engagement can directly affect performance metrics such as box office revenues, showing how engagement activities translate into tangible business outcomes [6]. Similarly, the emergence of social media influencers as powerful third-party communicators provides brands with new routes to cultivate engagement, as followers frequently transfer their emotional attachment and trust from influencers to the brands they endorse [7].

In this context, digital influencers have been conceptualized as catalysts that enhance customer engagement and purchase intention by shaping perceived authenticity, social proof, and identification processes [8]. Research shows that influencer-generated content can trigger both emotional and behavioral engagement responses, increasing customers' propensity to interact with brand content, share messages, and ultimately purchase [8]. Relatedly, studies on image richness and content features on social platforms such as Sina Weibo indicate that the visual and structural characteristics of brand posts significantly affect customers' engagement behaviors, including likes, comments, and shares [9]. These findings align with broader

evidence that content design, including entertainment value, informativeness, and interactivity, is a key driver of online engagement across sectors [10–12].

New digital environments and technologies are further transforming engagement logics. Metaverse marketing, for example, creates immersive, interactive spaces that foster a heightened sense of social presence and attachment, which in turn boosts customer engagement and revisit intentions [13]. Livestreaming in hospitality shows similar dynamics, where parasocial interaction and emotional engagement during live broadcasts significantly increase purchase intention and deepen the experiential dimension of engagement [14]. In hospitality services, customer empowerment and motivational processes have been shown to stimulate creative ideas and co-innovation when customers are actively engaged in service design and feedback loops [15].

Parallel to these developments, technological innovations such as artificial intelligence (AI), chatbots, and blockchain are increasingly integrated into engagement strategies. AI-driven chatbots in branded e-retailing can provide responsive, personalized, and interactive experiences that shape usability perceptions and response quality, thereby influencing customer engagement with online apparel brands [16]. In online markets more broadly, AI technologies have been proposed as strategic tools to enhance engagement by enabling real-time personalization, predictive recommendations, and automated yet human-like interaction patterns [17]. Beyond AI, blockchain-based systems have been designed to support customer engagement in circular economy models by increasing transparency, traceability, and trust, thus aligning engagement practices with corporate social responsibility and sustainability goals [18].

At the level of marketing tactics and communication, content marketing and sponsorship activation strategies play a pivotal role in cultivating engagement. Studies have shown that carefully designed content marketing initiatives—especially those leveraged in sponsorship contexts—can generate higher levels of online engagement by aligning brand messages with audience interests and values [11]. Similarly, ephemeral content such as stories on social platforms has been found to foster brand love and customer engagement by creating a sense of immediacy, exclusivity, and intimacy in brand–customer interactions [12]. From a data-driven perspective, analyzing content characteristics (e.g., sentiment, format, posting time) through data mining

approaches enables firms to optimize engagement outcomes in social networks such as Instagram [10].

Customer engagement also functions as a key relational mechanism in traditional service sectors such as banking and hospitality. In the banking industry, engagement has been identified as a crucial mediator between service quality and loyalty, suggesting that high-quality service encounters must be translated into engagement experiences to sustain long-term customer relationships [19]. In hospitality, differences in personality prototypes—such as extroversion versus introversion—have been shown to shape engagement patterns, with relationship duration moderating how customers interact with and respond to service providers [20]. At the same time, challenges in implementing customer relationship management (CRM) systems, particularly in developing countries, can hinder the translation of CRM initiatives into genuine customer brand engagement, highlighting the need for context-sensitive engagement strategies and capabilities [21].

At the conceptual level, engagement has been framed as a cyclical and evolving process involving stages of initiation, development, maintenance, and potential disengagement or re-engagement [2]. Systematic reviews of the customer engagement cycle emphasize that engagement is shaped by psychological processes (e.g., involvement, identification) and contextual drivers (e.g., technology, culture) that interact over time [2]. Literature on engagement within self-concept further suggests that brand engagement can become internalized as part of consumers' identities, with culture moderating how strongly brands are integrated into the self and how engagement is expressed across markets [22]. In food and agribusiness contexts, brand engagement has been empirically linked to attitudinal loyalty, behavioral loyalty, brand equity, and word-of-mouth, confirming that engagement is a powerful upstream driver of key relational and performance outcomes [23].

Recent work also calls for rethinking engagement design by shifting from firm-mobilized to customer-mobilized engagement (CME), where customers initiate and orchestrate engagement behaviors within broader business networks [5]. In such multi-actor systems, engagement is co-constructed among customers, firms, influencers, and other ecosystem actors, rather than being unilaterally designed by the firm [1]. This line of research underscores that engagement strategies must account for customer agency, network structures, and emergent interaction patterns beyond dyadic firm–customer relationships [5].

Despite this extensive literature, several gaps remain, particularly regarding the structure and dynamics of customer engagement in the home appliance industry and, more specifically, with domestic home appliance brands. Home appliances are high-involvement, durable goods that combine functional, aesthetic, technological, and sustainability attributes. Consequently, engagement with such brands is likely to be shaped by complex, multi-stage interactions that span pre-purchase information search, in-store or online evaluation, post-purchase usage, after-sales service, and social media interactions. Recent research shows that home appliance brands increasingly rely on social media to communicate sustainability initiatives, energy efficiency, and circular economy practices, but systematic models of how these communications translate into structured customer engagement are still limited [24].

In emerging markets, the situation is further complicated by the coexistence of domestic and global brands, institutional constraints, and evolving consumer expectations. Studies on consumer mental involvement and packaging aesthetics in cooperative production companies demonstrate that visual design elements and perceived involvement significantly shape brand choice, indicating that engagement is closely tied to how customers cognitively and emotionally process product cues in retail environments [25]. Complementary findings in the retail industry reveal that specific components of the customer experience—such as sensory stimuli, interaction quality, and perceived value—are strongly related to customer commitment and involvement behaviors, suggesting that carefully designed experience elements can foster deeper engagement with retail brands [26]. However, these studies typically focus on individual aspects of the experience rather than on an integrated structural model of engagement for a particular product category such as home appliances.

Moreover, much of the existing engagement research in services and digital contexts has been conducted in hospitality, banking, entertainment, and fashion or apparel e-retailing [6, 14, 16, 19]. While these insights are valuable, they may not fully capture the specificities of durable, technology-intensive categories like home appliances, where purchase cycles are longer, perceived risk is higher, and post-purchase usage and service interactions play a critical role in shaping engagement trajectories. Recent work on customer readiness and retention, as well as service ecosystems, highlights the importance of psychological and behavioral engagement in sustaining long-term relationships, but typically does not address how different

engagement components—such as interaction status, customer positioning, purposefulness and orientation of interactions, interaction strategy, and interaction review—are structurally related within a single, domain-specific model [1, 4].

In addition, although digital influencers, ephemeral content, metaverse experiences, and AI-driven tools have been analyzed as isolated drivers of engagement, there is limited evidence on how domestic home appliance brands might combine these tools with offline touchpoints and relationship management processes to build a coherent engagement architecture [8, 12, 13, 17, 24]. Similarly, while CRM challenges and data-driven content optimization have been examined, integrated models that connect upstream strategic elements (e.g., engagement strategy, positioning) with downstream interaction outcomes (e.g., engagement depth, loyalty, advocacy) remain underdeveloped in this context [10, 11, 21].

Taken together, the literature points to the need for a comprehensive, empirically grounded model that captures the structure, levels, and interrelationships of key engagement components for domestic home appliance brands, integrating insights from retail experience, digital communication, technological innovation, and multi-actor engagement theory [2, 5, 18, 22]. Against this backdrop, there is a clear theoretical and practical gap regarding how different dimensions of customer engagement—such as customer interaction status, customer positioning, interaction purposefulness, interaction orientation, interaction strategy, and interaction review—interact and how they can be prioritized and leveraged to strengthen engagement with domestic home appliance brands in increasingly digital and competitive markets [19, 20, 23, 25, 26]. Therefore, the aim of this study is to identify and evaluate a multilayered structural model of customer engagement with domestic home appliance brands

2. Methodology

The research was conducted using an exploratory and survey-based design. In the qualitative phase, the Delphi method was employed, and in the quantitative phase, the Interpretive Structural Modeling (ISM) method and Structural Equation Modeling (SEM) were used. In the qualitative section and in the ISM phase, the study

population consisted of managers and experts of companies active in the home appliance industry in 2024, from which 16 individuals were selected through judgmental and convenience sampling. Using library research techniques, the components influencing the model were identified. First, the identified components were screened and evaluated using the Delphi technique. Subsequently, modeling was performed using both the Delphi method and the interpretive structural approach. The software programs used included EXCEL and MICMAC.

The quantitative population consisted of customers in the home appliance industry, considered an unlimited population. Using Cochran's formula, a sample of 384 individuals was selected. A total of 1,000 questionnaires were distributed, of which 669 valid questionnaires were selected for analysis.

Based on the researcher-made questionnaire derived from qualitative analysis, data analysis was carried out through coding and path analysis. Data analysis was performed using the interpretive structural method and path analysis. The interpretive structural method is a qualitative data analysis technique used in social sciences and management. In this method, various factors present in a research phenomenon are identified through interviews or other qualitative sources. Then, using the interpretive-structural approach, the relationships among these factors are determined, and structural diagrams are developed to represent these relationships. This method allows researchers to analyze complexities, interconnections, and patterns embedded in qualitative data. Structural Equation Modeling is a quantitative data analysis technique used to examine relationships between variables and to confirm or reject research hypotheses. This statistical modeling approach assesses variable relationships and their direct or indirect effects. SEM enables the investigation of causal relationships and the confirmation or rejection of hypotheses based on the results. Subsequently, to evaluate the fit of the proposed model, Structural Equation Modeling was applied in the SMARTPLS software.

3. Findings and Results

The statistical description of the field-study participants is presented in Table 1.

Table 1. Demographic Characteristics of Interviewees

Demographic Characteristics	Frequency	Percentage
Gender		
Male	13	81%
Female	3	19%
Work Experience		
5–10 years	2	12%
11–15 years	4	25%
Above 15 years	10	63%
Total	16	100%

In this study, based on the review of the research literature, six main components were identified. Next, to ensure the authenticity of the identified dimensions and

components and to assess their validity and to answer the research questions, the Delphi technique was used. The Delphi process was conducted as follows.

Table 2. Delphi Analysis of Identified Components

Questions	Mean	Median	Mode	Standard Deviation	Range	Q1	Q2	Q3	Status
Customer Interaction Status (C1)	3.153	3	3	1.057	4	2.75	3	4	Confirmed
Customer Positioning (C2)	3.730	4	4	0.935	4	3	4	4	Confirmed
Interaction Purposefulness (C3)	3.025	3	3	0.882	4	3	3	4	Confirmed
Interaction Orientation (C4)	3.730	4	4	1.052	4	3	4	5	Confirmed
Interaction Strategy (C5)	3.205	3	3	0.930	4	3	3	4	Confirmed
Interaction Review (C6)	3.896	3	3	0.981	4	2	3	3	Confirmed

According to the Delphi results, all values exceeded 5; therefore, no component was removed and all were confirmed. Kendall’s coefficient was 0.765, which was acceptable; therefore, the Delphi results were confirmed in the first round.

assessing relationships and is used to develop a modeling framework to achieve the overall objectives of the research.

Next, data analysis was conducted using the Interpretive Structural Modeling method in the MICMAC software. ISM is a method for examining the effect of each variable on other variables; it provides a comprehensive approach for

The first step in ISM modeling is calculating the internal relationships among indicators. Expert opinions are used to reflect the interrelationships among the indicators. The resulting matrix shows which variables influence or are influenced by other variables. Typically, for identifying the relational pattern of elements, symbols such as those in Table 3 are used.

Table 3. States and Symbols Used to Represent Relationships Among Identified Indicators

Symbol	Meaning
V	Variable <i>i</i> affects <i>j</i>
A	Variable <i>j</i> affects <i>i</i>
X	Mutual relationship
O	No relationship

The Structural Self-Interaction Matrix (SSIM) is formed based on the dimensions and indicators of the study and their comparison using the four conceptual relationship states. The obtained information is summarized according to the

interpretive structural modeling method, and the final SSIM is constructed. Based on the symbols in Table 3, the SSIM is presented in Table 4.

Table 4. Structural Self-Interaction Matrix (SSIM)

SSIM	C1	C2	C3	C4	C5	C6
Customer Interaction Status (C1)	–	A	A	V	A	V
Customer Positioning (C2)		–	X	V	V	V
Interaction Purposefulness (C3)			–	V	V	V
Interaction Orientation (C4)				–	V	A
Interaction Strategy (C5)					–	A
Interaction Review (C6)						–

The Reachability Matrix is obtained by converting the SSIM into a binary (0–1) matrix. The diagonal elements are

set to one. Thus, the ISM-based Reachability Matrix is presented in Table 5.

Table 5. Reachability Matrix of Identified Indicators

TRM	C1	C2	C3	C4	C5	C6
Customer Interaction Status (C1)	0	0	0	1	0	1
Customer Positioning (C2)	1	0	1	1	1	1
Interaction Purposefulness (C3)	1	1	0	1	1	1
Interaction Orientation (C4)	0	0	0	0	1	0
Interaction Strategy (C5)	1	0	0	0	0	0
Interaction Review (C6)	0	0	0	1	1	0

The Reachability Matrix is obtained using Euler’s theory, in which the adjacency matrix is added to the identity matrix.

To determine the relationships and hierarchical levels of the criteria, the set of outputs and the set of inputs for each criterion must be extracted from the reachability matrix.

The *reachability set* (row elements, outputs, or influences) consists of variables that can be reached through that variable.

The *antecedent set* (column elements, inputs, or being influenced) consists of variables through which one can reach that variable.

The output set includes the criterion itself and the criteria that are influenced by it. The input set includes the criterion itself and the criteria that influence it. Then, the bidirectional relationships among the criteria are determined.

Table 6. Input and Output Sets (Influences) for Each Variable

	Output: Influence	Input: Being Influenced	Intersection
Customer Interaction Status (C1)	C1–C4–C5–C6	C1–C2–C3–C6	C1–C6
Customer Positioning (C2)	C1–C2–C3–C4–C5–C6	C2–C3	C2–C3
Interaction Purposefulness (C3)	C1–C2–C3–C4–C5–C6	C2–C3	C2–C3
Interaction Orientation (C4)	C4–C5	C1–C2–C3–C4–C6	C4
Interaction Strategy (C5)	C5	C1–C2–C3–C4–C5–C6	C5
Interaction Review (C6)	C1–C4–C5–C6	C1–C2–C3–C6	C1–C6

For variable C_i , the reachability set (outputs or influences) includes the variables that can be reached through C_i . The antecedent set (inputs or being influenced) includes the variables through which C_i can be reached. After determining the reachability and antecedent sets, the intersection of the two sets is computed. The first variable

for which the intersection is equal to the reachability set (outputs) is placed at the first level. Therefore, first-level variables have the highest level of dependence within the model. After determining the level, that variable is removed from all sets, and the process is repeated to determine the next level.

Table 7. Determining the First Level in the ISM Hierarchy

Research Variables	Dependence Power	Driving Power	Level
Customer Interaction Status (C1)	3	2	3
Customer Positioning (C2)	1	5	4
Interaction Purposefulness (C3)	1	5	4
Interaction Orientation (C4)	4	1	2
Interaction Strategy (C5)	4	1	1
Interaction Review (C6)	3	2	3

Based on the Interpretive Structural Modeling (ISM) calculations, Customer Positioning (C2) and Interaction Purposefulness (C3) are exogenous independent variables that are not influenced by any variable in the model. These variables are the most influential components in the model

and directly affect Customer Interaction Status (C1) and Interaction Review (C6). Similarly, Interaction Orientation (C4) also has influence. Finally, *Interaction Strategy (C5)* is attainable.

The final hierarchical pattern of the identified variables is depicted in the figure. In this diagram, only significant relationships of each level with the level below it, along with

significant internal relationships within each row, are presented.

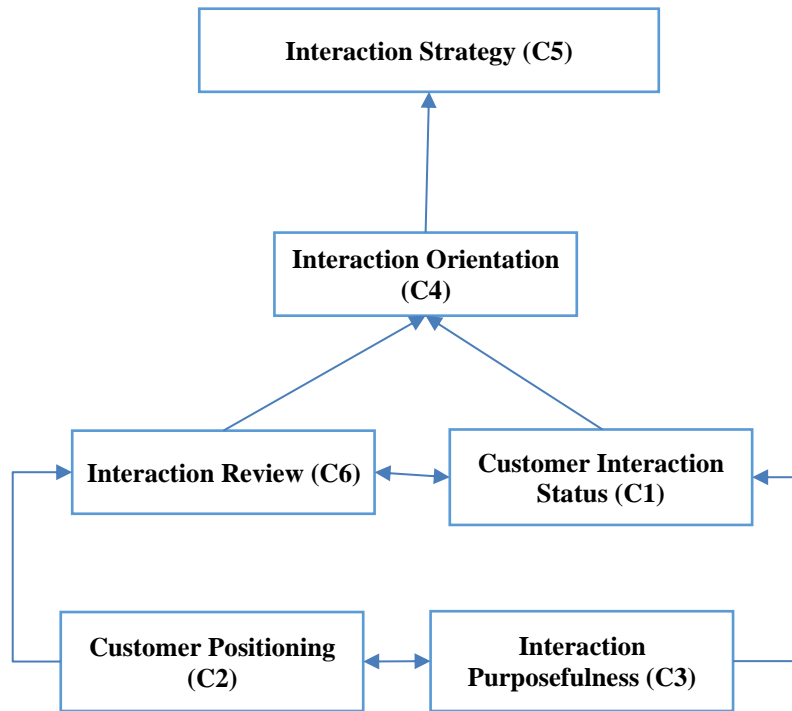


Figure 1. ISM Model

Based on the ISM calculations, the six categories were classified according to these concepts. Descriptive statistics for the identified criteria are presented in Table 8.

Table 8. Mean and Standard Deviation of the Model Components

Variables	Mean	Skewness	Kurtosis	Variance	Minimum	Maximum
Customer Interaction Status (C1)	3.7405	-0.301	-0.171	0.473	2	5
Customer Positioning (C2)	4.3938	-0.241	-0.621	0.302	3	5
Interaction Purposefulness (C3)	4.1	-0.938	0.134	0.319	3	5
Interaction Orientation (C4)	3.8397	0.273	-0.318	0.399	2	5
Interaction Strategy (C5)	4.1542	-0.8	0.051	0.259	3	5
Interaction Review (C6)	3.9	0.088	-0.558	0.439	2	5

Table 8 indicates the mean, standard deviation, minimum, and maximum of each component in the customer engagement model. Since each item is scored on a five-point Likert scale, the value 3 represents the average response. As shown, all component means exceed 3, indicating that all components are at a favorable level in the statistical

population. Additionally, since skewness and kurtosis values for all variables fall within the interval (-2, +2), the data distribution is likely normal.

Convergent validity based on Cronbach’s alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) is presented in Table 9.

Table 9. Cronbach’s Alpha, Composite Reliability, and Convergent Validity of Customer Engagement Model Components

Variable	Cronbach’s Alpha	AVE	CR	Rho
Customer Interaction Status (C1)	0.840	0.940	0.905	0.877
Customer Positioning (C2)	0.625	0.909	0.881	0.710
Interaction Purposefulness (C3)	0.796	0.940	0.915	0.786
Interaction Orientation (C4)	0.740	0.895	0.824	0.810
Interaction Strategy (C5)	0.863	0.950	0.920	0.823
Interaction Review (C6)	0.872	0.932	0.854	0.849

Given that the acceptable threshold for Cronbach’s alpha is 0.70, for composite reliability is 0.70, and for AVE is 0.50, and based on Table 9—all criteria exceed the minimum acceptable values—it can be concluded that the reliability and convergent validity of the identified components are satisfactory.

To assess discriminant validity, the Fornell–Larcker criterion was used, as shown in Table 10. Table 10 displays the correlations among the latent constructs for examining discriminant validity.

Table 10. Correlations Among Latent Constructs (for Discriminant Validity Confirmation)

	C1	C2	C3	C4	C5	C6
Customer Interaction Status (C1)	0.855					
Customer Positioning (C2)	0.760	0.850				
Interaction Purposefulness (C3)	0.732	0.811	0.885			
Interaction Orientation (C4)	0.749	0.596	0.811	0.840		
Interaction Strategy (C5)	0.549	0.698	0.720	0.829	0.899	
Interaction Review (C6)	0.637	0.525	0.759	0.817	0.815	0.903

As shown in Table 10, the square root of AVE for each construct is greater than its correlations with other constructs. Thus, the correlation of each construct with its

own indicators is greater than its correlation with other constructs, confirming the discriminant validity of the latent variables.

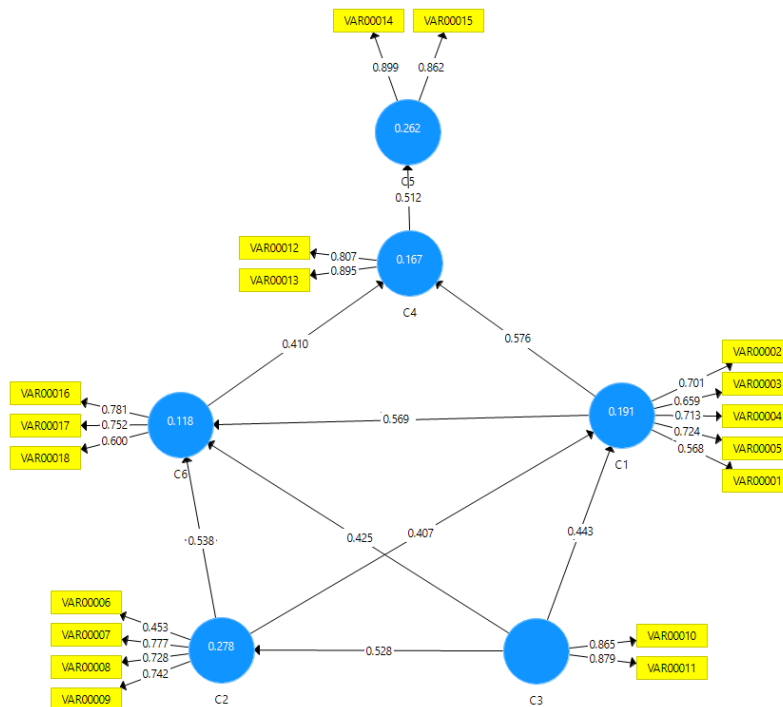


Figure 2. Model Analysis (Significance Coefficients)

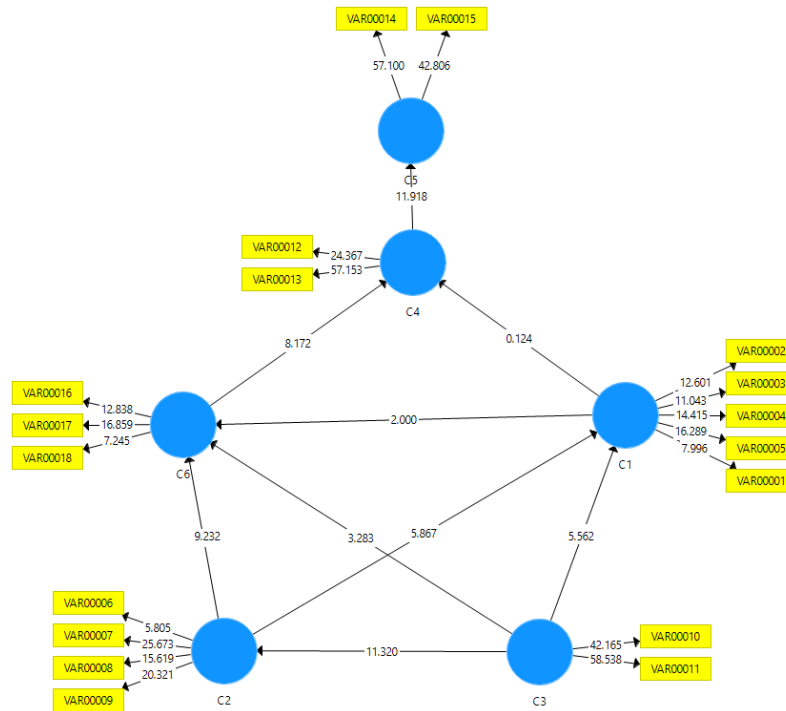


Figure 3. Model Analysis (t-values)

Based on the PLS output and significance levels for confirmatory factor analysis of the indicators and components of the customer engagement model, all factors had acceptable factor loadings, and their relationships with latent variables were confirmed (all significance levels are $< .05$). Moreover, model fit using t-values requires that all t-coefficients exceed 1.96 to be considered significant at the 95% confidence level. According to the results, all t-values exceed 1.96, confirming the significance of all items and relationships among the variables at the 95% confidence level.

4. Discussion and Conclusion

The results of this study provide a structured and empirically validated understanding of how customer engagement with domestic home appliance brands is shaped through six core dimensions: customer interaction status, customer positioning, interaction purposefulness, interaction orientation, interaction strategy, and interaction review. The ISM analysis demonstrated that *customer positioning* (C2) and *interaction purposefulness* (C3) operate as the most influential exogenous variables in the model. These findings highlight the central role of strategic clarity regarding how customers perceive the brand and the intentional design of interactions throughout the customer journey. This outcome aligns with recent research emphasizing that customer

engagement is not merely a series of operational exchanges but a strategic process shaped by psychological involvement, relational cues, and brand meaning [22, 26]. For instance, studies on customer experience components in retail environments show that customers' cognitive and emotional involvement, driven by positioning cues and experiential touchpoints, significantly predicts engagement and commitment behaviors [26]. Similarly, literature on brand engagement within self-concept highlights the importance of positioning in shaping the extent to which customers internalize brand meanings and express engagement through identity-related behaviors [22].

The finding that interaction purposefulness emerged as a key driving factor resonates strongly with existing research documenting the importance of coherent, meaningful, and need-responsive interaction patterns. Supported by studies on customer engagement cycles, the results indicate that purposeful interactions—those that align with customers' expectations, needs, and identities—are more likely to stimulate emotional and behavioral engagement [2]. This aligns with empirical work in digital and service environments showing that intentional communication and value-oriented interactions foster deeper engagement, positive affect, and long-term relational outcomes. For example, research on metaverse marketing reveals that purposeful interactive experiences enhance customers' sense of social presence, attachment, and return intentions [13].

Likewise, livestream-driven parasocial interactions in hospitality contexts demonstrate that emotionally engaging and thoughtfully structured content significantly boosts customers' purchase intention and engagement levels [14].

The results further show that *interaction strategy* (C5) occupies the highest level of dependence in the ISM hierarchy, indicating that it is a downstream outcome shaped by all other components. This suggests that a brand's engagement strategy cannot be effectively developed without understanding and integrating customer positioning, purposefulness and orientation of interactions, current interaction health, and review processes. These findings support the argument that engagement strategies must be informed by multidimensional insights derived from customer experiences, motivations, and digital behaviors [5]. Research on customer-mobilized engagement (CME) emphasizes that successful engagement strategies require brands to recognize customers as co-creators of value, shaping engagement through their own agency and interactions [5]. Similarly, studies in hospitality and service design indicate that customer empowerment and motivational processes are necessary precursors for developing creative service ideas and engagement strategies that are both innovative and sustainable [15]. These insights align with the structural model results, indicating that engagement strategy is shaped by underlying psychological, relational, and communicative variables.

The importance of customer interaction status (C1) and interaction review (C6) in the model also reinforces the cyclical and iterative nature of engagement processes. As demonstrated in previous literature, engagement is not static but evolves over time as customers interact with brands across different touchpoints [2]. Research in digital and social media contexts, for example, suggests that customers continuously assess their interactions with brands based on content quality, responsiveness, and interaction history, shaping their subsequent engagement decisions [9]. The importance of interaction review in this study aligns with findings showing that feedback mechanisms, such as post-purchase evaluations, content responses, or CRM interactions, significantly influence customers' engagement trajectories [21]. Likewise, customer psychological and behavioral engagement has been shown to mediate the link between readiness and retention, demonstrating that ongoing evaluations of past interactions are vital for sustaining long-term customer relationships [4].

The results highlight that *interaction orientation* (C4), while influenced by multiple upstream drivers, acts as a

bridging mechanism linking purposefulness and strategy. This dimension represents the direction and focus of interactions and reflects how brands orient communication and engagement efforts toward specific goals, such as emotional bonding, functional support, or value co-creation. This finding aligns with research on influencer-driven engagement, where the orientation of content—informative, entertaining, or relational—shapes engagement intensity and purchase intention [7, 8]. Additionally, work on ephemeral content has shown that orientation toward exclusivity and immediacy can foster emotional engagement and brand love [12]. Thus, the structural model's identification of interaction orientation as a pivotal intermediary dimension is consistent with literature suggesting that engagement outcomes depend heavily on how interactions are strategically framed and delivered.

Furthermore, the results demonstrate strong reliability and validity for all identified engagement components, confirming that the model's dimensions accurately represent customers' experiences with domestic home appliance brands. This empirical robustness is crucial because engagement in durable goods categories, such as home appliances, differs significantly from engagement in fast-moving consumer goods or services. The higher perceived risk, long usage cycle, and greater functional significance of home appliances require more thoughtful, higher-involvement engagement strategies. Research on sustainability communication in home appliance brands shows that customer responses depend on clear, credible, and consistent messaging, highlighting the importance of purposeful and strategically oriented engagement efforts [24]. Likewise, customer engagement research in retail indicates that involvement behaviors are shaped not only by brand messaging but also by experiential cues, packaging design, and aesthetic elements, reflecting the multidimensionality observed in this study [25].

Moreover, the findings align with research in omnichannel and technological contexts showing that customers expect seamless, informative, and meaningful interactions across digital and physical touchpoints. For instance, AI-enabled chatbots in apparel e-retailing have been found to enhance engagement through usability, responsiveness, and perceived interaction quality [16]. Similarly, blockchain technologies have been shown to increase engagement by enhancing transparency and sustainability in circular economy systems, which mirrors the strategic implications for home appliance brands aiming to build trust and long-term relationships for high-

investment products [18]. Taken together, these studies reinforce the importance of integrating positioning, purposefulness, and strategic review processes into engagement models, as observed in the present study.

Overall, the model developed in this research provides a comprehensive and structured representation of how engagement emerges and evolves in the context of domestic home appliance brands. It integrates psychological, relational, experiential, and technological factors, reinforcing the view that customer engagement is a multifaceted process requiring strategic alignment across multiple dimensions [1, 2]. The study's findings contribute to the engagement literature by offering an applied, industry-specific model that captures the hierarchy, interdependencies, and strategic importance of different engagement drivers. The outcomes affirm that domestic home appliance brands can strengthen customer engagement by focusing on positioning clarity, purposeful interaction design, and continuous interaction review while developing engagement strategies that reflect customers' needs, behaviors, and expectations across both digital and offline channels [19, 23, 26].

This study is subject to several limitations. First, the research focuses exclusively on domestic home appliance brands, which may limit the generalizability of findings to international brands or other product categories. Second, although the mixed-method approach strengthens model validation, reliance on self-reported data introduces the possibility of response bias. Third, cultural and market-specific factors in the study context may influence engagement perceptions, requiring caution when applying the findings to different cultural or economic environments. Finally, the dynamic nature of digital engagement platforms implies that some engagement mechanisms may evolve rapidly, necessitating ongoing updating of the model.

Future studies may extend this model by examining engagement structures across different industries or conducting cross-cultural comparisons to identify cultural influences on engagement dynamics. Longitudinal studies could also provide deeper insight into how engagement evolves over time and how interaction review shapes subsequent engagement behaviors. Additionally, integrating emerging technologies such as generative AI, augmented reality, or IoT-enabled smart appliances may enrich understanding of engagement mechanisms in technologically advanced ecosystems. Researchers may also explore how psychological traits, such as personality dimensions or motivation styles, mediate the relationship

between interaction purposefulness and engagement outcomes.

Managers should prioritize clear customer positioning and intentional interaction design to strengthen engagement foundations. Engagement strategies should be built upon real-time customer insights, data-driven content optimization, and continuous review of interaction effectiveness. Firms should adopt a holistic approach by integrating digital, physical, and service-related touchpoints to create consistent and meaningful engagement experiences. Additionally, the design of engagement initiatives should reflect customers' evolving expectations by leveraging technology, personalization, and emotional connection-building mechanisms.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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