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Identifying the Influential Dimensions of Branding Based on the Creation of Competitive Advantage in Food Industry Companies

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ABSTRACT

This study was conducted with the aim of identifying the influential dimensions of branding based on the creation of competitive advantage in food industry companies. The research adopts a mixed-methods approach. Data collection tools included interviews in the qualitative phase and a questionnaire in the quantitative phase. Data analysis in the qualitative section was performed using thematic analysis, while in the quantitative section, the DEMATEL method was employed. According to the findings, the dimensions and components of branding based on the creation of competitive advantage in food industry companies include: (1) the branding dimension, comprising brand identity, brand image, brand trust, brand loyalty, brand differentiation, brand sustainability, brand communications, and brand equity; (2) brand interaction, including transparent communication, after-sales services, digital interactions, interaction personalization, employee behavior, customer engagement, digital experience design, and transparency in complaint management; and (3) competitive advantage, including brand values, brand personality, visual identity design, brand voice, organizational culture, brand innovation experience, brand trust, adaptability to market changes, multichannel communications, and corporate social responsibility. The results indicate that the criteria within the branding group at the initial level have limited interaction with one another; however, they independently play a significant role in shaping brand identity. The findings also reveal a strong interaction between brand trust and brand loyalty, which can generate multidimensional effects within the branding model. According to the analysis, all three criteria—branding, brand interaction, and competitive advantage—operate within a complex network of interrelated influences and play distinct yet interconnected roles in the branding model. Furthermore, branding criteria play a fundamental role in fostering positive interactions and synergy among other criteria and are typically considered as starting points for system improvement and enhancement. The fuzzy DEMATEL analysis results indicate a complex network of interactions among the criteria. This analysis not only facilitates the identification of key criteria but also demonstrates how strengthening or weakening a particular criterion can influence the entire system. This perspective can be utilized in designing branding strategies, enhancing customer engagement, and creating sustainable competitive advantage.

Keywords: Branding, Brand, Competitive Advantage

Introduction

Branding has moved far beyond the traditional function of naming and differentiating products and has become a strategic organizational capability through which firms create meaning, shape customer perceptions, reduce market uncertainty, and secure durable positions in increasingly contested markets. In contemporary competitive environments, especially in consumer-oriented industries, brands operate simultaneously as symbolic assets,

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relational mechanisms, and economic resources. Research on public branding, place branding, and commercial branding alike has shown that branding is not merely a communication tool but a multidimensional governance and value-creation process that influences stakeholder trust, legitimacy, and long-term competitiveness (1, 2). This strategic view is particularly important in industries where product substitutability is high, purchasing decisions are frequent, and emotional, cultural, and experiential cues strongly shape choice behavior. Under such conditions, brand-related resources can no longer be treated as peripheral marketing outputs; rather, they must be understood as central mechanisms for generating competitive advantage, defending market share, and enhancing firm resilience (3-5).

The food industry represents one of the clearest arenas in which the strategic role of branding is intensified. Food products are embedded in daily routines, sensory expectations, health concerns, ethical judgments, and rapidly changing lifestyle trends. At the same time, food companies operate in highly saturated markets characterized by low switching costs, intense imitation, evolving digital channels, and growing pressure for innovation and transparency. In such a context, a strong brand must do more than signal quality; it must integrate visual identity, emotional appeal, customer engagement, trustworthiness, innovativeness, and social responsibility in ways that are both recognizable and difficult to replicate. Studies on visual branding and semiotic communication indicate that visual codes, symbols, and design patterns can significantly structure consumers' first impressions and interpretive responses to brands, especially in everyday consumption settings (6). Parallel evidence also suggests that market orientation and innovation capabilities influence business performance largely when they are translated into a distinctive competitive position that customers can recognize and value (7). For food industry firms, therefore, branding is not a decorative layer added to operations; it is a strategic architecture linking internal capabilities to external market outcomes.

A major reason for the growing relevance of branding in competitive strategy is the evolution of brand equity research. Earlier literature often treated brand equity, brand loyalty, and brand image as relatively discrete constructs, yet more recent scholarship emphasizes that they are deeply interdependent and dynamically reproduced through multiple touchpoints across the customer journey. Brand boundaries have expanded as firms interact with consumers through digital media, communities, service encounters, and co-creation platforms, making brand meaning more fluid but also more strategically consequential (8). This shift has important implications for food companies because brand value increasingly depends not only on awareness or recall but also on the quality of interactions, the credibility of claims, and the firm's ability to sustain a coherent narrative across channels. Recent work on alternative measurement approaches to brand equity further suggests that symbolic prestige, perceived value, and experiential dimensions should be integrated into brand assessment rather than evaluated through narrow transactional metrics alone (9). Similarly, brand innovativeness has been shown to enhance brand equity through favorable brand attitudes, particularly when consumers perceive the brand as ethically grounded, highlighting the need to view branding as both an innovation and legitimacy process (10).

The relational dimension of branding is equally critical. Consumer loyalty does not emerge automatically from product satisfaction; it is cultivated through repeated interaction, emotional reinforcement, and trust-building processes that connect brand promise to lived experience. Evidence from retail contexts shows that satisfaction mediates the relationship between service quality and customer loyalty, indicating that operational performance and experiential quality jointly shape enduring brand relationships (11). In parallel, research on the relationship between brand equity and brand loyalty demonstrates that attitudes toward the brand and word-of-mouth communication are

crucial mediators in translating brand strength into loyal behavior (12). In the food sector, these findings are especially salient because customer decisions are recurrent, socially influenced, and sensitive to service failures, packaging cues, and trust signals. Brand marketing in mobile social media environments also affects consumer emotions, which means that digital communication is not merely informational but affective, shaping attachment and behavioral intention through emotionally charged interactions (13). Likewise, brand image and brand awareness have been found to play significant roles in purchase decisions, especially when amplified through viral communication processes (14). These patterns suggest that branding in food companies must be studied as an integrated system of meaning, emotion, and interaction rather than as a static communication asset.

Another important shift in branding scholarship concerns the move from one-way brand management toward participatory and co-creative models. Consumers increasingly engage with brands through virtual communities, social networks, feedback systems, and collaborative content environments, and such participation affects both brand meaning and competitive outcomes. Research shows that product characteristics can influence the level and quality of customer participation in virtual brand communities, revealing that engagement is shaped not only by communication strategies but also by the nature of the offered value itself (15). Co-creation studies similarly indicate that shared value creation behavior and brand preference contribute to repurchase intention, implying that active customer involvement strengthens the behavioral consequences of brand attachment (16). Work on destination branding has also shown that brand experience can stimulate value co-creation through mediating relational constructs such as brand love (17). Although these studies come from different sectors, they converge on a core insight relevant to the food industry: the modern brand is sustained through interaction ecosystems in which customers do not simply receive brand messages but participate in validating, modifying, and diffusing them. This makes the analysis of brand interaction dimensions essential for any attempt to explain how branding contributes to competitive advantage.

The link between branding and competitive advantage becomes even clearer when viewed through the lens of resource-based and capability-based theory. Competitive advantage is not created solely by possession of valuable resources, but by the organizational ability to configure, align, and renew those resources in response to environmental conditions. Strategic alignment between information technology and business strategy, for example, has been identified as a foundation for sustained competitive advantage because it enhances coordination, adaptability, and value delivery (4). Organizational learning and open innovation also contribute to sustainable competitive advantage by enabling firms to absorb knowledge, respond to external change, and continuously improve their offerings (18). Intellectual capital and knowledge management have likewise been shown to strengthen competitive advantage, particularly when innovation functions as a mediating mechanism (19). In brand-related studies, the moderating role of knowledge management and the mediating role of brand value have been highlighted in explaining brand-based competitive advantage (20). Taken together, these findings indicate that branding should be analyzed not merely as a market-facing activity but as an organizational capability rooted in learning, knowledge, innovation, and alignment. This insight is particularly relevant for food industry firms that must simultaneously manage production efficiency, quality consistency, sensory innovation, regulatory compliance, and customer-facing differentiation.

The contemporary business environment further intensifies the need to connect branding with resilience, revitalization, and adaptive capacity. Economic volatility, post-pandemic behavioral change, digital disruption, and shifting consumer priorities have made static brand strategies increasingly insufficient. Capability-based

conceptions of organizational resilience emphasize preparedness, adaptation, and renewal as core drivers of firm continuity and strategic success (5). In times of disruption, brands serve as anchors of trust and familiarity, but they must also evolve to remain relevant. Research on brand revitalization shows that firms may need to renew brand meaning and market relevance to restore or strengthen brand equity under changing conditions (21, 22). The broader literature on crisis management in business-to-business settings also demonstrates that exchange relationships, trust structures, and managerial responsiveness become especially important under crisis conditions (23). Consumer behavior change research further suggests that durable behavioral influence requires systematic and context-sensitive interventions rather than isolated promotional efforts (24). For food industry companies, where demand patterns, health concerns, sustainability expectations, and digital behaviors shift rapidly, branding must therefore be examined as a dynamic system capable of supporting resilience and adaptive competitive positioning.

Digital transformation has added another layer of complexity to brand competitiveness. The proliferation of algorithmic marketing, digital interfaces, data-driven personalization, and generative artificial intelligence has changed how brands are created, communicated, monitored, and optimized. Research has shown that generative AI can support the construction of competitive advantage by improving brand communication, customer insight generation, and creative differentiation (25). At the same time, digital-based spatiotemporal dynamics affecting work environments, automation, and marketing strategy indicate that branding is increasingly intertwined with broader technological and organizational transformations (26). Performance measurement systems also become more critical under these conditions because firms need robust mechanisms to track branding outcomes, customer engagement, and strategic coherence across evolving channels (27). In the food industry, where customer interaction spans packaging, retail visibility, delivery platforms, social media, and after-sales feedback, digital capability can intensify both brand opportunities and vulnerabilities. This makes it necessary to identify which branding dimensions most powerfully influence system-wide performance and how they interact with customer engagement and competitive differentiation criteria.

At the same time, the normative content of brands has become more significant. Consumers increasingly evaluate brands not only in terms of utility and aesthetics but also in terms of authenticity, ethics, sustainability, and social contribution. Sustainability branding research has documented major shifts in how firms position brands around responsibility, environmental alignment, and long-term stakeholder value (28). Studies of public and institutional branding similarly show that legitimacy and trust depend on consistent alignment between declared values and observed behavior (1). In consumer markets, perceived brand ethicality can strengthen the positive effect of innovativeness on brand equity (10). Nostalgia marketing research, moreover, suggests that symbolic memory, continuity, and cultural resonance can enrich brand meaning and deepen emotional connection when deployed strategically (29). These developments are highly relevant for food industry firms, which often occupy intimate spaces in consumers' lives and are scrutinized for sourcing, health implications, transparency, and social responsibility. Competitive advantage in such a context is likely to emerge not only from operational superiority but also from the brand's ability to align identity, communication, innovation, and values in credible and experientially meaningful ways.

Despite the breadth of existing research, an important gap remains. Much of the branding literature has examined isolated variables such as brand image, loyalty, awareness, trust, innovativeness, or equity, while competitive strategy studies have frequently focused on innovation, knowledge, resilience, or alignment without integrating these with branding processes in a systemic manner. Studies in tourism, airlines, retail, digital communities, and

public administration provide useful conceptual insights, but industry-specific integrated models for food companies remain limited (1, 3, 11, 30). Moreover, research often privileges direct-effect modeling while underexploring the networked causal relationships among branding criteria, customer interaction criteria, and competitive differentiation criteria. Yet evidence from service innovation and customer-centric capability research indicates that competitive advantage is often produced by interaction effects and reinforcing mechanisms rather than by isolated determinants (31). Similarly, mechanisms for achieving competitive advantage in knowledge-intensive settings show that systemic coordination and interdependence matter greatly for strategic success (32). Therefore, there is a clear need for research that identifies the dimensions of branding linked to competitive advantage and also maps their relative influence and mutual dependence within a unified analytical structure.

This need is especially acute for food industry companies operating in local and regional markets where managerial decisions must reconcile traditional brand-building principles with digital transformation, sustainability pressures, customer experience expectations, and intense product-level competition. A localized and empirically grounded model can help managers move beyond generic branding prescriptions by identifying the criteria that truly function as drivers, mediators, or dependent elements within the brand competitiveness system. Such a model can also support strategic prioritization by showing which dimensions should be strengthened first in order to create wider positive effects across the system. In this respect, the use of mixed methods is particularly valuable because it allows the researcher to first uncover context-specific dimensions through qualitative inquiry and then evaluate their causal prominence and interrelationships through quantitative analysis. The combination of thematic analysis with fuzzy DEMATEL is especially suitable for this purpose because it accommodates interpretive depth on the one hand and complex causal structuring under uncertainty on the other. Accordingly, the aim of the present study is to identify and analyze the influential dimensions of branding based on the creation of competitive advantage in food industry companies.

Methods and Materials

This study was conducted using a mixed-methods approach (qualitative and quantitative) with the aim of identifying the influential dimensions of branding based on the creation of competitive advantage in food industry companies.

The statistical population in the qualitative section consisted of experienced university professors, researchers in the field of branding and marketing, senior, middle, and executive managers of food industry companies in Gilan Province, sales and marketing experts of food companies, and brand consultants active in the local market. The sampling method for selecting interviewees in the qualitative section was based on a theoretical sampling approach. In this study, interviews were conducted with 15 experts.

Table 1. Participants in the Qualitative Section

Expert Code	Gender	Age	Work Experience (Years)	Education Level	Executive Position
E1	Male	45	20	PhD	University Professor
E2	Female	39	15	Master's Degree	Researcher
E3	Male	50	25	PhD	Food Industry Manager
E4	Female	34	12	Master's Degree	Sales Supervisor
E5	Male	55	25	PhD	Factory Manager
E6	Female	42	15	Master's Degree	Food Industry Specialist
E7	Male	55	27	PhD	Sales Manager

E8	Female	47	19	Bachelor's Degree	Food Industry Development Expert
E9	Male	38	11	PhD	University Professor
E10	Female	33	6	Master's Degree	Food Industry Operations Expert
E11	Male	49	24	PhD	Factory Manager
E12	Female	44	19	Master's Degree	Quality Supervisor
E13	Male	51	26	PhD	Production Manager
E14	Female	36	13	Master's Degree	Trade Researcher
E15	Male	43	21	PhD	Food Industry Planning and Supervision Expert

In the qualitative section, the method of data analysis was thematic analysis. Through thematic analysis, researchers are able to more comprehensively examine participants' concepts and experiences in qualitative research, extract patterns and meanings, and provide interpretations. Due to its flexibility and applicability to diverse types of data, this method is considered one of the key tools in qualitative research. In this study, thematic analysis was conducted manually without the use of specialized software. This method involves identifying and extracting key themes from data collected through interviews and document analysis. The analytical procedure in thematic analysis, corresponding to the final stages of qualitative research, is described as follows.

First, identifying meaning units (coding): the researcher extracts meaning units (codes) from the data. These units may include words, phrases, or paragraphs that are considered significant.

Second, transforming codes into concepts (themes): the codes are grouped and interpreted as concepts or themes. This stage may require deeper analysis using interpretive techniques and examining relationships among codes.

Third, interpreting and explaining themes: the identified themes are interpreted and assigned meaning. At this stage, the researcher seeks to explain patterns, relationships, and key concepts within the data.

Finally, report writing: a comprehensive final report is prepared, including detailed explanations of themes, results, and inferences derived from the analysis. This report is typically supported by quotations and examples from qualitative data.

In the quantitative section, the statistical population consisted of managers, experts, and researchers knowledgeable in branding and competitive advantage within the food industry of Gilan Province. These individuals were required to possess sufficient expertise and experience to contribute to matrix-based analyses. Given the nature of the research and the requirements of matrix analysis, a sample of 14 participants was selected. These participants included senior managers, branding and marketing experts, and academic researchers specializing in the food industry. Stratified purposive sampling based on company size and product subcategory was employed to ensure meaningful representation. The sample size was determined based on the response rate within the local industry and the number of questionnaire items. A minimum respondent-to-item ratio was maintained, and, if necessary, substitution methods were applied for inaccessible units.

In this study, the questionnaire was developed based on data obtained from the qualitative phase. The questionnaire measuring causal relationships among constructs was designed according to the outputs of the qualitative analysis and the coding framework. For each construct, measurement items were developed based on indicators defined in the operational definitions. Content validity of the questionnaire was assessed through a panel of academic and industry experts, evaluating the relevance, clarity, and necessity of each item. A pilot test was

conducted with a small group to assess item clarity and response time. The final version of the questionnaire was used to construct expert judgment matrices and perform subsequent analyses.

In the quantitative section, fuzzy hierarchical analysis and interpretive ranking methods were used for data collection and analysis. The primary instrument consisted of matrix-based questionnaires designed on the basis of pairwise comparisons of research themes. These questionnaires were structured in rows (i) and columns (j) to compare and evaluate different factors. Data were collected from the statistical population of managers and experts in the food industry of Gilan Province, and the distribution of questionnaires was conducted in coordination with knowledgeable individuals and specialists. The DEMATEL method was employed for data analysis.

The implementation algorithm of fuzzy DEMATEL is described as follows.

Step 1: Defining evaluation variables. Initially, an integer scale from 1 to 9 is used to express the strength or weakness of influence among factors.

Step 2: Constructing the fuzzy direct-relation matrix. Pairwise comparisons and expert evaluations are used to determine the degree of influence of criterion i on criterion j and to establish causal relationships using linguistic variables.

Step 3: Constructing the normalized fuzzy direct-relation matrix.

Step 4: Constructing the total fuzzy relation matrix.

Step 5: Defuzzification of the total relation matrix.

Step 6: Evaluating relationships among criteria.

Given that the present study adopts a mixed-methods design, employing both qualitative and quantitative approaches, different procedures were used to assess validity and reliability in each method. Without scientific rigor, research—whether qualitative or quantitative—loses its value. According to Yvonna S. Lincoln and Egon G. Guba (1994), trustworthiness consists of four criteria: credibility, dependability, confirmability, and transferability.

Credibility refers to the extent to which the research findings are believable (Lincoln & Guba, 1994). In this study, credibility was ensured through ongoing analysis during the research process, prolonged engagement, participant feedback, and validation of findings.

Transferability refers to the extent to which study findings can be meaningfully applied to similar contexts (Streubert Speziale et al., 2011). In this study, transferability was enhanced through maximum variation sampling and sampling based on the credibility of interviewees, as suggested by Teddlie and Yu (2007).

Dependability is achieved when the researcher demonstrates the scientific accuracy of findings, and it cannot be attained without validity (Streubert Speziale et al., 2011). In this study, methods and decisions related to the research process were thoroughly documented to allow for external auditing.

Confirmability aims to determine whether multiple researchers can reach agreement on decisions made during the study, including data collection, interpretation, and application of findings (Stommel, 2004). In this study, confirmability was ensured by providing detailed documentation of methods and data to enable evaluation by other researchers and readers.

Reliability in this study was assessed using the test–retest method.

For test–retest reliability, four interviews were selected from the conducted interviews and were coded twice by the researcher with a two-week interval. The test–retest reliability of the interviews was calculated using the following formula and resulted in 79%, indicating acceptable reliability as it exceeds 60%.

Agreement Percentage = (2 × Number of Agreements) / (Total Number of Codes) × 100. Agreement Percentage = (2 × 76) / 178 × 100 = 85%

Table 2. Test–Retest Reliability Calculation

Row	Interview Number	Total Number of Codes	Number of Agreements	Test–Retest Reliability (%)
1	1	12	5	83
2	7	9	4	88
3	9	9	3	66
4	15	13	5	76
Total	—	17	—	79

Findings and Results

Through the identification of final themes via interviews with experts and the extraction of themes using thematic analysis, the factors of the model were identified. These constitute the foundational elements upon which the overall research design is based. The themes derived from the research findings consisted of three main dimensions—brand image, brand interaction, and competitive advantage—and 26 components, which were presented in Figure 1.

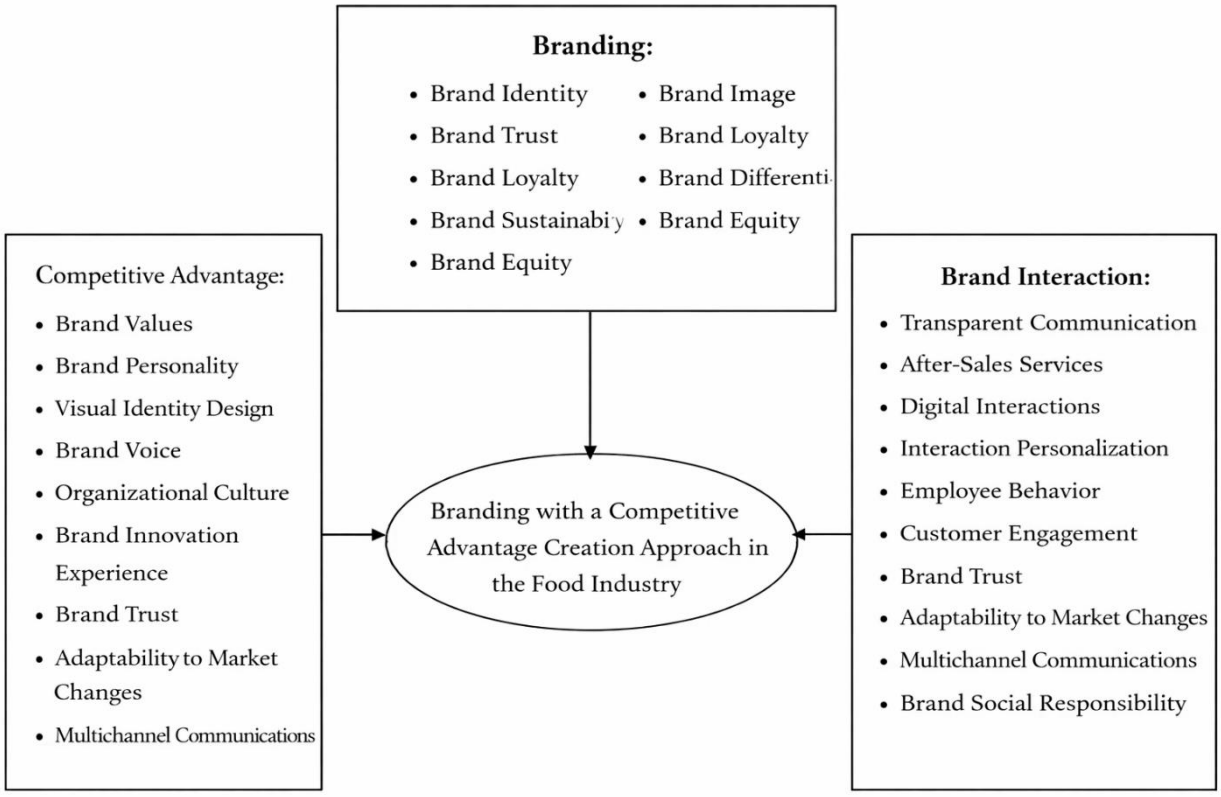

Figure 1. Branding Model with a Competitive Advantage Creation Approach in the Food Industry

As stated, the dimensions and components of the indigenous branding model based on the creation of competitive advantage in the food industry were derived using inductive logic, moving from part to whole and from empirical data toward theory. By employing the influential indicators in the indigenous branding model based on the creation of competitive advantage in the food industry, three criteria were identified. Overall, based on the output of the qualitative section, a questionnaire was prepared for the implementation of the quantitative method and the validation of the findings. Subsequently, the fuzzy DEMATEL method was employed to analyze and validate the findings of the qualitative section.

The analysis of fuzzy input data for the criteria of the first group, which includes branding (B1 to B8), helps identify the relationships among the criteria and the relative importance of each within the branding model. This analysis was carried out in three stages, each representing one component of fuzzy numbers (inverse I–Xl, I–Xm, and I–Xu).

Table 3. Inverse I–Xl Matrix of the Branding Group (First Component of the Fuzzy Number)

Components	B1	B2	B3	B4	B5	B6	B7	B8
Brand identity	1.0242	0.0425	0.0754	0.0756	0.0764	0.0671	0.0596	0.0703
Brand image	0.0713	1.0208	0.0785	0.0619	0.0830	0.0905	0.0665	0.0741
Brand trust	0.0887	0.0513	1.0261	0.0777	0.0640	0.0619	0.0790	0.0970
Brand loyalty	0.0617	0.0585	0.0556	1.0198	0.0569	0.0703	0.0531	0.0701
Brand differentiation	0.0615	0.0476	0.0687	0.0471	1.0205	0.0496	0.0572	0.0643
Brand sustainability	0.0676	0.0700	0.0619	0.0693	0.0849	1.0222	0.0568	0.0724
Brand communications	0.0936	0.0641	0.0774	0.0721	0.0909	0.0577	1.0244	0.0851
Brand equity	0.0770	0.0620	0.0805	0.0656	0.0703	0.0638	0.0777	1.0268

At this stage, the fuzzy number values appear within close ranges and with balanced weighting. The diagonal values of the inverse matrix are remarkably close to 1 (for example, 1.0242 for B1 and 1.0268 for B8), indicating the fundamental and primary importance of each criterion individually.

The off-diagonal relationships, which represent interactions among the criteria, have relatively lower values (such as 0.0425 between B1 and B2). This suggests that branding criteria, at the initial level, have limited interaction with one another; however, they independently play a significant role in shaping brand identity.

Table 4. Inverse I–Xm Matrix of Branding (Second Component of the Fuzzy Number)

Component	B1	B2	B3	B4	B5	B6	B7	B8
Brand identity	1.0992	0.1313	0.1785	0.1783	0.1778	0.1673	0.1518	0.1768
Brand image	0.1786	1.0930	0.1940	0.1648	0.1945	0.2037	0.1700	0.1906
Brand trust	0.2029	0.1503	1.1060	0.1858	0.1725	0.1687	0.1772	0.2081
Brand loyalty	0.1572	0.1476	0.1510	1.0866	0.1582	0.1661	0.1413	0.1721
Brand differentiation	0.1580	0.1277	0.1710	0.1401	1.0890	0.1395	0.1483	0.1623
Brand sustainability	0.1792	0.1759	0.1687	0.1764	0.1960	1.0977	0.1536	0.1835
Brand communications	0.2110	0.1744	0.1877	0.1809	0.2009	0.1653	1.0994	0.2050
Brand equity	0.1847	0.1602	0.1896	0.1671	0.1804	0.1660	0.1722	1.1074

At this stage, the matrix values fall within a broader range and indicate the magnitude of moderate effects among the criteria. The diagonal values remain close to 1 (such as 1.0992 for B1 and 1.1074 for B8), but compared with the first component, greater dispersion is observed in the data.

The interactions among the criteria also become stronger, particularly between criteria that may be conceptually related. For example, the value of 0.2037 between B2 and B6 indicates a moderate yet meaningful interaction between these two criteria, which may be due to the reciprocal influence of visual identity design and brand personality.

Table 5. Inverse I–Xu Matrix of Branding (Third Component of the Fuzzy Number)

	B1	B2	B3	B4	B5	B6	B7	B8
Brand identity	1.4495	0.4979	0.5553	0.5469	0.5519	0.5332	0.5141	0.5617
Brand image	0.5783	1.4409	0.5936	0.5536	0.5863	0.5857	0.5467	0.5936
Brand trust	0.5815	0.5241	1.4651	0.5601	0.5599	0.5429	0.5415	0.5903
Brand loyalty	0.5326	0.4980	0.5275	1.4203	0.5294	0.5236	0.4939	0.5490
Brand differentiation	0.5200	0.4717	0.5313	0.4972	1.4189	0.4912	0.4883	0.5261
Brand sustainability	0.5706	0.5458	0.5616	0.5613	0.5802	1.4464	0.5218	0.5774
Brand communications	0.6096	0.5574	0.5929	0.5765	0.5955	0.5599	1.4513	0.6127
Brand equity	0.5707	0.5290	0.5768	0.5478	0.5697	0.5403	0.5351	1.4706

The analysis of significant relationships in the first group indicates that the criteria are situated within a complex interaction network in which some relationships are more prominent than others. Criterion B1 (brand identity), as one of the most fundamental branding factors, has direct relationships with criteria B3, B4, B5, B6, and B8. This indicates that brand identity plays a foundational role in shaping relationships with other key criteria, particularly brand image and brand sustainability. The absence of a direct relationship between B1 and B2 (brand image) and B7 (brand trust) may imply that these criteria are indirectly related to brand identity through other mediating variables.

Criterion B2 (brand image) has a direct relationship with nearly all other criteria, except B4 (sustainable communications). These extensive relationships indicate that brand image, as a central factor, is influential across many branding dimensions and serves as a linking mechanism among other criteria. These relationships are particularly notable with criteria such as B6 (brand communications) and B7 (brand trust), highlighting the importance of brand image in creating positive customer experiences and strengthening emotional interactions.

Criterion B7 (brand trust) is one of the criteria directly associated with many other criteria and lacks a direct relationship only with B6 (brand communications). This suggests that brand trust, as one of the key indicators of customer loyalty, is more often created through other elements such as brand image and sustainable communications. This criterion can function as an important connecting point among the various elements of the branding model.

Table 6. **Significant Relationships in the First Group**

	B1	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**
B1	0	0	1	1	1	1	0	1
B2	1	0	1	1	1	1	1	1
B3	1	0	0	1	1	1	1	1
B4	0	0	0	0	0	1	0	1
B5	0	0	1	0	0	0	0	0
B6	1	1	1	1	1	0	0	1
B7	1	1	1	1	1	1	0	1
B8	1	0	1	1	1	1	1	0

Criterion B4 (sustainable communications) has the fewest direct relationships compared with the other criteria, being directly related only to B6 and B8. This feature may indicate that sustainable communications functions as a supporting factor in the branding model and has less independent influence. Nevertheless, its direct relationship with criteria such as B6 and B8, which play roles in creating brand loyalty and strengthening brand interactions, indicates its indirect and supportive role in branding. Overall, this analysis shows that the criteria of the first group operate within a hierarchical yet interdependent structure, in which each plays a specific role in reinforcing the other elements of the branding model.

The fuzzy input data for the second group, which includes criteria related to customer interactions and customer experience, indicate complex relationships and intercorrelations among these criteria. In the initial inverse matrix, the first component of the fuzzy number shows that criterion TM01 (transparent communication) has a strong relationship with other criteria, particularly TM03 (digital interactions), TM04 (interaction personalization), and TM08 (transparency in complaint management). This indicates the central role of transparent communication in facilitating other brand interactions with customers. Furthermore, criterion TM07 (digital experience design) has notable interactions with TM04 and TM05, emphasizing how digital experience design contributes to improving personalization and the provision of after-sales services.

Table 7. Inverse I–Xl Matrix of Group Two: Brand Interaction

	TM01	TM02	TM03	TM04	TM05	TM06	TM07	TM08
Transparent communication	1.0225	0.0471	0.0440	0.0553	0.0841	0.0414	0.0606	0.0760
After-sales services	0.0654	1.0184	0.0682	0.0668	0.0804	0.0689	0.0541	0.0791
Digital interactions	0.0875	0.0586	1.0226	0.0838	0.0684	0.0488	0.0637	0.0770
Interaction personalization	0.0683	0.0484	0.0683	1.0252	0.0739	0.0789	0.0770	0.0795
Employee behavior	0.0795	0.0476	0.0961	0.0759	1.0264	0.0610	0.0640	0.0640
Customer engagement	0.0795	0.0625	0.0648	0.0688	0.0814	1.0196	0.0707	0.0664
Digital experience design	0.0993	0.0517	0.0686	0.0836	0.0950	0.0483	1.0242	0.0979
Transparency in complaint management	0.0726	0.0665	0.0636	0.0709	0.0610	0.0551	0.0557	1.0241

In the inverse matrix of the second component, the fuzzy number increases the average level of relationships among the criteria and indicates that criteria TM02 (after-sales services) and TM05 (employee behavior) are also significantly present in the interaction network. After-sales services have close relationships with criteria such as TM04 and TM08, demonstrating how responsiveness to customers can affect interaction personalization and transparency in complaint management. On the other hand, employee behavior has a strong interaction with criteria such as TM01 and TM07, indicating that employees' professional behavior plays an important role in strengthening transparent communication and customers' digital experience.

Table 8. Inverse I–Xm Matrix of Group Two: Brand Interaction

	TM01	TM02	TM03	TM04	TM05	TM06	TM07	TM08
Transparent communication	1.0927	0.1285	0.1326	0.1502	0.1797	0.1216	0.1531	0.1802
After-sales services	0.1700	1.0849	0.1743	0.1682	0.1931	0.1677	0.1504	0.1901
Digital interactions	0.1985	0.1553	1.0968	0.1966	0.1749	0.1476	0.1586	0.1869
Interaction personalization	0.1654	0.1406	0.1673	1.0991	0.1790	0.1732	0.1696	0.1835
Employee behavior	0.1888	0.1382	0.2011	0.1808	1.1039	0.1568	0.1563	0.1676
Customer engagement	0.1924	0.1651	0.1697	0.1814	0.1890	1.0885	0.1682	0.1783
Digital experience design	0.2163	0.1548	0.1739	0.1902	0.2073	0.1471	1.0969	0.2155
Transparency in complaint management	0.1801	0.1588	0.1660	0.1699	0.1684	0.1464	0.1440	1.1000

The third component of the fuzzy number in the inverse matrix highlights the effect of long-term relationships and the sustainability of the criteria. Criterion TM06 (customer engagement) in this component shows notable interactions with TM01 and TM07, indicating that customers' active participation in brand-related decision-making can contribute to improving the overall customer experience. These interactions reflect the strategic importance of designing user-friendly digital experiences and ensuring transparent responsiveness in complaint management in order to attract active customer engagement.

Table 9. Inverse I–Xu Matrix of Group Two: Brand Interaction

	TM01	TM02	TM03	TM04	TM05	TM06	TM07	TM08
Transparent communication	1.4185	0.4662	0.4814	0.4995	0.5314	0.4503	0.4830	0.5355
After-sales services	0.5426	1.4046	0.5368	0.5306	0.5600	0.5046	0.4957	0.5573
Digital interactions	0.5570	0.5075	1.4250	0.5503	0.5421	0.4856	0.4981	0.5512
Interaction personalization	0.5323	0.4867	0.5255	1.4282	0.5461	0.4979	0.5069	0.5462
Employee behavior	0.5521	0.4870	0.5459	0.5391	1.4408	0.4876	0.4946	0.5331
Customer engagement	0.5738	0.5269	0.5388	0.5578	0.5670	1.4076	0.5198	0.5638
Digital experience design	0.5953	0.5225	0.5497	0.5647	0.5894	0.5044	1.4257	0.5993
Transparency in complaint management	0.5456	0.5028	0.5189	0.5241	0.5373	0.4833	0.4815	1.4364

Overall, the fuzzy input data of the second group emphasize that the criteria in this group operate within a dynamic interaction network, and many of them exert reciprocal influence on one another. Transparent communication, after-sales services, and digital experience design function as the key axes of these interactions

and demonstrate how these criteria can contribute to creating a positive customer experience, increasing satisfaction, and ultimately strengthening brand loyalty. The analysis of these data indicates that the design of an indigenous branding model should focus on the coordination and reinforcement of these interactions in order to provide customers with an optimized experience aligned with their expectations.

The analysis of significant relationships in the second group, which includes customer interaction and customer experience criteria, indicates that these criteria are interconnected within a strong and complex interactive network. Criterion TM01 (transparent communication) reflects a high level of influence from other criteria, particularly TM05 (employee behavior) and TM08 (transparency in complaint management). This relationship suggests that transparent communication depends not only on the quality of information provided by the brand, but also on employee interactions and the proper management of complaints, both of which can contribute to the improvement of this criterion. Together, these criteria play a key role in strengthening customer trust and creating a positive experience.

TM02 (after-sales service), as one of the focal points in the relational network, exerts substantial influence on other criteria. This criterion is influenced by TM06 (sense of customer engagement) and TM08, while also affecting criteria such as TM03 (digital interactions) and TM04 (interaction personalization). By ensuring quality and providing effective support, after-sales service enhances the overall customer experience and creates the conditions for digital interactions and service personalization.

Table 10. **Significant Relationships in Group Two: Brand Interaction**

	TM01	TM02	TM03	TM04	TM05	TM06	TM07	TM08
Transparent communication	0	0	0	0	1	0	0	1
After-sales service	1	0	1	1	1	1	0	1
Digital interactions	1	0	0	1	1	0	0	1
Interaction personalization	1	0	1	0	1	1	1	1
Employee behavior	1	0	1	1	0	0	0	1
Sense of customer engagement	1	1	1	1	1	0	1	1
Digital experience design	1	0	1	1	1	0	0	1
Transparency in complaint management	1	0	1	1	1	0	0	0

TM06 (sense of customer engagement) plays a prominent role in strengthening customer interactions and has strong relationships with criteria such as TM02, TM04, and TM07 (digital experience design). This criterion indicates that customers' active engagement through marketing campaigns or surveys can positively affect their overall experience. On the other hand, TM07, through the use of digital tools and user-friendly design, creates an environment that reinforces customers' sense of engagement. This relationship reflects the reciprocal interaction and synergy between digital experience criteria and the sense of customer engagement.

Finally, TM08 (transparency in complaint management), as one of the influential and influenceable criteria, is associated with TM01 and TM05. These relationships indicate that the manner in which complaints are managed and transparent information is provided to customers has a direct effect on building customer trust and satisfaction. Overall, the significant relationships in the second group show that alignment and interaction among these criteria can lead to the creation of a positive and sustainable customer experience. Designing strategies that strengthen these relationships is essential for successful branding and maintaining customer loyalty.

The analysis of the input data for the third group, which addresses criteria related to brand identity and competitive differentiation, reveals complex interactions and extensive interrelationships among the criteria in this group. This analysis uses three inverse matrices (the lower, middle, and upper components of fuzzy numbers) to

examine more precisely the relationships among the criteria. The data indicate that core criteria such as brand values (HB01), brand personality (HB02), and visual identity design (HB03) have a substantial impact on strengthening brand identity and creating competitive differentiation.

Table 11. **Inverse I–Xl Matrix of Group Three: Competitive Advantage**

	HB01	HB02	HB03	HB04	HB05	HB06	HB07	HB08	HB09	HB10
Brand values	1.0227	0.0692	0.0458	0.0767	0.0612	0.0757	0.0582	0.0605	0.0805	0.0617
Brand personality	0.0689	1.0222	0.0585	0.0523	0.0429	0.0556	0.0604	0.0623	0.0642	0.0532
Visual identity design	0.0483	0.0665	1.0226	0.0641	0.0595	0.0581	0.0879	0.0791	0.0824	0.0398
Brand voice	0.0611	0.0700	0.0680	1.0229	0.0459	0.0651	0.0534	0.0606	0.0775	0.0492
Organizational culture	0.0543	0.0500	0.0567	0.0762	1.0208	0.0555	0.0663	0.0705	0.0784	0.0645
Brand innovation experience	0.0520	0.0608	0.0422	0.0660	0.0529	1.0226	0.0548	0.0666	0.0596	0.0721
Brand trust	0.0620	0.0769	0.0611	0.0595	0.0542	0.0643	1.0229	0.0527	0.0669	0.0516
Adaptability to market changes	0.0649	0.0596	0.0707	0.0592	0.0664	0.0877	0.0662	1.0258	0.0779	0.0521
Multichannel communications	0.0558	0.0698	0.0519	0.0595	0.0562	0.0827	0.0615	0.0681	1.0264	0.0484
Brand social responsibility	0.0539	0.0556	0.0661	0.0578	0.0576	0.0440	0.0606	0.0495	0.0701	1.0179

In the inverse matrix of the lower component, HB01 and HB03 show the greatest influence in interactions with other criteria. Because these criteria emphasize the essential characteristics of the brand, such as core principles and beliefs and visual symbols, they play a central role in shaping customers' perceptions of the brand. The strong influence of these criteria on variables such as HB05 (organizational culture) and HB06 (brand innovation experience) also indicates the synergy between the brand's foundational values and innovation in strengthening the brand's competitive position.

Table 12. **Inverse I–Xm Matrix of Group Three: Competitive Advantage**

	HB01	HB02	HB03	HB04	HB05	HB06	HB07	HB08	HB09	HB10
Brand values	1.0968	0.1749	0.1465	0.1823	0.1623	0.1855	0.1515	0.1607	0.1886	0.1551
Brand personality	0.1648	1.0960	0.1505	0.1489	0.1275	0.1506	0.1533	0.1600	0.1680	0.1409
Visual identity design	0.1397	0.1630	1.0952	0.1651	0.1513	0.1551	0.1844	0.1766	0.1841	0.1286
Brand voice	0.1583	0.1706	0.1663	1.0984	0.1409	0.1704	0.1441	0.1584	0.1864	0.1400
Organizational culture	0.1479	0.1497	0.1545	0.1748	1.0916	0.1520	0.1643	0.1695	0.1854	0.1564
Brand innovation experience	0.1437	0.1616	0.1321	0.1647	0.1478	1.0978	0.1448	0.1635	0.1631	0.1663
Brand trust	0.1604	0.1805	0.1630	0.1643	0.1459	0.1707	1.0962	0.1535	0.1735	0.1414
Adaptability to market changes	0.1667	0.1678	0.1721	0.1641	0.1715	0.1950	0.1634	1.1062	0.1884	0.1537
Multichannel communications	0.1489	0.1757	0.1524	0.1584	0.1497	0.1903	0.1607	0.1724	1.1092	0.1387
Brand social responsibility	0.1410	0.1539	0.1642	0.1429	0.1516	0.1391	0.1492	0.1406	0.1702	1.0820

In the inverse matrix of the middle component, criterion HB08 (brand trust) and HB09 (adaptability to market changes) play more critical roles. The data show that customers' trust in the brand, formed through transparency, honesty, and brand commitments, has a direct effect on other criteria. On the other hand, adaptability to market changes enables brands not only to align with customers' changing needs, but also to remain ahead under competitive conditions. The relationship between these criteria and criterion HB10 (brand social responsibility) is also noteworthy, because social responsibility can strengthen customer trust and function as a source of competitive differentiation.

Table 13. **Inverse I–Xu Matrix of Group Three: Competitive Advantage**

	HB01	HB02	HB03	HB04	HB05	HB06	HB07	HB08	HB09	HB10
Brand values	1.4429	0.5604	0.5303	0.5634	0.5308	0.5699	0.5216	0.5416	0.5754	0.5242
Brand personality	0.5100	1.4405	0.5099	0.5165	0.4776	0.5193	0.5030	0.5192	0.5379	0.4873
Visual identity design	0.4920	0.5302	1.4318	0.5270	0.5009	0.5218	0.5236	0.5296	0.5485	0.4786
Brand voice	0.5171	0.5455	0.5326	1.4488	0.5037	0.5460	0.5074	0.5248	0.5638	0.4962
Organizational culture	0.5068	0.5271	0.5210	0.5414	1.4248	0.5242	0.5210	0.5314	0.5623	0.5077

Brand innovation experience	0.4920	0.5289	0.4940	0.5262	0.4989	1.4415	0.4976	0.5185	0.5354	0.5059
Brand trust	0.5236	0.5599	0.5403	0.5442	0.5134	0.5535	1.4409	0.5311	0.5644	0.5056
Adaptability to market changes	0.5331	0.5587	0.5489	0.5474	0.5352	0.5741	0.5300	1.4612	0.5760	0.5206
Multichannel communications	0.5166	0.5597	0.5341	0.5443	0.5150	0.5708	0.5338	0.5492	1.4777	0.5048
Brand social responsibility	0.4848	0.5150	0.5129	0.4967	0.4923	0.5038	0.4963	0.4938	0.5315	1.3994

The inverse matrix of the upper component indicates the interactive effects among different criteria at higher levels of uncertainty. At this stage, criteria HB07 (brand voice) and HB08 exert the greatest influence on the other criteria. Brand voice, which encompasses the tone and style of brand communications, contributes to strengthening a coherent brand identity and creating positive associations in customers' minds. Likewise, criterion HB08, by emphasizing trust-building and the delivery of a positive customer experience, plays an important role in consolidating the brand's market position.

Overall, the analysis of the fuzzy input data of the third group shows that the various criteria operate as an interactive network, and success in any one of them can have a direct effect on the performance of the others. The strong relationships among criteria such as brand values, brand personality, brand trust, and brand social responsibility indicate that brand identity and competitive differentiation must be managed in an integrated and coordinated manner in order for the brand to achieve its strategic objectives.

The analysis of significant relationships in the third group, which includes criteria related to brand identity and competitive differentiation, indicates a complex structure and interactions among the various criteria in this group. The relationships among the criteria reflect their direct influences and susceptibility to influence, thereby clarifying the role of each criterion within the network of relationships. This analysis can be used to identify the key criteria that exert the greatest influence on shaping brand identity and creating competitive differentiation.

The criterion of brand values, as one of the central criteria, has established multiple relationships with other criteria. This criterion exerts a strong influence on criteria such as brand personality, visual identity, and brand voice, indicating its role as a key criterion in creating a strong and coherent brand image. In particular, the strong relationship between brand values and brand voice highlights the importance of aligning the brand's communication messages with its core values.

Table 14. Significant Relationships in Group Three

	HB01	HB02	HB03	HB04	HB05	HB06	HB07	HB08	HB09	HB10
Brand values	0	1	0	1	1	1	0	1	1	1
Brand personality	1	0	0	0	0	0	0	1	1	0
Visual identity design	0	1	0	1	0	1	1	1	1	0
Brand voice	1	1	1	0	0	1	0	1	1	0
Organizational culture	0	0	1	1	0	0	1	1	1	1
Brand innovation experience	0	1	0	1	0	0	0	1	1	1
Brand trust	1	1	1	1	0	1	0	1	1	0
Adaptability to market changes	1	1	1	1	1	1	1	0	1	1
Multichannel communications	0	1	1	1	0	1	1	1	0	0
Brand social responsibility	0	0	1	0	0	0	0	0	1	0

On the other hand, the criterion of brand social responsibility, which has extensive relationships with other criteria, indicates the importance of this factor in strengthening brand identity and creating competitive differentiation. This criterion plays a particularly significant role in interaction with criteria such as brand trust and brand innovation experience. These relationships show that brand social responsibility can function as a supportive force in creating a positive brand image and attracting customer trust.

One of the criteria that has more limited relationships with other criteria is adaptability to market changes. This limitation in relationships may indicate the complementary role of this criterion within the relationship network. Although adaptability to market changes has a direct effect on a limited number of criteria, it can indirectly strengthen its role within the network through the reciprocal effects of other criteria.

Visual identity is also one of the prominent criteria in this network of relationships, particularly through its strong association with criteria such as brand personality and brand innovation experience. These relationships indicate that strong visual identity design can function as one of the principal factors in differentiating the brand in the market, while at the same time reinforcing coordination among other brand elements.

Overall, the analysis of these relationships demonstrates the importance of criteria such as brand values, brand social responsibility, and visual identity in strengthening brand identity and creating competitive differentiation. These criteria function as the core of the relationship network and, through interaction with other criteria, play a decisive role in brand success. Therefore, attention to strengthening these criteria in brand design and management can lead to an improved brand image and enhanced competitive capability in the market.

The analysis of the aggregated results of the identified criteria using the fuzzy DEMATEL method provides a comprehensive view of the influence exerted by and upon the various criteria within the system. The results obtained indicate the balances and imbalances of influence among the criteria and clarify the importance of each criterion within the overall structure.

The criteria in Group B (brand-related criteria) demonstrate considerable influence over the other criteria. In particular, criterion B4, which stands out due to its high level of influence and extensive interactions with the other criteria, plays a central role in the network. This criterion, which may refer to elements such as visual identity or brand personality, emphasizes the importance of brand image in overall success. This suggests that strengthening this criterion can simultaneously improve other criteria.

The criteria in Group TM (customer interactions) also exhibit substantial effects. Criteria TM04 and TM06, which were identified as having high levels of both influence and susceptibility to influence, are particularly important in the context of customer interactions and their overall experience. These criteria may relate to such elements as customer experience design and adaptability to market changes, thereby emphasizing the importance of flexibility and innovation in customer interaction.

The criteria in Group HB (brand identity and competitive differentiation), including HB07 and HB10, were identified as prominent criteria. These criteria, with high D−R values and extensive reciprocal interactions, indicate the importance of competitive differentiation and social responsibility in strengthening brand identity. Criterion HB07, which may relate to aspects such as brand social responsibility or ethical leadership, emphasizes that social responsibility functions as a key factor in creating positive relationships with customers.

The examination of criteria with positive and negative D−R values indicates that some criteria play a driving role, whereas others function as dependent criteria. Criteria such as TM07 and HB02, which have negative D−R values, are more strongly identified as influence-receiving criteria and are dependent on the effects of other criteria. These findings can be effective in prioritizing strategic actions, because influential criteria should receive greater priority in managerial and marketing planning.

The results of the analysis indicate that criteria with positive and high D−R values, such as HB10 and B03, play an essential role in generating positive interactions and synergy among the criteria. These criteria are typically

selected as starting points for improving and strengthening the system. By contrast, criteria with negative D−R values, such as TM07 and HB02, require greater support through the reinforcement of other related criteria.

The analysis of the significant relationships among ESG criteria in the integrated system indicates complex interactions and interdependence among the various elements. This table presents the relationships among brand criteria (B), customer interactions (TM), and brand identity (HB) within a comprehensive framework. This analytical approach provides a deeper understanding of how the criteria mutually influence one another and of their roles in the overall success of the system.

The criteria in Group B indicate that criteria such as B02 and B03 have greater influence and establish direct relationships with multiple criteria. For example, B03 has extensive interactions with criteria from the TM and HB groups, indicating its key role in establishing the link between the brand and customers. This underscores that the influential criteria in this group should be considered principal focal points in the design of branding strategies.

Table 15. **Significant Relationships of Aggregated and Integrated ESG Criteria**

	B01	B02	B03	B04	B05	B06	B07	B08	TM01	TM02	TM03	TM04	TM05	TM06	TM07	TM08	HB01	HB02	HB03	HB04	HB05	HB06	HB07	HB08	HB09	HB10
B01	0	1	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B02	0	0	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	1	0	0	0	1	1	0	1
B03	1	1	0	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1
B04	0	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	0	0	0	1	1	0	1	1	0	1
B05	0	1	1	1	0	0	1	0	1	1	0	1	0	1	0	1	0	0	0	1	1	0	0	0	0	1
B06	1	1	0	0	1	0	1	0	1	1	1	1	0	1	0	1	1	1	1	1	1	0	1	1	1	1
B07	1	1	0	1	1	0	0	0	1	1	0	0	1	0	1	0	1	0	0	0	1	0	1	0	0	1
B08	0	1	1	1	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	1	1	1	1	0	0	1
TM01	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0	1
TM02	1	0	0	1	1	0	1	0	1	0	0	0	0	1	0	1	1	1	1	0	0	0	0	1	0	1
TM03	0	0	0	0	1	0	1	0	0	1	0	1	1	0	1	1	0	1	1	1	0	0	1	1	0	1
TM04	1	0	1	1	0	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	1	1	1	1	0	1
TM05	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1
TM06	1	1	0	0	1	1	0	1	1	1	1	0	0	0	1	1	1	0	1	1	1	0	1	1	0	1
TM07	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
TM08	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	0	0	0	0	0	1	1	1	1	0	1
HB01	0	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0	1	0	0	0	1	1	1	0
HB02	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1
HB03	0	0	0	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	1	1	0	0
HB04	0	1	1	0	1	0	1	1	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	1	0	1
HB05	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	0	0	1
HB06	0	1	0	0	0	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	0	1

HB07	0	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1
HB08	0	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	0	1	0	0	0	0	1
HB09	1	1	1	0	1	0	0	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	0	1
HB10	1	1	0	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1	1	0	0

The TM group of criteria represents dynamic and substantial interactions within the system. Criteria such as TM04 and TM06, which have multiple relationships with criteria in the other groups, play a particularly important role in customer experience and innovation. These criteria indicate that strengthening customer interactions and improving their experience can contribute to reinforcing the brand's position in customers' minds. In addition, criteria such as TM03 and TM07, which have more limited interactions, indicate their potential for improvement through strengthening their relationships with other criteria.

In Group HB, criteria such as HB07 and HB10 are identified as highly influential criteria. These criteria play a key role particularly in establishing the relationship between brand identity and socio-economic interactions. HB07, which most likely refers to brand social responsibility, is related to numerous criteria in the other groups and shows how social responsibility can contribute to creating added value and strengthening customer trust.

The analysis of the relationships among the criteria of the three main groups indicates complex and multi-level interactions among them. Some criteria, such as B03 and TM06, function as mediating criteria and create bridges among the different groups. These criteria are highly important in establishing integration and coordination within the system, and attention to them can contribute to the overall improvement of performance.

Finally, criteria with more limited interactions, such as TM07 or HB02, indicate that these criteria are more dependent on the effects of other criteria. These criteria may be identified as points for improvement and development within the system. Overall, this analysis helps system designers identify the key criteria and, by focusing on strategic interactions, create targeted improvements in the system.

Discussion and Conclusion

The findings of the present study showed that branding based on the creation of competitive advantage in food industry companies is a multidimensional and interdependent system composed of three main domains: branding, brand interaction, and competitive advantage. The qualitative phase demonstrated that branding in this sector cannot be reduced to a single symbolic or promotional layer, because it is formed through the simultaneous operation of brand identity, brand image, brand trust, brand loyalty, brand differentiation, brand sustainability, brand communications, and brand equity, together with customer-facing interactional elements and broader competitive capabilities. This result is theoretically important because it confirms that branding is not merely a marketing output but a strategic architecture that links internal organizational capabilities to external market outcomes. Such an interpretation is consistent with studies that conceptualize branding as an expanding relational and value-based system rather than a narrow communications function (1, 8). It is also aligned with work showing that sustained competitive advantage depends on the strategic alignment of organizational resources and business capabilities, not on isolated promotional tools (4, 18). In the context of food industry firms, where switching costs are low and customer judgments are frequent, the emergence of these three integrated domains suggests that competitive

branding must be managed as a system of value creation, customer interpretation, and adaptive differentiation rather than as a simple exercise in awareness building.

One of the central findings of the study was that the criteria within the branding dimension, although initially showing limited interaction in the lower-level fuzzy matrix, exerted substantial independent influence in shaping the overall architecture of the model. This means that core branding elements maintain foundational importance even before strong network effects emerge among them. In practical terms, the result implies that food industry companies must first establish robust brand foundations—such as identity clarity, image coherence, trustworthiness, and communication consistency—before expecting more complex synergies to develop across customer interaction and competitive positioning. This finding supports previous research indicating that brand equity develops through layered processes in which brand image, loyalty, and boundary-spanning meaning systems gradually reinforce one another (8, 9). It is also compatible with evidence that visual branding strategies play a major role in establishing recognizable and interpretable brand cues in everyday consumer settings (6). Since the food industry depends heavily on immediate recognition, sensory expectation, and symbolic cues of quality and reliability, the foundational independence of branding criteria observed in this study can be interpreted as evidence that core brand construction remains the starting point for later relational and competitive effects. In other words, without a coherent base, higher-level interaction and differentiation mechanisms are unlikely to function effectively.

A particularly important result concerned the strong interaction between brand trust and brand loyalty. This finding indicates that trust is not merely a desirable outcome of branding but a structural driver that deepens attachment and stabilizes customer behavior over time. In food markets, where risk perceptions related to quality, safety, authenticity, and consistency are pronounced, trust becomes a mechanism through which loyalty is converted from occasional repeat purchase into a durable relational commitment. This interpretation is strongly supported by previous studies showing that satisfaction, perceived service quality, and favorable brand attitudes mediate the path toward loyalty (11, 12). It also accords with research demonstrating that brand marketing in digital and social environments shapes emotional responses that strengthen consumer attachment (13). Moreover, the positive role of trust in this study is consistent with findings that brand ethicality strengthens the impact of innovativeness on brand equity (10). Together, these parallels suggest that trust in food industry branding is built not only through product performance but also through transparent messaging, reliable experience, and perceived moral credibility. Therefore, the trust–loyalty linkage identified here should be considered one of the principal mechanisms through which branding contributes to sustained competitive advantage.

The results of the brand interaction dimension further indicated that transparent communication, after-sales service, customer engagement, and digital experience design occupy pivotal positions within the interaction network. These findings show that the customer does not encounter the brand solely through symbolic identity, but through repeated experiential touchpoints that either reinforce or weaken brand meaning. Transparent communication emerged as a particularly central criterion, which is highly understandable in the food industry because customers increasingly demand clarity regarding quality, ingredients, value, service, and responsiveness. This result aligns with research showing that purchase decisions are strongly affected by brand image and awareness when these are supported by effective communication mechanisms (14). It also echoes studies indicating that consumer emotions in mobile and digital environments are shaped by brand communication quality (13). The strong role of after-sales service and employee behavior in the model similarly reinforces the view that service-related interactions are not peripheral in product industries, especially where distribution, ordering systems,

complaint handling, and customer support increasingly affect the perceived brand experience. This interpretation is supported by service quality and customer loyalty research in retail settings (11), as well as by work showing that customer-centric capability and service delivery innovation contribute to competitive advantage (31). Accordingly, the present study suggests that for food companies, customer interaction is not a secondary outcome of branding but one of its main operational vehicles.

Another notable finding was the importance of customer engagement and digital experience design as mutually reinforcing drivers within the interaction domain. This implies that food brands are now expected to provide not only products but also responsive, participatory, and technologically mediated experiences that make customers feel recognized and involved. This finding is consistent with prior evidence that customers' participation in virtual brand communities is influenced by product-related factors and can shape broader brand relationships (15). It also corresponds with research on shared value creation behavior and repurchase intention, which indicates that customer participation can intensify the behavioral consequences of brand preference (16). Similarly, the role of co-created brand experience observed in destination branding studies provides conceptual support for the present result, particularly the idea that emotional and relational attachment are strengthened when customers participate in value creation processes (17). In the food industry, where digital ordering, feedback platforms, delivery ecosystems, and social media interaction increasingly mediate consumption, the strategic role of customer engagement and digital experience becomes especially important. The present findings therefore extend the literature by showing that digital and participatory interactions are not merely communication channels; they are causal elements within the broader branding system that influence competitive outcomes.

The third major finding of the study concerned the competitive advantage dimension, in which brand values, brand personality, visual identity design, brand voice, adaptability to market changes, multichannel communications, and brand social responsibility formed an interdependent structure. The results indicated that criteria related to trust, social responsibility, and adaptive positioning had particularly strong influence within this domain. This shows that competitive advantage in food industry branding is created not only through distinction in appearance or message, but also through the brand's ability to embody values, respond to change, and sustain social legitimacy. This interpretation is strongly aligned with the literature on sustainability branding, which emphasizes that contemporary brand strength increasingly depends on value-based positioning and credible responsibility claims (28). It is also consistent with studies demonstrating that open innovation, organizational learning, and innovation capability are major drivers of sustainable competitive advantage (18, 19). The importance of adaptability to market changes in the present findings further resonates with research showing that innovation and market orientation influence business performance through competitive advantage (7). Thus, the discussion suggests that competitive branding in the food industry requires simultaneous management of symbolic differentiation and strategic adaptability.

The prominence of brand social responsibility and brand values in the integrated network is particularly meaningful. These criteria appeared not as marginal moral add-ons but as central nodes contributing to trust formation, positive image construction, and cross-dimensional synergy. This result supports the argument that social responsibility functions as a source of differentiation and legitimacy, especially when consumers are increasingly attentive to ethical, environmental, and social issues in their purchasing decisions (10, 28). It also fits with public and institutional branding research emphasizing that legitimacy arises when communicated identity is matched by responsible practice (1). In the food sector, social responsibility may relate to safety, local sourcing,

labor conditions, environmental stewardship, and honest communication, all of which shape brand credibility. The study therefore indicates that responsible branding can create competitive advantage not only through reputation but through its cascading effects on trust, engagement, and coherence across the system. This interpretation is strengthened by prior work on brand revitalization and resilience, which suggests that brands remain competitive when they can renew relevance while preserving stakeholder confidence (5, 21, 22).

The integrated fuzzy DEMATEL results also revealed that some criteria function primarily as drivers, while others are more dependent and require reinforcement through the strengthening of adjacent criteria. This finding is theoretically significant because it confirms that branding systems in the food industry are causal networks rather than flat sets of indicators. Influential criteria such as core branding dimensions and socially grounded competitive elements act as leverage points capable of generating wider system improvements, whereas more dependent criteria, such as certain digital or image-related elements, may improve only when upstream dimensions are enhanced. This systems-based interpretation is consistent with research on performance measurement barriers, which highlights the difficulty of managing complex organizational systems without identifying influential and dependent variables (27). It also aligns with the logic of strategic resource orchestration, according to which some capabilities serve as enablers of broader value creation (4, 32). The implication is that managers in food industry firms should not distribute branding investment evenly across all dimensions. Instead, they should identify high-influence criteria—such as trust-building mechanisms, transparent communication, socially responsible positioning, and adaptive brand capabilities—as the main entry points for systemic improvement.

Finally, the study as a whole shows that branding based on the creation of competitive advantage is best understood as a dynamic and resilient organizational capability. In unstable and highly competitive markets, brands must be capable of renewal, coherence, and adaptation. This interpretation is consistent with the resilience literature, which defines long-term success as the capacity to absorb disruption, adapt, and continue creating value (5). It also corresponds to studies on crisis conditions, which show that trust, reciprocity, and responsive management become especially critical when uncertainty increases (23). Digital and AI-related transformations further reinforce this point because brands must now compete through personalization, responsiveness, and intelligent communication architectures (25, 26). Even symbolic strategies such as nostalgia can enhance competitive positioning when they are deployed in ways that deepen emotional continuity and meaning (29). Taken together, the findings of the present study indicate that food industry companies can no longer rely on product quality alone as a source of advantage. Sustainable success depends on building an integrated branding system in which foundational brand elements, customer interactions, and socially legitimate competitive capabilities reinforce one another in a coordinated manner. This also helps explain why previous work in diverse sectors—from tourism and airlines to local markets and emerging urban competitiveness—has repeatedly shown that brand development is most effective when it is embedded within a broader strategic framework of differentiation, communication, and capability development (2, 3, 27, 30).

This study had several limitations that should be acknowledged. First, the empirical setting was limited to food industry companies in one provincial context, which may restrict the transferability of the findings to other sectors or regions with different market dynamics. Second, the qualitative phase relied on expert interpretation and the quantitative phase depended on expert judgment matrices, which, although appropriate for fuzzy DEMATEL analysis, may still reflect subjective bias. Third, the study focused on identifying and structuring influential dimensions rather than testing behavioral outcomes such as sales growth, market share, or customer retention over

time. In addition, the cross-sectional design did not allow assessment of how these relationships may evolve under changing economic, technological, or competitive conditions.

Future research can extend the present study in several directions. Comparative studies across different industries or provinces could examine whether the same dimensions retain their influence in other competitive contexts. Researchers may also test the model using larger survey samples and structural equation modeling in order to validate the causal pathways identified here at the consumer or firm level. Longitudinal studies would be especially valuable for examining how branding dimensions change over time in response to crises, digital transformation, or shifts in consumer expectations. It would also be useful to investigate the role of artificial intelligence, platform-based commerce, and sustainability claims as emerging moderators of the relationship between branding and competitive advantage.

From a practical standpoint, managers of food industry companies should treat branding as an integrated strategic system rather than a limited promotional function. Priority should be given to strengthening the high-impact criteria identified in this study, particularly transparent communication, brand trust, customer engagement, digital experience design, brand values, adaptability, and social responsibility. Firms should align visual identity, service processes, digital interfaces, and complaint management systems so that customers encounter a coherent and trustworthy brand at every touchpoint. Investment in staff behavior, after-sales service, and multichannel communication can improve the quality of brand interaction, while attention to ethical conduct, innovation, and market responsiveness can reinforce long-term differentiation. In this way, branding can become a practical mechanism for improving both customer relationships and sustainable competitive position.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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