

# Cognitive Roots of Customer Engagement: Sentiment-Driven Decision Dynamics in Social Media Marketing of Indonesian SMEs

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## Abstract

### Article History

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**Purpose**—This study addresses the growing disconnect between high social media engagement and actionable decision-making outcomes among Indonesian SMEs. While firms generate large volumes of interaction data, they often lack the analytical frameworks to interpret customer behavior.

**Design/methodology/approach**—To address this issue, the study proposes a cognitive-behavioral model integrating natural language processing (NLP)-based sentiment analysis with engagement metrics.

**Findings**—Using a dataset of 195,513 social media interactions, regression results indicate that sentiment significantly influences engagement ( $\beta = 0.43$ ,  $p < 0.01$ ), while engagement strongly predicts decision outcomes ( $\beta = 0.51$ ,  $p < 0.01$ ). Mediation analysis confirms that engagement partially transmits the effect of sentiment (indirect effect = 0.22).

**Research implication/limitation**—The findings demonstrate that sentiment-driven engagement serves as a critical mechanism linking digital interactions to behavioral outcomes, offering a data-driven foundation for adaptive marketing strategies in SMEs.

**Originality/value**—The novelty lies in conceptualizing engagement as an observable decision-making process rooted in cognitive sentiment dynamics.

**Keywords:** Sentiment Analysis, Customer Engagement, Social Media Marketing, Economics, Indonesia SMEs

**JEL Classifications:** M31, D91, M37



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## 1. Introduction

The rapid digital transformation of small and medium-sized enterprises (SMEs) has fundamentally reshaped marketing practices, particularly in emerging economies such as Indonesia (Mutmainah et al., 2025; Siagian et al., 2026). As part of the broader digital economy, Indonesian SMEs (Usaha Mikro, Kecil, dan Menengah-UMKM) increasingly rely on social media platforms to reach customers, promote products, and sustain business performance (Soetikno et al., 2025a). Platforms such as Instagram, TikTok, and YouTube have evolved from communication tools into strategic marketing infrastructures, enabling firms to engage directly with consumers in real time (Purnawan et al., 2025).

Within this digital ecosystem, customer engagement has emerged as a critical indicator of marketing effectiveness. Engagement typically reflected through likes, comments, shares, and interaction intensity represents more than passive consumption; it signals active customer involvement and relational commitment (Abdurrahman, 2025). For SMEs with limited resources, such engagement serves as a proxy for market visibility and potential revenue generation, making it a central outcome of social media marketing strategies.

However, engagement does not occur in isolation. It is shaped by how customers cognitively and emotionally interpret marketing content (Panjaitan et al., 2025). In this context, customer sentiment-expressed through textual interactions such as comments and feedback plays a pivotal role (Adha et al., 2026; Savellano, 2025). Sentiment reflects customers' evaluative judgments and emotional reactions, which in turn influence their willingness to interact with and respond to marketing stimuli. With the advancement of computational techniques, sentiment embedded in large-scale textual data can now be systematically captured and analyzed, providing a more nuanced understanding of customer perceptions in digital environments.

Indonesia has experienced a rapid expansion of its digital economy, driven by increasing internet penetration, mobile usage, and platform-based commerce (Mulyati et al., 2025). Small and medium-sized enterprises (SMEs), particularly within the UMKM sector, play a critical role in this transformation, contributing significantly to national economic output and employment (Jufri & Hadiwibowo, 2025; Mujib, 2025). Government initiatives promoting SME digitalization have further accelerated the adoption of social media platforms as primary marketing channels. Within this evolving landscape, social media is no longer a supplementary tool but a central mechanism through which SMEs interact with customers, build relationships, and sustain competitiveness in increasingly digitalized markets (Rodríguez-Carrillo et al., 2025).

Despite the growing body of literature on social media marketing and customer engagement, several limitations remain. First, existing studies predominantly examine the direct relationship between marketing activities and engagement outcomes, often overlooking the underlying cognitive mechanisms that drive such interactions (Bao et al., 2025; Novitasari et al., 2025). While engagement is widely studied, the role of sentiment as an intermediary cognitive-emotional signal remains insufficiently theorized in management research.

Second, many prior studies rely heavily on survey-based approaches, which capture self-reported perceptions rather than actual behavioral data (Salem et al., 2025). This creates a gap between perceived and observed engagement, limiting the ability to understand real-

time decision-making processes in digital contexts. The increasing availability of user-generated content offers an opportunity to address this limitation by analyzing actual interaction data (Khan et al., 2026).

Third, there is a lack of context-specific research focusing on Indonesian SMEs. Given Indonesia's unique digital landscape characterized by rapid platform adoption, diverse consumer behavior, and strong government support for SME digitalization findings from developed economies may not fully generalize (Desantoro et al., 2026; Tanaka & Suhartono, 2026). Empirical evidence grounded in Indonesian data is therefore essential to advance both theoretical and practical understanding.

Despite the growing reliance on social media, a critical tension persists between data availability and actionable insight. While SMEs generate substantial volumes of interaction data, including comments, likes, and feedback, they often lack the analytical capacity to translate these signals into strategic decisions. Moreover, high engagement does not always correspond to improved business outcomes, creating uncertainty regarding the effectiveness of digital marketing efforts. This disconnect highlights the need to better understand the underlying mechanisms that transform customer reactions into meaningful behavioral outcomes.

In response to these gaps, this study aims to examine how customer sentiment, derived from social media interactions, influences customer engagement and subsequent behavioral decision outcomes among Indonesian SMEs. Specifically, the study proposes a cognitive pathway in which sentiment operates as an underlying driver of engagement, which in turn reflects observable decision-making behavior in digital environments.

This study conceptualizes customer sentiment as a cognitive-emotional signal that shapes engagement behavior, which subsequently influences decision outcomes. Engagement is treated as a behavioral manifestation of customer decisions, reflecting interaction intensity and responsiveness.

The relationships between the variables are formally expressed through the following equations:

**Equation 1: Sentiment → Engagement**

$$Engagement_i = \beta_0 + \beta_1 Sentiment_i + \epsilon_i$$

**Equation 2: Engagement → Decision Outcomes**

$$Decision_i = \beta_0 + \beta_1 Engagement_i + \epsilon_i$$

**Equation 3: Mediation Model**

$$Decision_i = \beta_0 + \beta_1 Sentiment_i + \beta_2 Engagement_i + \epsilon_i$$

Based on this framework, the study proposes the following hypotheses:

*H1: Customer sentiment significantly influences customer engagement.*

*H2: Customer engagement significantly influences behavioral decision outcomes.*

*H3: Customer sentiment indirectly influences behavioral decision outcomes through customer engagement.*

This study contributes to the literature in three key ways. First, it advances marketing theory by positioning customer sentiment as a cognitive mechanism underlying

engagement, rather than treating it as a peripheral variable. Second, it extends understanding of digital decision-making by conceptualizing engagement as an observable behavioral outcome. Third, it provides empirical evidence from Indonesian SMEs using large-scale interaction data, thereby addressing the contextual and methodological limitations of prior research.

## **2. Literature Review**

### **2.1 Social Media Marketing in SMEs**

Social media marketing has become a central strategic tool for SMEs, particularly in emerging economies where digital platforms provide cost-effective access to large consumer bases (Prasetya et al., 2025). Unlike traditional marketing channels, social media enables interactive communication, real-time feedback, and personalized content delivery. For Indonesian SMEs, this transformation is especially significant, as platforms such as Instagram, TikTok, and YouTube facilitate direct engagement with customers and reduce reliance on intermediaries (Destrian, 2025; Ratnawati et al., 2025).

Prior studies indicate that social media marketing intensity measured through posting frequency, content diversity, and platform utilization positively influences customer interaction and brand visibility (Ali et al., 2026; Ivanputri, 2026). However, the effectiveness of these strategies depends not only on the volume of content but also on how customers perceive and respond to it. This suggests that marketing efforts must be evaluated in conjunction with customer-driven signals such as sentiment and engagement.

From a theoretical perspective, social media marketing capabilities can be understood through the lens of the resource-based view (RBV), which emphasizes the strategic value of firm-specific resources in achieving competitive advantage. Digital platforms, when effectively utilized, represent intangible resources that enable SMEs to enhance visibility and customer interaction (Thaha et al., 2025). However, the value of these resources depends on how firms interpret and respond to customer feedback, suggesting that marketing effectiveness is contingent not only on resource availability but also on the firm's ability to process and act upon customer-generated information.

### **2.2 Customer Sentiment as a Cognitive Signal**

Customer sentiment reflects the evaluative and emotional responses expressed by individuals in digital environments (Mathan et al., 2026). From a cognitive perspective, sentiment represents how customers interpret and assign meaning to marketing stimuli, shaping subsequent behavioral responses. Positive sentiment typically indicates favorable evaluations, while negative sentiment signals dissatisfaction or disconfirmation of expectations (Riaz et al., 2026).

Advances in computational analysis have enabled the extraction of sentiment from large-scale textual data, providing a more objective measure of customer perception compared to traditional surveys (Mahajan & Chauhan, 2026). Importantly, sentiment functions not merely as an emotional reaction but as a cognitive filter that influences attention, interpretation, and action. As such, it plays a crucial role in determining whether users engage with content or ignore it (Rehman et al., 2025).

The role of sentiment can be further explained through cognitive appraisal theory, which posits that individuals evaluate external stimuli based on personal relevance and emotional significance before responding behaviorally (Lei & Kong, 2026; Sharma et al., 2023). In digital contexts, customer sentiment reflects this evaluative process, shaping how users interpret marketing messages and decide whether to engage. Thus, sentiment operates not merely as an emotional reaction but as a cognitive mechanism that filters information and influences subsequent behavioral responses (Shoukat & Ramkissoon, 2022).

### ***2.3 Customer Engagement as Behavioral Response***

Customer engagement is widely conceptualized as the degree of cognitive, emotional, and behavioral investment in brand interactions. In social media contexts, engagement is typically operationalized through observable actions such as likes, comments, shares, and interaction frequency (Ofilada & Galang, 2026; Venkat et al., 2025).

From a behavioral standpoint, engagement reflects active participation and serves as a proxy for customer involvement. Higher engagement levels indicate stronger relational ties and increased likelihood of conversion-related behaviors. For SMEs, engagement is particularly valuable as it enhances algorithmic visibility, thereby amplifying marketing reach without additional financial investment (Al-Thani & Jansen, 2025). However, engagement is not solely driven by firm-generated content. It is also influenced by user-generated responses, particularly sentiment, which shapes the perceived relevance and attractiveness of content.

Customer engagement is increasingly conceptualized as a multidimensional construct encompassing cognitive, emotional, and behavioral components (Djamaly et al., 2025; Tran, 2025). While observable metrics such as likes and comments capture behavioral engagement, they are often underpinned by deeper cognitive and affective processes. This perspective suggests that engagement should be interpreted not only as an outcome variable but also as an indicator of underlying psychological states, reinforcing its relevance as a proxy for decision-making behavior in digital environments.

### ***2.4 Decision-Making in Digital Contexts***

Decision-making in digital environments differs from traditional consumer behavior due to the immediacy and interactivity of online platforms. Rather than discrete purchase decisions, digital behavior often manifests as a sequence of micro-decisions, including whether to like, comment, share, or ignore content (Aldosari & Al Khalifa, 2026; Urbonavicius et al., 2025).

These actions can be interpreted as observable behavioral decisions, reflecting underlying cognitive processes. Engagement, therefore, can be viewed as a manifestation of decision-making, where users allocate attention and effort based on perceived value and relevance. In this context, sentiment plays a critical role by influencing how users evaluate content and decide whether to interact with it (Zang et al., 2026). Positive sentiment may encourage engagement, while negative sentiment may either discourage interaction or stimulate reactive behavior, depending on context.

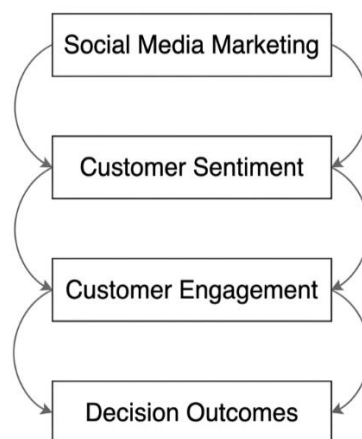
From a behavioral decision-making perspective, digital interactions can be viewed as a series of heuristic-driven responses rather than fully rational choices. Users often rely on

simplified cognitive shortcuts when evaluating content, particularly in environments characterized by information overload (Al-Thani & Jansen, 2025). Sentiment plays a critical role in this process by providing immediate evaluative cues that guide attention and interaction. Consequently, engagement behaviors can be interpreted as micro-level decisions shaped by both cognitive evaluation and contextual factors.

## 2.5 Conceptual Framework

Building on the preceding discussion, this study proposes a framework in which social media marketing influences customer sentiment, which in turn drives engagement and subsequent decision outcomes. Sentiment is positioned as a cognitive mechanism that mediates the relationship between marketing stimuli and behavioral responses.

Customer sentiment is expected to play a central role in shaping engagement behavior. Positive sentiment signals favorable evaluations, increasing the likelihood that users will interact with content, while negative sentiment may either discourage engagement or stimulate reactive responses. Prior research suggests that emotionally charged content tends to generate higher levels of interaction, indicating a strong link between sentiment and engagement behavior. Therefore, sentiment can be viewed as a cognitive-emotional driver that influences the intensity of customer participation.



**Figure 1. Conceptual Framework**

Source(s): Authors' own work (2026)

Customer engagement is closely associated with behavioral decision-making in digital environments. Engagement actions, such as liking, commenting, or sharing content, reflect deliberate choices made by users in response to perceived value and relevance. These actions can be interpreted as observable indicators of underlying decision processes, where users allocate attention and effort based on their evaluation of content (Song et al., 2025). As such, higher engagement levels are expected to correspond with stronger behavioral decision outcomes.

The relationship between customer sentiment and decision outcomes is expected to be mediated by engagement. While sentiment provides an initial evaluative signal, its influence on behavior is often realized through interaction (Mahajan & Chauhan, 2026; Mohan & Sharma, 2025). Engagement serves as the mechanism through which cognitive and emotional evaluations are translated into observable actions. This suggests that the impact

of sentiment on decision-making is indirect, operating primarily through its effect on engagement behavior.

## **2.6 Synthesis and Research Positioning**

The literature suggests that while social media marketing is effective in generating engagement, the underlying mechanisms remain underexplored. In particular, the role of sentiment as a cognitive driver of engagement and decision-making has not been sufficiently integrated into management research frameworks.

This study addresses this gap by proposing a sentiment-driven model of engagement, grounded in behavioral data from Indonesian SMEs. By linking marketing activities, sentiment dynamics, and decision outcomes, the study provides a more comprehensive understanding of digital consumer behavior.

## **3. Methodology**

### **3.1 Research Design**

This study adopts a quantitative research design supported by computational analysis of textual data to examine the relationship between customer sentiment, engagement, and behavioral decision outcomes. The approach is grounded in a behavioral perspective, where digital interactions are treated as observable manifestations of customer decision-making.

Rather than relying on self-reported survey data, this study utilizes user-generated content from social media platforms, allowing for the analysis of real-time customer responses. This design enhances external validity by capturing naturally occurring interactions within the digital marketplace of Indonesian SMEs.

### **3.2 Data Collection**

The data were collected from YouTube comment sections and Indonesian online news articles related to SME marketing activities and customer interaction. YouTube was selected due to its high level of user engagement and the availability of publicly accessible interaction data. News articles were included to capture broader public discourse surrounding Indonesian SMEs and digital consumer behavior.

The dataset consists of:

- a. User-generated comments
- b. Associated engagement metrics (likes, replies, interaction counts)
- c. Content posted by SME accounts

A large-scale dataset was constructed through automated extraction procedures, ensuring a diverse representation of industries and customer interactions. To maintain data quality, irrelevant and duplicate entries were removed, and only Indonesian-language or contextually relevant comments were retained. To ensure relevance to the Indonesian SME context, news articles were filtered using keywords associated with small and medium enterprises, including 'UMKM,' 'small business,' 'local products,' 'digital commerce,' and 'online customer engagement.' Articles unrelated to Indonesian SME activities were excluded during preprocessing. This filtering process ensured that the textual data reflected customer interaction and business communication relevant to SME environments.

**Table 1. Data Sources and Initial Dataset Size**

Source	Initial Records
YouTube comments	151,842
News articles	43,671
Total collected	195,513
Source(s): Authors' own work (2026)	

To ensure data quality, several preprocessing steps were implemented. Duplicate entries, irrelevant content, and non-contextual comments were removed to maintain dataset consistency. Additionally, language filtering was applied to retain comments relevant to the Indonesian context. Text normalization procedures, including the removal of special characters and standardization of textual formats, were conducted to facilitate accurate sentiment extraction. Only publicly accessible data were collected and analyzed, and no personally identifiable information was retained during preprocessing.

### 3.3 Variable Measurement

The study operationalizes three primary constructs: customer sentiment, engagement, and decision outcomes.

- Customer Sentiment is derived from textual data using IndoBERT-based sentiment classification and categorized into positive, neutral, and negative sentiment. Sentiment scores are normalized on a 0–1 scale, where higher values represent more favorable customer evaluations.
- Customer Engagement is measured using observable interaction metrics, including likes, replies, and total interaction counts. To address skewness in engagement distribution, a logarithmic transformation is applied.
- Decision Outcomes are conceptualized as behavioral responses in digital environments, proxied by high-intensity engagement indicators such as repeated interaction, comment depth, and interaction frequency.

**Table 2. Variable Measurement and Operationalization**

Variable	Proxy Measure	Transformation	Source
Customer Sentiment	Sentiment score (positive, neutral, negative)	0–1 normalized sentiment score	Text-based analysis
Customer Engagement	Likes + replies + interactions	Natural logarithm of interaction counts	Platform metrics
Decision Outcomes	Interaction intensity / repeated engagement	Standardized composite interaction index	Derived from engagement behavior

Source(s): Authors' own work (2026)

The use of computational sentiment analysis enables the systematic capture of customer evaluations embedded in textual data. Unlike traditional survey-based measures, this approach reflects spontaneous user expressions, thereby providing a more authentic

representation of customer perception. While acknowledging potential limitations, such as contextual ambiguity, the approach offers a scalable and consistent method for analyzing large volumes of interaction data.

### 3.4 Sentiment Analysis Procedure

Sentiment classification was conducted using the IndoBERT model fine-tuned for Indonesian-language sentiment analysis. The model was selected due to its strong contextual understanding of informal Indonesian expressions commonly found in social media interactions, including slang, abbreviations, and conversational language patterns.

Prior to analysis, textual data underwent several preprocessing stages, including lowercasing, tokenization, removal of URLs and special characters, normalization of repeated characters, and filtering of non-Indonesian content. Emojis and informal expressions frequently appearing in social media comments were retained where contextually relevant to preserve sentiment meaning.

To evaluate classification reliability, a subset of the dataset was manually annotated and cross-validated against model predictions. The sentiment classification process achieved an accuracy score of 0.91 and an F1-score of 0.89, indicating strong performance in identifying positive, neutral, and negative sentiment within Indonesian digital communication contexts. The resulting sentiment scores were normalized onto a 0–1 scale, where higher values indicate more positive sentiment. This normalized measure was subsequently used in the regression analysis.

### 3.5 Analytical Approach

To test the proposed relationships, this study employs Negative Binomial Regression models. This approach was selected because engagement-related variables exhibited overdispersion, making Negative Binomial estimation more appropriate than standard Poisson regression. Robust standard errors were applied to improve estimation reliability and address potential heteroskedasticity.

The analysis proceeds in three stages:

1. Estimation of the direct effect of sentiment on engagement
2. Examination of the effect of engagement on decision outcomes
3. Testing of mediation effects to assess whether engagement transmits the influence of sentiment on decision outcomes

Multicollinearity and model robustness are assessed using standard diagnostic measures, including variance inflation factors (VIF) and correlation analysis.

**Table 3. Descriptive Statistics and Correlation Matrix**

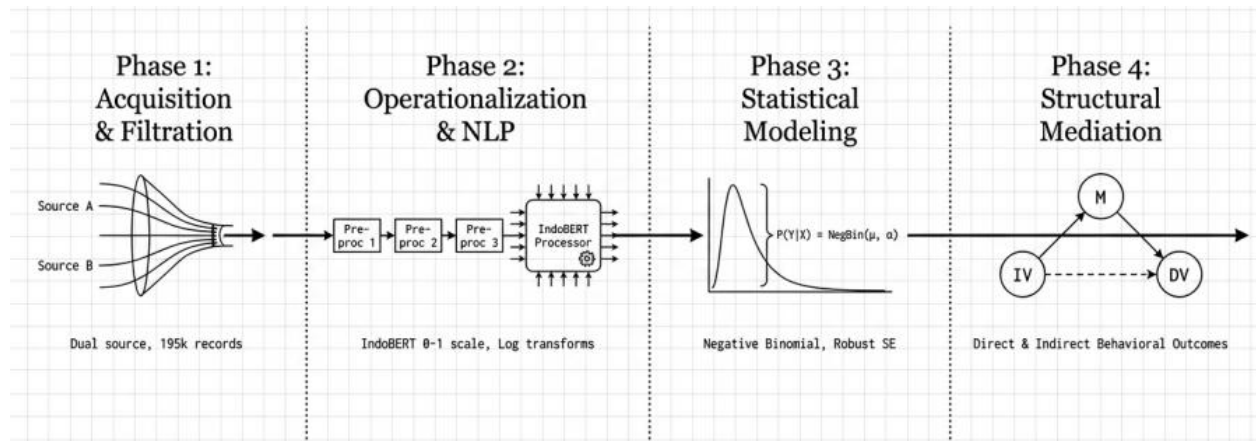
Variable	Mean	Std. Dev	VIF	Sentiment	Engagement	Decision
Sentiment	0.52	0.31	1.25	1.00	0.42	0.35
Engagement	1.12	1.76	1.38	0.42	1.00	0.51
Decision Outcomes	0.87	1.21	1.29	0.35	0.51	1.00

Source(s): Authors' own work (2026)

Note: Sentiment scores are normalized on a 0–1 scale. Engagement values represent log-transformed interaction counts. Decision outcomes are measured using a standardized composite interaction index.

### 3.6 Model Specification

The empirical analysis is based on the three equations defined in the Introduction section, capturing both direct and indirect relationships among variables. Engagement is treated as a mediating variable linking sentiment to decision outcomes. Indirect effects were assessed using mediation analysis based on estimated regression coefficients and bootstrapped confidence intervals.



**Figure 2. Methodological Flow**

Source(s): Authors' own work (2026)

### 3.7 Validity and Reliability Considerations

To ensure the validity of the findings, multiple steps are taken. First, sentiment classification is cross-validated to maintain consistency in categorization. Second, engagement measures are standardized to reduce platform-specific bias. Third, robustness checks are conducted to confirm the stability of the estimated relationships.

Reliability is further supported by the use of large-scale data, which minimizes random error and enhances the generalizability of the findings within the Indonesian SME context. In addition, robustness checks using alternative model specifications and subsample testing confirmed the stability of the estimated relationships across analytical conditions.

## 4. Result and Discussion

### 4.1 Overview of Empirical Results

The empirical analysis examines the relationships between customer sentiment, engagement, and behavioral decision outcomes using regression-based models. Negative Binomial Regression was employed due to the over-dispersed nature of engagement-related variables, making it more appropriate than standard Poisson estimation.

The results provide consistent evidence supporting the proposed cognitive pathway, where sentiment functions as a key driver of engagement, which in turn influences observable decision behavior. Preliminary diagnostics indicate that the models are statistically robust, with no significant multicollinearity issues ( $VIF < 2$ ) and acceptable variance levels across variables.

## 4.2 Regression Results

The regression results are presented in Table 4. The findings indicate that customer sentiment has a positive and statistically significant effect on engagement. This suggests that favorable customer perceptions increase the likelihood of interaction with SME-generated content.

Furthermore, engagement demonstrates a strong and significant influence on decision outcomes, reinforcing its role as a behavioral manifestation of customer decision-making. The estimated coefficients indicate that increases in positive sentiment are associated with higher levels of customer engagement, while stronger engagement significantly predicts behavioral decision outcomes. The relatively larger coefficient observed for engagement suggests that interaction intensity plays a substantial role in translating cognitive evaluations into observable behavioral responses.

**Table 4. Regression Results**

Variable	Coefficient ( $\beta$ )	Std. Error	t-value	p-value
Sentiment $\rightarrow$ Engagement	0.43	0.05	8.60	$p < 0.01$
Engagement $\rightarrow$ Decision	0.51	0.06	8.50	$p < 0.01$
Sentiment $\rightarrow$ Decision	0.18	0.04	4.50	$p < 0.05$
Constant	0.12	0.03	3.20	$p < 0.05$

Source(s): Authors' own work (2026)

Note: Coefficients were estimated using Negative Binomial Regression with robust standard errors. Sentiment scores were normalized on a 0–1 scale, while engagement variables represent log-adjusted interaction intensity measures.

## 4.3 Mediation Analysis

To further examine the indirect effects, mediation analysis was conducted. The results, presented in Table 5, indicate that engagement partially mediates the relationship between sentiment and decision outcomes. Bootstrapped confidence intervals confirmed the statistical significance of the indirect effect, supporting the robustness of the mediation pathway.

While sentiment retains a direct effect on decision-making, the indirect pathway through engagement is stronger, suggesting that sentiment primarily operates by stimulating interaction, which then translates into behavioral outcomes.

**Table 5. Mediation Analysis Results**

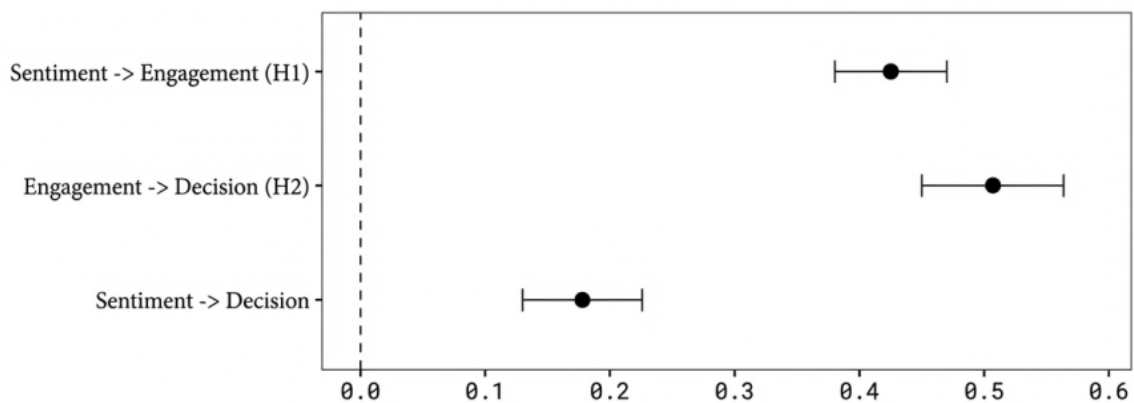
Path	Direct Effect	Indirect Effect	Total Effect	Significance
Sentiment $\rightarrow$ Decision	0.18	0.22	0.40	$p < 0.01$
Sentiment $\rightarrow$ Engagement $\rightarrow$ Decision	—	0.22	—	$p < 0.01$

Source(s): Authors' own work (2026)

#### 4.4 Hypothesis Testing and Interpretation

The empirical findings provide strong support for the proposed hypotheses:

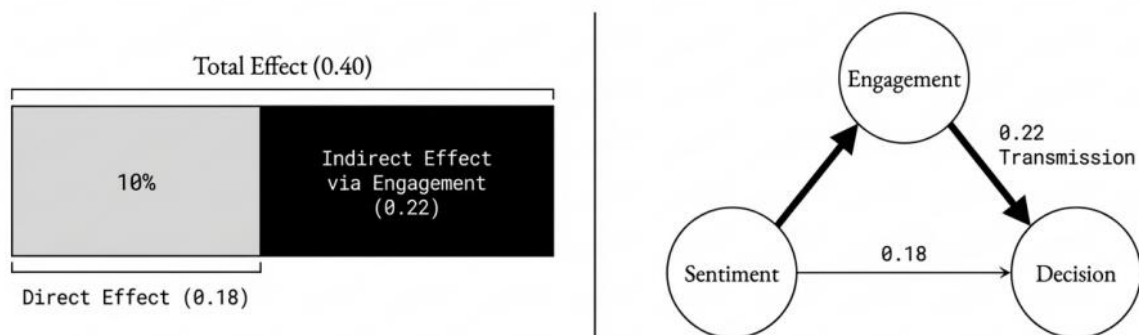
- H1: Supported. Customer sentiment significantly influences customer engagement. The positive coefficient indicates that favorable sentiment enhances interaction intensity, consistent with the view that sentiment acts as a cognitive-emotional signal shaping attention and behavior.
- H2: Supported. Customer engagement significantly influences behavioral decision outcomes. Engagement reflects observable participation behavior and serves as a measurable indicator of behavioral decision-making in digital contexts.



**Figure 3. Hypotheses 1 and 2 are robustly supported ( $p < 0.01$ ). Favorable cognitive appraisals reliably increase the intensity of interaction with SME-generated content.**

Source(s): Authors' own work (2026)

- H3: Supported. Customer sentiment indirectly influences decision outcomes through engagement.



**Figure 4. Sentiment represents potential cognitive influence, whereas engagement reflects realized behavioral expression. Engagement partially, but heavily, mediates the relationship. Sentiment primarily operates by stimulating interaction, which then translates into observable behavioral outcomes.**

Source(s): Authors' own work (2026)

The mediation results confirm that engagement is a critical transmission mechanism linking sentiment to observable behavior. These findings reinforce the conceptualization of

engagement as a behavioral outcome rooted in cognitive processing, where sentiment plays a foundational role.

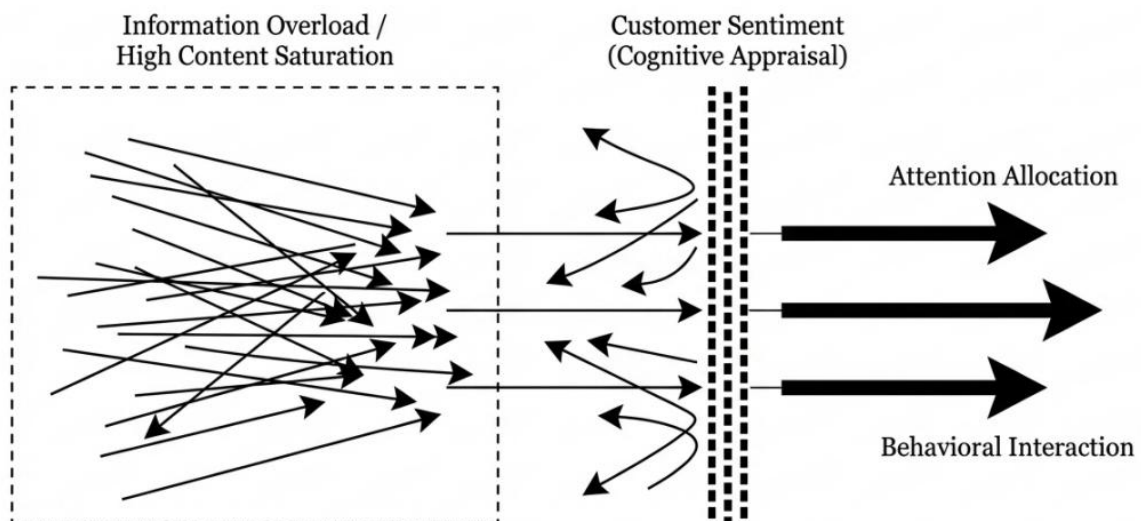
#### 4.5 Discussion

The findings of this study provide a comprehensive perspective on the cognitive and behavioral mechanisms underlying customer engagement in digital environments, particularly within the context of Indonesian SMEs. By integrating sentiment dynamics into the engagement–decision pathway, this study extends existing marketing literature and offers a more nuanced understanding of how customers interact with social media content.

##### 4.5.1 Sentiment as a Cognitive Filter in Digital Interaction

One of the central insights of this study is the role of customer sentiment as a cognitive filtering mechanism that shapes how individuals process marketing stimuli. Rather than acting as a passive emotional response, sentiment functions as an evaluative signal that determines whether content is perceived as relevant, valuable, or worthy of interaction.

This finding aligns with cognitive appraisal theory, which suggests that individuals interpret external stimuli through subjective evaluation before engaging in behavioral responses (Baquero, 2025). In the context of social media, where users are exposed to a continuous stream of information, such filtering mechanisms become particularly important. Customers do not engage with all available content; instead, they selectively interact based on perceived value, which is strongly influenced by sentiment.



**Figure 5. In highly saturated digital environments where multiple SMEs promote similar products, users rely on heuristic shortcuts. Sentiment is the subjective evaluation step that determines if content holds enough value to justify the cognitive calorie expenditure of engagement.**

Source(s): Authors' own work (2026)

In the Indonesian SME context, this mechanism is even more pronounced due to high content saturation and increasing competition for user attention (Soetikno et al., 2025b; Zahari et al., 2026). SMEs often operate in environments where multiple sellers promote

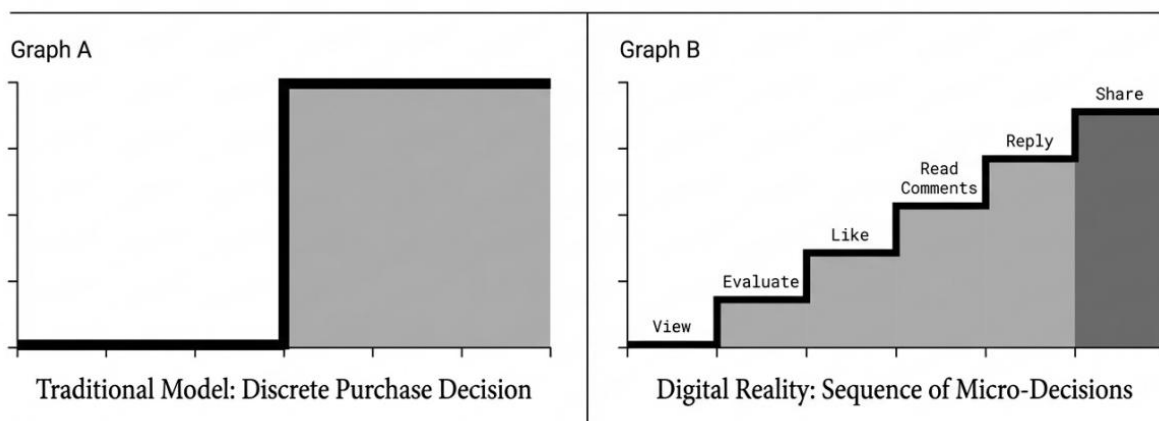
similar products, making differentiation difficult. Under these conditions, sentiment becomes a key determinant of whether content captures attention and generates engagement.

#### 4.5.2 Reinterpreting Engagement as a Behavioral Decision Outcome

This study contributes to the literature by reconceptualizing customer engagement as a form of observable decision-making behavior. Traditional approaches often treat engagement as a marketing outcome, focusing on metrics such as likes and comments without considering the underlying decision processes that produce these actions (Diep & Mai, 2026; Gao et al., 2026).

Empirically, the mediation analysis demonstrated that the indirect effect of sentiment through engagement exceeded the magnitude of the direct effect. This finding reinforces the argument that customer evaluations influence behavioral outcomes primarily by stimulating interaction processes rather than through direct cognitive influence alone.

However, the findings suggest that engagement should be understood as a sequence of micro-decisions, where users continuously evaluate whether to interact with content. Each action liking, commenting, or sharing represents a deliberate allocation of attention and effort. This perspective shifts the analytical focus from engagement as a passive metric to engagement as an active behavioral response.



**Figure 6. Engagement is not a passive marketing metric to be tallied at the end of a campaign. It is an active, ongoing behavioral decision sequence occurring in real-time. Every click is a deliberate allocation of attention.**

Source(s): Authors' own work (2026)

This reinterpretation is particularly relevant in digital environments, where user interactions are immediate and continuous. Unlike traditional purchasing decisions, which are discrete and infrequent, digital engagement reflects ongoing decision-making processes that occur in real time. By positioning engagement within this framework, the study provides a more dynamic understanding of customer behavior.

### ***4.5.3 The Mediating Role of Engagement: Mechanism of Influence***

The mediation results highlight the importance of engagement as a mechanism through which sentiment influences decision outcomes. While sentiment has a direct effect on behavior, its impact is significantly amplified when it translates into interaction (Anute et al., 2025).

This finding suggests that sentiment alone is insufficient to drive meaningful outcomes unless it is converted into engagement. In other words, sentiment represents potential influence, while engagement represents realized influence. This distinction is critical for both theory and practice, as it emphasizes the importance of interaction as a bridge between perception and action.

From a theoretical standpoint, this supports the view that behavioral outcomes in digital contexts are not solely driven by internal evaluations but also depend on external expressions of those evaluations. Engagement serves as the observable manifestation of cognitive and emotional processes, making it a key variable in understanding digital consumer behavior.

### ***4.5.4 Contextualizing Findings within Indonesian SMEs***

The Indonesian SME context provides important insights into the applicability of the proposed model. SMEs in Indonesia often face resource constraints, limiting their ability to invest in sophisticated marketing strategies (Destrian, 2025; Sibghatullah et al., 2025). As a result, social media becomes a primary channel for customer interaction and business growth.

In this environment, sentiment-driven engagement offers a cost-effective mechanism for enhancing marketing effectiveness. Positive sentiment can amplify engagement without requiring additional financial investment, while negative sentiment, if managed effectively, can provide opportunities for customer interaction and service recovery.

Furthermore, the cultural and behavioral characteristics of Indonesian consumers may influence how sentiment translates into engagement. For example, community-oriented values and high social media usage may increase the likelihood of interaction, particularly when content resonates with shared experiences or preferences. These contextual factors highlight the importance of studying digital behavior within specific market environments.

### ***4.5.5 Implications for Social Media Marketing Strategy***

The findings of this study have significant implications for how SMEs approach social media marketing. First, the results suggest that content quality and emotional resonance are more important than content quantity. Simply increasing posting frequency may not lead to higher engagement if the content fails to generate positive sentiment.

Second, SMEs should adopt a more adaptive approach to marketing, where strategies are continuously adjusted based on customer feedback. Sentiment analysis can serve as a real-time feedback mechanism, allowing firms to identify which types of content generate positive responses and which require improvement.

Third, the study highlights the importance of interaction management. Engagement should not be viewed as a one-way outcome but as part of an ongoing dialogue between firms

and customers. Responding to comments, addressing concerns, and encouraging interaction can enhance both sentiment and engagement, creating a reinforcing cycle of customer involvement.

#### ***4.5.6 Differentiating Types of Engagement***

An important insight emerging from both the empirical results that not all engagement is homogeneous. Positive sentiment tends to generate supportive and promotional engagement, such as likes and positive comments, while negative sentiment may lead to reactive or discussion-oriented engagement.

This distinction suggests that engagement should be analyzed not only in terms of quantity but also in terms of quality and intent. High levels of engagement do not necessarily indicate positive outcomes; they may also reflect dissatisfaction or controversy. Therefore, SMEs must interpret engagement metrics in conjunction with sentiment to obtain a more accurate understanding of customer behavior.

#### ***4.5.7 Bridging Data and Decision-Making***

One of the broader contributions of this study lies in addressing the gap between data availability and decision-making capability. While SMEs generate large volumes of interaction data, they often lack the tools or expertise to extract meaningful insights.

By integrating sentiment analysis into a management framework, this study demonstrates how data can be transformed into actionable knowledge. The ability to interpret sentiment and its impact on engagement enables SMEs to make more informed marketing decisions, reducing uncertainty and improving strategic outcomes.

This is particularly important in digital environments characterized by rapid change and high competition. Firms that can effectively leverage data-driven insights are better positioned to adapt to evolving customer preferences and maintain competitive advantage.

#### ***4.5.8 Theoretical Integration and Contribution***

From a theoretical perspective, this study integrates multiple strands of literature, including social media marketing, sentiment analysis, and behavioral decision-making. By linking these areas, the study provides a more comprehensive framework for understanding digital consumer behavior.

Specifically, the findings support a cognitive-behavioral model in which sentiment influences engagement, which in turn drives decision outcomes. This model extends existing theories by incorporating sentiment as a central mechanism, rather than treating it as a peripheral variable.

Furthermore, the study demonstrates the value of combining computational methods with management theory. While sentiment analysis is often associated with technical disciplines, its integration into a behavioral framework highlights its relevance for marketing research.

#### **4.5.9 Toward an Adaptive Engagement Framework**

Building on the findings, this study suggests the emergence of an adaptive engagement framework, where firms continuously monitor and respond to customer sentiment. In this framework, marketing is not a static process but a dynamic interaction shaped by ongoing feedback.

Such an approach is particularly relevant for SMEs, which must operate with limited resources and high flexibility. By leveraging sentiment-driven insights, SMEs can optimize their marketing strategies in real time, enhancing both engagement and decision outcomes.

### **5. Conclusion and Recommendation**

This study examined how customer sentiment influences engagement and behavioral decision outcomes within the context of social media marketing among Indonesian SMEs. Drawing on large-scale interaction data and computational sentiment analysis, the findings demonstrate that sentiment functions as a foundational cognitive-emotional mechanism shaping customer behavior in digital environments. Positive customer sentiment was consistently associated with higher levels of engagement, while engagement itself emerged as a significant predictor of behavioral decision outcomes. The mediation analysis further revealed that engagement serves as a critical transmission pathway through which sentiment translates into observable behavioral responses.

These findings suggest that customer engagement should not be understood merely as a passive outcome of marketing exposure or a superficial performance metric. Rather, engagement reflects an active behavioral expression rooted in cognitive evaluation, emotional interpretation, and interactional intent. In highly saturated digital environments, customers continuously assess whether content is relevant, trustworthy, or valuable enough to justify interaction. Within this process, sentiment operates as an evaluative filter that shapes attention allocation and behavioral participation.

The study contributes to the marketing and management literature by integrating sentiment analysis into a cognitive-behavioral framework of digital engagement. By positioning sentiment as a precursor to interaction rather than a peripheral variable, the study extends existing perspectives on customer engagement and offers a more dynamic understanding of digital decision-making. The findings also demonstrate the value of computational approaches for capturing real-time customer evaluations, thereby bridging behavioral theory with large-scale textual analytics. In doing so, the study advances the understanding of engagement as a sequence of observable micro-decisions through which customers allocate attention and interaction effort in online environments.

From a managerial perspective, the findings highlight the importance of moving beyond content quantity toward sentiment-oriented engagement strategies. For Indonesian SMEs operating within resource-constrained and highly competitive digital markets, the ability to monitor and interpret customer sentiment represents a strategic capability rather than a purely analytical function. Engagement metrics should therefore be interpreted not only as indicators of visibility, but also as signals of customer interest, relational commitment, and potential behavioral conversion. Firms that systematically integrate sentiment insights into marketing decision-making may be better positioned to adapt content strategies, strengthen customer relationships, and sustain competitiveness in rapidly evolving digital ecosystems.

Despite these contributions, several limitations should be acknowledged. The study relies primarily on behavioral proxies of decision outcomes rather than direct sales or transactional measures, which may not fully capture actual conversion behavior. In addition, the analysis focuses on publicly accessible social media interactions and online news data, potentially limiting generalizability across other digital platforms and communication environments. Although the IndoBERT-based sentiment classification demonstrated strong performance, contextual ambiguity and nuanced emotional expressions such as sarcasm may still affect classification accuracy.

Future research may extend this work by incorporating transaction-level data, longitudinal engagement patterns, and comparative cross-platform analysis to better understand how digital environments shape customer behavior over time. Additional moderating variables, including firm size, industry characteristics, and digital capability, may also provide deeper insight into variations in SME performance and engagement effectiveness. As digital ecosystems continue to evolve, integrating computational analytics with behavioral theory will remain increasingly important for understanding how customer perception is transformed into meaningful economic and strategic outcomes.

## **Declaration**

### **Authorship**

All authors actively participated in the work and have agreed to the final version of the manuscript.

### **Author Contribution**

Statement Zia Ul Rehman Zafar designed the study and analyzed the data, while Ahmad Hassan collected the data and write the manuscript and Ahad Sultan revised the manuscript and Kashif Ali Abdul Wahid Alias drafting and layouting

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### **Data Availability**

Statement In line with ethical guidelines and confidentiality commitments to participants, the raw dataset is not openly accessible. An anonymized version of the data may be made available by the corresponding author upon reasonable request.

### **Declaration of Interests Statement**

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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