

THE EFFECT OF SOCIAL MEDIA MARKETING ACTIVITIES ON CUSTOMER ENGAGEMENT, MEDIATED BY SOCIAL TIES AND PRODUCT ATTRIBUTES: A STUDY OF PO BEJEU

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Abstract

This study aims to analyze the effect of social media marketing activities (SMMA) on customer engagement, with social ties and product attributes serving as mediating variables at PO Bejeu. The research employs a quantitative approach using a survey method targeting TikTok users who have viewed or interacted with content from PO Bejeu's official account. The sampling technique used was purposive sampling, with a total of 239 respondents. Data were analyzed using Partial Least Squares (PLS)-based Structural Equation Modeling (SEM) with the assistance of SmartPLS 4 software. The results indicate that SMMA has a positive and substantial effect on customer engagement, social ties, and product attributes. Social ties were found to have a positive and substantial effect on customer engagement and mediate the relationship between SMMA and customer engagement. Conversely, product attributes do not have a substantial effect on customer engagement and do not act as a mediating variable. These findings indicate that customer engagement on PO Bejeu's social media is more influenced by the strength of social relationships among users than by perceptions of the service attributes offered. The implications of this study emphasize the importance of social interaction-based marketing strategies to enhance customer engagement on social media platforms.

Keywords: *Social Media Marketing Activities, Customer Engagement, Social Ties, Product Attributes, PO Bejeu.*

A. INTRODUCTION

The growth of social media within the global digital ecosystem has driven changes in marketing strategies across various sectors, including transportation, tourism, and travel services (Fadhilah et al., 2024). The rising popularity of TikTok, particularly in Indonesia with 194.37 million users, has prompted businesses to focus more on implementing interactive digital marketing strategies. Companies now emphasize the importance of engaging customers through social media platforms to enhance brand presence and foster loyalty. With TikTok projected to reach approximately 1.94 billion users worldwide by mid-2025, organizations view it as a key channel for expanding reach and connecting with a broader audience in the ever-evolving digital landscape (Dataloka.id, 2025). This situation presents strategic opportunities for businesses, including bus companies, to enhance brand visibility, customer engagement, and loyalty through SMMA. According to (Ali et al., 2023), the effective use of social media enhances service companies' ability to build sustainable interactions with customers through engaging and responsive content.

One company actively utilizing social media as a marketing tool is PO Bejeu, which uses the TikTok platform to share travel content, service information, and interact with users. These activities make PO Bejeu a relevant research subject for examining how social media marketing activities can influence customer engagement in the service-based transportation industry. According to (Komaryatin et al., 2024), SMMA have an impact on bus service purchasing behavior, affirming that social media is increasingly important as a marketing tool in the service-based transportation industry. However, the high level of competition among transportation companies requires marketing strategies that not only convey information but also foster sustained customer engagement. In addition, social ties among users as well as customer perceptions of product attributes such as bus comfort, interior design, service features, and safety are also important elements that influence customer engagement.

This study employs Signaling Theory, which explains that companies can reduce information asymmetry by sending signals to consumers through various marketing activities (Widhiatmoko et al., 2025). On the TikTok platform, social media marketing activities (SMMA) serve as a reference for consumers in assessing a company's service quality and product attributes. Through social media marketing activities (SMMA), consumers will assess whether a company's services provide convenience, professionalism, and competitive advantages over other firms. Positive signals consistently conveyed through engaging and credible content shape customer perceptions, build trust, and drive customer engagement in the form of likes, comments, content sharing, and active participation. Therefore, Signaling Theory is considered relevant and appropriate for explaining how content-based marketing activities on TikTok influence the perceptions and engagement of PO Bejeu customers.

A number of previous studies have shown that SMMA has a substantial influence on customer behavior, but the results are not always consistent. According to (Fadhilah et al. 2024), SMMA was found to increase brand loyalty for eco-friendly skincare products. However, according to (Pasaribu and Silalahi 2020), a weaker relationship was identified in the context of Traveloka's digital services. Additionally, studies on customer engagement also vary (Miryam and Antonio 2022) note that social media content has a positive influence on engagement and customer intent, but (Liputri & Gosal, 2024) found that engagement does not always lead to loyalty in e-commerce. Research on social ties also reveals mixed findings. (Badawi and Muafi 2021) identifies the role of social ties in electronic word-of-mouth (eWOM), while noting that levels of social connectedness can vary across populations. Similarly, studies on product attributes show varied effects on consumer decisions and behavior. (Azca et al. 2025) found that whey protein product attributes influence purchasing decisions, but Annisa & Nasution (2023) found that existing product attributes have not demonstrated strong advantages, resulting in less loyal purchasing decisions, indicating that product attributes are not fully effective in driving purchasing decisions for office stationery at PT. Trimitra Swadaya Medan.

The research gap in this study lies in the lack of studies that simultaneously examine the relationship between SMMA, customer engagement, and the mediating roles of social ties and product attributes. Previous research tends to be fragmented; some studies only examine the influence of SMMA on consumer behavior or loyalty

without testing both mediators simultaneously (Roosdhani et al. 2024), while other studies focus solely on social ties or product attributes individually, thus failing to explain the mechanism by which these two mediating variables jointly transmit the influence of SMMA to customer engagement (Ma et al., 2020). According to this, the research problem of this study is whether SMMA influence customer engagement and whether social ties and product attributes can mediate the relationship between SMMA and customer engagement. Therefore, this study aims to fill this gap by simultaneously testing the effect of SMMA on customer engagement and the mediating roles of social ties and product attributes among TikTok users who have viewed or interacted with content from the official PO Bejeu account, using a quantitative SEM-PLS-based approach.

B. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

1. Signaling Theory

Signaling theory is a theoretical perspective that explains how companies provide signs or signals to customers to reduce information asymmetry and assist customers in assessing the quality or characteristics of a product or service (Widhiatmoko et al., 2025). Signals can take the form of messages, social cues, highlighted product features, or other observable communication actions. The quality, consistency, and credibility of a signal influence how well the recipient perceives the signal as an indicator of actual quality. In social media, signal forms include visual content, customer testimonials, how the company responds to comments, and interactive actions that demonstrate service advantages difficult for customers to observe directly (Hariningsih & Harsono, 2019).

In this study, Signaling Theory was employed because SMMA on TikTok serve as signals that shape consumers' perceptions of product attributes. Additionally, SMMA foster user interaction, which helps strengthen social ties. Informative and trustworthy content directly increases interest and customer engagement, indirectly strengthening user engagement through enhanced social ties or changes in perceptions of service attributes (Widhiatmoko et al., 2025). Thus, Signaling Theory provides a foundation for understanding why SMMA can influence customer engagement, both directly and through the mediating channels of product attributes and social ties in the case of PO Bejeu.

2. Social Media Marketing Activities (SMMA)

Social media marketing activities (SMMA) are a series of marketing activities conducted by companies through social media with the aim of building communication, engagement, and sustainable relationships with consumers (Nabila et al., 2023). According to Huda et al. (2025), effective marketing strategies through digital media can improve business marketing performance because they can expand the reach of information, increase brand visibility, and build more intense interactions with consumers. Well-managed SMMA can increase brand awareness, trust, and positive consumer attitudes toward the brand through relevant content that encourages participation (Fajarwati et al., 2024).

Meanwhile, Syarif & Aisyah (2025) emphasizes that consistent and creative social media marketing activities (SMMA) can strengthen customer engagement and drive behavioral responses such as interest and purchasing decisions.

In the field of transportation services marketing, SMMA plays a crucial role in enhancing customer engagement because consumers' decisions and engagement patterns heavily depend on the experiences, perceptions, and interactions they have through social media (Syarif & Aisyah, 2025). Visual content about trips, customer reviews, and the company's responses to user comments and messages serve as indicators of the quality of the services and products offered. According to Faradila & Siagian (2024), Doing regular and fun social media activities can help more people think, feel, and do things like liking posts, leaving comments, sharing with friends, and joining in the fun. Therefore, in this study, SMMA is positioned as the primary variable influencing customer engagement, both directly and indirectly, through the formation of social ties and perceptions of product attributes at PO. Bejeu.

3. Social Ties (ST)

Social ties in consumer behavior refer to the interpersonal bonds or social networks that an individual possesses, which can influence consumer perceptions, engagement, and decisions through social interactions, recommendations, and assistance from close associates such as friends, family, or acquaintances (Rachbini, 2017). Both strong and weak social ties can help strengthen consumers' cognitive and affective engagement, which ultimately influences purchase intent in the context of online shopping. Stronger social ties tend to increase consumers' attention and engagement toward specific brands or products (Ma et al., 2020).

Social ties are often used to explain how social interactions among social media users can increase customer engagement with a brand (Paramita et al., 2023). Consumers with strong social ties within a digital community are typically more active in participating, responding to content, and engaging in discussions about the brand. According to Ma et al. (2020), social ties on social media can increase the level of consumer interaction with a brand due to a sense of community and the influence of the group. Therefore, in this study, social ties are positioned as a mediating variable that serves as a link between the influence of SMMA on customer engagement at PO. Bejeu, where digital communities and interactions among social media users can help strengthen customer engagement sustainably.

4. Product Attributes (PA)

Product attributes are the characteristics or distinctive features of a product that consumers consider important during the decision-making process (Efawati et al., 2020). Product attributes are viewed as a set of product components that provide benefits and value to consumers, thereby influencing their preferences and purchasing decisions (Efawati et al., 2020). Product attributes are a series of components or factors within a product that provide additional benefits, value, and serve as a reference in the decision-making process (Zulaiha & Dimyati, 2023). Product attributes encompass product development by providing benefits and key elements such as brand, quality, features, design, labeling, packaging, and service support, which form the basis for purchase decisions (Veronika & Nainggolan, 2022).

Product attributes are often used to explain how consumers' perceptions of quality, design, comfort, and service features can influence customer engagement levels (Hayuningtyas et al., 2022). Consumers who view product attributes positively tend to be more interested and engaged, as they feel their needs and expectations are met. Product attributes that align with consumers' tastes and needs can increase their interest, engagement, and interaction with the brand.

5. Customer Engagement (CE)

Customer engagement is a concept that describes the extent to which consumers are psychologically involved with and take action toward a brand, product, or service. This can be observed through various active interactions such as commenting, sharing, or responding to content on social media (Rahmawati & Adriyanto, 2025). According to Nyoman & Oliandes (2025), customer engagement is a state in which consumers do not merely follow passively but actively engage in two-way communication with the brand, thereby strengthening the emotional bond and mutual understanding between consumers and the brand.

Customer engagement is used to describe how consumer interaction with social media content helps strengthen a deeper bond with the brand. Consumers who are highly active in interacting tend to pay more attention to the content, feel enthusiasm and trust, and take actions such as liking, commenting, sharing, and participating in discussions. Customer engagement on social media arises from the interactive experiences they have, not merely from being constantly exposed to promotions. Therefore, customer engagement is considered a crucial outcome of effectively executed digital marketing activities.

The relevance of customer engagement in this study lies in its primary role as a customer response to the social media marketing activities (SMMA) conducted by PO. Bejeu on social media. Customer interaction with travel content, experience reviews, and two-way communication via social media helps build customer engagement cognitively, emotionally, and behaviorally (Sormin et al., 2025). Therefore, customer engagement becomes the primary variable indicating the success of social media marketing activities (SMMA), both directly and through the mediating roles of social ties and product attributes at PO. Bejeu.

6. The Effect of Social Media Marketing Activities on Customer Engagement

SMMA refer to a series of marketing activities conducted by companies through social media to create interaction, two-way communication, and valuable experiences for consumers (Hafiizafitra et al. 2025). These activities include presenting content that is informative, entertaining, interactive, and relevant to the audience's needs. In transportation services such as PO. Bejeu, SMMA plays a crucial role in building emotional closeness and fostering active consumer participation with the brand.

Lestari (2025) explains that consistently managed social media marketing activities can enhance consumer engagement on cognitive, emotional, and behavioral levels. Sularno (2025) emphasizes that interactions via social media can encourage consumers to respond by commenting, sharing content, and following brand updates. Thus, SMMA is viewed as a strategic factor in shaping customer engagement.

H₁: Social Media Marketing Activities have a positive and significant effect on Customer Engagement.

7. The Effect of Social Media Marketing Activities on Social Ties

Social ties describe the strength of social relationships formed among individuals within a network, including the relationship between consumers and brand communities on social media (Kusumaningrum et al., 2025). Interactive social media marketing activities allow consumers to connect with one another, share experiences, and foster a sense of community.

Salsabila & Anshori (2025) reveals that social media content that encourages interaction and participation can strengthen social bonds among users. Furthermore, Pamungkas et al. (2024) confirms that the intensity of brand communication on social media plays a role in creating closeness and social trust among consumers. Therefore, SMMA is considered capable of strengthening social ties within the PO. Bejeu consumer community.

H₂: Social Media Marketing Activities have a positive and significant effect on Social Ties.

8. The Effect of Social Media Marketing Activities on Product Attributes

Product attributes are the characteristics of a product or service as perceived by consumers, such as service quality, convenience, design, and supporting features (Ramadani et al., 2021). Social media serves as a crucial platform for companies to communicate product attributes visually and narratively.

Fitriani & Lestari (2020) explains that product information conveyed through social media can shape consumers' perceptions of product attributes in a clearer and more engaging manner. Meanwhile, Ibrahim (2024) reveals that informative digital marketing content can enhance consumers' understanding of the advantages of products or services. Thus, SMMA plays a role in shaping positive consumer perceptions of PO. Bejeu's service attributes.

H₃: Social Media Marketing Activities have a positive and significant effect on Product Attributes.

9. The Influence of Social Ties on Customer Engagement

Social ties play a crucial role in shaping consumer behavior, particularly within community-based social media (Yang & Che, 2020). Strong social relationships can encourage consumers to interact more actively, share experiences, and demonstrate engagement with the brand.

Ma et al. (2020) indicates that a sense of community and social support within online communities can increase the intensity of consumer engagement. Similar findings were presented by Fajarwati et al. (2024), which confirms that group influence and social relationships strengthen consumer participation in brand activities on social media. Thus, social ties are positioned as a factor that drives the formation of customer engagement.

H₄: Social Ties have a positive and significant effect on Customer Engagement.

10. The Influence of Product Attributes on Customer Engagement

Product attributes perceived positively can increase consumer interest and engagement with the brand (ShiYong et al., 2022). Consumers who perceive service attributes as aligning with their needs and expectations tend to demonstrate attention, positive emotions, and active participation.

Safira (2024) explains that positive perceptions of service quality and convenience can drive customer engagement in the long term. Efawati et al. (2020) confirms that relevant product attributes can enhance consumer interaction with the brand through digital media. Therefore, product attributes are a key factor in shaping customer engagement at PO. Bejeu.

H₅: Product Attributes have a positive and significant effect on Customer Engagement.

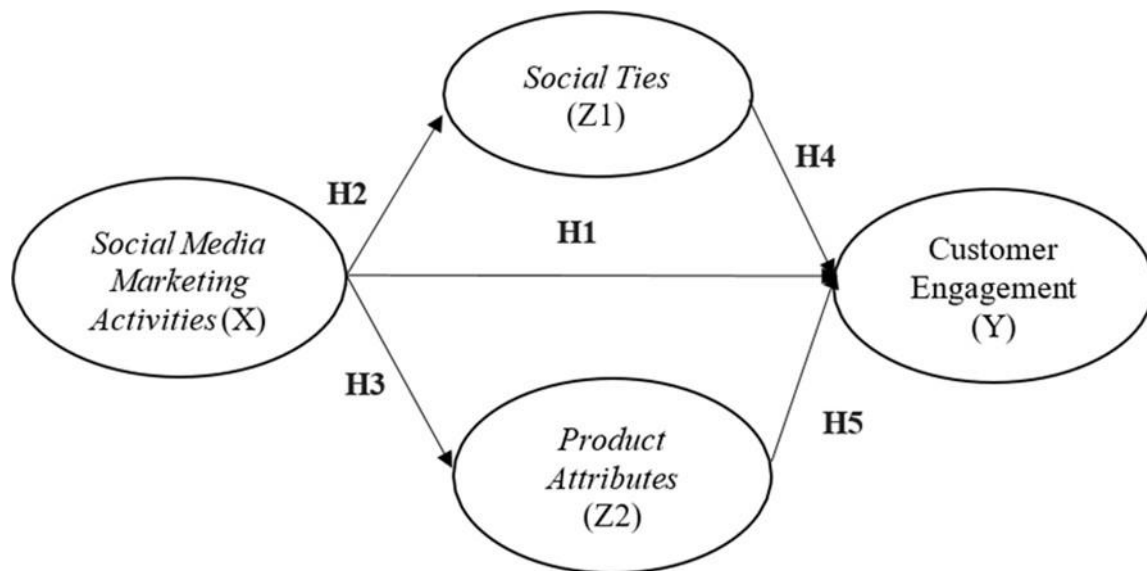


Figure1. Research Model

C. METHOD

This study employs a quantitative approach aimed at explaining the causal relationship between social media marketing activities (SMMA) and customer engagement, with social ties and product attributes serving as mediating variables (Sugiyono, 2013). Quantitative research involves collecting numerical data through surveys and analyzing this data statistically to test specific hypotheses. Typically, researchers use primary data obtained from structured questionnaires, often employing Likert scales to measure participants' perceptions of various variables. This approach helps identify patterns, relationships, and trends within a defined sample.

The study population consists of individuals or objects sharing specific common characteristics, enabling researchers to analyze and draw meaningful conclusions about the entire group (Sugiyono, 2016). The population in this study consists of TikTok social media users who are either users or fans of bus transportation and fans of PO Bejeu, as well as individuals who have viewed marketing content on the PO Bejeu TikTok account. A sample is a subset of the population with specific characteristics selected to represent the population in a study.

(Sujarweni, 2020). The sample size was determined according to Ferdinand's rule of thumb, which states that the ideal sample size is 5–10 times the number of research indicators. With 24 research indicators, the required sample size is 120–240 respondents. This study used 239 respondents, so the sample size is close to and still acceptable for SEM-PLS analysis. The research data were processed and analyzed using SmartPLS 4 software.

D. RESULTS AND DISCUSSION

1. Outer Model

The data analysis was conducted using PLS methodology through the SmartPLS software. This approach was employed to explore the potential relationships among various key variables, including social media marketing activities, product attributes, social ties, and customer engagement levels. The analysis focused on evaluating the strength and significance of the proposed paths by examining path coefficients and their statistical relevance. Additionally, the overall fit of the model was assessed to ensure its robustness and validity. The findings were then visually represented in a comprehensive research model diagram, providing a clear illustration of the relationships and insights derived from the analysis.

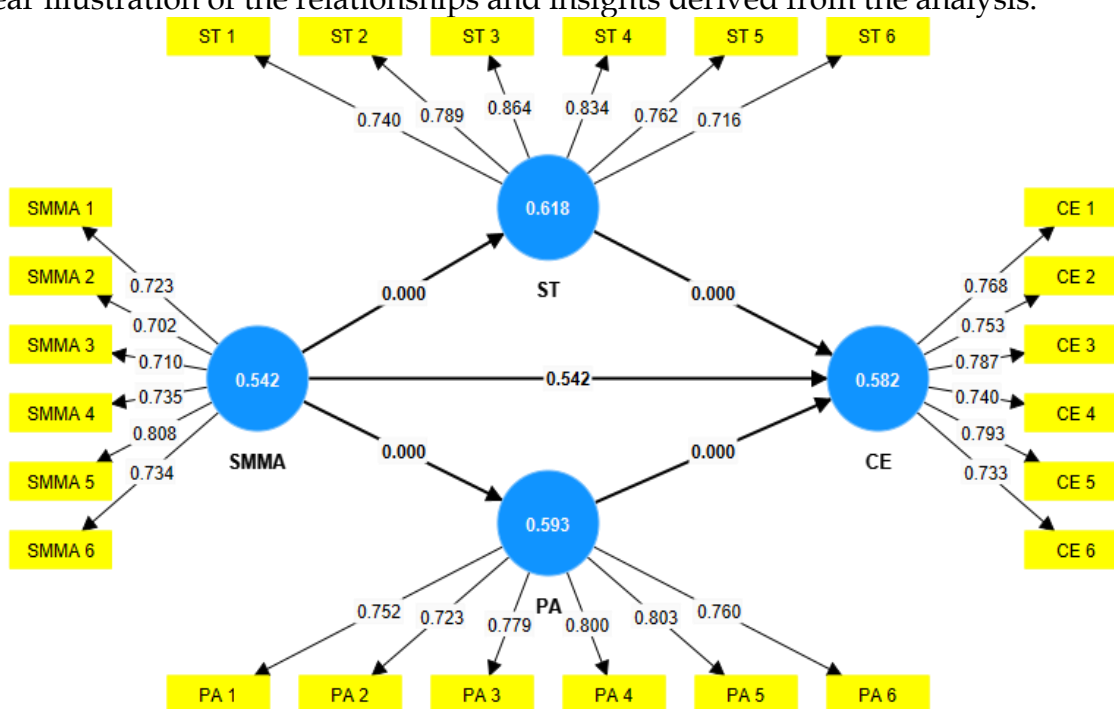


Figure 2. Outer Model

All indicators in the study exhibit outer loadings exceeding 0.70, indicating their strong capacity to accurately represent the underlying constructs. Specifically, social media marketing activities (SMMA) have loadings ranging from 0.702 to 0.808, demonstrating reliable measurement. Social ties (ST) show loadings between 0.716 and 0.864, further confirming their validity. Product attributes (PA) are represented with loadings from 0.723 to 0.803, while customer engagement (CE) ranges from 0.733 to 0.793. The consistently high loadings across these variables suggest that each set of indicators possesses good convergent validity, meaning they effectively capture the essence of their respective constructs. This strong validity supports the

appropriateness of using these indicators for subsequent analyses within the study. Overall, the results affirm that the measurement model is robust, and the indicators are suitable for further examining the relationships among the variables in question.

2. Outer Loading

The outer loading results show that all indicators have values above 0.70, indicating adequate convergent validity. The results are presented in Table 1:

Table1. Outer Loading

Indikator	CE	PA	SMMA	ST
CE 1	0.768	-	-	-
CE 2	0.753	-	-	-
CE 3	0.787	-	-	-
CE 4	0.740	-	-	-
CE 5	0.793	-	-	-
CE 6	0.733	-	-	-
PA 1	-	0.752	-	-
PA 2	-	0.723	-	-
PA 3	-	0.779	-	-
PA 4	-	0.800	-	-
PA 5	-	0.803	-	-
PA 6	-	0.760	-	-
SMMA 1	-	-	0.723	-
SMMA 2	-	-	0.702	-
SMMA 3	-	-	0.710	-
SMMA 4	-	-	0.735	-
SMMA 5	-	-	0.808	-
SMMA 6	-	-	0.734	-
ST 1	-	-	-	0.740
ST 2	-	-	-	0.789

All indicators across various constructs demonstrate satisfactory convergent validity, with most outer loadings exceeding the 0.70 threshold. Specifically, customer engagement indicators range from 0.733 to 0.793, effectively capturing the essence of the construct and ensuring reliable measurement. Product attribute indicators show loadings between 0.723 and 0.803, further affirming their validity and consistency within the model. Social media marketing activities show loadings ranging from 0.702 to 0.808, demonstrating a strong contribution and relevance to the overall construct. Additionally, social bonding indicators range from 0.716 to 0.864, with the highest value observed for ST3, demonstrating excellent representation of the social bonding dimension. Collectively, these results confirm that all indicators are suitable for inclusion in the subsequent analysis using PLSEM. The fulfillment of the convergent validity criteria confirms that the measurement model is robust and accurately reflects the underlying construct. Therefore, the data are considered suitable for further statistical testing within the PLS-SEM framework. This comprehensive validation ensures the reliability and validity of the measurement model, providing a strong foundation for interpreting the relationships among constructs in this study.

3. Convergent Validity

The reliability test was conducted to assess the internal consistency of the research constructs. The results are presented in Table 2:

Table 2. Reliability Test

Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Information
CE	0.856	0.858	0.893	Reliable
PA	0.863	0.870	0.897	Reliable
SMMA	0.831	0.839	0.876	Reliable
ST	0.875	0.877	0.906	Reliable

In this study, reliability tests were conducted to assess the internal consistency of various constructs. According to standard guidelines, results are considered reliable if Cronbach's Alpha exceeds 0.70. All evaluated constructs met this criterion, demonstrating strong reliability. Specifically, customer engagement achieved a Cronbach's Alpha of 0.856, product attributes scored 0.863, social media marketing activities scored 0.831, and social bonding reached 0.875. These high values indicate that each construct possesses excellent internal consistency, supporting its reliability. The findings demonstrate robust convergent validity across all constructs, with composite reliability scores surpassing the threshold of 0.70. Most constructs exhibit reliability values close to or exceeding 0.85, highlighting their consistency, with social bonding achieving the highest reliability at 0.906. Average Variance Extracted (AVE) values for each construct exceeded the acceptable cutoff of 0.50, thereby affirming their convergent validity. Specifically, the AVE values were 0.582 for CE, 0.593 for PA, 0.542 for SMMA, and 0.618 for ST, indicating that a substantial portion of variance is captured by the constructs. These results collectively suggest that the measurement model demonstrates excellent internal consistency and construct validity, making it appropriate for subsequent analytical procedures. The high reliability and validity metrics reinforce confidence in the robustness of the measurement instrument used in this study.

4. Internal Model

a. R-Square

The R-square test was conducted to assess the explanatory power of the structural model. The results are presented in Table 3:

Table 3. R-Square Table

	R-Square	Adjusted R-Square
CE	0.682	0.678
PA	0.468	0.446
ST	0.537	0.535

The R-Square value for customer engagement is calculated at 0.682, indicating that approximately 68.2% of the variability in customer engagement can be attributed to factors such as social media marketing, product attributes, and social ties. The adjusted R-Square, which accounts for the number of predictors in the model, is slightly lower at 0.678, confirming the overall robustness and reliability of the model. Despite this strong correlation, about 31.8% of the variation in customer engagement remains unexplained by these variables, implying that other factors—potentially

including customer preferences, competitive actions, or external influences – may also play substantial roles in shaping engagement levels.

PA shows an R-squared value of 0.468, with an adjusted R-squared of 0.466, indicating that approximately 46.8% of the variation in perception can be explained by the model. This indicates a moderate level of explanatory power, highlighting the model's effectiveness in capturing key factors influencing perceptions related to product attributes. Similarly, the social ties (ST) construct shows an R-squared value of 0.537 and an adjusted R-squared of 0.535, meaning that approximately 53.7% of the variation in social ties is explained by the model. These values reflect the model's moderate to strong capacity to explain patterns of social connections. Overall, the comparable and sufficiently high R-squared values for both constructs support the model's robustness, demonstrating its suitability for further research and applications in understanding the dynamics of perception and the influence of social networks. These findings affirm the model's relevance in capturing complex social phenomena and perceptions.

b. F-Square

The F-square test was conducted to assess the effect size of each exogenous construct on the endogenous constructs. The results are presented in Table 4.

Table 4. F-Square

	CE	PA	SMMA	ST
CE				
PA	0.100			
SMMA	0.030	0.881		1.160
ST	0.306			

The f^2 value serves as a quantitative measure of the influence that external, or exogenous, variables exert on internal, or endogenous, variables within a structural model. According to Cohen's benchmarks, an f^2 value of approximately 0.02 is considered a small effect, 0.15 indicates a moderate effect, and 0.35 signifies a large effect. Recent analytical findings demonstrate that social media marketing activities (SMMA) exert a profoundly substantial impact on social bonding, with an f^2 value of 1.160, which far exceeds the threshold for a large effect. This underscores the critical role of SMMA in enhancing social connections among users. Furthermore, SMMA exhibits a strong influence on product attributes, with an f^2 of 0.881, highlighting its capacity to shape consumer perceptions regarding product features and qualities. These insights emphasize the strategic importance of social media marketing in fostering connectivity and influencing consumer perceptions effectively. In addition to the effects of SMMA, social trust (ST) substantially impacts customer engagement (CE), with an effect size of 0.306, indicating a substantial influence. This suggests that higher levels of social trust can lead to increased customer participation and interaction with brands. Product attributes (PA) also contribute to customer engagement, but to a moderate degree, with an f^2 of 0.100. Interestingly, the direct effect of SMMA on customer engagement is relatively small, with an f^2 of 0.030, implying that the influence of social media marketing on engagement is largely mediated through other factors such as social trust and product features. Overall, these findings reveal that cultivating strong social bonds and delivering high-quality

product features are essential components of effective marketing strategies, as they substantially enhance customer engagement and foster brand loyalty.

5. Hypothesis Testing

a. Direct Effect Test

The direct effect test was conducted using bootstrapping to examine the significance of the relationships between constructs. The results are presented in Table 5 below:

Table 5. Patch Coefficient Bootstrapping Direct Effect

H		Original Sample (O)	Sample Mean (M)	t Statistics (O/STDEV)	P Values
H1	PA → CE	0.263	0.252	1.871	0.061
H2	SMMA → CE	0.696	0.707	11.560	0.000
H3	SMMA → PA	0.684	0.694	11.151	0.000
H4	SMMA → ST	0.733	0.743	14.672	0.000
H5	ST → CE	0.494	0.497	3.292	0.001

Analysis indicates that product attributes (PA) do not have a substantial influence on customer engagement (CE), showing only a weak positive correlation with a path coefficient of 0.263 and a p-value of 0.061. This suggests that variations in product features or qualities alone are insufficient to substantially drive customer engagement. Conversely, social media marketing activities (SMMA) demonstrate a robust and highly substantial effect on customer engagement, with a path coefficient of 0.696 and a p-value of 0.000. These findings highlight the critical role that social media marketing plays in fostering higher levels of customer interaction and involvement. The evidence implies that companies aiming to improve customer engagement should prioritize strengthening their social media marketing efforts rather than relying solely on product attributes. Developing comprehensive and targeted social media strategies can be a more effective approach to capturing customer interest and cultivating ongoing engagement, ultimately supporting business growth and brand loyalty.

SMMA play a crucial role in shaping PA, with a substantial positive impact evidenced by a coefficient of 0.684. This suggests that effective social media marketing can enhance how customers perceive product quality, features, and overall value. Furthermore, SMMA exerts the strongest influence on social ties (ST), with a coefficient of 0.733, indicating its powerful capacity to foster and strengthen relationships among users. These strengthened social connections subsequently have a positive effect on customer engagement (CE), with a coefficient of 0.494, implying that as social bonds grow, so does customer participation and interaction with brands. All these relationships are statistically substantial, underscoring the vital role of social media marketing in not only improving product perceptions but also in building meaningful social networks and encouraging active customer involvement. The findings highlight the interconnected nature of marketing activities, social relationships, and engagement levels, emphasizing the importance of strategic SMMA initiatives to achieve comprehensive customer relationship management and brand loyalty.

b. Indirect Effect Test

The indirect effect test was conducted to examine the mediating effects between the constructs. The results are presented in Table 6:

Table 6. Indirect Effect

H		Original Sample (O)	Sample Mean (M)	t Statistics (O/STDEV)	P Values
H6	SMMA → PA → CE	0.180	0.172	1.892	0.059
H7	SMMA → ST → CE	0.362	0.370	3.103	0.002

Table 6 shows that the effect of SMMA on customer engagement through product attributes is not statistically substantial, as evidenced by a t-statistic of 1.892 and a p-value of 0.059. Conversely, the mediating effect through social bonds was confirmed to be substantial, with a t-statistic of 3.103 and a p-value of 0.002. These findings imply that social bonds serve as a key mediator in the relationship between SMMA and customer engagement. Specifically, effective social media marketing efforts tend to strengthen social bonds among consumers, which in turn leads to increased engagement with the brand or product. This highlights the importance of fostering social connections through marketing strategies, as these relationships substantially contribute to building a more engaged customer base. Overall, while product attributes alone may not substantially mediate this relationship, the development of social bonds plays a key role in enhancing customer engagement and interaction within the digital marketing landscape.

The research results show that SMMA has a positive and substantial effect on customer engagement. These findings indicate that the marketing activities carried out by PO Bejeu through social media, particularly TikTok, are able to drive customer engagement cognitively, emotionally, and behaviorally. Informative, engaging, and interactive content serves as a stimulus that encourages customers to respond through likes, comments, content sharing, and other active participation. This aligns with research cited in (Lestari 2025), which reveals that consistently managed social media marketing activities can substantially increase customer engagement.

Test results show that SMMA has a positive and substantial effect on social ties. This indicates that SMMA for PO Bejeu not only serves as a promotional tool but also strengthens social ties among users within the digital community. The presence of content that encourages active participation fosters a sense of community within the digital community. This aligns with research cited in (Ma et al. 2020), which reveals that the intensity of interaction on social media can strengthen social ties among users.

The research results show that SMMA has a positive and substantial effect on product attributes. This indicates that the marketing content presented by PO Bejeu through social media is able to shape customers' positive perceptions of service attributes, such as bus comfort, interior design, service features, and safety aspects. Social media serves as an effective visual communication tool for conveying product information. This aligns with research cited at (Fitriani and Lestari 2020), which reveals that social media influences the formation of consumer perceptions regarding product attributes.

The research findings show that social ties have a positive and substantial effect on customer engagement. These findings indicate that strong social bonds among customers can drive higher engagement with PO Bejeu's content and activities on

social media. Customers who feel they are part of a community tend to interact and participate more actively. This aligns with research on (Ma et al. 2020), which reveals that social ties play a crucial role in enhancing customer engagement on social media.

The test results show that product attributes do not have a substantial effect on customer engagement. These findings indicate that although customers have a positive perception of PO Bejeu's service attributes, these attributes have not been able to directly drive customer engagement on social media. Customer engagement on digital platforms is more influenced by social and emotional interactions than by functional evaluations of the product. This is consistent with research on (Annisa and Nasution 2023), which reveals that product attributes do not always have a direct impact on customer engagement.

E. CONCLUSION

This study demonstrates that SMMA have a positive and substantial impact on customer engagement, both directly and indirectly through social ties, whereas product attributes do not have a substantial impact and do not act as mediators. These results show that the social media marketing activities conducted by PO Bejeu via TikTok are capable of building customer engagement, especially when supported by social ties among users that strengthen interaction, communication, and a sense of community within the digital community.

From the perspective of signaling theory, social media marketing activities (SMMA) function as signals capable of reducing information asymmetry and shaping customers' perceptions and responses to service quality. Signals conveyed through marketing content become more effective when reinforced by social interaction, making social ties the primary mechanism for enhancing customer engagement. Conversely, functional signals conveyed through service attributes have not been able to substantially drive engagement because consumers' interpretation processes on social media are more influenced by social and emotional aspects than by rational evaluations of product attributes. These findings confirm that the success of PO Bejeu's digital marketing strategy in enhancing customer engagement depends on its ability to build community, foster interaction, and cultivate a sense of togetherness within the social media environment.

Practically, PO Bejeu is advised to increase the intensity and quality of its social media marketing activities by presenting content that is interactive, informative, and relevant to customer needs. Additionally, the company needs to build closer relationships with customers through prompt responses and personalized communication to strengthen social ties. Highlighting product attributes such as comfort, safety, and service quality also needs to be consistently communicated to effectively enhance customer engagement.

REFERENCES

- Ali, A., Taufiqurrohman, M., Nurhidayah, W., & Hidayah, A. (2023). Digital Marketing Training in the Development Efforts of Aliena Jaya Furniture MSMEs in Klokah Village. *Jurnal Pengabdian kepada Masyarakat Khaira Ummah*, 2(02), 52-56.

- Annisa, N., & Nasution, M. A. (2023). Pengaruh Atribut Produk dan Informasi Produk Terhadap Keputusan Pembelian Pada PT. Trimitra Swadaya Medan. *Jurnal Bisnis Corporate*, 8(1), 67-77.
- Azca, R. M., Hidayati, N., & Zahra, N. (2025). How Product Attributes, Halal Certification, and Labdoor Certification Affect Purchasing Decisions for Whey Protein Supplements?. *Dialektika: Jurnal Ekonomi dan Ilmu Sosial*, 10(1), 161-174.
- Badawi, B., Nurudin, AN., & Muafi, M. (2021). Consumer conformity, social ties and EWOM in digital marketing. *Ingénierie des Systèmes d'Information*, 26(6), 569-576.
- Ball, R., Gerakos, J., Linnainmaa, J. T., & Nikolaev, V. (2016). Accruals, cash flows, and operating profitability in the cross section of stock returns. *Journal of financial economics*, 121(1), 28-45.
- Baltagi, B. (2005). *Econometric Analysis of Panel Data*. John Wiley & Sons.
- Barney, J., Wright, M., & Ketchen Jr, D. J. (2001). The resource-based view of the firm: Ten years after 1991. *Journal of management*, 27(6), 625-641.
- Chen, M. J., & Miller, D. (2015). Reconceptualizing competitive dynamics: A multidimensional framework. *Strategic Management Journal*, 36(5), 758-775.
- Dataloka.id. (2025). *Indonesia to Become the World's Largest TikTok User Nation by 2025*. Dataloka.
- Dechow, P. M., Hutton, A. P., Kim, J. H., & Sloan, R. G. (2012). Detecting earnings management: A new approach. *Journal of accounting research*, 50(2), 275-334.
- Efawati, Y., & Hermawan, N. J. (2020). Making Sense Of The "Product Attributes" Trends: A Review Of Consumers Drink Choice Behavior And Industry Implications. *International Journal Administration, Business & Organization*, 1(2), 28-37.
- Fadhilah, J., Suhud, U., & Febrilia, I. (2024). Pengaruh Social Media Marketing Activities dalam Membentuk Brand Loyalty pada Produk Skincare Ramah Lingkungan. *Jurnal Masharif Al-Syariah: Jurnal Ekonomi dan Perbankan Syariah*, 9(2). <https://doi.org/10.30651/jms.v9i2.22559>
- Fajarwati, D., & Haliza, T. N. (2024). Social media marketing activities and their effect on brand loyalty among generations. *Journal of Enterprise and Development (JED)*, 6(3), 606-615.
- Fauziyah, A. N., & Yoestini, Y. (2024). Peran Aktivitas Social Media Marketing Terhadap Customer Brand Engagement dan Dampaknya Bagi Brand Loyalty di Akun Instagram Starbucks Indonesia. *Jurnal Ilmiah Edunomika*, 8(2). <https://doi.org/10.29040/jie.v8i2.13821>
- Fitriani, E., & Lestari, F. (2020). Daya Tarik Media Sosial dan Atribut Produk Terhadap Minat Kunjung Wisata di Ciwidey. *JSMA (Jurnal Sains Manajemen dan Akuntansi)*, 12(2), 127-140.
- Ghozali, I. (2016). *Aplikasi Analisis Multivariete dengan Program IBM SPSS 23*. Semarang: Badan Penerbit Universitas Diponegoro.
- Gray, G. L., Chiu, V., Liu, Q., & Li, P. (2014). The expert systems life cycle in AIS research: What does it mean for future AIS research?. *International Journal of Accounting Information Systems*, 15(4), 423-451.
- Gujarati, D. N., & Porter, D. C. (2008). *Basic Econometrics*. McGraw-Hill.

- Hafiizafitra, N. Z., & Revinzky, M. A. (2025). Pengaruh Social Media Marketing Activities (SMMA) Terhadap Behavioral Engagement Calon Mahasiswa Pendidikan Tinggi. *Journal of Artificial Intelligence and Digital Business (RIGGS)*, 4(3), 1177-1182.
- Hariningsih, E., & Harsono, M. (2019). Kajian Kritis Kontribusi Signaling Theory di Area Penelitian Online Commerce. *EKLETIK: Jurnal Pendidikan Ekonomi dan Kewirausahaan*, 2(2), 241-257.
- Hartmann, F. G., & Maas, V. S. (2010). Why business unit controllers create budget slack: involvement in management, social pressure, and machiavellianism. *Behavioral research in accounting*, 22(2), 27-49.
- Hayuningtyas, L., & Hermawan, A. (2022). Anteseden dan Konsekuensi Dari Customer Engagement. *Syntax Literate: Jurnal Ilmiah Indonesia*, 7(9), 13151-13164.
- Huda, N., Roosdhani, M. R., Arifin, S., & Komariyatin, N. (2025). Improving MSME Marketing Performance through Marketing Strategy. *Jurnal Transformasi Ekonomi*, 1(1), 13-24.
- Ibrahim, D. (2024). Pemanfaatan SEO dan Konten Digital sebagai Strategi Pemasaran Online pada UMKM. *Jurnal Ilmiah Manajemen & Kewirausahaan*, 11(2), 88-94.
- Komaryatin, N., Roosdhani, M. R., Arifin, S., & Huda, N. (2024). Improve marketing performance through market sensing capability, dynamic capabilities, and new product development. *Edunomic Jurnal Pendidikan Ekonomi*, 12(1), 12-23.
- Kusumaningrum, R. A., Nur, I., Nurhidayanti, N., & Galib, M. (2025). Peran Komunitas Online dalam Membentuk Loyalitas Merek: Sebuah Analisis Tematik Interaksi Konsumen di Media Sosial. *RIGGS: Journal of Artificial Intelligence and Digital Business*, 4(2), 3472-3478. <https://doi.org/10.31004/riggs.v4i2.1043>
- Larcker, D. F., & Rusticus, T. O. (2010). On the use of instrumental variables in accounting research. *Journal of accounting and economics*, 49(3), 186-205.
- Lestari, T. S. (2025). Strategi customer engagement melalui media sosial untuk meningkatkan loyalitas konsumen pada umkm corndog di era post-digital. *Jurnal Ekonomi, Akutansi dan Organisasi*, 3(2), 118-129.
- Liputri, E., & Gosal, G. (2024). The relationship between customer experience, customer engagement, customer satisfaction, and customer loyalty in Shopee e-commerce. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis dan Inovasi Universitas Sam Ratulangi)*, 11(1), 196-204.
- Ma, L., Zhang, X., Ding, X., & Wang, G. (2020). How social ties influence customers' involvement and online purchase intentions. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(3), 395-408.
- Miryam, N., & Antonio, F. (2022). The effect of social media content on customer engagement and its impact on customer intention. *Jurnal Manajemen Pemasaran*, 16(2), 115-125.
- Nabila, I. N., Sari, A., Suningsih, S., & Bursan, R. (2023). Persepsi Konsumen Terhadap Aktifitas Social Media Marketing di E-Commerce Industry. *Jurnal Pemasaran Kompetitif*, 6(2), 159-170.

- Nyoman, T. B. P., & Oliandes, S. (2025). The Influence of Social Media Marketing on Customer Brand Engagement in Forming Brand Loyalty at Kopi Janji Jiwa. *International Journal*, 1(6), 386-399.
- Pamungkas, D. S., Saputra, I. B., & Laksana, A. (2024). Strategi Komunikasi Digital Melalui Media Sosial Untuk Membangun Kepercayaan Konsumen. *Konsensus: Jurnal Ilmu Pertahanan, Hukum dan Ilmu Komunikasi*, 1(6), 88-94. <https://doi.org/10.62383/konsensus.v1i6.461>
- Paramita, T., & Riorini, S. V. (2023). Pengaruh Involvement, Customer Participation, Commitment Terhadap Loyalty Yang Dimediasi Oleh Customer Engagement Pada Media Sosial" Facebook". *Bussman Journal: Indonesian Journal of Business and Management*, 3(2), 782-796.
- Pasaribu, R., & Silalahi, A. (2020). Analysis of the Impact of Social Media Marketing Activities in Brand Loyalty With Brand Awareness As Intermediate Variables (Study on Traveloka Brand). *Visi Sosial Humaniora*, 1(1), 73-83.
- Rachbini, W. (2017). The role of social support in relationship quality and social commerce intention. *MIX: Jurnal Ilmiah Manajemen*, VII(3), 330-347.
- Rahmawati, R., & Adriyanto, A. T. (2025). The Role of Customer Engagement in Increasing Purchase Intent in Social Commerce. *JMIK : Jurnal Manajemen dan Inovasi Kewirausahaan*, 1(1), 12-28.
- Ramadani, N. A., Hidayat, T., & Sembiring, Z. (2021). Pengaruh Atribut Produk Terhadap Keunggulan Bersaing Pada Aroma Bakery And Cake Shop Lubuk Pakam. *Bisnis Net Jurnal Ekonomi dan Bisnis*, 4(2), 22-38.
- Roosdhani, M. R., & Komaryatin, N. (2021). The Creation of Intention To Buy through Online Social Ties and Social Media Advertisement. *Journal of Management and Entrepreneurship Research*, 2(1), 19-26.
- Roosdhani, M. R., Arifin, S., Ali, A., & Komariyatin, N. (2024). The Digital Route: Social Media Marketing Activies Impact on Bus Service Purchase Behavior. *Jurnal Manajemen dan Inovasi (MANOVA)*, 7(2), 68-82.
- Safira, B. P. (2024). Pengaruh Attribute Product, Price, Dan Promotion Terhadap Repurchase Intention. *Jurnal Manajemen Pemasaran dan Perilaku Konsumen*, 3(1), 155-164. <https://doi.org/10.21776/jmppk.2024.03.1.16>
- Salsabila, A., & Anshori, I. (2025). Dampak Digitalisasi dan Media Sosial terhadap Interaksi Sosial di Masyarakat. *Jurnal Penelitian Inovatif*, 5(2), 1873-1880. <https://doi.org/10.54082/jupin.1059>
- ShiYong, Z., JiaYing, L., HaiJian, W., Dukhaykh, S., Lei, W., BiQing, L., & Jie, P. (2022). Do product characteristics affect customers' participation in virtual brand communities? An empirical study. *Frontiers in Psychology*, 12, 792706.
- Simunic, D. A., Ye, M., & Zhang, P. (2015). Audit quality, auditing standards, and legal regimes: Implications for international auditing standards. *Journal of International Accounting Research*, 14(2), 221-234.
- Sormin, M. R. C., Jenniefer, J., & Adiarsi, G. R. (2025). Strategi digital influencer dalam membentuk persepsi dan keputusan pembelian konsumen Daviena Skincare. *Jurnal Dinamika Ilmu Komunikasi*, 11(2), 279-300.
- Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Sujarweni, V. W. (2020). *Metodologi Penelitian ,Lengkap,Praktis dan Mudah Dipahami*. Yogyakarta: Pustaka Baru Press.

- Sularno, M. (2025). Strategi digital marketing untuk meningkatkan brand awareness di era media sosial. *Aliansi: Jurnal Manajemen dan Bisnis*, 20(1), 228-240.
- Syarif, M. I., & Aisyah, S. (2025). Pengaruh Social Media Marketing, Event Marketing Terhadap Keputusan Pembelian Dengan Customer Engagement. *Jurnal Ekonomi*, 30(1), 48-70.
- Vasarhelyi, M. A., Kogan, A., & Tuttle, B. M. (2015). Big data in accounting: An overview. *Accounting horizons*, 29(2), 381-396.
- Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems¹. *MIS quarterly*, 37(1), 21-54.
- Veronika, V., & Nainggolan, N. P. (2022). Pengaruh promosi, atribut produk, dan loyalitas konsumen terhadap keputusan pembelian di Tokopedia. *Eqien-Jurnal Ekonomi dan Bisnis*, 11(04), 371-377.
- Warren, J. D., Moffitt, K. C., & Byrnes, P. (2015). How big data will change accounting. *Accounting horizons*, 29(2), 397-407.
- Widhiatmoko, A. R., & Sucipto, B. (2025). Signaling theory dalam konteks pasar kerja dan bisnis di Indonesia. *Journal of Accounting and Finance Management*, 6(5), 3016-3024.
- Wooldridge, J. M. (2005). Fixed-effects and related estimators for correlated random-coefficient and treatment-effect panel data models. *Review of economics and statistics*, 87(2), 385-390.
- Wu, L. Y., Chen, K. Y., Chen, P. Y., & Cheng, S. L. (2014). Perceived value, transaction cost, and repurchase-intention in online shopping: A relational exchange perspective. *Journal of business research*, 67(1), 2768-2776.
- Yang, R., & Che, T. (2020). Do social ties matter for purchase frequency? The role of buyers' attitude towards social media marketing. *Computers in Human Behavior*, 110, 106376.
- Zulaiha, Z., & Dimiyati, L. (2023). Pengaruh Atribut Produk Terhadap Keputusan Pembelian (Study Kasus Pada Pengguna Produk Johnson's Baby di Desa Rantau Kasai Kecamatan Lintang Kanan Kabupaten Empat Lawang). *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi dan Bisnis*, 11(1), 1005-1014.