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How customer relationship management and social media business profiles drive customer retention of MSMEs

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ABSTRACT

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This study examines the impact of customer relationship management (CRM) practices and social media marketing (SMM) activities on customer retention among MSMEs in Aceh. It considers the dual role of social media in relationship management (CRM) and business engagement (SMM). Recognizing the widespread use of social media, the study explores different stages of its adoption and utilization in business. A formalized social media business profile is used as the moderating variable, defined by a firm's formal allocation of responsibility, outsourcing, funding, governance of social media, and broader changes to structure, processes, leadership, training, and culture. Data was collected from 565 MSMEs using questionnaires and analyzed with partial least squares structural equation modeling (PLS-SEM) and multi-group analysis. The results demonstrated a high predictive power of the model on customer retention. Within CRM, the findings indicated a significant difference in the effect of key customer focus on customer retention, with higher effects observed in MSMEs that do not formalize their social media business profiles. Additionally, technology-based CRM showed significantly higher effects on customer retention for those who formalize their social media profiles. Within SMM, the study revealed significant differences in the effects of customization and trendiness on customer retention, both of which were more pronounced in MSMEs without formalized social media profiles. Furthermore, word-of-mouth had a significantly higher impact on customer retention for MSMEs with formalized social media profiles. This research contributes theoretically by developing an integrated framework that identifies how key customer focus, CRM organization, knowledge management, technology-based CRM, customization, entertainment, interaction, trendiness, and word-of-mouth influence customer retention. It also explores the moderating effects of formalized social media business profiles on CRM practices and SMM activities within MSMEs.

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1. Introduction

Micro, small, and medium enterprises (MSMEs) are vital to most economies, especially in emerging and low-income countries. In Indonesia, MSMEs are recognized as key drivers of economic growth and social inclusion. As of 2019, around 65.47 million MSMEs accounted for 99.9% of Indonesia's business establishments and employed 96.92% of the national workforce, contributing 60.51% of GDP and 15.6% of non-oil-and-gas exports (Ministry of Cooperatives and SMEs, 2019). In Aceh alone, approximately 74.81 thousand MSMEs were reported (Office of Cooperatives and SMEs, 2019).

Despite their prevalence and the government's efforts to support them, MSMEs in Indonesia, including Aceh, have underperformed compared to those in benchmarked economies (OECD, 2018). This underperformance worsened during the COVID-19 pandemic, with many studies documenting the severe impact on MSMEs (e.g., ADB 2020; ILO 2020; Sonobe et al., 2021; Tambunan, 2020; UNDP and LPEM FEB UI 2020). The pandemic's disruptions, such as mobility restrictions, have had lasting adverse effects (Lee, 2022), underscoring the need to improve MSME performance.

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Previous research suggests a strong link between firms' performance and their ability to retain customers (e.g., Adam et al., 2020; Guerola-Navarro et al., 2021; Li et al., 2023; Otto et al., 2020). Customer retention is crucial as it is generally more profitable and less costly than acquiring new customers (Blattberg & Deighton, 1996; Rosenberg & Czepiel, 1984; Vandermerwe, 1996). Factors such as overall satisfaction, relationship commitment, trust, involvement, and effective customer complaint handling are key to retention and are central to customer relationship management (CRM) (e.g., Ang & Buttle, 2006; Bhattacharya & Sen, 2003; Garbarino & Johnson, 1999; Gustafsson et al., 2005; Teichert & Rost, 2003).

The pandemic has also accelerated digital transformation, including the adoption of social media by MSMEs (Teima et al., 2021). Social media has revolutionized firm-customer engagement, impacting marketing, operations, finance, and HR management (Aral et al., 2013). There is evidence linking social media use to CRM and firm performance (e.g., Charoensukmongkol & Sasatanun, 2017; Foltean et al., 2019; Kim & Wang, 2019; Ngo et al., 2021). However, a gap exists in the literature regarding the differences in CRM practices and social media marketing (SMM) activities between MSMEs with formalized and non-formalized social media business profiles. These profiles involve structured responsibilities, outsourcing, funding, and governance of social media within an organization, alongside broader changes in structure, processes, leadership, training, and culture to leverage social media effectively (Aggarwal et al., 2012; Chung et al., 2017).

This study develops and tests an integrated model linking CRM practices (key customer focus, CRM organization, knowledge management, technology-based CRM) and SMM activities (entertainment, interaction, customization, trendiness, word-of-mouth) to examine the effect of formalizing social media business profiles in MSMEs on customer retention. The outcomes will enhance understanding of the factors shaping customer retention and the importance of formalizing social media profiles as a management strategy for MSMEs (Buttle & Maklan, 2019; Chatterjee & Kumar Kar, 2020).

2. Literature review and hypotheses development

2.1 Customer retention

Customer retention is crucial for a firm's long-term success and survival, driven by the high costs of acquiring new customers and the cost benefits of maintaining long-term relationships (Hennig-Thurau, 2004; Kandampully, 1998; Wong & Sohal, 2003). While closely related to customer loyalty, customer retention differs in that it is prospective and firm-focused, whereas loyalty is retrospective and customer-focused. Despite extensive research, understanding the factors influencing repurchase behavior, retention, and loyalty remains challenging. Studies typically emphasize overall satisfaction as a key factor in retention, though satisfaction alone does not always guarantee it (e.g., Bloemer & Kasper, 1995; Reichheld, 1993). Garbarino and Johnson (1999) differentiate between low and high relational groups, with the former responding to transactional marketing and the latter to relational marketing, aligning with CRM's relationship marketing principles. Recent research underscores the importance of customer experience in retention (e.g., Pekovic & Rolland, 2020; Prentice & Nguyen, 2020), focusing on customers' perceptions of their experiences (Fernandes & Pinto, 2019; Japutra et al., 2021), thereby highlighting the relational aspect of customer retention.

2.2 Customer relationship management

Customer relationship management (CRM) involves managing a firm's customer relationships by using customer information to create, develop, and maintain long-term, profitable relationships, ultimately maximizing shareholder returns (Malthouse et al., 2013; Payne, 2012). CRM covers customer-centric management, cross-functional business integration, change management, management roles, IT systems, and success metrics. CRM impacts the entire customer life cycle (Bygstad, 2003; Huang & Xiong, 2010) and should be viewed as a primary strategy, not just a supportive or IT-based initiative (Payne & Frow, 2005). It integrates technologies with relationship marketing strategies to maximize customer value. Sin et al. (2005) identified four CRM pillars: key customer focus, CRM organization, knowledge management, and technology-based CRM.

2.3 Key customer focus and customer retention

Key customer focus echoes the primary focus of CRM, which is the key customers (Christopher et al., 1991; Gummeson, 2012; Ryals & Payne, 2001), and embodies the firm's adherence to the needs of selected key customers through personalized or tailored products or services (Ryals & Knox, 2001; Sheth & Parvatiyar, 2000). Hence, we propose the following hypothesis:

H₁: *There is a significant difference in the effect of key customer focus on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.4 CRM organisation and customer retention

Organizing the whole firm around CRM is inherently challenging (Bull, 2003), yet it is required for CRM to unify business operations and people to be effective. We hypothesise:

H₂: *There is a significant difference in the effect of CRM organisation on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.5 Knowledge management and customer retention

Knowledge management emerges as an approach to creating novel ideas from the environment external to the organisation. Unlike the traditional closed innovation model and firm-centric view of values, the approach pursues innovation with customers at the centre using information, knowledge, experience and ideas related to customers (Taherparvar et al., 2014). Therefore, we hypothesise:

H3: *There is a significant difference in the effect of knowledge management on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.6 Technology-based CRM and customer retention

Technology plays a vital role in CRM implementation that assists entrepreneurs and firms to focus on targeted customers. We hypothesize:

H4: *There is a significant difference in the effect of technology-based CRM on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.7 Social media marketing activities

Moreover, the rise of social media has disrupted conventional CRM paradigms as customers now play an active role (Malthouse et al., 2013) and assert control (Sigala, 2018). Due to its inherently relational character (Harrigan et al., 2020; Malthouse et al., 2013; Trainor et al., 2014), numerous social media platforms enable customers to interact with firms and brands, where they can assess recommendations, reviews, and ratings (Hajli, 2015; Hajli et al., 2014). Miller et al. (2009) contend that social media's significance lies in fostering interaction within communities of shared interests, facilitating immediate, interactive, and cost-effective communication, and primarily, in facilitating the formation of interpersonal connections that offer information and social support. These assertions underscore the uniqueness of social media marketing (SMM) activities, as contemporary customer decision-making processes involve various online activities, such as seeking content from competing firms and seeking social validation from both online and offline social networks (Hall et al., 2017; Nunan & Di Domenico, 2019; Ibrahim, Yusra & Shah, 2022). Kim and Ko (2012) assessed social media marketing using customization, entertainment, interaction, trendiness, and word-of-mouth as indicators.

2.8 Customisation and customer retention

Customization entails delivering personalized messages, such as advertisements, to individuals based on their preferences (C. Li, 2016), influencing their purchasing behavior (Hollebeek et al., 2014). Many organizations utilize customization for effective marketing and relationship management on social media (Montgomery & Smith, 2009). Its effectiveness and growing importance stem from firms' access to extensive customer data, including shopping habits and preferences (e.g., Ansari & Mela, 2003; Lavie et al., 2010; Li, 2016; Wedel & Kannan, 2016). Customization enables firms to tailor interactions, highlighting products or brand features of interest to the user. We hypothesize:

H5: *There is a significant difference in the effect of customisation on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.9 Entertainment and customer retention

Entertainment is a critical element of social media marketing, prompting firms to create engaging and enjoyable content. Cheung et al. (2020) connect this aspect with firms' efforts to craft memorable experiences for customers through entertaining content. Similarly, Park et al. (2009) show that consumer engagement on social media platforms is driven by sharing entertaining content that meets their expectations. Therefore, we hypothesize:

H6: *There is a significant difference in the effect of entertainment on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.10 Interaction and customer retention

Interactivity, as defined in the literature, refers to a firm's capacity to facilitate virtual sharing and exchange of information among stakeholders (Jensen, 1998). In marketing, Kioussis (2002) characterizes interactivity as marketers' ability to engage with current and potential customers online to convey key marketing messages. Given that social media offers numerous opportunities for information exchange, these interactions empower customers in their purchasing decisions (Muntinga et al., 2011). Research indicates that social media interactions can influence purchasing behavior (e.g., De Vries et al., 2012; Liao et al., 2019; Yeon et al., 2019; Zafar et al., 2021; Ainin et al., 2015) and brand trust (Sohail et al., 2020), both of which are precursors to customer retention. Thus, we hypothesize:

H7: *There is a significant difference in the impact of interaction on customer retention between MSMEs without formal social media business profiles and those with them.*

2.11 Trendiness and customer retention

Social media provides the latest news and topics being discussed (Naaman, Becker, & Gravano, 2011). Trendiness, therefore, is defined as a firm's ability to provide its customers with trending information about products or services (Bruno et al., 2016). This aspect covers several aspects of customer's motivations, including surveillance, knowledge, pre-purchase information, and inspiration (Muntinga et al., 2011), which lead to buying behaviour. We hypothesise:

H8: *There is a significant difference in the effect of trendiness on customer retention between MSMEs without formal social media business profiles and those with ones.*

2.12 Word-of-mouth and customer retention

Word-of-mouth has long been considered an influential marketing tool. Amine (1998) regards it as a behavioural result of commitment. In the era of social media, word-of-mouth is increasingly important to drive customer's purchasing behaviour because customers seek reviews from other users who have used the products or services, and in doing so, they relieve themselves of anxiety associated with uncertainties (Bickart & Schindler, 2001; Pitta & Fowler, 2005). We hypothesise:

H9: *There is a significant difference in the effect of word-of-mouth on customer retention between MSMEs without formal social media business profiles and those with ones.*

Fig. 1 shows the conceptual framework of this study, with all constructs representing CRM practice and SMM activities and formalised social network business profiles moderating the entire model.

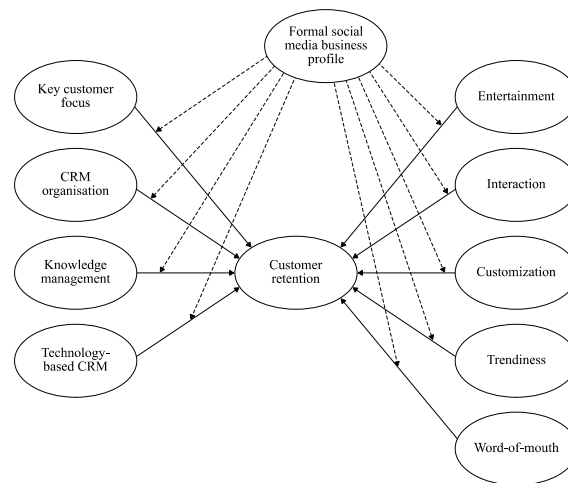


Fig. 1. Research model

3. Methodology

3.1 Measurement

The questionnaire, developed from prior research utilizing a five-point Likert scale (ranging from 1 for 'strongly disagree' to 5 for 'strongly agree'), incorporates items adapted from various sources. Sin et al. (2005) provided items for assessing key customer focus (5 items), CRM organization (5 items), knowledge management (4 items), and technology-based CRM (5 items). Items concerning interaction (3 items), entertainment (3 items), customization (3 items), trendiness (3 items), and word-of-mouth (3 items) were adapted from Kim and Ko (2012), while customer retention (5 items) was sourced from Li et al. (2018) (see Appendix 1 for item details). Additionally, a binary item assessed whether the MSME formalized its social media business profile, facilitating data segmentation for analysis and hypothesis testing. A pilot study involving thirty-five respondents validated the questionnaire's reliability using Cronbach's alpha. Results indicated Cronbach's alpha exceeded 0.7 for all constructs, signifying high reliability.

3.2 Data collection

Data were collected from MSME owners or representatives in Aceh, as defined by Law No. 20 of 2008, excluding those in informal economies due to their unregulated nature, limited technology adoption, and lack of business continuity. The questionnaire, administered in Indonesian, was distributed via social media platforms (e.g., Facebook, LinkedIn, Twitter)

between May and June 2023, following a recommended approach for online data collection (Ali et al., 2021). A total of 592 eligible responses were received, of which 565 fully answered the questionnaire, yielding a 95.44% response rate. Among these, 293 (51.86%) belonged to MSMEs without formal social media profiles (Group 1), while 272 (48.14%) belonged to MSMEs with such profiles (Group 2). Of the respondents, 328 (58.05%) represented microenterprises, and 237 (41.95%) represented small-sized enterprises, with the majority falling into the 4–6 and 7–9 years age groups. Common-method bias was assessed using variance inflation factor (VIF), with values ranging from 1.42 to 3.22 across both groups, below the threshold of 3.3 suggested by existing literature (Cenfetelli & Bassellier, 2009; Kock & Lynn, 2012; Kock, 2015; Petter et al., 2007), indicating the absence of common-method bias in the model.

3.3 Analytical technique

We assessed the measurement model, structural model, and hypotheses using partial least squares structural equation modeling (PLS-SEM) and multi-group analysis (MGA). PLS-SEM was chosen for its predictive nature in predicting how CRM practices affect MSMEs' customer retention. MGA was employed to compare antecedent effects on customer retention between two groups. We used SmartPLS 4.0 software for analysis. Before conducting MGA, measurement invariance was tested following Henseler et al. (2016) using the measurement invariance of composites (MICOM) approach. MICOM involves configurational, compositional, and mean and variance equality assessments. Partial measurement invariance was established for both groups. For MGA and hypothesis testing, we utilized Henseler's MGA and the permutation test. Sample size adequacy was confirmed through power analysis, requiring a minimum of 191 samples per group. With 293 samples for MSMEs with social media marketing and 272 without, our sample size meets the requirements for PLS-SEM analysis according to Reinartz et al. (2009).

4. Results

Table 1 displays the results of descriptive analysis for construct measurement items, along with skewness and kurtosis. Skewness values for all items ranged from -1 to 1, and kurtosis values fell between -2 and 2, suggesting a near-normal data distribution (Hair et al., 2017). Thus, the data does not exhibit significant non-normality issues. While PLS-SEM is robust to non-normal data, recent literature advises against highly non-normal distributions, which is not applicable to our study given the skewness and kurtosis values.

Table 1
Descriptive analysis.

Items	Mean	Standard Deviation	Kurtosis	Skewness
CRMO1	3.687	0.701	-0.863	0.522
CRMO2	3.674	0.721	-0.876	0.552
CRMO3	3.664	0.717	-0.763	0.483
CRMO4	3.701	0.719	-0.941	0.517
CRMO5	3.864	0.663	-0.752	0.158
CUST1	3.189	1.002	-0.608	0.101
CUST2	3.140	0.976	-0.413	0.015
CUST3	3.142	0.989	-0.472	0.032
ENTE1	3.228	1.132	-0.681	-0.288
ENTE2	3.265	1.115	-0.550	-0.346
ENTE3	3.297	0.996	-0.664	-0.202
INTE1	3.595	0.922	-0.437	-0.321
INTE2	3.558	0.948	-0.264	-0.304
INTE3	3.586	0.940	-0.353	-0.333
KEYC1	3.480	0.966	-0.635	-0.161
KEYC2	3.471	0.964	-0.673	-0.084
KEYC3	3.437	0.930	-0.611	-0.087
KEYC4	3.623	0.877	-0.314	-0.134
KEYC5	3.476	0.917	-0.350	-0.144
KNOW1	3.731	0.795	-1.012	0.329
KNOW2	3.687	0.740	-0.983	0.575
KNOW3	3.683	0.729	-0.942	0.570
KNOW4	3.724	0.744	-1.056	0.496
RETE1	3.940	0.706	-0.994	0.086
RETE2	3.850	0.719	-1.051	0.233
RETE3	3.908	0.710	-0.947	0.105
RETE4	3.908	0.688	-0.810	0.088
TECH1	3.727	0.814	0.207	-0.530
TECH2	3.540	0.889	-0.479	-0.295
TECH3	3.648	0.895	0.135	-0.553
TECH4	3.359	0.918	-0.176	-0.304
TECH5	3.561	0.905	-0.020	-0.513
TREN1	3.577	0.995	-0.481	-0.348
TREN2	3.549	1.006	-0.610	-0.301
TREN3	3.446	1.044	-0.690	-0.203
WORD1	3.761	0.936	0.062	-0.612
WORD2	3.743	0.908	0.322	-0.652
WORD3	3.765	0.937	-0.062	-0.604

4.1 Assessment of measurement model

The measurement model of nine reflective constructs, comprising CRM and SMM components, was evaluated for reliability and validity. Composite reliability indicators including Cronbach's alpha, rho_A, and average variance extracted (AVE) were examined based on Hair et al. (2019a), with thresholds of 0.7, 0.7, and 0.5, respectively, indicating reliability and convergent validity. Results, detailed in Table 2, demonstrate acceptable reliability and convergent validity across all constructs for both groups: MSMEs with and without formal social media business profiles.

Table 2
Construct validity criteria.

Constructs	Items	Outer Loading		Cronbach's alpha		rho_A		AVE	
		Gp. 1	Gp. 2	Gp. 1	Gp. 2	Gp. 1	Gp. 2	Gp. 1	Gp. 2
CRM organisation (CRMO)	CRMO1	0.719	0.844	0.867	0.896	0.873	0.904	0.655	0.706
	CRMO2	0.841	0.877						
	CRMO3	0.823	0.869						
	CRMO4	0.859	0.844						
	CRMO5	0.796	0.762						
Key customer focus (KEYC)	KEYC1	0.818	0.916	0.808	0.845	0.824	0.852	0.636	0.681
	KEYC2	0.838	0.784						
	KEYC3	0.815	0.742						
Knowledge management (KNOW)	KNOW1	0.761	0.837	0.868	0.812	0.885	0.813	0.790	0.727
	KNOW2	0.769	0.818						
	KNOW3	0.890	0.862						
	KNOW4	0.854	0.787						
Technology-based CRM (TECH)	TECH1	0.804	0.829	0.833	0.854	0.915	0.878	0.745	0.772
	TECH2	0.855	0.860						
	TECH3	0.817	0.854						
	TECH4	0.839	0.850						
	TECH5	0.796	0.834						
Customisation (CUST)	CUST1	0.878	0.860	0.809	0.808	0.823	0.939	0.723	0.693
	CUST2	0.888	0.852						
	CUST3	0.900	0.846						
Entertainment (ENTE)	ENTE1	0.924	0.886	0.765	0.768	0.773	0.940	0.679	0.668
	ENTE2	0.832	0.913						
	ENTE3	0.830	0.836						
Interaction (INTE)	INTE1	0.864	0.832	0.844	0.849	0.910	0.876	0.673	0.683
	INTE2	0.806	0.746						
	INTE3	0.880	0.912						
Trendiness (TREN)	TREN1	0.902	0.904	0.881	0.900	0.891	0.905	0.677	0.715
	TREN2	0.831	0.895						
	TREN3	0.890	0.861						
Word-of-mouth (WORD)	WORD1	0.889	0.884	0.847	0.865	0.857	0.873	0.766	0.787
	WORD2	0.898	0.904						
	WORD3	0.862	0.881						
Customer retention (RETE)	RETE1	0.860	0.820	0.859	0.869	0.868	0.877	0.780	0.792
	RETE2	0.844	0.852						
	RETE3	0.773	0.823						
	RETE4	0.702	0.805						

The Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio were used to establish discriminant validity (Hair et al., 2017; Henseler et al., 2015). According to Fornell-Larcker, the square root of AVE for each construct must exceed its correlations with other constructs. For HTMT, the ratio should be below 0.9 (Hair et al., 2017, 2019b; Henseler et al., 2015). Both criteria confirm acceptable discriminant validity for data from two groups (MSMEs with and without formal social media business profiles), as shown in Tables 3 and 4.

Table 3
Discriminant validity using the Fornell-Larcker criterion.

	Group 1									Group 2										
	CRMO	CUST	ENTE	INTE	KEYC	KNOW	RETE	TECH	TREN	WORD	CRMO	CUST	ENTE	INTE	KEYC	KNOW	RETE	TECH	TREN	WORD
CRMO	0.809										0.840									
CUST	0.391	0.889									0.164	0.853								
ENTE	0.354	0.303	0.863								0.234	0.333	0.879							
INTE	0.353	0.404	0.284	0.850							0.150	0.302	0.397	0.833						
KEYC	0.314	0.333	0.041	0.263	0.824						0.232	0.286	0.323	0.600	0.817					
KNOW	0.408	0.616	0.180	0.234	0.166	0.820					0.172	0.570	0.430	0.334	0.384	0.826				
RETE	0.272	0.313	0.152	0.219	0.381	0.152	0.798				0.247	0.114	0.292	0.153	0.196	0.194	0.825			
TECH	0.373	0.219	0.235	0.251	0.312	-0.054	0.314	0.823			0.403	0.386	0.395	0.373	0.381	0.291	0.421	0.846		
TREN	0.333	0.298	0.109	0.192	0.370	0.078	0.394	0.741	0.875		0.281	0.231	0.253	0.241	0.204	0.191	0.310	0.697	0.887	
WORD	0.367	0.402	0.189	0.381	0.330	0.227	0.215	0.281	0.328	0.883	0.261	0.312	0.500	0.265	0.271	0.324	0.372	0.552	0.400	0.890

Table 4
Discriminant validity using HTMT_{0.9}.

	Group 1					Group 2																	
	CRMO	CUST	ENTE	INTE	KEYC	KNO	RETE	TECH	TREN	D	WOR	CRMO	CUST	ENTE	INTE	KEYC	W	KNO	RETE	TECH	TREN	WORD	
CRMO																							
CUST	0.453											0.192											
ENTE	0.421	0.366										0.273	0.404										
INTE	0.431	0.484	0.348									0.175	0.370	0.452									
KEYC	0.381	0.399	0.080	0.338								0.274	0.355	0.354	0.744								
KNOW	0.465	0.713	0.204	0.278	0.191							0.194	0.690	0.496	0.402	0.462							
RETE	0.321	0.366	0.167	0.265	0.480	0.174						0.274	0.138	0.336	0.163	0.215	0.216						
TECH	0.421	0.245	0.274	0.295	0.373	0.113	0.360					0.446	0.455	0.451	0.414	0.450	0.333	0.476					
TREN	0.386	0.337	0.127	0.229	0.458	0.110	0.468	0.849				0.320	0.271	0.299	0.261	0.243	0.217	0.359	0.790				
WORD	0.432	0.464	0.234	0.463	0.399	0.253	0.252	0.316	0.380			0.297	0.373	0.578	0.300	0.298	0.367	0.428	0.624	0.460			

Before assessing the structural model and testing hypotheses, measurement invariance between the two groups must be tested. Table 5 and Table 6 present the results using the MICOM approach, which show partial measurement invariance by establishing configurational and compositional invariance needed for MGA (Hair et al., 2017, 2019a, 2019b; Henseler et al., 2016). However, full measurement invariance was not achieved due to significant differences in the mean and variance of some constructs between the two groups (MSMEs with and without social media marketing). Therefore, the structural model assessment is reported separately for each group.

Table 5
Results of configural and compositional measurement invariance testing.

Constructs	Configural invariance		Compositional invariance				Partial measurement invariance?
	Is the same algorithm used for both groups?	Corr. = 1	Corr. Perm. Mean	5% quantile	Perm. P- value		
CRMO	Yes	0.998	0.991	0.973	0.898	Yes	
RETE	Yes	0.998	0.994	0.981	0.750	Yes	
CUST	Yes	0.993	0.891	0.507	0.879	Yes	
ENTE	Yes	0.986	0.878	0.445	0.846	Yes	
INTE	Yes	0.983	0.993	0.981	0.085	Yes	
KEYC	Yes	0.986	0.925	0.673	0.790	Yes	
KNOW	Yes	1.000	0.999	0.996	0.882	Yes	
TECH	Yes	0.999	0.998	0.996	0.536	Yes	
TREN	Yes	0.999	0.999	0.997	0.381	Yes	
WORD	Yes	1.000	0.999	0.997	0.749	Yes	

Table 6
Results of equal mean and equal variance testing.

Constructs	Equal mean			Equal variance				Full MI
	Diff.	5% quant.	95% quant.	Equal mean	Diff.	5% quant.	95% quant.	
CRMO	-0.356	-0.130	0.142	No	-0.176	-0.152	0.159	No
RETE	-0.175	-0.140	0.146	No	0.111	-0.160	0.182	Yes
CUST	-0.754	-0.140	0.141	No	0.010	-0.165	0.159	Yes
ENTE	-0.436	-0.140	0.150	No	0.142	-0.197	0.194	Yes
INTE	-0.120	-0.136	0.143	Yes	-0.010	-0.154	0.158	Yes
KEYC	-0.336	-0.129	0.150	No	-0.198	-0.143	0.134	No
KNOW	0.629	-0.136	0.147	No	-0.139	-0.142	0.140	Yes
TECH	-0.096	-0.136	0.145	Yes	-0.252	-0.210	0.216	No
TREN	0.257	-0.143	0.141	No	-0.219	-0.167	0.162	No
WORD	0.610	-0.134	0.138	No	-0.433	-0.205	0.185	No

4.2 Assessment of structural model and hypothesis testing

This study aims to predict MSMEs' customer retention based on their application of customer relationship management (CRM) practices, moderated by the presence or absence of social media marketing. The predictive power is assessed for two groups using both in-sample and out-of-sample approaches. The in-sample predictive power, evaluated using R² and Q² values (Hair et al., 2019), shows R² and Q² values of 0.398 and 0.373 for respondents using social media marketing, and 0.482 and 0.456 for those without. These values indicate acceptable predictive power (Hair et al., 2017). The out-of-sample predictive power, assessed using the PLSpredict approach, demonstrates high predictive power for both groups by evaluating Q²predict values and comparing the root mean squared error (RMSE) between PLS-SEM and a linear model (LM) (Danks & Ray, 2018). Table 7 presents the PLSpredict results, confirming high predictive power for the model in both groups.

Table 7
Results of predictive power using PLSpredict.

Items	Group 1			Group 2		
	Q ² predict	RMSE		Q ² predict	RMSE	
		PLS	LM		PLS	LM
RETE1	0.182	0.581	0.463	0.149	0.629	0.520
RETE2	0.112	0.656	0.515	0.142	0.660	0.541
RETE3	0.088	0.648	0.512	0.088	0.680	0.550
RETE4	0.097	0.636	0.494	0.079	0.655	0.541

Table 8 shows the results of hypothesis testing and MGA to compare the path coefficients between the two groups using non-parametric approaches, namely Henseler's MGA (Henseler et al., 2009) and the permutation test (Chin & Dibbern, 2010; Sarstedt et al., 2011).

Table 8
Results of hypothesis testing.

Relationship	Path coeff.		CI bias corrected		Path coeff. diff.	P-value diff. (one-tailed)		Result
	Gp. 1	Gp. 2	Gp. 1	Gp. 2		MGA	Perm.	
H1 CRMO → RETE	0.056	0.070	[-0.048, 0.163]	[-0.034, 0.16]	-0.014	0.563	0.440	Not supported
H2 KEYC → RETE	0.230	0.031	[0.131, 0.322]	[-0.075, 0.133]	0.199	0.010	0.010	Supported
H3 KNOW → RETE	-0.026	0.084	[-0.164, 0.075]	[-0.029, 0.206]	-0.110	0.859	0.109	Not supported
H4 TECH → RETE	-0.019	0.287	[-0.151, 0.098]	[0.148, 0.445]	-0.307	0.995	0.005	Supported
H5 CUST → RETE	0.138	-0.135	[0.017, 0.287]	[-0.256, -0.051]	0.273	0.005	0.005	Supported
H6 ENTE → RETE	0.057	0.099	[-0.04, 0.136]	[-0.016, 0.216]	-0.042	0.685	0.282	Not supported
H7 INTE → RETE	0.042	-0.057	[-0.062, 0.133]	[-0.187, 0.043]	0.099	0.140	0.139	Not supported
H8 TREN → RETE	0.264	0.025	[0.143, 0.393]	[-0.104, 0.144]	0.240	0.013	0.013	Supported
H9 WORD → RETE	-0.039	0.157	[-0.142, 0.061]	[0.03, 0.268]	-0.196	0.980	0.010	Supported

The difference between groups is significant if the one-tailed P-value from MGA and permutation analysis is less than 0.025 or greater than 0.975. The results supported H2, showing a significant difference in the impact of key customer focus on customer retention, with higher effects for respondents without formalized social media business profiles. H4 was also supported, revealing a significant difference in the impact of technology-based CRM on customer retention, with higher effects for respondents with formalized social media business profiles. However, the study did not support H1 (CRM organization effects) and H3 (knowledge management effects) on customer retention, nor the differences between the two groups for these components.

Regarding SMM components, the study supported H5 and H8, indicating significant differences in the effects of customization and trendiness on customer retention, with higher effects for respondents without formalized social media business profiles. H9 was also supported, showing a significant difference in the impact of word-of-mouth on customer retention, with higher effects for respondents with formalized social media business profiles. However, the results did not support H6 (entertainment effects) and H7 (interaction effects) on customer retention, nor the differences between the two groups for these components.

5. Discussion

This study aimed to predict customer retention among MSMEs in Aceh based on their CRM practices and SMM activities. We examined the role of social media in enhancing marketing efforts, business engagement, and relationship building with customers. While social media use is widespread in society, its adoption and use in business are inconsistent; thus, its moderating effects on a firm's CRM practices and SMM activities on customer retention vary. We measured a firm's level of social media adoption using the formalised social media business profile, defined by the firm's allocation of responsibility, outsourcing, funding, and governance of social media, as well as changes to the organisation's structure, processes, leadership, training, and culture (Chung et al., 2017). A formalised social media business profile indicates a firm's maturity in social media adoption.

In this study, we examined the effects of key customer focus, CRM organisation, knowledge management, and technology-based CRM as components of CRM, and customisation, entertainment, interaction, trendiness, and word-of-mouth as components of SMM. These effects were compared between two groups: MSMEs with and without formalised social media business profiles. The findings showed the model's high predictive power for both groups.

Within CRM, the results indicated significant differences, with key customer focus having a higher impact on customer retention among MSMEs without formalised social media business profiles. This underscores the importance of focusing on key customers in relationship marketing and suggests that MSMEs with less mature social media adoption are more prone to losing this focus. Additionally, technology-based CRM had a higher impact on customer retention for firms with formalised social media business profiles, highlighting technology's role as an enabler in CRM and the dependency of these firms on technological solutions.

Within SMM, the study revealed significant differences in the effects of customisation and trendiness on customer retention, with higher impacts observed for MSMEs without formalised social media business profiles. This emphasizes the importance of providing personalized experiences and accurate information to customers, which is particularly challenging but crucial for firms with less mature social media adoption. Furthermore, word-of-mouth had a significantly higher impact on customer retention for MSMEs with formalised social media business profiles, indicating that maintaining positive discussions about products and services is more critical for these firms than other aspects of SMM.

6. Conclusions and Recommendations

Key findings indicate that within CRM practices, key customer focus has a higher impact on customer retention for MSMEs without formalised social media business profiles, highlighting the importance of maintaining focus on key customers in these firms. Conversely, technology-based CRM shows a higher impact for firms with formalised social media business profiles, emphasizing the role of technology in enhancing CRM and the reliance of these firms on technological solutions.

Regarding SMM activities, customisation and trendiness both have a higher impact on customer retention for MSMEs without formalised social media business profiles, stressing the need for personalized customer experiences and accurate information. Meanwhile, word-of-mouth has a significantly higher impact for MSMEs with formalised social media business profiles, underscoring the importance of fostering positive discussions about the firm's products and services.

The recommendations for MSMEs without formalised social media business profiles include enhancing relationship marketing efforts to ensure key customers receive personalized attention and focusing on providing tailored experiences and up-to-date information to meet customer needs and preferences. For MSMEs with formalised social media business profiles, it is recommended to continue integrating and optimizing technological solutions to support CRM practices and to implement strategies that promote favorable customer discussions about products and services, leveraging social media channels effectively.

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