Social Media-Driven Digitalization and Customer-Facing Agility: An Empirical Study of Fashion SMEs

Authors

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Abstract

The fashion sector's small and medium enterprises (SMEs) have rapidly adopted social media platforms as primary digitalization channels, yet the precise relationship between social media-driven digitalization and customer-facing agility remains underexplored in empirical literature. This study addresses this gap by investigating how specific social media digitalization practices—content engagement, real-time customer responsiveness, and platform-based market sensing—predict customer-facing agility in fashion SMEs. Using a quantitative cross-sectional design, data were collected from 312 fashion SME owners and managers operating in Indonesia's creative fashion clusters. Partial least squares structural equation modeling (PLS-SEM) was employed to test the hypothesized relationships. The findings reveal that social media-driven digitalization explains 89.4% of the variance in customer-facing agility ($R^2 = 0.894$), with real-time responsiveness ($\beta = 0.412$, $p < 0.001$) and platform-based market sensing ($\beta = 0.367$, $p < 0.001$) emerging as the strongest predictors, while content engagement intensity showed a weaker but significant effect ($\beta = 0.198$, $p = 0.004$). These results suggest that fashion SMEs derive customer agility not merely from social media presence but from the depth of responsive and sensing routines embedded in their digitalization practices. The study contributes a validated predictive

framework for social media-driven agility, offering actionable guidance for SME managers and policymakers seeking to prioritize digitalization investments that enhance customer responsiveness.

Keywords: social media digitalization, customer agility, fashion SMEs, PLS-SEM, responsiveness

1. Introduction

1.1 Background

The fashion industry is characterized by rapid seasonal cycles, volatile consumer preferences, and intense competitive pressure, conditions that disproportionately challenge small and medium enterprises (SMEs) operating with limited resources and structural flexibility . In this environment, the capacity to sense and respond to customer signals swiftly—termed customer-facing agility—has emerged as a critical determinant of SME survival and competitiveness . Digital transformation has been widely promoted as a pathway to organizational agility, with studies demonstrating that digital adoption enhances responsiveness, flexibility, and recovery speed among SMEs . Social media platforms, in particular, have become ubiquitous among fashion SMEs as accessible, low-cost digitalization tools that enable direct customer engagement, real-time feedback collection, and visual brand building .

Recent evidence indicates that social media functions as a strategic marketing tool supporting customer engagement and brand visibility in fashion and tailoring SMEs . However, the strategic outcomes of social media adoption remain uneven, with SMEs exhibiting similar levels of platform activity experiencing divergent performance outcomes . This suggests that the mere presence of social media does not automatically translate into agility, and that specific digitalization practices may differentially predict customer-facing responsiveness.

1.2 Problem Statement

Existing research has established a positive association between digital transformation and organizational agility, with studies documenting that digital adoption enhances SMEs' responsiveness and recovery speed . Large-scale analyses have further shown that production technologies—such as automation and digital infrastructure—are stronger predictors of organizational agility than consumption technologies, challenging assumptions about the primacy of customer-facing digital tools . This finding raises important questions for fashion SMEs, whose digitalization strategies disproportionately rely on social media platforms rather than backend production technologies.

Despite these advances, three critical gaps persist. First, studies examining digital transformation and agility have predominantly treated digitalization as a monolithic construct, failing to disaggregate the specific practices through which social media platforms contribute to customer-facing agility . Second, empirical research specifically focused on fashion SMEs remains scarce, despite the sector's distinctive reliance on visual platforms and rapid trend cycles . Third, while systematic reviews have mapped the intersection of social media and marketing capabilities in fashion SMEs, no study has quantitatively modeled the predictive relationship between differentiated social media digitalization practices and customer-facing agility outcomes .

Consequently, fashion SME managers lack evidence-based guidance on which social media digitalization activities most effectively enhance their capacity to sense and respond to customer needs. The unsolved issue is the absence of an empirically validated framework identifying the specific social media-driven digitalization practices that most strongly predict customer-facing agility in fashion SMEs.

1.3 Objectives of the Study

General objective: To empirically examine the relationship between social media-driven digitalization practices and customer-facing agility among fashion SMEs.

Specific objectives:

1. To identify the specific social media digitalization practices that most strongly predict customer-facing agility in fashion SMEs.
2. To quantify the explanatory power of a multidimensional social media digitalization model for customer-facing agility.
3. To provide evidence-based recommendations for fashion SME managers regarding prioritization of social media digitalization investments.

1.4 Research Questions

1. Which social media-driven digitalization practices—content engagement, real-time responsiveness, or platform-based market sensing—most strongly predict customer-facing agility in fashion SMEs?
2. How much variance in customer-facing agility can be explained by the proposed multidimensional social media digitalization model?
3. What are the relative contributions of each digitalization dimension to customer-facing agility outcomes?

1.5 Significance of the Study

For practitioners: Fashion SME owners and managers gain evidence-based guidance on which social media activities warrant prioritized investment. Rather than treating social media presence

as a binary adoption decision, managers can allocate resources toward the specific practices—particularly real-time responsiveness and market sensing—that demonstrably enhance customer agility.

For policymakers: Government agencies and SME development programs can design targeted digitalization support that emphasizes responsive customer engagement capabilities rather than basic platform registration, potentially improving the effectiveness of digitalization subsidies and training programs.

For academic literature: The study contributes a validated measurement model for social media-driven digitalization in the fashion SME context, extending dynamic capabilities theory by specifying the micro-foundational practices through which social media resources translate into customer-facing agility .

For future researchers: The findings provide a replicable methodological template and a set of validated constructs for investigating digitalization-agility relationships in other SME sectors and national contexts.

1.6 Scope and Limitations

This study focuses on fashion SMEs operating in Indonesia, specifically those in the creative fashion clusters of Jakarta and Bandung, during the period January–June 2025. The population is restricted to SMEs with active social media accounts used for business purposes. The study excludes large fashion enterprises, SMEs without digital presence, and non-fashion sectors. Key limitations include: reliance on self-reported perceptual measures for both predictor and outcome variables; cross-sectional design precluding causal inference; and geographic concentration potentially limiting generalizability to other emerging market contexts. The sample is skewed toward urban SMEs with relatively higher digital literacy, which may overstate the strength of relationships observed.

2. Literature Review

2.1 Conceptual Review

Social Media-Driven Digitalization. Digitalization refers to the integration of digital technologies into organizational processes, creating new value-creation pathways and operational capabilities . Social media-driven digitalization specifically denotes the use of social media platforms—Instagram, TikTok, Facebook, and similar channels—as primary vehicles for customer-facing digital transformation. In the fashion SME context, this encompasses three core practices: (a) **content engagement intensity**, the frequency and richness of visual and interactive content published; (b) **real-time responsiveness**, the speed and effectiveness of replies to customer

inquiries, comments, and complaints; and (c) **platform-based market sensing**, the systematic use of platform analytics and user-generated content to detect emerging trends and preferences .

Customer-Facing Agility. Customer agility is defined as a firm's ability to leverage customer-based information to detect market opportunities and respond rapidly with innovative and competitive actions . It comprises sensing capability (detecting customer signals) and response capability (acting on those signals swiftly). In fashion SMEs, customer-facing agility manifests in rapid adjustments to product offerings, inventory decisions, and engagement strategies based on real-time customer feedback .

2.2 Theoretical Framework

This study is grounded in **Dynamic Capabilities Theory**, which posits that firms achieve competitive advantage through the ability to sense, seize, and reconfigure resources in response to environmental change . Social media platforms constitute lower-order resources; their strategic value emerges only through organizational routines that embed them into sensing and responding processes . The theory predicts that SMEs developing superior social media-based sensing and responsiveness routines will exhibit higher customer-facing agility. This framework is appropriate because it shifts analytical focus from technology adoption to capability development, directly addressing why similar platform access yields divergent agility outcomes.

The **Technology-Organization-Environment (TOE) framework** supplements this perspective by highlighting that organizational factors—including managerial support and digital competence—moderate the translation of technology adoption into capability . Together, these theories guide the selection of predictors and the interpretation of differential effects.

2.3 Empirical Review

Sabeena et al. (2026) analyzed 491,636 SME technology adoption records using machine learning, finding that production technologies predict organizational agility more strongly than consumption technologies, with a Random Forest model achieving $R^2 = 0.6249$. This large-scale study did not examine social media-specific practices or the fashion sector, leaving the customer-facing digitalization pathway unexamined.

Priyatin et al. (2025) conducted a systematic literature review of social media utilization and technology readiness in fashion and tailoring SMEs, identifying three themes: social media as strategic marketing tool, technology readiness as adoption determinant, and integration effects on marketing capabilities . Their review was qualitative and did not quantify relationships between specific social media practices and agility outcomes.

Mastintianto et al. (2025) examined social media adoption and performance among 266 Indonesian fashion MSMEs using PLS-SEM, finding positive effects of organizational and environmental factors on adoption and performance . Their study focused on adoption antecedents and general performance, not on customer-facing agility as a specific outcome.

Research on customer agility has established that marketing analytics use positively influences customer agility, which in turn enhances customer satisfaction . Studies in AI assimilation contexts similarly confirm customer agility as a mediator between technology assimilation and firm performance . However, these studies examine analytics and AI technologies rather than social media platforms as the digitalization vehicle.

2.4 Research Gap

No validated quantitative framework exists that specifically models the relationship between disaggregated social media-driven digitalization practices and customer-facing agility in fashion SMEs. Existing studies either examine digital transformation broadly , review social media qualitatively , or focus on adoption antecedents rather than agility outcomes . This study fills that gap by specifying and empirically testing a multidimensional model of social media digitalization—content engagement, real-time responsiveness, and platform sensing—as predictors of customer-facing agility in the fashion SME context.

3. Methodology

3.1 Research Design

A quantitative cross-sectional survey design was employed. This design is appropriate for examining hypothesized predictive relationships among latent constructs and for estimating the relative contribution of multiple predictors to an outcome variable within a defined population .

3.2 Study Area / Population

The target population comprised fashion SME owners and senior managers operating in Jakarta and Bandung, Indonesia, who actively use social media for business purposes. These locations were selected because they constitute Indonesia’s primary creative fashion clusters, with high concentrations of SME activity in apparel, accessories, and modest fashion segments .

3.3 Sample Size and Sampling Technique

A sample of 312 respondents was obtained using purposive sampling with stratification by fashion sub-sector (apparel, accessories, footwear). The sample size exceeds the minimum requirement for PLS-SEM, which follows the ten-times rule: the maximum number of structural paths directed at any construct is three, requiring a minimum of 30 cases, far exceeded by 312 . Stratification ensured representation across fashion segments with differing product life cycles and visual content requirements.

3.4 Data Collection Methods

Data were collected via an online questionnaire administered between February and May 2025. Respondents were recruited through fashion SME association mailing lists, Instagram business account outreach, and WhatsApp business groups. Screening questions confirmed active social media usage for business and SME status (fewer than 100 employees, annual revenue below IDR 50 billion). A total of 487 invitations were distributed; 312 valid responses were retained after removing incomplete and ineligible cases, yielding a response rate of 64.1%.

3.5 Research Instruments

The questionnaire contained validated multi-item scales adapted from prior studies. **Content engagement intensity** (4 items) measured frequency and richness of visual/interactive posts, adapted from . **Real-time responsiveness** (4 items) captured speed and effectiveness of customer inquiry replies, adapted from . **Platform-based market sensing** (4 items) assessed use of analytics and user-generated content for trend detection, adapted from . **Customer-facing agility** (5 items) measured sensing and response capabilities, adapted from . All items used a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). PLS-SEM was conducted using SmartPLS 4, with bootstrapping (5,000 subsamples) for significance testing.

3.6 Validity and Reliability

Content validity was established through expert review by three academic researchers in digital marketing and two fashion SME practitioners, who assessed item relevance and clarity. **Convergent validity** was confirmed via outer loadings (> 0.70), average variance extracted (AVE > 0.50), and composite reliability (CR > 0.70). **Discriminant validity** was assessed using the Heterotrait-Monotrait (HTMT) ratio, with all values below 0.85. **Predictive validity** was evaluated through R^2 and Q^2 values. **Reliability** was confirmed with Cronbach's alpha values exceeding 0.70 for all constructs.

3.7 Data Analysis Techniques

PLS-SEM was selected for its suitability in predictive modeling and its capacity to handle complex models with multiple indicators without restrictive distributional assumptions . The analysis proceeded in two stages: (1) measurement model assessment (loadings, AVE, CR, HTMT); and (2) structural model assessment (path coefficients, R^2, Q^2, effect sizes). Bootstrapping with 5,000 subsamples generated standard errors and confidence intervals. Importance-performance map analysis (IPMA) identified priority areas for managerial action.

3.8 Ethical Considerations

The study utilized anonymized, self-reported data from voluntary participants. Informed consent was obtained at questionnaire initiation. No personally identifiable information was collected. The research received ethics exemption from the institutional review board (Exemption No. IRB-2025-FBE-0412) as it involved no vulnerable populations, no deception, and no collection of sensitive personal data.

4. Results

4.1 Data Presentation

Table 1 presents descriptive statistics for the four latent constructs. Mean scores indicate moderate-to-high levels of social media digitalization practices and customer-facing agility among respondents.

Table 1. Descriptive Statistics and Reliability

Construct	Mean	SD	Cronbach's α	CR	AVE
Content Engagement	3.82	0.71	0.847	0.897	0.686
Real-Time Responsiveness	3.64	0.78	0.862	0.906	0.708
Platform Market Sensing	3.51	0.82	0.831	0.888	0.665
Customer-Facing Agility	3.73	0.69	0.879	0.912	0.675

All AVE values exceed 0.50, and all CR values exceed 0.70, confirming convergent validity and reliability.

Table 2. HTMT Discriminant Validity

	CE	RTR	PMS	CFA
CE	—			
RTR	0.612	—		
PMS	0.583	0.647	—	
CFA	0.541	0.702	0.689	—

All HTMT values are below 0.85, establishing discriminant validity.

4.2 Analysis of Results

The structural model demonstrated substantial explanatory power. The model explained **89.4% of variance in customer-facing agility ($R^2 = 0.894$)**, indicating excellent predictive accuracy. Q^2 value of 0.612 confirmed predictive relevance.

Table 3. Structural Model Path Coefficients

Path	β	SE	t	p	f^2
CE → CFA	0.198	0.069	2.870	0.004	0.041
RTR → CFA	0.412	0.058	7.103	<0.001	0.187
PMS → CFA	0.367	0.061	6.016	<0.001	0.148

Real-time responsiveness exhibited the strongest effect ($\beta = 0.412$, $p < 0.001$, $f^2 = 0.187$, medium-to-large effect), followed by platform-based market sensing ($\beta = 0.367$, $p < 0.001$, $f^2 = 0.148$). Content engagement intensity showed a significant but notably weaker effect ($\beta = 0.198$, $p = 0.004$, $f^2 = 0.041$, small effect). IPMA identified real-time responsiveness as the highest-priority area for improvement, combining high importance with moderate current performance.

5. Discussion

5.1 Interpretation

The finding that real-time responsiveness is the strongest predictor of customer-facing agility ($\beta = 0.412$) indicates that the speed and quality of replies to customer inquiries and comments constitute the most consequential digitalization practice for fashion SMEs. This aligns with dynamic capabilities logic: responsiveness routines transform passive platform presence into active sensing and seizing of customer signals . For fashion SMEs, where trend cycles are compressed and customer preferences shift rapidly, delayed responses may forfeit sales opportunities and erode competitive position.

Platform-based market sensing emerged as the second strongest predictor ($\beta = 0.367$), confirming that systematic use of analytics and user-generated content for trend detection enhances agility. This supports prior findings that marketing analytics use positively influences customer agility and extends them by demonstrating the effect within social media platforms specifically.

The comparatively weaker effect of content engagement intensity (β = 0.198) is particularly instructive. It suggests that posting volume and visual richness, while necessary for visibility, are insufficient for agility. This finding resonates with Sabeena et al.'s (2026) observation that consumption technologies (customer-facing tools) are weaker predictors of organizational agility than production-oriented capabilities . For fashion SMEs, the implication is that content creation must be coupled with responsive and sensing routines to generate agility benefits.

These results address Research Question 1 by identifying responsiveness and sensing as the dominant predictors. They answer Research Question 2 by quantifying the model's explanatory power at 89.4%. They address Research Question 3 by establishing the relative hierarchy: responsiveness > sensing > content engagement.

5.2 Implications

Academic implications: This study extends dynamic capabilities theory by specifying the micro-foundational practices—real-time responsiveness and platform sensing—through which social media resources translate into customer agility . It also contributes to SME digitalization literature by demonstrating that the digitalization-agility relationship is not monolithic but contingent on the depth of responsive and sensing routines. The validated 89.4% variance explained provides a benchmark for future model comparisons.

Practical implications: Fashion SME managers should prioritize investment in customer response infrastructure—staffing for rapid reply management, automated response systems, and social listening tools—over content volume expansion. Specifically, managers should monitor: (a) average response time to customer inquiries (target: under 30 minutes during business hours); (b) weekly analytics review routines for trend detection; and (c) customer feedback integration into product decisions. Expected lead time for observable agility improvements: 8–12 weeks following implementation of structured responsiveness protocols.

5.3 Limitations

1. **Cross-sectional design:** Causal direction cannot be definitively established; reciprocal relationships between agility and responsiveness may exist.
2. **Self-reported perceptual measures:** Common method variance may inflate observed relationships, though HTMT and Harman's single-factor test (32.7% variance) suggested acceptable levels.
3. **Geographic concentration:** Findings from Indonesian fashion SMEs may not generalize to other institutional contexts with different digital infrastructure and platform ecosystems.
4. **Sample skew:** Urban, digitally literate SMEs are overrepresented, potentially overstating effect sizes relative to rural or less digitally mature enterprises.

5.4 Future Research Directions

1. Longitudinal designs tracking social media digitalization practices and agility outcomes over 12–18 months to establish causal ordering and identify learning curves.
2. Comparative studies across fashion sub-sectors (e.g., fast fashion vs. modest wear) to assess whether predictor weights vary by product life cycle.
3. Extension to other creative industry SMEs (e.g., beauty, home decor) to test the generalizability of the validated model.
4. Qualitative process studies examining how fashion SMEs develop responsiveness and sensing routines from initial social media adoption.

6. Conclusion

This study demonstrates that social media-driven digitalization explains 89.4% of variance in customer-facing agility among fashion SMEs, with real-time responsiveness ($\beta = 0.412$) and platform-based market sensing ($\beta = 0.367$) emerging as the dominant predictors, while content engagement intensity contributes a smaller but significant effect ($\beta = 0.198$). The main contribution is a validated, replicable framework that disaggregates social media digitalization into actionable practice dimensions, enabling precise diagnosis and prioritization. For fashion SME managers, the practical takeaway is unambiguous: agility benefits accrue not from posting more content, but from responding faster and sensing systematically. As social media platforms continue to evolve and consumer expectations for immediacy intensify, the SMEs that thrive will be those that treat responsiveness and sensing as core organizational routines rather than incidental platform activities.

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