



(RESEARCH ARTICLE)



# Technology-enabled digital marketing and customer experience in SMEs during COVID-19

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World Journal of Advanced Engineering Technology and Sciences, 2020, 01(01), 156-163

Publication history: Received on 28 November 2020; revised on 16 December 2020; accepted on 18 December 2020

Article DOI: <https://doi.org/10.30574/wjaets.2020.1.1.0030>

## Abstract

The COVID-19 pandemic accelerated the use of digital technologies across small and medium-sized enterprises (SMEs), forcing firms to reorganize customer-facing activities under conditions of uncertainty, restricted mobility, and market disruption. This study examines how technology-enabled digital marketing supports customer experience and business continuity in SMEs during the COVID-19 period. Rather than treating digital marketing as a set of isolated promotional tactics, the paper conceptualizes it as an integrated system composed of digital platforms, customer data, analytics capabilities, and customer relationship processes. A conceptual review design is used to synthesize prior research on social media, customer relationship management, customer experience, digital transformation, and SME marketing. The study develops a framework showing how technology infrastructure, data-driven decision making, and coordinated digital touchpoints shape customer experience outcomes and support organizational resilience. The analysis suggests that SMEs benefit from digital marketing when technologies are aligned with customer relationship processes, when analytics are used to guide decisions, and when firms coordinate social media, web, mobile, and CRM activities as part of a unified system. The paper contributes by positioning digital marketing within a technology and systems perspective suitable for engineering and information systems discussions. It also offers practical implications for SME managers seeking to improve responsiveness, engagement, and continuity during crisis conditions.

**Keywords:** Digital marketing; Customer experience; SMEs; COVID-19; Digital platforms; Data-driven systems

## 1. Introduction

Small and medium-sized enterprises have long faced resource constraints in marketing, technology investment, and customer management. At the same time, the rise of internet-based platforms, social media, customer relationship management systems, and analytics tools has created new opportunities for smaller firms to reach customers in more targeted and measurable ways [1-7]. These developments have changed digital marketing from a communication add-on into a broader organizational capability supported by data, platforms, and process integration [4-7].

The growing relevance of technology in marketing is particularly visible in SMEs. Early studies on social media and digital channels showed that smaller firms adopted digital tools because of accessibility, lower communication costs, and the possibility of closer interaction with customers [2, 3, 5, 7]. Yet these same studies also found limitations, including weak measurement, poor strategic integration, lack of internal skills, and underdeveloped analytics [2, 3, 5, 7]. In other words, the value of digital marketing has never depended only on the existence of online channels. It depends on how firms connect technologies, customer information, marketing processes, and performance goals.

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This issue becomes more important when viewed through the lens of customer relationship management and customer experience. CRM research established that technology use alone does not create value unless it is supported by relational information processes, customer knowledge, and organizational alignment [8, 9]. Customer experience research similarly shows that customers respond to a sequence of touchpoints across channels rather than to one isolated marketing message [10-13]. As firms collect more data and gain access to richer digital environments, analytics and platform coordination become central to understanding and influencing these experiences [12, 14-18].

The COVID-19 pandemic intensified these dynamics. Firms were forced to respond to lockdowns, physical distancing, shifting consumer routines, and the sudden growth of online interactions [20-25]. For SMEs, the crisis highlighted both vulnerability and adaptability. Many firms had to accelerate social media use, strengthen e-commerce visibility, rely more heavily on CRM systems, and redesign customer communication around digital touchpoints. Digital marketing, therefore, became linked not only to market visibility but also to business continuity, resilience, and customer trust.

Despite growing interest in digital marketing and crisis response, there remains a gap in how this topic is framed. Much of the literature still treats digital marketing in managerial or promotional terms. That framing is useful, but it can understate the role of infrastructure, platform integration, analytics, and process coordination. For the present study, digital marketing is approached as a technology-enabled system. This perspective is appropriate because SME marketing during COVID-19 increasingly relied on interdependent components such as websites, mobile interfaces, social media platforms, CRM systems, marketing automation, digital content workflows, and analytics dashboards.

This paper addresses that gap by examining technology-enabled digital marketing and customer experience in SMEs during COVID-19. The purpose is not to test one narrow variable relationship. Instead, the study develops a conceptual systems framework that explains how SMEs can use digital technologies to support customer interaction, responsiveness, and continuity during crisis conditions. The paper makes three contributions. First, it reframes digital marketing from a technology perspective rather than a purely promotional one. Second, it integrates customer experience, CRM, analytics, and digital transformation into one conceptual model. Third, it offers practical implications for SMEs operating under crisis conditions where speed, adaptability, and customer trust matter.

The remainder of the paper is organized as follows. Section 2 outlines the conceptual research design. Section 3 discusses the role of technology-enabled digital marketing systems in SMEs, the link between digital systems and customer experience, and the effects of COVID-19 on digital customer engagement. Section 4 presents a conceptual framework and managerial implications. Section 5 concludes the study.

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## 2. Materials and methods

This study adopts a conceptual review design. The aim is to integrate established streams of literature relevant to digital marketing in SMEs and to organize them within a systems perspective suited to the context of COVID-19. A conceptual review is appropriate because the phenomenon under discussion combines multiple interrelated domains, including social media marketing, CRM, customer experience, analytics, digital transformation, and crisis-related business adaptation [4, 8, 10, 16, 20-25].

The review process was guided by three principles. First, the literature had to relate directly to technology-enabled marketing, customer interaction, or SME digital practice. Second, only studies and books published up to 2020 were considered in order to maintain consistency with the manuscript's intended publication date. Third, priority was given to widely cited and methodologically established sources from marketing, information systems, and business research. These sources were used not for a statistical meta-analysis, but for integrative conceptual synthesis.

The conceptual development proceeded in three stages. In the first stage, foundational literature on digital platforms, social media, CRM, customer experience, and data-driven marketing was reviewed to identify the main constructs relevant to technology-enabled digital marketing [1-19, 26-30]. In the second stage, studies published in 2020 on COVID-19, consumer adaptation, business disruption, and organizational resilience were examined to identify the crisis-specific conditions shaping digital customer interaction [20-25]. In the third stage, the findings from these streams were combined into a conceptual framework linking technology infrastructure, digital marketing processes, customer experience outcomes, and business resilience in SMEs.

Because the study is conceptual, no primary data were collected and no human or animal subjects were involved. The analysis is interpretive and theory-building in nature. The value of the method lies in clarifying how existing insights can be connected in a structured way to explain SME digital marketing during an acute period of disruption.

### 3. Results and discussion

#### 3.1. Digital marketing as a technology-enabled system in SMEs

Digital marketing is often described through activities such as social media posting, content creation, online advertising, and email communication. While these activities are visible, they do not by themselves explain why some firms gain more benefit than others. A systems perspective suggests that effective digital marketing depends on the interaction among technologies, information flows, customer data, and decision processes [4, 8, 9, 16, 26, 28, 29].

For SMEs, this distinction matters. Smaller firms frequently adopt digital tools incrementally rather than as part of a formal digital transformation strategy. A business may open a Facebook page, launch a simple website, use email software, or install a basic CRM package. These steps can improve communication, but the performance gains are often limited when channels operate in isolation [2, 3, 5, 7, 19]. Earlier studies on SME digital marketing repeatedly found a gap between channel adoption and strategic integration. Firms used digital media for visibility and relationship building, yet often lacked clear metrics, skilled staff, or coordinated processes [2, 3, 5, 7].

A technology-enabled view moves beyond the question of whether an SME uses digital marketing and focuses instead on how digital components work together. In this sense, the digital marketing system of an SME can include website architecture, mobile compatibility, social media interfaces, customer databases, CRM processes, analytics dashboards, search presence, content management routines, and communication protocols. These components are not equal in importance in every firm, but their interdependence is central. Digital marketing becomes stronger when customer data flow across channels and when management uses that information to shape communication and service responses [8, 9, 14, 17, 28].

This idea is consistent with digital business strategy and digital transformation literature, which argues that digital technologies change not just communication channels but also organizational logic, resource allocation, and decision making [4, 16]. Bharadwaj et al. [4] emphasized that digital strategy involves fusion among business strategy, information technology, and networked value creation. Vial [16] later clarified that digital transformation involves changes in organizational structures, processes, and value pathways resulting from digital technologies. Within SMEs, this means digital marketing should not be treated as a narrow function detached from the rest of the firm. It is part of a broader digital operating model.

#### 3.2. Customer relationship management and the role of customer data

The systems perspective is reinforced by the CRM literature. Payne and Frow [8] described CRM as a strategic framework concerned with the creation of value through relationships, supported by people, processes, strategy, and technology. Jayachandran et al. [9] likewise showed that relational information processes and technology use are jointly important in improving customer knowledge and responsiveness. These ideas remain highly relevant to SME digital marketing because digital channels generate data, but data create value only when they are processed and translated into action.

In practice, SMEs often rely on limited but valuable forms of customer information. These may include website visits, search behavior, email interactions, social engagement, repeat purchase patterns, mobile inquiries, and service messages. During stable market conditions, some firms may use these data only in a limited way. During crisis conditions, such as COVID-19, the importance of real-time customer signals increases. Firms need to know whether demand is shifting, whether customers prefer contactless transactions, whether online response times are adequate, and whether communication content addresses immediate uncertainty.

Customer data also support segmentation and prioritization. Wedel and Kannan [12] argued that analytics in data-rich environments enable more accurate targeting, personalization, and market understanding. Wamba et al. [14] similarly linked analytics capabilities to performance outcomes through dynamic capabilities. For SMEs, the implication is not that they must adopt highly advanced artificial intelligence systems. It is that even smaller-scale analytics, when used systematically, can improve customer communication and marketing responsiveness. Technology-enabled digital marketing therefore depends not only on channel presence but also on the firm's ability to interpret digital traces of customer activity.

The relationship between CRM capabilities and social media technologies also supports this point. Foltean et al. [17] found that CRM capabilities and social media technology use together affect firm performance. Trainor et al. [6] earlier argued that social media technologies can enhance customer relationship performance when combined with the

capabilities of social CRM. These findings suggest that digital platforms become more valuable when integrated with relationship processes rather than treated as one-way broadcasting tools.

### **3.3. Customer experience in digital environments**

Customer experience is central to understanding why technology-enabled digital marketing matters. Experience is not confined to a purchase moment. It develops across interactions, responses, touchpoints, and contexts [10-13, 18]. Verhoef et al. [10] identified customer experience as shaped by multiple determinants, including social environment, interface design, service interactions, assortment, pricing, and customer goals. Lemon and Verhoef [11] later emphasized the full customer journey across pre-purchase, purchase, and post-purchase stages. Homburg et al. [13] argued that firms increasingly need formal customer experience management rather than fragmented touchpoint management. Becker and Jaakkola [18] strengthened this line of thought by defining customer experience in a broader and less firm-controlled way, reminding scholars that customer responses are contextual and dynamic.

These insights are especially relevant in digital SME settings. A customer experience in a small business may involve discovering a firm through search, checking social proof on social media, navigating a website, reading messages, interacting through chat, making a digital inquiry, receiving email updates, and evaluating delivery or service responsiveness. Each of these moments may appear minor, yet together they shape trust, satisfaction, and willingness to continue the relationship.

Technology affects customer experience in two major ways. First, it structures the environment in which customer interaction occurs. Interface design, mobile accessibility, speed, clarity of information, and channel consistency all influence how customers interpret a firm's reliability. Second, technology allows firms to monitor, adapt, and personalize interactions. This is where analytics and CRM become part of customer experience management rather than separate back-office functions.

For SMEs, the challenge is often not lack of customer focus but lack of coordinated architecture. Digital channels can multiply contact points while also increasing inconsistency. A firm may provide fast responses on one platform but outdated information on another. It may collect customer inquiries through multiple channels without any central record. It may publish content frequently without connecting content performance to customer outcomes. As a result, digital marketing activity can increase while customer experience quality remains unstable. The systems perspective helps resolve this issue by encouraging SMEs to design digital marketing around integrated customer journeys rather than isolated tools.

### **3.4. SME digital marketing before COVID-19**

Before the pandemic, research already showed that SMEs were moving toward digital channels, though often unevenly. Michaelidou et al. [2] explored the usage, barriers, and measurement of social media marketing in small and medium B2B brands, showing that adoption was still constrained by uncertainty around value measurement. Järvinen et al. [3] examined digital and social media marketing in B2B industrial settings and found that firms used digital media for multiple objectives but did not always align their measurement systems with those objectives. Tiago and Veríssimo [5] described digital marketing as increasingly important, but also as something that required more than mere presence on digital platforms. Taiminen and Karjaluoto [7] found that SMEs did not fully exploit digital marketing channels and that capabilities and resources remained important constraints.

More recent studies before and around 2020 reinforced these patterns. Tajudeen et al. [15] showed that the organizational use of social media has performance implications when firms understand how to deploy it effectively. Chatterjee and Kar [19] found that SMEs adopted social media marketing because of perceived usefulness, affordability, compatibility, and competitive relevance. Yet even where adoption was evident, the literature suggested that real benefits depended on organizational learning, internal skills, and coordinated use.

These findings indicate that COVID-19 did not create digital marketing in SMEs from nothing. Instead, the pandemic accelerated pre-existing transitions. What changed was urgency. Practices that had previously been discretionary or gradual became central to organizational continuity.

### **3.5. COVID-19 and the reconfiguration of digital customer interaction**

The COVID-19 pandemic created abrupt changes in both firm behavior and consumer behavior. Donthu and Gustafsson [20] noted the wide-ranging effects of the pandemic on business activity and research agendas. He and Harris [21] argued that the crisis challenged firms to reconsider their marketing philosophy and broader responsibilities. Sheth

[22] described how the pandemic altered consumer habits and potentially reshaped long-term routines. Kirk and Rifkin [23] explained that consumers reacted, coped, and adapted under uncertainty. Seetharaman [24] highlighted the pressure on business models. Kraus et al. [25] provided early empirical evidence that firms had to adjust rapidly in response to the crisis.

For SMEs, these changes had immediate implications for customer experience. First, many physical interactions were constrained, so digital channels became substitutes for in-person contact. Second, information needs increased. Customers wanted updates on availability, delivery, restrictions, operating hours, hygiene measures, and transaction conditions. Third, trust became more fragile, which increased the importance of consistency, speed, and transparency across digital touchpoints.

Under these conditions, digital marketing performed several functions at once. It informed customers, reassured them, sustained relationships, supported transactions, and helped firms observe changing demand patterns. This is why the topic should not be reduced to promotion. During COVID-19, digital marketing in SMEs often served as a distributed customer interface and a crisis communication system.

A technology-enabled perspective explains how this happened. Social media platforms allowed immediate outward communication. Websites and search tools enabled discoverability and operational updates. CRM systems helped organize customer records and communication histories. Analytics tools offered rapid indicators of traffic, attention, and engagement. Email and mobile tools allowed direct updates. When integrated, these technologies formed a responsive system that supported both customer experience and organizational continuity.

The pandemic also exposed weaknesses. SMEs without coordinated digital systems were more vulnerable to fragmented communication, slower response times, and missed customer signals. Firms that treated digital channels as independent activities often struggled to maintain coherent customer journeys. By contrast, firms that aligned platforms, data, and processes were better positioned to adapt. This observation is consistent with the analytics, CRM, and customer experience literature reviewed earlier [8-18].

### **3.6. A conceptual framework for technology-enabled digital marketing and customer experience**

Based on the literature, this paper proposes a conceptual framework in which technology-enabled digital marketing in SMEs consists of four interrelated layers.

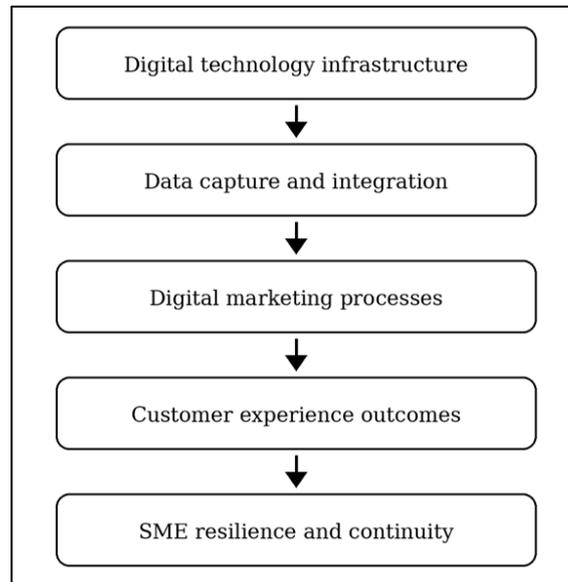
The first layer is digital technology infrastructure. This includes websites, mobile interfaces, social media platforms, CRM systems, email tools, content management systems, and analytics software. This layer forms the technological base for customer interaction.

The second layer is data and integration processes. At this stage, customer interactions generate data that can be captured, organized, and interpreted. Integration matters because customer signals often emerge across multiple channels. A fragmented data environment weakens marketing responsiveness.

The third layer is digital marketing processes. These processes include content deployment, customer communication, segmentation, personalization, social interaction, response management, and campaign adjustment. These are the operational expressions of the infrastructure and data layers.

The fourth layer is customer experience and resilience outcomes. These outcomes include trust, responsiveness, continuity of interaction, satisfaction, engagement, and in broader terms the ability of the SME to maintain market presence and adjust to disruption.

The framework assumes that technology alone is insufficient. The relationship between infrastructure and outcomes is mediated by data use and process coordination. It also assumes that crisis conditions intensify the value of responsiveness and consistency. During COVID-19, firms that could rapidly interpret customer signals and adjust communication had a stronger basis for sustaining customer relationships.



**Figure 1** Conceptual framework of technology-enabled digital marketing and customer experience in SMEs during COVID-19

This framework contributes to the literature in several ways. It links digital marketing to customer experience through a technology and systems lens. It also places SMEs at the center of a discussion often dominated by larger firms or more general digital transformation narratives. Finally, it clarifies that customer experience during crisis conditions is partly an outcome of digital system design and coordination, not only of communication style.

### 3.7. Managerial implications for SMEs

#### 3.7.1. Several implications follow from the analysis.

First, SMEs should view digital marketing as an integrated operating capability rather than as a collection of disconnected online actions. Even when resources are limited, firms can improve performance by aligning a small number of tools instead of multiplying unconnected channels.

Second, customer experience should guide digital investment decisions. The question is not only which platform is popular, but how the platform supports the customer journey. Investments should improve clarity, speed, consistency, and customer confidence.

Third, basic analytics matter. SMEs do not need complex infrastructure to become more data-driven. Monitoring search visibility, website behavior, response times, engagement patterns, and repeat interactions can already improve decision quality.

Fourth, CRM logic remains essential. Customer records, communication histories, and segmented communication improve relevance and continuity. This is especially important during disruptions, when customers seek reassurance and updated information.

Fifth, crisis readiness should be included in digital marketing planning. COVID-19 showed that digital channels become mission-critical when physical channels are constrained. SMEs should therefore treat digital customer communication as part of resilience planning rather than only as a growth tool.

## 4. Conclusion

This paper examined technology-enabled digital marketing and customer experience in SMEs during COVID-19. The analysis showed that digital marketing is best understood not as a set of isolated promotional tools, but as a coordinated system of technologies, data processes, customer relationship mechanisms, and customer-facing interactions. This perspective is especially important for SMEs, which often operate under resource constraints yet depend heavily on responsiveness and customer trust.

The study found that the effectiveness of digital marketing during crisis conditions depends on three factors. The first is the existence of usable digital infrastructure, including websites, social media, CRM, and analytics tools. The second is the firm's ability to integrate data and translate customer signals into decisions. The third is the coordination of digital marketing processes around the customer journey. When these elements are aligned, SMEs are better positioned to support customer experience and maintain continuity during disruption.

COVID-19 made these relationships more visible. The pandemic accelerated reliance on digital interaction and revealed that digital customer communication is closely connected to organizational resilience. SMEs that approached digital marketing as a system had greater potential to adapt, communicate clearly, and preserve customer relationships.

The paper contributes to digital marketing literature by offering a systems-based conceptual framework that links technology infrastructure, analytics, digital processes, and customer experience outcomes. Future research may test the framework empirically across industries, compare sectors with different digital maturity levels, and examine which combinations of digital capabilities generate the strongest resilience outcomes in SMEs.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare that they have no conflict of interest.

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