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Social media marketing assimilation in B2B firms: An integrative framework of antecedents and consequences

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ABSTRACT

Previous studies have addressed social media adoption in business-to-business (B2B) contexts, but limited research has focused on understanding social media marketing assimilation in the B2B context. Using an integrative model, this study examines how top management participation influences the assimilation of social media in the key marketing areas of product development, pricing decision-making, channel management, and promotion. Furthermore, it examines the resulting impact of these assimilations on B2B firms' performance, particularly in respect of sales performance and relationship development. The study also examines the moderating impact of absorptive capacity on top management participation in the assimilation processes. The findings reveal that top management participation strongly influences social media assimilation into marketing functions. However, the impact of social media assimilation on B2B firms' performance is varied. While assimilation for channel management positively impacts both sales performance and relationship development, assimilation for product development is only positively related to relationship development. Conversely, assimilation into the functions of pricing decisions and promotion activities shows no significant impact on either sales performance or relationship development. Finally, absorptive capacity positively moderates top management participation in social media assimilation into all key marketing functions except one. The theoretical and managerial implications of these findings are discussed.

1. Introduction

Social media have emerged as a "game-changer" (Kumar, 2015, p. 5), playing a leading role in the revolutions taking place in business-to-consumer (B2C) and business-to-business (B2B) marketing. B2C marketing uses social media marketing widely, and B2B operations have begun embracing it to streamline their internal marketing communication, generate leads, drive sales, and strengthen customer relationships. Chaffey (2018) found that 79% of B2B marketing specialists rated social media as the most effective marketing channel, with a further 38% indicating that, if they had surplus in their budget for marketing in the following year, they would devote it to social media marketing. Similarly, Elevation Marketing (2020) noted that 90% of B2B buyers use social media to engage with industry thought leaders, with a further 72% indicating that they use social media channels to research solutions.

B2B social media research tracks the increase in social media use in this business interface. Previous studies have addressed several aspects of social media use in the context of B2B, including salespersons' social media use in B2B relationships (Bill, Feurer, & Klarmann, 2020; Bowen, Lai-Bennejean, Haas, & Rangarajan, 2021; Fraccastoro, Gabrielsson, & Pullins, 2021), B2B social media adoption (Dwivedi, Ismagilova, Rana, & Raman, 2021; Lashgari, Sutton-Brady, Søilen, & Ulfvengren, 2018; Siamagka, Christodoulides, Michaelidou, & Valvi, 2015; Veldeman, Van Praet, & Mechant, 2017), and B2B social media marketing and branding (Brennan & Croft, 2012; Juntunen, Ismagilova, & Oikarinen, 2020). In addition, social media in B2B entails several unexplored issues worth investigating. Although previous studies have addressed social media adoption in a B2B context, the current body of research shows an observable dearth of producing a nuanced understanding of the factors underlying the assimilation of social media in firms' marketing functions and how they improve their marketing performance. The assimilation phase occurs after the initial implementation of the innovation. It involves the ongoing integration and use of innovation in the firm's day-to-day operations. In the context of social media marketing, this phase focuses on leveraging social media platforms to support the attainment of the marketing strategy related to product development, pricing decision-making, channel management, and promotion activities, and on realising the anticipated benefits.

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The limited amount of research on the factors underlying social media assimilation for marketing at the B2B interface hinders our ability to grasp the crucial factors and best practices that are integral to the successful assimilation of social media into the key marketing functions of firms, and the consequences of that for their performance. Moreover, without understanding the factors underlying B2B firms' assimilation of social media into their core marketing functions, firms may not be able to leverage fully the potential of social media marketing, and may miss out on its benefits. Realising the potential of social media marketing in B2B firms hinges on its effective assimilation into the marketing functions. Research (e.g., Algarni, Ali, Leal-Rodríguez, & Albort-Morant, 2023; Liang, Saraf, Hu, & Xue, 2007) has emphasised that success in the post-adoption phase of an innovation centres on firms' ability to assimilate the innovation effectively. In the case of social media marketing, this goes beyond mere adoption or implementation, and necessitates the strategic integration of social media platforms into firms' marketing practices. By aligning social media with business objectives and incorporating them as an integral part of marketing strategies, B2B firms could leverage their benefits and enhance their overall business performance.

Against this backdrop, this study draws on the literature on top management (Chatterjee, Grewal, & Sambamurthy, 2002) and absorptive capacity (Cohen & Levinthal, 1990) to develop an integrated framework to explain how social media marketing assimilation in B2B firms is influenced by internal human agency and organisational learning. This study argues that top management participation in social media marketing assimilation would foster its assimilation in their firms. Moreover, as a crucial component of organisational learning, absorptive capacity facilitates the effective acquisition, assimilation, and application of external knowledge (Ali et al., 2020; Darwish, Zeng, Rezaei Zadeh, & Haak-Saheem, 2020), and therefore its presence could embolden top management participation in social media marketing assimilation processes.

Top management assimilation of innovation into a firm's processes may vary, depending on their perception of the innovation's utility to the business process. However, a review of the relevant literature (e.g., Chaudhury & Bharati, 2014; Cruz-Jesus, Pinheiro, & Oliveira, 2019; De Mattos & Laurindo, 2017) reveals that existing research has treated assimilation as a monolithic concept without recognising the potential for top management participation to vary, based on the area of the business where assimilation is needed. In addressing this gap, the current study examines how top management participation in the assimilation of social media for marketing functions may vary across different marketing functions. This is crucial, because understanding the nuanced variations in top management participation in different marketing functions could inform the development of tailored strategies for the effective assimilation of innovations specifically in the realm of social media. By exploring these variations, the study aims to contribute valuable insights to the existing literature and to provide practical implications for firms seeking to optimise their innovation processes in distinct areas of their business.

Despite the growing prominence of absorptive capability in firm-level research, a noticeable gap remains in understanding how its perceived presence or absence influences top management participation in innovation assimilation in their firms. While the existing literature (e.g., Chabbouh & Boujelbene, 2023; Cuevas-Vargas, Aguirre, & Parga-Montoya, 2022) acknowledges the potential impact of absorptive capability in innovation adoption, little attention has been devoted to examining the specific boundary condition imposed by absorptive capacity on the extent of top management teams' participation in innovation assimilation. This gap is particularly significant, given the increasing importance of innovation assimilation for firm performance and the need to explore the organisational enablers of top management participation in this process. Therefore, this study aims to address this research gap by investigating the specific boundary condition imposed by existing absorptive capacity on the extent of top management teams' participation in the assimilation of social media marketing. Investigating this boundary condition could advance evidence-based arguments, and attain a deeper understanding of how the development of absorptive capacity as an internal capability supports top management participation in the assimilation of innovation in firms, particularly in the context of social media marketing.

Social media use and how its performance impacts on B2B firms form part of an ongoing debate. Previous studies have established that social media adoption by B2B salespeople improved their customers' satisfaction (Agnihotri, Dingus, Hu, & Krush, 2016) and loyalty (Bill et al., 2020). Research on B2B firms' social media adoption (e.g., Lacka & Chong, 2016; Siamagka et al., 2015) has not comprehensively addressed how social media marketing assimilation improves B2B firms' performance. This study extends the current literature by examining how social media marketing assimilation relates to the multiple impacts of sales performance and relationship development on marketing performance.

The study makes significant contributions to the literature on B2B firms' social media marketing. First, this study extends the existing research by examining how top management participation influences the assimilation of social media across marketing functions in B2B firms. Second, the study decomposes social media marketing assimilation and analyses its assimilation into the core marketing functions of product development, pricing decision-making, channel management, and promotion activities. This approach allows us to analyse and compare the varying impacts of top management participation in social media assimilation across these different marketing functions.

Third, this study introduces a novel dimension by examining the role of absorptive capacity as a moderator of the impact of top management participation and social media assimilation impacts on various marketing functions. By revealing absorptive capacity as a boundary condition that underscores how top management participation has an impact on social media marketing assimilation, this study makes an initial contribution to the literature by enhancing our understanding of how the existing absorptive capacity in a firm acts as an enabler of top management participation in assimilation processes. Fourth, the findings of our study contribute significantly to the ongoing debate on social media use and their impact on the performance of B2B firms. While previous studies have established that social media adoption by B2B salespeople enhances customer satisfaction and loyalty, our study delves into the nuanced aspects of the impact of social media assimilation into key marketing functional areas on sales performance and relationship development. This contribution expands our knowledge of how different marketing functions could leverage social media to achieve specific firm performance outcomes. Fifth, the study contributes to the literature by focusing on B2B firms in South Africa, offering insights from a context that has received limited research attention. Finally, the study's findings have important managerial implications, and provide valuable guidance for strategies that are aimed at promoting the assimilation of social marketing in B2B firms.

In the section that follows, the theoretical framework, which integrates top management and absorptive capacity, is presented. Thereafter, the research model and hypotheses based on the theoretical framework are presented. Subsequently, the construct operationalisation is described, and the methods of data collection and the procedures for the data analyses and the results of the model testing are presented and discussed. Following this, the theoretical and managerial implications and the limitations and directions for future research are presented.

2. Theoretical framework

Rogers (2003) differentiated adoption from assimilation by emphasising that adoption involves management's approval for the purchase of an innovation, whereas at the assimilation stage the adopting firm moves further to integrate the innovation into its activities and to routinise it. Similarly, Meyer and Goes (1988) stressed that the assimilation

process evolves from the members of a firm learning about an innovation to its complete acceptance, using and institutionalising the innovation in the firm. Following the definition of Purvis, Sambamurthy, and Zmud (2001), this study defines 'social media marketing assimilation' as the extent to which social media is integrated across firms' marketing functions and becomes routinised in the activities of these functions. The growing significance of social media in the B2B business interface has prompted numerous studies investigating its use and impact. For instance, Itani, Kalra, and Riley (2022) explored the complementary effects of social media customer relationship management (CRM) on customer co-creation and B2B salesperson performance, revealing the significant impact of social media CRM platforms on consumer co-creation and sales performance. Fraccastoro et al. (2021) focused on how small and medium-sized enterprises (SMEs) employ a combination of social media and digital and traditional communication tools in B2B sales processes. Their findings underscored the advantages of integrating these communication tools, thus enabling B2B SMEs to enhance customer engagement, build relationships, and increase their sales effectiveness in international B2B contexts. Agnihotri et al. (2016) delved into the impact of social media on information communication, salesperson responsiveness, and customer satisfaction. Their study emphasised the importance of social media in effectively conveying information to customers, as well as enhancing salespeople's responsiveness and improving customer satisfaction. Itani, Badrinarayanan, and Rangarajan (2023) examined the influence of B2B salespeople's social media use on value co-creation and cross−/up-selling, with a specific focus on the role of social capital. Their key findings indicated the positive effects of social media use on value co-creation and the facilitation of cross−/up-selling opportunities, with social capital playing a significant mediating role.

Wang, Pauleen, and Zhang (2016) explored the impact of the application of social media on B2B communication and overall performance in B2B SMEs, revealing improvements in communication efficiency, customer acquisition, and customer engagement, and subsequent performance enhancements. Karampela, Lacka, and McLean (2020) investigated the impact of social media presence, interactivity, and responsiveness on B2B relationships, highlighting their positive influence on fostering trust, satisfaction, and commitment between business partners. Iankova, Davies, Archer-Brown, Marder, and Yau (2019) conducted a comparative analysis of social media usage and effectiveness among B2B, B2C, and mixed-business models, underscoring the importance of social media in the B2B context. Their findings indicated that B2B companies showed a lower level of social media platform usage than B2C companies; B2B companies were more inclined to use LinkedIn and Twitter, while B2C companies were more active on Facebook and Instagram.

Overall, these studies collectively demonstrate the growing recognition of social media's value and impact in B2B settings, spanning aspects such as customer co-creation, salesperson performance, communication efficiency, and business performance. While the aforementioned studies have made significant contributions to understanding social media use in the B2B context, they focus primarily on the role of social media in the salesperson's activities, overlooking the question of what drives top management participation in social media marketing assimilation and the holistic integration of social media into supporting various core marketing functions such as product development, pricing decision-making, channel management, and promotion activities. Thus there is a research gap regarding the boundary conditions under which top management participates in the assimilation of social media into the marketing operations of B2B firms. This question remains unexplored in the literature, highlighting the need for further research to provide a comprehensive understanding of how social media could be effectively integrated into all aspects of B2B marketing strategy and decision-making processes.

The success of the assimilation process for innovation in B2B firms is significantly influenced by top management's support and participation. Their perceptions of the innovation is crucial to determining their participation in its assimilation processes (Fichman, 2000). Therefore, we propose that examining the assimilation of social media into B2B firms through the lens of top management's participation is a justifiable theoretical approach. In addition, previous studies have highlighted the importance of absorptive capacity in driving a firm's innovativeness. Thus we argue that the assimilation of social media into B2B marketing operations would be enhanced in firms with a higher level of absorptive capacity.

In the next section we delve into the theoretical and conceptual background of the study, which encompasses the role of the top management team and the significance of absorptive capacity.

2.1. Top management team

The role of top management teams in IT assimilation decisions cannot be over-emphasised. Prior research (Davis, Schoorman, & Donaldson, 2018) has underscored that firms are economic edifices that harness the knowledge of diverse individuals for the production of superior goods and services. Top management teams are often considered an organisational structure for instilling knowledge in the organisation's members. Thus top management not only act as stewards of their organisations, but are also vested with the power to determine the strategy for their organisations' success. Upper echelons theory (Hambrick & Mason, 1984) argues that top management teams have managerial knowledge and skill sets, values, and dispositions on which they rely to predict their organisations' success (Plečnik & Wang, 2021). Thus research (Shen, Lan, Xiong, Lv, & Jian, 2020) has shown that top management teams influence the innovation of organisations. Philip (2021) argued that top management should be integrated into IT adoption and assimilation models because corporate leaders are key to creating the vision and allocating resources for organisations' IT deployment process, and to providing the motivation for the routinisation of the technology. Prior research (e.g., Blass, Corbett, Delmas, & Muthulingam, 2014) has shown that top management can either facilitate or hinder the adoption of innovations in their organisations. Given the importance of top management in decisions about innovation adoption and assimilation, research (e.g., Rezaei Zadeh, Hackney, & Zeng, 2022) has sought to understand the factors driving top management participation in the assimilation of technology. Because top management play a central role in promoting organisational change and innovation. The importance of their involvement and support in ensuring the successful implementation and integration of new ideas and practices in organisations cannot be overemphasised.

2.2. Absorptive capacity

Absorptive capacity is a boundary-spanning capability that enables firms to leverage relevant knowledge, particularly in turbulent markets (Gölgeci & Kuivalainen, 2020). Cohen and Levinthal (1989, 1990) define it as an organisation's ability to identify, transform, incorporate, and exploit external knowledge during the learning process. Central to this capacity is the acquisition and management of external information (Gölgeci & Kuivalainen, 2020), which is especially crucial in today's ever-changing environment. As Zahra and George (2002) argue, absorptive capacity can enhance dynamic capability – the ability to adapt and innovate – by enabling firms to acquire, assimilate, transform, and exploit knowledge and information to build a competitive advantage. Therefore, absorptive capacity acts as a core competence, empowering organisations not only to manage external information but also to leverage it to improve the effectiveness of other resources.

Social media have assumed a vital role as an information resource for most firms, including B2B firms. It provides a diverse range of data that can be harnessed to enhance operations and performance (Cartwright, Liu, & Raddats, 2021). However, effectively leveraging the potential of social media requires that firms have absorptive capacity. This

capability allows them to acquire, process, and extract value from social media data to drive operational improvement. Therefore, gaining a deeper understanding of absorptive capacity as a dynamic organisational resource becomes imperative in unravelling how it influences social media marketing assimilation in firms. By examining this relationship, we gain valuable insights into how firms successfully integrate social media into their marketing strategies, leading to improved performance outcomes.

3. Research model and research hypotheses development

3.1. Integrative research model

To arrive at a fuller picture of social media marketing assimilation in B2B firms, this section evaluates how the theories discussed above are synthesised in the integrated research model. Top management's participation, as proposed by Chatterjee et al. (2002), is crucial in driving the assimilation of social media marketing. Absorptive capacity, as discussed by Cohen and Levinthal (1990), is posited to moderate the relationship between top management participation and the assimilation of social media marketing. In this regard, we contend that a firm's ability to recognise the value of social media marketing, to assimilate the knowledge related to its use, and to apply it effectively in its marketing strategies determines the extent to which top management's participation influences successful assimilation.

By integrating these theories, the proposed framework (Fig. 1) acknowledges the importance of internal human agency (top management) and organisational learning (absorptive capacity) in shaping social media marketing assimilation in B2B firms. It suggests that top management participation in the assimilation process results in its eventual assimilation, and that the impact of their involvement is contingent upon an organisation's existing absorptive capacity. Moreover, the model proposes that social media marketing assimilation improves a firm's performance, specifically in the aspects of sales and relationship development. Finally, the model controls the impact of competitive intensity, technology turbulence, and a firm's age and size on social media marketing assimilation, and on the performance areas of interest to the present study.

3.2. Hypotheses development

3.2.1. The impact of top management participation on social media marketing assimilation

Top management participation captures leaders' behaviour in formulating strategies and allocating resources to achieve their firms' strategic goals (Wei, Lowry, & Seedorf, 2015). Top management participation in innovation assimilation is evident in their leadership role of implementing structures and systems that support that assimilation in their firms. They allocate sufficient resources and serve as change agents, creating a conducive environment for the assimilation of innovation (Kwon & Zmud, 1987). Researchers (Gopalakrishna-Remani, Jones, & Camp, 2019; Kankanhalli, Hahn, Tan, & Gao, 2016) contend that innovation assimilation is accelerated when top management devote significant organisational resources to supporting its assimilation, and play leading roles in motivating and sustaining the assimilation efforts. Top management's publicity about innovation assimilation in the firm would give it the legitimacy it requires for it to be institutionalised (Kankanhalli et al., 2016). When top management is actively involved in social media, they send a message to the rest of the firm that social media are important. This could help to create a culture of social media engagement in the firm. Legitimacy is critical to innovation assimilation because of the resistance it could engender owing to the changes that the innovation could cause to employees' work routines. Overall, top management championship of an innovation almost invariably leads to its assimilation in a firm. Previous research has confirmed that top management participation positively drives innovation assimilation (Bharati, Zhang, & Chaudhury, 2014; Gopalakrishna-Remani et al., 2019; Liang et al., 2007). Bharati et al. (2014) found top management support to be significantly related to social media assimilation in organisations.

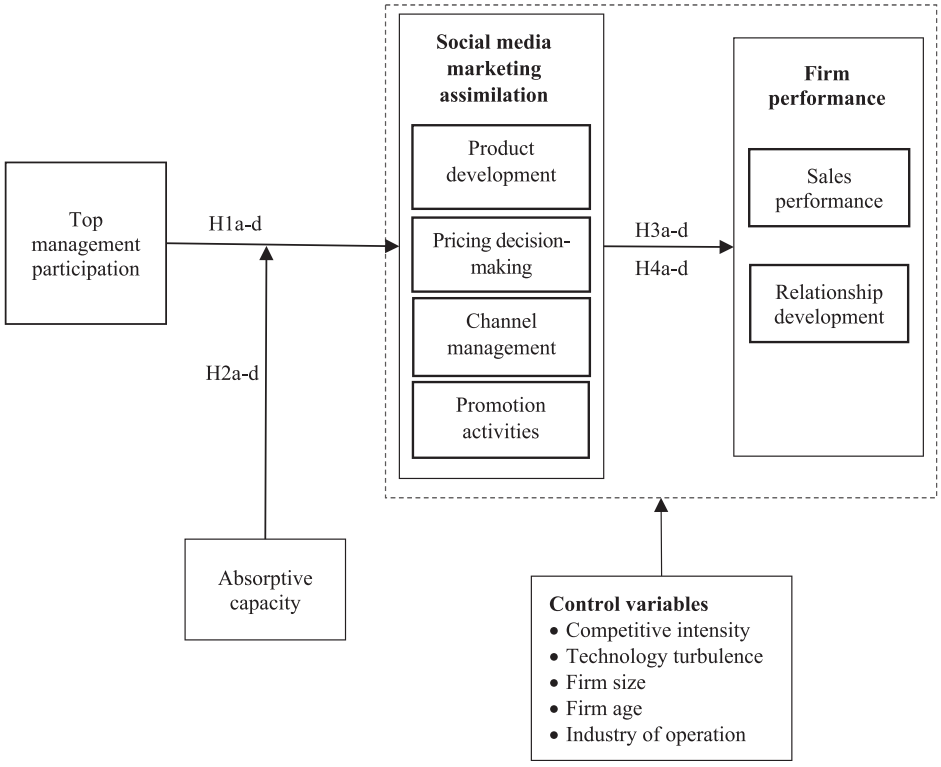

Fig. 1. Proposed research model.

B2B firms can use social media to obtain feedback from customers during product development by creating question-and-answer sessions, surveys and polls, engaging with users through comments and direct messages, monitoring customers' discussions, and analysing their feelings about their products. Based on these benefits, top management would readily participate in assimilating social media into their firms to assist in their product development drive. Furthermore, social media could be useful in gaining knowledge of competitors' pricing tactics and customers' reactions to them, monitoring customers' reactions to the firm's price changes, and developing pricing skills and systems to respond quickly to market changes (Liu & Ke, 2019). Given these benefits, top management would eagerly participate in social media marketing assimilation. It is argued that B2B firms could rely on social media platforms to develop and execute promotional programmes in order to inform customers about products and services, promote their brand image among the firm's stakeholders, and manage their corporate image and reputation (Jones, 2019). Top management's realisation of these benefits would enhance their participation in the assimilation of social media to support promotion activities in their firms. Moreover, Klaus (2013) and Omenugha (2018) argue that social media serve as a crucial platform for educating and interacting with channel partners about the firm's value propositions. They drive demand for channel partners, and offer support as part of the lead generation strategy. The advantages of social media in channel management are expected to encourage top management's active participation in the assimilation processes for effective channel management.

Based on the foregoing, we contend that the extent to which top management participate in social media marketing assimilation by devoting resources to that process and by communicating the need for that assimilation would legitimise the assimilation, overcome resistance, and promote the assimilation of social media into the key marketing areas of product development, pricing decision-making, channel management, and promotion. Thus we propose that:

H1. Higher top management participation in social media marketing assimilation processes leads to its assimilation in the firm to support: (a) product development, (b) pricing decision-making, (c) channel management, and (d) promotion activities.

3.2.2. *The moderating role of absorptive capacity*

Absorptive capacity is founded on organisational learning, and is thus a critical organisational capability that captures "exploratory, transformative, and exploitative learning processes" (Sun & Anderson, 2012, p. 2) and considers how organisations relate to external knowledge. In today's dynamic and connected business environment, firms need to have an advanced learning system in place to be able to build on and leverage external knowledge to face the ever-changing environment confidently (Li, Sun, & Dong, 2018). Gao, Xu, and Yang (2008) argued that absorptive capacity is a fundamental determinant of an organisation's innovative capability because it is premised on the knowledge level it has acquired through learning. Similarly, Kazanjian, Drazin, and Glynn (2001) contended that firms need to build competence in leveraging and synthesising knowledge to be able to develop new products or create product line extensions. For this reason, firms with high-level absorptive capacity – which is evident in high-level knowledge transformation and exploitation competencies – are able to innovate.

Social media provide a way for firms to obtain information, synthesise it, and learn from it to support their marketing decisions. The level of knowledge transformation and exploitation derived from social media rests on firms' existing absorptive capacity, which reflects their ability to gather, synthesise, and leverage new information from social media to support their marketing function. Research by Ortega-Gutiérrez, Cepeda-Carrión, and Alves (2022) found that absorptive capacity and unlearning processes capabilities that are central to transforming the knowledge acquired in social media and to becoming service-dominant oriented. Aliasghar, Sadeghi, and Rose (2023) noted that absorptive capacity positively influences a firm's ability to innovate by assimilating external knowledge. Thus a higher absorptive capacity is expected to strengthen the impact of top management participation in the assimilation of social media for marketing areas, as the firm could better recognise the value of new external information, assimilate it, and apply it to commercial ends. Therefore, we assert that B2B firms with higher absorptive capacity are more likely to benefit from the participation of top management in the assimilation of social media for marketing areas. Consequently, we hypothesise that:

H2. The higher the existing absorptive capacity in B2B firms, the stronger the impact of top management participation in the assimilation of social media for (a) product development, (b) pricing decision-making, (c) channel management, and (d) promotion activities.

3.2.3. *The impact of social media assimilation on firm performance*

Research has shown that the adoption of new technologies to improve various business processes can lead to increased performance (Aydiner, Tatoglu, Bayraktar, Zaim, & Delen, 2019; Sestino & De Mauro, 2022). With the popularity of social media platforms and usage, marketers hope that their use would benefit their firms' performance outcomes (Dessart, Veloutsou, & Morgan-Thomas, 2015). Past research has established that social media adoption influences firms' financial and non-financial performance (Ainin, Parveen, Moghavvemi, Jaafar, & Shuib, 2015; Paniagua & Sapena, 2014; Parveen, Jaafar, & Ainin, 2016; Rodriguez, Peterson, & Krishnan, 2012). Specifically, researchers (Abdullahi, Husin, Baharudin, & Abdullah, 2022; Ainin et al., 2015) have found that Facebook use is positively related to SMEs' financial and non-financial performance. Other researchers (Tajvidi & Karami, 2021) have only assessed the impact of social media adoption on the financial performance of the adopting firms. Rodriguez et al. (2012) established that social media usage significantly impacts relationship sales performance and relationship management. A study by Agnihotri et al. (2016) revealed that salespeople find that social media use influences their responsiveness and perceived customer satisfaction indirectly through communication. Based on these findings, we propose that social media marketing assimilation significantly affects sales performance and relationship development, and thus hypothesise that:

H3. A higher level of social media marketing assimilation for (a) product development, (b) pricing decision-making, (c) channel management, and (d) promotion activities leads to better sales performance.

H4. A higher level of social media marketing assimilation for (a) product development, (b) pricing decision-making, (c) channel management, and (d) promotion activities leads to better relationship development.

4. Methods

4.1. *Measurement*

The measurement items used in this study were adapted mainly from scales previously demonstrated to be valid and reliable. In some instances, where suitable measures were not available from the literature, we attempted to develop new ones. Before conducting the measurements, we established operational definitions for each construct and carefully selected scale items that aligned with these definitions. 'Absorptive capability', as operationalised in this study, refers to the firm's ability to identify, value, import, assimilate, and exploit new information and knowledge effectively. This construct was measured using four items adapted from the 10-item measure of Pavlou and El Sawy (2006). 'Sales performance' was operationalised as a firm's ability to achieve its sales goals by increasing market share, retaining existing customers, and acquiring new customers relative to its competitors. The three items used to measure the construct were selected from five items

used by Wu, Mahajan, and Balasubramanian (2003). 'Relationship development' was operationally defined in this study as the ability of a firm to establish and maintain strong, long-lasting connections with its distributors, agents, suppliers, and partners. The construct was measured with three items; the first two were adapted from Wu et al. (2003), and the third ('Sustaining relationships with distributors/ agents/suppliers/partners') was developed and added. 'Competitive intensity' was operationally defined as the extent to which the industry exhibits a high level of aggressive competition that is characterised by perceived cut-throat rivalry, frequent engagement in promotion wars, ready replication of competitors' offerings, and the emergence of new competitive initiatives on an almost daily basis. The four items used to measure the construct were adapted from the six-item scale of Jaworski and Kohli (1993). 'Technology turbulence' was operationalised in this study as the extent to which technological advancements and innovations disrupt existing products, processes, and business models, creating uncertainty and difficulties for firms in the industry. This construct was measured with three items adapted from the five-item measure of the construct by Jaworski and Kohli (1993). 'Firm age' was measured using the year of establishment, and 'size' was measured by the number of full-time employees.

In the current study, we defined 'social media marketing assimilation' as the extent to which B2B firms routinise the use of social media and integrate them into different marketing value-chain activities and strategies. Specifically, the study's view of social media marketing assimilation refers to the extent to which social media are integrated to support product development, pricing decision-making, channel management, and promotion activities. As there were no existing measures for this conceptualisation of social media marketing assimilation, new items were developed. 'Social media assimilation for product development support activities' was operationalised as the extent to which B2B firms leverage social media for product concept development, conduct test marketing before the launch of a new product, launch the product, and conduct product training for new customers. These items were developed from Ernst, Hoyer, and Rübsaamen (2010). 'Pricing decision-making support' was operationalised as the extent to which B2B firms leverage social media to obtain information about consumers' reactions to firms' price changes and competitors' price and pricing tactics, and to develop responsive pricing systems. The items for pricing decision-making support were developed from Dutta, Bergen, Levy, Ritson, and Zbaracki (2002) and from Nagle and Müller (2018). 'Promotion activities' was operationalised as the extent to which B2B firms integrate social media into developing and executing advertising programmes, informing customers about products, and promoting their corporate image. The items used for measuring this construct were developed from Mangold and Faulds (2009). Finally, 'social media assimilation for channel management support' was operationalised as the extent to which B2B firms employ social media to educate and interact with channel partners on the value propositions of their products/services, driving demand for their partners, and providing support for the channel partners as part of lead generation strategies. The items used to develop these measures were based on the studies of Agnihotri et al. (2016) and of Andzulis, Panagopoulos, and Rapp (2012). All of the items measuring the constructs are set out in Appendix A.

A pre-test of the initial item pool for the constructs was sent to three professors in marketing and three professors in information systems, who were requested (i) to assess whether the items for each construct captured the content of the construct, and (ii) to ascertain the clarity of the wording of the statements. Four of them responded with some corrections and recommendations. After implementing these recommendations, the draft questionnaire was developed and piloted with 30 respondents to determine the extent to which the questions/ statements and their instructions were clear to the respondents and the general quality of the research questionnaire. Besides identifying a few typing errors, the respondents indicated that the questions/statements were clear, and expressed their satisfaction and comfort with the questionnaire. The Cronbach's alpha that was computed on the pilot data for all items of the construct exceeded the 0.7 threshold. After correcting the typing errors, the questionnaire was finalised for data gathering.

4.2. Data collection

A reputable survey firm was employed to collect data from managers of South African B2B firms. Engaging a reputable research firm for data collection helps to ensure that key informants who could provide the data that addresses the objectives are identified, thus improving data reliability and relevance. Their expertise in participant recruitment enhances data quality and validity (Montabon, Daughtery, & Chen, 2018). A random national sample of 850 B2B firms that had indicated the full integration of social media into their overall marketing strategy was drawn from the survey firm's database, and the managers of these firms were invited to participate in an online survey by clicking on a link to the survey questionnaire embedded in an invitation email. To ensure that key informants were selected, the respondents were asked (a) whether they held a high managerial position in the firm (Homburg, Artz, & Wieseke, 2012), and (b) whether, in the course of their managerial duties, they made decisions about the assimilation of innovations, such as social media, into the firm. Only participants who provided affirmative responses to these two questions were allowed to proceed with the survey. The careful selection of respondents in the study was to ensure that data was obtained from individuals with the necessary knowledge and experience to provide relevant and reliable insights. Given that the measurement of the dependent and independent variables in our study was based on the perceptions of a single manager in each firm, we deemed the Flynn, Pagell, and Fugate (2018) design Type 2 suitable for our research.

The online survey ran for nine weeks. A first reminder was sent to the managers three weeks after the first invitation. Thereafter, follow-up reminders were sent every two weeks. At the end of the ninth week, the survey yielded 202 responses – a 25.13% response rate.

To examine response bias, we followed the recommendation of Armstrong and Overton (1977) to analyse whether there was a statistically significant difference between the early respondents (those completing the survey within the first three weeks; $n = 104$) and the late respondents ($n = 98$). The results of the multivariate analysis of variance showed no significant difference in the means of the early and late respondents (Lambda = 0.278, F [62, 48] = 0.694, $p = 0.972$). After this procedure, the data was scrutinised and missing data analyses were carried out. Fourteen responses were discarded because of missing data, resulting in 188 responses, representing an effective response rate of 23.5%.

The Cohen (1988) power table for regression analysis was used to ascertain the statistical power levels of the sample. In implementing this procedure, the power of the model was examined for each block, comprising a dependent variable with its set of independent variables. For instance, the outcome variables of sales performance and relationship development had four predictors each (social media marketing assimilation for product development, pricing decision-making, channel management, and promotion activities) along with five control variables (competitive intensity, market turbulence, industry, firm age, and firm size). Consequently, following the recommendation of Cohen (1988), a hierarchical approach was used to examine the incremental explanation of variance. Other selected parameters included an effect size (f^2) of 0.20 and a significance level of 0.05. With these parameters, all power estimates for the blocks were 0.99, suggesting that the sample size of 188 had high power to achieve statistical significance. Furthermore, the GPower statistical tool (Faul, Erdfelder, Buchner, & Lang, 2009) showed that a sample of 55 would be required to detect small effect sizes (d = 0.15) – two-tailed – for linear multiple regression: fixed model, single regression coefficient at $p = 0.05$, and a power of 0.95. Therefore, this study's sample of 188 was enough to generate adequate statistical

Table 1
Respondents' positions in participating firms.

Respondents' position	Chief executive officer	Managing director	General manager	Sales and marketing manager	Chief financial officer/ Accountant	IT/Chief information officer	Human resources/ Transformation
Frequency	10	50	32	62	10	17	7
Valid percent	5.3	26.6	17.0	33.0	5.3	9.0	3.7

Table 2
Industry sector of participating firms.

	Frequency	Valid percentage
Industry of participating firms		
Banking/Finance/Insurance	24	13.5
IT	21	11.8
Construction	9	5.1
Training and development	18	10.1
Oil/Gas/Energy	13	7.3
Healthcare	8	4.5
Hotel, tourism, and hospitality	7	3.9
Manufacturing	26	14.6
Transportation	15	8.4
Professional services (legal/accounting/ consulting)	34	19.1
Others	3	1.7

power. The average age of the participating firms was 31.09 years (SD = 32.432). The average number of employees was 3610.65 (SD = 147.23). The rest of the sample characteristics are presented in Tables 1–3.

4.3. Common method bias

Since the study followed the Type 2 research design of Flynn et al. (2018), the threat of common method bias (CMB) was high. Thus, procedural and statistical measures were implemented to control and assess CMB impact (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Procedurally, we guaranteed to respondents that their responses would remain anonymous and confidential. Furthermore, we assured them that there were no right or wrong answers, and that we were only interested in their honest opinions. As indicated, the questionnaire was also pilot-tested to guarantee that potential respondents understood the questions in order to reduce their effort in trying to make sense of the questions. Furthermore, we ensured that the targeted respondents were knowledgeable about social media assimilation in firms, as their familiarity with the subject would enable them to relate to the study better.

The threat of CMB was ascertained using multiple statistical procedures. First, Harman's single-factor test was implemented. The single factor explained 22.153% variance, which was below the conservative threshold of 40% (Babin, Griffin, & Hair Jr., 2016). Next, the recommendation of Malhotra, Kim, and Patil (2006) was followed by comparing the fit of two measurement models using maximum likelihood extraction and promax rotation. In model 1, all of the variables were forced to fit a single factor underlying the common method effects. The results of this one-factor model suggested a substantial misfit (χ^2 [1890] = 6359.472, $p < 0.001$) of the data with the one-factor solution, indicating that the threat of CMB was not substantial. Moreover, this factor solution was compared with the full model factor model, with the results ($\Delta\chi 2$ [468] = 3699.331, $p < 0.001$) showing that the fit of the one-factor model was significantly worse, suggesting further that CMB did not present a threat (Malhotra et al., 2006). Moreover, following the recommendations of Bagozzi, Yi, and Phillips (1991), we examined the inter-factor correlation matrix, where the highest correlation was 0.848, which was below the 0.90 threshold. Finally, we implemented the full collinearity assessment technique (Kock, 2015). The estimated variance inflation factor (VIF) values were below the 3.3 threshold, ranging from 1.102 to 3.003. These results supported the absence of CMB at critical levels.

The assessment of the proposed research model unfolded in two important steps. First, the quality of the measurement model was assessed for its reliability and its convergent and discriminant validity; and second, the structural model was assessed to test the hypotheses.

5. Data analysis and results

5.1. Measurement quality

The psychometric properties of the measurement scales were assessed using confirmatory factor analysis (CFA) with a maximum likelihood estimation technique. AMOS software version 29 was used to conduct the CFA. The results of the model's goodness-of-fit model (χ^2 = 949.101, $p < 0.001$, df = 515, CFI = 0.935, RMSEA = 0.066, SRMR = 0.046) suggested that the CFA model fitted the data well. The measurement quality was assessed further, based on its construct reliability, convergent validity, and discriminant validity. Construct reliability was assessed using Cronbach's alpha and composite reliability (Hair, Risher, Sarstedt, & Ringle, 2019). The results (see Table 4) showed that the measures of the constructs employed in this study were reliable, as the Cronbach's alpha and composite reliability estimates exceeded the 0.70 threshold (Hair et al., 2019).

The standardised factor loadings and the average variance extracted (AVE) were used to assess convergent validity. As the results in Table 4 show, all construct loadings exceeded the 0.708 threshold, with CMI1 being the lowest at 0.751. Regarding the AVE, the results showed that the least estimated AVE (0.595 for competitive intensity) was greater than the 0.5 recommended threshold. These results confirmed the convergent validity of the measurement model.

Having established construct reliability and convergent validity, discriminant validity was assessed using the Fornell and Larcker (1981) technique. The results, as shown in Table 5, confirmed the discriminant validity of the model. This was demonstrated by the fact that the square root of the AVE for each construct was greater than the correlations between that construct and the other constructs.

5.2. Hypotheses testing

After the validity of the measures had been confirmed, the structural model was examined to test the proposed hypotheses. The analysis of the structural model for hypothesis testing involved a two-step process. In Step 1, the model was examined without the moderator and interaction terms (referred to as the intermediate model [IM-1]). The fit indices of this model (i.e. IM-1) – χ^2 = 1146.326, df = 603, CFI = 0.920, RMSEA = 0.069, SRMR = 0.082 – suggested a reasonable fit with the data.

In the next step, the moderator (absorptive capacity) and independent variable (top management) were standardised. An interaction term was then created as the product of these standardised variables. These interaction terms and the moderator were added to IM-1, resulting in the proposed model. Subsequently, these additional parameters were constrained to be equal in the model, such that IM-1 was nested in this proposed model, and a nested model analysis was conducted.

The results of this analysis showed that the proposed model with the interaction terms had a better fit: χ^2 = 1124.239, $p < 0.001$, df = 596, CFI = 0.922, RMSEA = 0.069, SRMR = 0.077. Furthermore, the results of chi-square model comparison ($\Delta\chi^2$ = 22.087, Δdf = 7, p = 0.002) showed that the unconstrained model (i.e., the proposed model) had a

Table 3
Social media channels used by participating firms to support marketing functions.

Social media used	Facebook	Twitter/X	YouTube	LinkedIn	Blogs	WhatsApp	Instagram
Frequency*	145	98	46	110	17	70	39
Percent	27.6	18.7	8.8	21.0	3.2	13.3	7.4

Notes: *Firms were requested to indicate all social marketing platforms they used to support their marketing functions.

Table 4
Construct reliability and validity.

	Path estimates	Cronbach's alpha	Composite reliability	AVE
Absorptive capacity		0.947	0.954	0.838
ABC1	0.910			
ABC2	0.951			
ABC3	0.907			
ABC4	0.892			
Competitive intensity			0.854	0.595
CMI1	0.751			
CMI2	0.845			
CMI3	0.704			
CMI4	0.779			
Relationship development		0.962	0.961	0.892
RED1	0.942			
RED2	0.956			
RED3	0.936			
Sales performance		0.925	0.926	0.808
SPE1	0.872			
SPE2	0.938			
SPE3	0.885			
Technology turbulence		0.923	0.924	0.801
TET1	0.869			
TET2	0.903			
TET3	0.913			
Top management participation		0.928	0.925	0.755
TMP1	0.893			
TMP2	0.888			
TMP3	0.802			
TMP4	0.889			
Pricing decision-making support		0.930	0.932	0.819
PRC1	0.923			
PRC2	0.941			
PRC3	0.930			
Promotion activities		0.925	0.942	0.802
PRM1	0.836			
PRM2	0.865			
PRM3	0.958			
PRM4	0.918			
Product development support		0.914	0.921	0.796
PRO1	0.786			
PRO2	0.933			
PRO3	0.949			
Channel management		0.918	0.919	0.739
CHM1	0.864			
CHM2	0.816			
CHM3	0.869			
CHM4	0.887			

significantly better fit with the data than the constrained model (IM-1), thus suggesting that the inclusion of the moderator (i.e., absorptive capacity) and its interaction effects significantly improved the fit of the model, providing evidence for the moderating role of absorptive capacity. The results of these analyses are presented in Table 6.

In respect of the R^2 for the endogenous constructs, the results indicated that the proposed model explained a higher variance in the endogenous constructs than did the IM-1 model. Specifically, in the proposed model, 47.6% of the variance in promotion activities was explained, compared with 44.9% in the IM-1. For channel management, the proposed model explained 59% of the variance, while the IM-1 explained 57.9%. The R^2 of product development support in the proposed model was 55.7%, compared with 54.7% in the IM-1. Regarding relationship development, the proposed model explained 32.3% of its variance, compared with 30.9%. For sales performance, 23.1% of its variance was explained in the proposed model, compared with 22% in the IM-1. It was evident that the inclusion of absorptive capacity as a moderator not only enhanced the R^2 of its target constructs, but also improved the R^2 of the performance measures related to social media marketing assimilation, particularly sales performance and relationship development.

5.2.1. Direct paths

The results also showed that top management participation had a strong and positive impact on social media marketing assimilation for product development ($\beta = 0.625$, $t = 7.522$, $p < 0.001$), pricing decision-making ($\beta = 0.556$, $t = 6.596$, $p < 0.001$), channel management ($\beta = 0.579$, $t = 7.273$, $p < 0.001$), and promotion activities ($\beta = 0.728$, $t = 7.878$, $p < 0.001$). These results provided strong support for H1a-d.

The results showed that, while social media marketing assimilation for product development had a non-significant impact on sales performance ($\beta = 0.247$, $t = 1.393$, $p = 0.164$), its impact on relationship development was significant ($\beta = 0.371$, $t = 2.218$, $p < 0.05$). Thus, while statistical support was not obtained for H3a, support was obtained for H4a. In contrast, social media marketing assimilation for pricing decision-making had a non-significant impact on sales performance ($\beta = -0.207$, $t = -1.130$, $p = 0.177$) and on relationship development ($\beta = -0.275$, $t = 1.908$, $p = 0.059$). Thus statistical support was obtained for neither H3b nor H4b. Conversely, social media marketing assimilation for channel management showed a significant and positive impact on sales performance ($\beta = 0.419$, $t = 4.248$, $p < 0.001$) and on relationship development ($\beta = 0.474$, $t = 5.165$, $p < 0.001$). Surprisingly, the results indicated that social media assimilation for promotion activities was not significantly related to either sales performance ($\beta = -0.096$, $t = -0.878$, $p = 0.380$) or relationship development ($\beta = -0.085$, $t = -0.827$, $p = 0.408$). Thus, while the results provided statistical support for H3c and H4c, statistical support was not obtained for either H3d or H4d.

5.2.2. Moderation effect

The results of the moderation analysis showed that absorptive capacity had a significant and positive moderating impact on the relationship between top management participation and social media marketing assimilation for product development decisions ($\beta = 0.270$, $t = 4.518$, $p < 0.001$), between top management participation and pricing decision-making ($\beta = 0.223$, $t = 3.934$, $p < 0.001$), and between top management participation and channel management activities ($\beta = 0.192$, $t = 3.387$, $p < 0.001$). Surprisingly, absorptive capacity had no significant moderating impact on the relationship between top management participation and social media marketing assimilation for promotion activities ($\beta = 0.081$, $t = 1.329$, $p = 0.184$). Consequently, the results of the study provided statistical support for H2a, H2b, and H2c, but not for H2d.

To explicate these significant moderation effects more fully, a simple slope analysis (refer to Fig. 2, Fig. 3, and Fig. 4) was conducted. The results showed that absorptive capacity strengthened the impact of top management participation on social media marketing assimilation in B2B firms for product development, pricing decision-making, and

Table 5
Descriptive statistics of constructs and discriminant validity.

		Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Competitive intensity	4.620	1.432	**0.771**									
2	Top management	4.522	1.568	0.444	**0.869**								
3	Absorptive capacity	4.890	1.354	0.178	0.515	**0.915**							
4	Product development	4.059	1.877	0.359	0.686	0.393	**0.892**						
5	Pricing decision	3.287	1.891	0.469	0.597	0.297	0.779	**0.905**					
6	Channel management	4.860	1.829	0.427	0.669	0.417	0.848	0.751	**0.859**				
7	Promotion activities	5.171	1.684	0.333	0.656	0.213	0.721	0.570	0.645	**0.895**			
8	Sales performance	4.837	1.304	0.138	0.479	0.600	0.349	0.216	0.404	0.244	**0.899**		
9	Relationship development	5.148	1.195	0.155	0.530	0.655	0.458	0.293	0.499	0.326	0.783	**0.945**	
10	Technology turbulence	5.572	1.329	0.445	0.432	0.393	0.392	0.381	0.395	0.299	0.285	0.304	**0.895**

Note: SD=Standard deviation.

Table 6
Results of hypotheses testing.

		IM-1		Proposed model		Support?
Dependent variable	Independent variable	β	t-value	β	t-value	
Product development support	Top management participation	0.621***	8.151	0.626***	7.522	Yes
Pricing decision support	Top management participation	0.546***	7.027	0.556***	6.596	Yes
Channel management support	Top management participation	0.609***	8.260	0.579***	7.273	Yes
Promotion activities	Top management participation	0.584***	7.280	0.728***	7.878	Yes
Sales performance	Product development support	0.171^{ns}	0.978	0.247^{ns}	1.393	No
Sales performance	Pricing decision support	-0.136^{ns}	−0.911	-0.207^{ns}	−1.350	No
Sales performance	Channel management support	0.408***	4.114	0.419***	4.248	Yes
Sales performance	Promotion activities	-0.069^{ns}	−0.615	-0.096^{ns}	−0.878	No
Relationship development	Product development support	0.293^{ns}	1.778	0.371*	2.218	Yes
Relationship development	Pricing decision	-0.202^{ns}	−1.439	-0.275^{ns}	−1.908	No
Relationship development	Channel management	0.462***	4.994	0.474***	5.165	Yes
Relationship development	Promotion activities	-0.055^{ns}	−0.524	-0.085^{ns}	−0.827	No
Interaction effects						
Product development	TMP x Absorptive capacity			0.270***	4.518	Yes
Pricing decision	TMP x Absorptive capacity			0.223***	3.934	Yes
Channel management	TMP x Absorptive capacity			0.192***	3.387	Yes
Promotion activities	TMP x Absorptive capacity			0.081^{ns}	1.329	No
Controls						
Promotion activities	Competitive intensity	0.037^{ns}	0.481	0.015^{ns}	0.187	
Channel management	Competitive intensity	0.090^{ns}	1.267	0.085^{ns}	1.178	
Pricing decision	Competitive intensity	0.113^{ns}	1.540	0.090^{ns}	1.206	
Product development	Competitive intensity	-0.022^{ns}	−0.311	-0.023^{ns}	−0.319	
Relationship develop	Competitive intensity	-0.120^{ns}	−1.357	-0.101^{ns}	−1.150	
Sales performance	Competitive intensity	-0.104^{ns}	−1.106	-0.086^{ns}	−0.918	
Promotion activities	Firm size	0.022^{ns}	0.385	0.022^{ns}	0.381	
Channel management	Firm size	0.021^{ns}	0.396	0.021^{ns}	0.401	
Pricing decision	Firm size	0.052^{ns}	0.939	0.052^{ns}	0.951	
Product development	Firm size	0.011^{ns}	0.204	0.011^{ns}	0.202	
Relationship develop	Firm size	-0.076^{ns}	−1.174	-0.072^{ns}	−1.125	
Sales performance	Firm size	-0.018^{ns}	−0.260	-0.015^{ns}	−0.213	
Promotion activities	Industry	-0.042^{ns}	−0.729	-0.023^{ns}	−0.404	
Channel management	Industry	0.059^{ns}	1.095	0.053^{ns}	0.998	
Pricing decision	Industry	0.043^{ns}	0.770	0.036^{ns}	0.649	
Product development	Industry	0.093^{ns}	1.750	0.095^{ns}	1.784	
Relationship develop	Industry	-0.065^{ns}	−0.984	-0.072^{ns}	−1.099	
Sales performance	Industry	-0.099^{ns}	−1.398	-0.106^{ns}	−1.497	
Promotion activities	Tech. turbulence	-0.003^{ns}	−0.036	0.047^{ns}	0.627	
Channel management	Tech. turbulence	0.086^{ns}	1.270	0.081^{ns}	1.157	
Pricing decision	Tech. turbulence	0.086^{ns}	1.228	0.113^{ns}	1.551	
Product development	Tech. turbulence	0.124^{ns}	1.854	0.124^{ns}	1.768	
Relationship develop	Tech. turbulence	0.172^{ns}	2.103	0.164^{ns}	2.032	
Sales performance	Tech. turbulence	0.183^{ns}	2.093	0.176^{ns}	2.028	
R^2						
Product development support	0.547	0.557				
Pricing decision support	0.529	0.547				
Channel management support	0.579	0.590				
Promotion activities	0.449	0.476				
Sales performance	0.220	0.231				
Relationship development	0.309	0.323				

Notes: *** $p < 0.001$; ** $p < 0.01$, * $p < 0.05$; ns = not significant.

channel management, such that top management participation in social media for these functional areas of marketing was higher in the presence of a higher perception of existing absorptive capacity, and vice versa.

In respect of the impact of the control variables, the findings revealed that, of the 24 modelled control effects, only two were significant. Specifically, the results indicated that technology turbulence had a

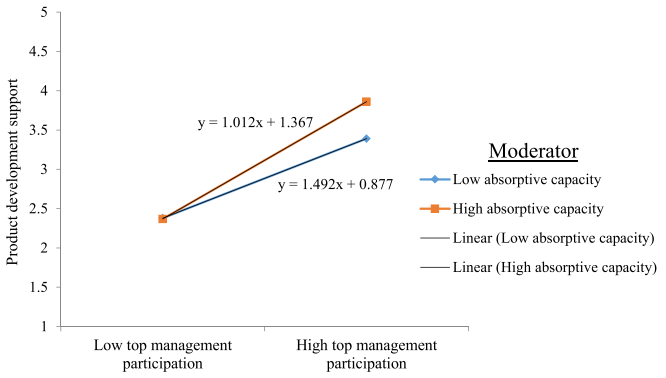

Fig. 2. Slope analysis of the absorptive capacity–top management interaction in social media assimilation for product development.

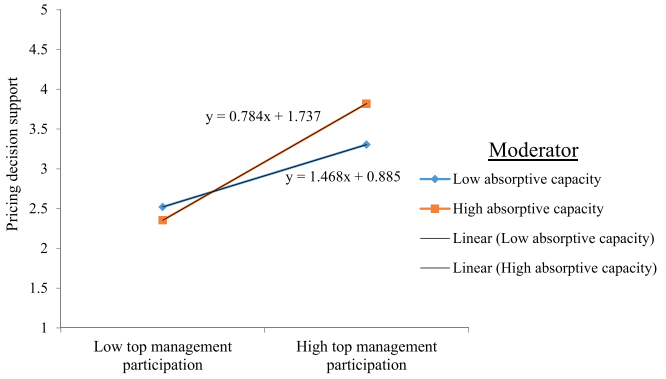

Fig. 3. Slope analysis of the absorptive capacity–top management interaction in social media assimilation for pricing decision-making support.

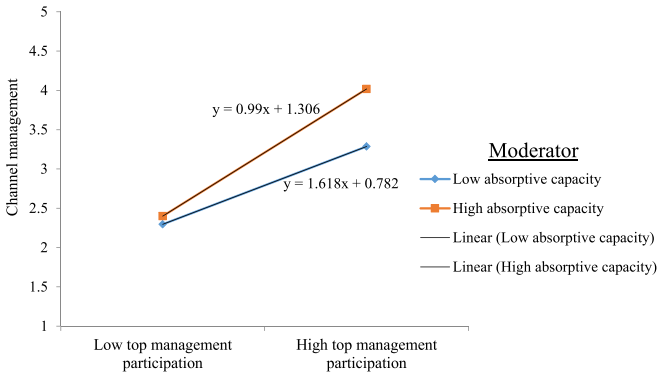

Fig. 4. Slope analysis of the absorptive capacity–top management interaction in social media assimilation for channel management activities.

positive relationship with relationship development ($\beta = 0.164$, $t = 2.032$, $p < 0.05$) and sales performance ($\beta = 0.176$, $t = 2.028$, $p < 0.05$). The lack of significance in most of the control relationships suggested that the model remained robust in capturing the key factors influencing the variables under investigation.

6. Robustness check – endogeneity assessment

To ensure the reliability and validity of the study's findings, an endogeneity test using the instrument-free Gaussian copula (GC) was conducted. This test aimed to detect potential endogeneity issues arising from bidirectional causality or omitted variable bias in the research model. Specifically, the variables of top management support, social media marketing assimilation for product development, pricing decision-making, channel management, and promotion activities, as well as the terminal constructs of relationship development and sales performance, were examined for potential endogeneity. The criterion variables under examination demonstrated a non-normal distribution ($p < 0.05$) based on the Kolmogorov-Smirnoff test for normality with Lilliefors significance correction. This non-normal distribution could support the presence of endogeneity, fulfilling the condition required to conduct the endogeneity test.

To investigate the potential endogeneity of the impact of top management participation and social media marketing assimilation on marketing decision areas of interest to the study, we conducted regression analyses that incorporated top management participation and the copula coefficients for each relationship, along with the relevant control variables. The bootstrapping technique used 5000 resamples to ascertain the significance. The path coefficients and p-values for top management participation and for the GC for the relationship were recorded. The analysis revealed that the GC coefficient for top management participation and social media marketing assimilation for product development decisions was not statistically significant ($\beta = -0.032$, $t = 0.176$, $p > 0.05$), indicating the absence of endogeneity owing to management at critical levels. Similar analyses were performed to assess endogeneity for the relationships between top management participation and social media marketing assimilation for pricing decision-making, channel management, and promotion activities. Table 7 indicates that the GC coefficients for top management participation in these relationships were also not significant, suggesting the absence of endogeneity at critical levels.

In our final analysis we examined the endogeneity resulting from the influence of social media marketing assimilation for the marketing decision areas of interest in this study – namely product development, pricing decision-making, channel management, and promotion activities – on performance outcomes, specifically sales performance and relationship development. Following a similar approach to that in previous cases, we conducted regression analyses to assess the impact of social media marketing assimilation for each decision area (e.g., product development) on sales performance and relationship development decisions, while considering the relevant control variables. The findings presented in Table 7 indicate that all of the GC coefficients were statistically insignificant ($p > 0.05$), except in the case of social media marketing assimilation for product development decisions and sales performance, where the GC for social media assimilation for product development was significant ($\beta = 0.362$, $t = 2.017$, $p < 0.05$), implying a potential endogeneity issue in this specific relationship. Despite the significant GC coefficient, the impact of social media marketing assimilation for product development on sales performance was not significant ($\beta = -0.356$, $t = 1.049$, $p < 0.05$). This finding suggested the existence of latent variables that exerted a simultaneous influence on social media assimilation for product development and sales performance, and called for further examination.

7. Discussion and implications

7.1. Discussion

The overriding aim of the study was to examine the antecedents and consequences of social media assimilation in B2B firms. The study specifically sought to examine how top management participation influences the assimilation of social media in their firms to support key functional areas of marketing, namely product development decisions, pricing decision-making, channel management, and promotion activities. The study further contended that top management's perceptions of the existing absorptive capacity in their firms could strengthen their participation in the social media marketing assimilation processes for these functional areas. The theoretical model further hypothesised that B2B firms that have succeeded in assimilating social media into

Table 7
Endogeneity assessment.

	Path coefficient	*t*-value	*p*-value
GC (Top management participation) → product development	−0.032	0.176	0.860
GC (Top management participation) → pricing decision-making	−0.010	0.042	0.967
GC (Top management participation) → channel management	0.113	0.659	0.510
GC (Top management participation) → promotion activities	−0.177	1.153	0.249
GC (Product decision) → sales performance	0.362	2.017	0.044
GC (Product decision) → relationship development	0.177	1.154	0.248
GC (Pricing decision) → sales performance	0.142	1.646	0.100
GC (Pricing decision) → relationship development	0.179	1.470	0.142
GC (Channel management) → sales performance	−0.108	1.027	0.304
GC (Channel management) → relationship development	−0.077	0.159	0.874
GC (Promotion activities) → sales performance	0.124	0.957	0.339
GC (Promotion activities) → relationship development	0.085	0.712	0.476

functional areas of their marketing activities are likely to enhance their performance in respect of sales and relationship development.

While the study's findings provide overall support for the theoretical model, they suggest that top management participation has a significant and positive impact on the assimilation of social media for the key marketing functional areas of product development decisions, pricing decision-making, channel management, and promotion activities. It is important to emphasise that, in both the IM-1 and proposed models, the impact of top management participation in the assimilation of social media across marketing functions remains robust, suggesting that, if top management participated in the social media assimilation processes, these processes would be assimilated into these functional areas of marketing. This finding is supported by Liang et al. (2007), who also found that the extent of top management participation influences innovation assimilation process.

However, compared with previous research, this study is the first to examine social media marketing assimilation comprehensively across multiple marketing functions, including product development, pricing decision-making, channel management, and promotion activities. Prior studies (e.g., Chaudhury & Bharati, 2014; Cruz-Jesus et al., 2019; De Mattos & Laurindo, 2017) have focused primarily on a narrow conceptualisation of assimilation, without considering its broader application in functional areas. Notably, the impact of top management participation in the social media assimilation processes is greater for promotion activities ($\beta = 0.728$), followed by product development ($\beta = 0.626$), channel management ($\beta = 0.579$), and pricing decision-making ($\beta = 0.556$). Although these results generally suggest that top management participation has a strong impact on the assimilation of social media across these marketing functions, they also underscore the varying degrees of the influence of top management participation on the different areas of the marketing function related to social media assimilation. These results thus challenge the assumption of uniform top management participation in the assimilation of social media marketing (Bharati et al., 2014), **and highlight the importance** of a nuanced approach to understanding the role of top management in social media assimilation processes.

Furthermore, the study's finding on the moderating impact of absorptive capacity as a condition that reinforces the impact of top management participation in social media assimilation into the marketing functional areas of product development, pricing decision-making, and channel management is interesting, as it not only underlines the condition under which top management's participation in the social media assimilation processes may become emboldened, but also emphasises that, in firms with high absorptive capacity – i.e., high-level knowledge transformation and exploitation capabilities – innovation assimilation processes are likely to enjoy top management's support and participation. The results, however, reveal a noteworthy asymmetry in the moderation effects, indicating that the impact of absorptive capacity on top management participation varies across different facets of social media assimilation into the marketing functions. This finding is particularly significant, highlighting that absorptive capacity's moderating influence on top management participation is strongest in the context of social media assimilation for product development ($\beta = 0.270$), followed by pricing decision-making ($\beta = 0.223$) and channel management ($\beta = 0.192$). This nuanced understanding represents a significant and novel contribution to the literature by demonstrating that absorptive capacity's interaction with top management participation is not uniform across all aspects of social media assimilation into marketing functions, emphasising the need for a differentiated approach in considering its impact on top management participation in various marketing functions. This finding challenges the assumption of a one-size-fits-all moderation effect, thereby enriching the theoretical landscape and providing a more nuanced perspective on the interplay between absorptive capacity and top management participation in social media assimilation.

The unexpected finding of the non-significant moderation impact of absorptive capacity on the relationship between top management participation and social media marketing assimilation for promotion activities is intriguing against the backdrop that top management participation has the strongest impact on the assimilation of social media for promotion activities. The proximate explanation for this finding could be that top management perceives social media marketing assimilation into promotion activities to be relatively easy, leading them to believe it that could be successfully implemented in their firm even when its existing absorptive capacity is low. This perception may overshadow the significance of absorptive capacity in driving top management participation in the assimilation of social media into promotion activities.

It is crucial to highlight that, for all the significant direct relationships, except in the case of H1c – i.e., top management participation and social media assimilation for channel support – the strengths of these relationships, as indicated by the standardised β values, are greater in the proposed model with absorptive capacity as a moderator than in the IM-1 model without absorptive capacity as a moderator. This reaffirms the importance of absorptive capacity as a critical variable that enhances the assimilation of social media marketing and, consequently, its impact on firm performance.

The study's findings indicate that the influence of social media marketing assimilation on the marketing performance of B2B firms varies across different marketing functional areas of social media assimilation in the firm. Notably, only social media assimilation for channel management has shown a positive impact on sales performance. On the other hand, social media assimilation for both product development and channel management is significantly correlated with relationship development. It is worth noting that, in the case of social media assimilation for channel management, its impact on relationship development is stronger than its impact on sales performance. This suggests that social media assimilation for channel management has a stronger influence on fostering and enhancing relationships with stakeholders than on improving sales. That result suggests that, while social media marketing assimilation for product development has a significant and positive impact on relationship development in B2B firms, its effect on sales performance is not

statistically significant. A proximate explanation for this could be that leveraging social media for product development activities enhances collaboration, communication, and engagement with stakeholders, fostering stronger relationships. However, the direct influence on sales performance might be less discernible or immediate, as the effects on sales could be indirect or be influenced by various other factors in the complex marketing environment.

Another surprising finding is that the assimilation of social media for pricing decision-making support and promotion activities is not significantly related to either sales performance or relationship development. This implies that assimilating social media for pricing decision-making support and promotion activities may not yield significant impacts on sales performance and relationship development. This could be attributed to the nature of pricing decision-making and promotion activities, which may not align well with the effective use of social media platforms. Pricing decision-making involves multifaceted considerations that extend beyond reliance on social media channels, including factors such as cost structures, competitive dynamics, and customer preferences (Smith, 2016). Consequently, relying solely on social media platforms for pricing decision-making support may not lead to their having a significant influence on sales performance. Similarly, promotion activities often require a combination of offline and online marketing efforts. Depending exclusively on social media platforms for promotion activities may not be as effective in generating improvements in sales performance.

These results generally challenge our understanding of how social media influence a firm's performance. The nuances revealed in the relationship between social media assimilation for marketing activities and specific aspects of performance, such as relationship development versus sales performance, challenge the conventional assumptions about the direct and uniform impact of social media on firm performance outcomes. These findings prompt a reconsideration of that conventional wisdom, indicating that the impacts of social media marketing assimilation on firm performance may be multifaceted and context-dependent. This new understanding highlights the need for a more differentiated and tailored approach when assessing the impact of social media on various dimensions of firm performance, and to acknowledge that its influence can manifest differently across different aspects of organisational functional areas.

7.2. Theoretical implications

Despite B2B firms' increasing use of social media, studies examining the assimilation of social media in a B2B context are few and far between compared with those on B2C social media adoption. As a result, less is known about the processes through which B2B firms assimilate social media into their marketing functions. Our study is one of the few to examine social media marketing assimilation in a B2B context. Most studies on the topic (e.g., Ahmad, Bakar, & Ahmad, 2019; Bharati et al., 2014; Odoom, Anning-Dorson, & Acheampong, 2017) have examined social media adoption or assimilation without necessarily considering its full integration into business functions. One of the major contributions of our study is the granular analysis achieved through the decomposition of social media marketing by examining its integration into key marketing functions, including product development, pricing decision-making, channel management, and promotion activities. This decomposition has facilitated a comprehensive examination of how top management participation drives the assimilation of social media across these diverse marketing functional areas. The conceptualisation and measurement of social media marketing assimilation adopted in this study is the first of its kind, and represents a unique contribution to the literature, offering guidelines to researchers on how they could conceptualise and measure social media assimilation into the functional areas of marketing.

We were also able to evaluate how the assimilation of social media into each of these functional domains of marketing influences specific marketing performance outcomes, such as sales performance and relationship development. Our study significantly advances the scholarly discourse by disentangling social media marketing assimilation at a granular level, offering a nuanced understanding of how its integration into different marketing functions contributes differently to a firm's performance. This detailed examination revealed dimensions of performance that could be more effectively enhanced through social media marketing strategies, improving our understanding of its strategic implications. Moreover, our findings contribute to the ongoing debate on social media use and its impact on B2B firms. While previous research (e.g., Agnihotri et al., 2016; Bill et al., 2020) has highlighted the positive effects of social media adoption on customer satisfaction and loyalty, our study goes a step further by comprehensively examining the specific influence of social media marketing assimilation on B2B firms' performance. The notable contribution lies in revealing its varied impact across different marketing functions, such as the positive impacts of social media assimilation for channel management on both sales and relationship development, and the improvement in relationship development through social media assimilation for product development. This comprehensive and nuanced insight addresses a gap in the literature, providing a more detailed and context-specific perspective on the relationship between social media marketing assimilation and B2B firms' performance.

Prior research has emphasised the centrality of absorptive capacity in the innovativeness of a firm (Roberts, Galluch, Dinger, & Grover, 2012). Other studies (e.g., Bharati et al., 2014; Liang et al., 2007) have noted that absorptive capacity directly influences innovation assimilation in firms. However, the specific boundary relationship between absorptive capacity and the participation of human agents in innovation assimilation has remained largely unexplored. This study addresses that research gap by revealing how the perceived levels of absorptive capacity in B2B firms act as a boundary condition, influencing the level of top management's participation in social media assimilation for product development, pricing decision-making, and channel support. These findings represent a significant and novel contribution to the literature by revealing the boundary condition of top management participation in the social media marketing assimilation process. By delving into the complex dynamics and contextual factors that influence its effectiveness, this study's findings offer valuable insights into the specific circumstances under which top management participation has the stronger impact on innovation assimilation, and enhance our theoretical understanding of the role of top management in driving successful assimilation. Previous research on the role of top management participation (e.g., Bharati et al., 2014; Gopalakrishna-Remani et al., 2019; Shen et al., 2020) in the assimilation process has focused primarily on its general impact, overlooking the intricate dynamics and contextual factors that influence its effectiveness.

Moreover, this study makes a valuable contribution to the literature by focusing on B2B firms in South Africa – a context that has received limited research attention. Prior studies examining social media adoption/assimilation in B2B contexts have been based mainly on samples drawn from western or Asian firms. Therefore, this study has additional significance by providing insights from an emerging African country's B2B context, which may differ from what is observed in other regions. By examining social media marketing assimilation in B2B firms in South Africa, this study expands the geographic scope of research in this field, and enhances our understanding of B2B social media assimilation dynamics in diverse contexts.

Managerially, this study contributes valuable insights for vendors of social media marketing innovation by identifying the critical factors that influence top management assimilation. These insights could assist vendors in developing effective strategies to promote the integration of social media marketing in B2B firms. Moreover, the study highlights the varying marketing performance impacts of social media marketing assimilation across different marketing functional areas, emphasising the need for businesses to evaluate its suitability. Understanding these

dynamics could guide B2B firms in optimising their social media use for improved marketing performance, including sales and relationship development.

7.3. Managerial implications

This study's findings offer several important managerial implications for the assimilation of social media marketing in B2B firms. First, the findings show that top management's support for assimilation activities is critical if social media marketing assimilation efforts in B2B firms are to be successful. Consequently, top managers should be aware of the centrality of their role in ensuring successful assimilation. If they do not exercise the necessary oversight and provide the necessary support systems for the assimilation process, it is likely that the assimilation would suffer and be curtailed. Social media marketing solution developers, agents, and marketers should endeavour to offer the necessary external support for top managers to be able to participate effectively in the internal assimilation processes. Moreover, social media marketing innovation developers and vendors should consider the differential impacts of top management participation in social media assimilation across the different marketing functions. This understanding could help to guide their prioritisation of social media marketing innovations that are more easily supported and embraced by managers in B2B firms.

The fact that the level of absorptive capacity in the firm could either drive or hinder top management participation in the social media marketing assimilation process makes it imperative for top management to recognise the need to build robust systems for harnessing and capitalising on external knowledge. Firms should strategically invest in building and strengthening absorptive capacity, with a focus on enhancing the ability to assimilate social media into key marketing functions. This investment may involve using training programmes and knowledge-sharing platforms to foster a culture of continuous learning. Such initiatives would not only facilitate firms' learning and innovativeness (Cruz-Ros, Guerrero-Sánchez, & Miquel-Romero, 2021), but also build their capacity to support and participate effectively in the successful assimilation of innovations, such as social media marketing — as demonstrated in the case of this research — in their firms.

As the study's results show, successful assimilations of social media for channel management are likely to improve the performance of B2B firms in the area of sales. Therefore, B2B firms could prioritise and strategically invest resources in social media assimilation specifically for channel management. This approach could involve developing targeted strategies to enhance collaboration and communication with channel partners through social media platforms. By fostering stronger relationships with channel partners through effective social media engagement, B2B firms could improve their sales performance.

Moreover, the significant impact of social media assimilation for channel management on relationship development underscores the necessity for B2B firms to recognise the strategic role of social media in this domain. By implementing responsive support systems on social media platforms, B2B firms could promptly address the needs of channel partners, demonstrating their commitment to the success of their partners. Quick and effective support contributes significantly to relationship development. Moreover, B2B firms could collaborate with channel partners on social media campaigns aimed at driving demand. Joint promotional activities and campaigns could enhance visibility, create shared goals, and strengthen the collaborative relationship between the B2B firms and their channel partners.

Finally, the significant relationship between social media assimilation for product development and relationship development has multifaceted managerial implications. B2B firms could strategically integrate social media into their product development processes by adopting a customer-centric approach that fosters collaboration among key stakeholders. This approach would involve engaging key stakeholders in discussions, encouraging them to share ideas and preferences, and inviting their participation in product design. By fostering a collaborative environment, firms could strengthen their relationships with their customers. Furthermore, leveraging social media to share behind-the-scenes glimpses, progress updates, and difficulties faced during product development could enhance brand perception and build trust among customers. By openly communicating with customers about the product development process, B2B firms could show their commitment to providing value and fostering transparency. This transparency could strengthen customer relationships and contribute to positive relationship development.

8. Limitations and suggestions for future studies

Despite the study's contributions, it has numerous important limitations that provide scope for future research. The study's findings are based on a cross-sectional study instead of a longitudinal study. To be able to detect changes that may occur over time in top management participation in social media assimilation or to observe the impact of social media integration in the marketing value chain over time and establish a temporal order, future research could adopt a longitudinal design. Moreover, since this study relied on a single informant from each participating firm to obtain the data, a mixed-method approach that allowed for some level of triangulation is recommended to increase the relevance of the study's findings (Montabon, Daugherty, & Chen, 2018).

Our study examines how absorptive capacity is crucial to strengthening top management participation in social media marketing assimilation. However, how the presence of other dynamic capabilities, such as adaptation and innovation, could foster social media marketing assimilation at the firm level has not been addressed. Therefore, we suggest that future research address how dynamic capabilities in the broad sense could play a role in fostering the assimilation of social media marketing.

Other studies have found the information technology knowledge of top managers to be central to the assimilation of technological innovation. Thus future research could examine the extent to which top managers' knowledge of social media marketing might influence their participation in the assimilation of the innovation. Further research may also be necessary to delve deeper into understanding the unexpected finding of the non-significant moderating impact of absorptive capacity in the relationship between top management participation and social media marketing assimilation for promotion activities, and the non-significant impact of social media marketing assimilation for pricing decision-making support and promotion activities on sales performance and relationship. Finally, our study's findings suggest the presence of endogeneity in the relationship between social media assimilation for product decision-making and its impact on sales performance. This result implies that concealed factors may contribute to the influence of social media assimilation for product development on sales performance. These findings open avenues for future research to investigate these hidden factors, thus helping to unravel their nature and to understand how they contribute to the overall impact of social media assimilation for product development on sales performance.

9. Conclusion

In many instances, technological innovations are introduced into firms with great enthusiasm, which may be occasioned by widespread initial acquisition. Nevertheless, these innovations may fail to be completely deployed in the operations of the acquiring firms. Research has shown that, unless innovations are assimilated, firms do not benefit fully from them. Social media are one innovation that B2B firms are adopting for their marketing activities. While social media adoption in B2B firms has received some research attention, a limited number of studies have focused on social media marketing assimilation in B2B firms, the conditions that enhance this assimilation, and how the assimilation contributes to firms' performance. In this study we examined how top management participation influences the assimilation of social media in the key marketing functional areas of product

development, pricing decision-making, channel management, and promotion activities. We also examined how the existing absorptive capacity of B2B firms moderates the influence of top management participation on the assimilation of social media in the key marketing functional areas. Finally, we analysed how social media marketing assimilation into these marketing functional areas improves a firm's performance outcomes of sales and relationship development. The study's results show that top management participation in the social media marketing assimilation processes has a strong and positive impact on the assimilation of social media for key marketing functional areas, namely product development decisions, pricing decision-making, channel management, and promotion activities. Furthermore, the findings indicate that top management participation in the assimilation of social media in the functional areas, except in the case of promotion activities, is positively moderated by the existing absorptive capacity of the firm. The results also show that social media marketing assimilation for product development has a significant impact on sales performance, while its assimilation for channel management has a significant impact on both sales performance and relationship development.

In summary, this study contributes to our understanding of the nuanced nature of top management participation in social media assimilation across key marketing functions. In addition, it sheds light on the intricate relationship between social media assimilation into marketing functional areas and specific performance aspects, such as relationship development versus sales performance. These findings challenge conventional assumptions about the direct and uniform impact of social media on firms' outcomes. By uncovering the antecedents of social media assimilation and linking it to B2B firm performance, this study provides additional valuable insights to the literature, and offers practical implications for managers and decision-makers.

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CRediT authorship contribution statement

Daniel K. Maduku: Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that there are no conflict of interests.

Data availability

Data will be made available on request.

Appendix A. Construct measurement items

Absorptive capacity	
ABC1	Our firm has effective routines to identify, value, and import new information and knowledge.
ABC2	Our firm has adequate routines to assimilate new information knowledge.
ABC3	Our firm can successfully exploit internal and external information and knowledge into concrete applications.
ABC4	Our firm has adequate routines to analyse the information and knowledge obtained.
Channel Management	
In our firm, we use the social media to:	
CHM1	Educate and interact with channel partners on value propositions.
CHM2	Drive demand for channel partners.
CHM3	Provide support for channel partners as part of lead generation strategy.
Competitive intensity	
CMI1	The competition in our industry is cut-throat.
CMI2	There are many "promotion wars" in our industry.
CMI3	Anything one competitor can offer, others can match it readily.
CMI4	One hears of a new competitive move almost every day in our industry.
Relationship development	
Relative to your competitors, over the last three years, how has your firm performed with respect to relationship development?	
RED1	Strengthening existing business relationships with distributors/agents/suppliers/partners.
RED2	Developing lasting relationships with distributors/agents/suppliers/partners.
RED3	Sustaining relationships with distributors/agents/suppliers/partners.
Sales performance	
Relative to your competitors, over the last three years, how has your firm performed with respect to sales performance?	
SPE1	The market share for our products/services has increased in the past three years, relative to our competitors.
SPE2	The existing number of customers we have been able to retain has increased in the past three years, relative to our competitors.
SPE3	The number of new customers we have been able to acquire has increased in the past three years, relative to our competitors.
Technology turbulence	
TET1	Technology in our industry is changing rapidly.
TET2	Technology developments in our industry are rather minor.*
TET3	A large number of new product ideas have been made possible through technological breakthroughs in our industry.
Top management participation	
TMP1	In our firm, top management articulates a vision for social media marketing use.
TMP2	In our firm, top management formulates a strategy for social media marketing use.
TMP3	In our firm, top management establishes goals and standards to monitor social media marketing use.
Pricing decision-making	
In our firm, we use social media to:	
PRC1	Gain knowledge of our competitors' pricing tactics and customers' reactions to it.
PRC2	Monitor our customers' reactions to our price changes.
PRC3	Develop pricing skills and systems to respond quickly to market changes.
Promotion activities	
In our firm, we use social media to:	
PRM1	Develop and execute advertising programmes aimed at our customers.
PRM2	Inform customers about our products and services.

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(*continued*)

Absorptive capacity	
PRM3	Promote our brand image among our stakeholders.
PRM4	Manage our corporate image and reputation.
Product development	
In our firm, we use social media to:	
PRO1	Gather ideas to develop new products/services.
PRO2	Find out what customers think of our new products/services (test marketing).
PRO3	Provide information/product training for new customers.

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