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Sharing is the name of the game: Exploring the role of social media communication practices on B2B customer relationships in the life sciences industry

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Abstract

The inclusion of social media as a communication channel in a vendor's B2B digital marketing strategy is growing in importance. Understanding the effect of such practices upon customer relationships is crucial for firms as they increasingly engage in this way. This paper presents and tests a model that explores the effect of vendor social media communication practices upon trust and loyalty in B2B customer relationships. A study using quantitative data from 196 business customers of a United States life sciences firm is reported. The model indicates that trust and loyalty are influenced by a) the social media shared beliefs between the vendor and the customer; b) the nature of the vendor's social media communication with the customer; and c) the extent to which the vendor's social media communication practices enable effective customer-to-customer communication. Trust is found to have a mediating role between these indicators and loyalty. Managerial implications are discussed.

1. Introduction

The use of social media (SM) in B2B markets has now emerged as a significant marketing topic and one that is attracting attention by academic researchers (Andersson & Wikström, 2017; Huang, Potter & Eyers, 2020; Nunan et al., 2018; Wang et al., 2017). This rise has gone hand-in-hand with the increase in digital usage more broadly and particularly by those in the workplace. SM has become a generalised term that encompasses a range of applications, including media channels such as YouTube; networking sites such as Facebook, Twitter, Instagram, and LinkedIn; and social messaging applications such as WhatsApp, or WeChat in China (GlobalWeb Index Report, 2019). However, some SM applications may be more subject-specific and/or access controlled such as brand or user hosted online communities e.g. 'Oracle

Community' (see: community.oracle.com); H&R Block (see: hrblock.com). Such online communities used by customers or other stakeholders such as suppliers, promote and enable exchange of brand information. Additionally, SM may be used internally within an organisation such as for employee forums e.g. 'Waitrose Partners' (UK supermarket) idea platform (see Eames, 2020). This particular platform is an example of an enterprise social network (ESN) that facilitates engagement and collaboration of internal stakeholders (Kroenke & Boyle, 2019). As a result of such B2B SM uses, the GlobalWeb Index Report (2019) now identifies an emerging segment of 'professional networkers' representing 45% of the population of digital users.

The use of SM in B2B markets enables those using such channels to reconcile social needs at both a personal and business levels (Chaffey, 2007; Chaffey et al., 2009; Huotari et al., 2015). Specifically, from a business perspective, SM allows companies to achieve much faster and more effective interactions with their customers, as well as other stakeholders such as suppliers and employees, which in consequence builds deeper relationships (Huotari et al., 2015; Kho, 2008; Marshall et al., 2012). B2B SM supports four key internal business processes that are essential to relationship building. Firstly, *marketing and communications*: SM supports B2B marketing activities such as product presentation, brand building (reputation and awareness in particular), product promotion and customer communications (Avlonitis & Panagopoulos, 2010; Mangold & Faulds, 2009; Spence et al., 2016; Stelzner, 2020; Zhang & Li, 2019). Secondly, SM can support *B2B sales management and business development* and reduce the cost of customer acquisition by generating referrals and creating sales opportunities; qualifying prospects and helping to manage relationships (Agnihotri et al., 2012). It has therefore been positively linked to sales performance (Itani, Agnihotri & Dingus, 2017; Kumar et al., 2016; Rodriguez, Peterson & Krishnan, 2012)

and the combined effect of SM and CRM systems (often referred to as 'social CRM') now increases organisational ability to manage customer relationships (Trainor, 2012). Thirdly, SM can be used by firms to *co-create value for customers* and to enhance the customer's buying and/or consumption experience thus building relationships (Agnihotri et al., 2016; Diba, Vella & Abratt, 2019; Rapp et al., 2013; Rodriguez et al., 2012). Finally, SM can support *wider stakeholder relationship management* within operational and supply chain management systems (Huang, Potter & Eyers, 2020; Kho, 2008) or distribution channels (Habibi, Hamilton & Valos, 2015). In summary, as SM is now supporting and changing a range of internal and external business processes and can enhance a firm's performance (Trainor, 2012). At the current time we are seeing different levels of engagement by businesses in terms of their functional utilisation of SM (Iankova et al., 2019; Järvinen et al., 2012). A deeper understanding of the beneficial outcomes of utilising B2B SM for customer relationship building is therefore called for.

Given the wide application of SM, authors such as Habibi et al. (2015) propose that SM should be viewed as a strategic activity for B2B organisations. Taking a strategic lens, a review of the literature identifies a number of roles or functions that SM can play in the development and maintenance of customer relationships which are key to strategic success. Seen through the analogy of a "honeycomb of 7 social media building blocks", Kietzmann et al. (2011, p. 244) identify specific functions or roles that B2B SM serves for the firm. This framework provides a useful basis for exploring B2B SM and the benefits and implications that it brings for companies. In this study we focus on the interaction between three of these functions. First *"conversations*" that is to say the ways in which SM enables communication between a vendor and customers about their products and services; second *"groups"* by exploring customer online communities

that enable communication; and third *"relationships"* as we look at the effects of SM interactions upon trust and loyalty in customer relationships.

Communication and the building of online customer communities are particularly relevant to B2B because community members are able to share knowledge and expertise about products both with each other, as well as the vendor itself (Agnihotri et al., 2012). Agnihotri et al., (2012) particularly point to the value of SM to build expertise where organisations are delivering "complex products" such as in this study which investigates the SM activity of a life sciences company offering highly technical products (p.335). For these reasons, it is the use of SM for communication via online customer communities to support B2B customer relationships that is one focus of this paper.

The second focus of this paper is upon the role that SM can play in the deepening of customer relationships by supporting the development of trust and loyalty. The importance of trust and loyalty in B2B relationships is well established (Cannon et al., 2010; Lachlan et al., 2014; Lin & Spence, 2019; Moorman, Zaltman & Deshpande, 1992; Morgan & Hunt, 1994; Spence et al. 2016) as is also the long-term cost effectiveness and value of such relationships (Bill, Feurer & Klarmann, 2020; Chuang, 2020; Lindgreen & Wynstra, 2005; Noordewier, John, & Nevin, 1990; Zhang and Li, 2019). It is also recognised that improved levels of customer loyalty can result in increased levels of profitability (Andersen, 2005; Fornell & Wernerfelt, 1987; Harris & Goode, 2004; Noordewier et al., 1990). Investigations of the role that SM plays in building trust and loyalty have now emerged within the B2B literature with an emphasis on the trust building effects of SM processing (Kim & Park, 2013; Wang et al., 2017; Westerman,

Spence & Van Der Heide, 2012, 2014; Zhang & Li, 2019) and practical applications (O'Reilly & Eckert, 2014). However, a deeper understanding of the effect of SM communication practices by vendors upon customer trust and loyalty is still called for. Building on the work of Zhang and Li (2019), the contribution of this study is to fill a gap in knowledge regarding the role of B2B communication within online customer communities for trust and loyalty building. A further contribution of the paper is the identification of specific B2B SM practices that are effective in building trust and loyalty. The study develops and tests a research model that hypothesises the effect of three SM practices on B2B customer trust and loyalty. In so doing the study aims to answer the following three research questions:

1. What are the vendor B2B Social Media communication practices that can influence trust in customer relationships?
2. What is the effect of vendor B2B Social Media communication practices upon customer loyalty?
3. Is the effect of B2B Social Media communication practices upon loyalty mediated by trust?

The paper first provides an overview of the B2B SM context with reference to the industry focus of this study, life sciences. The life sciences organisation was selected as it is a characteristic B2B organisation offering high tech, complex products and using SM channels to communicate with its customers and support the sales process. We review the literature in terms of the existing theoretical understanding of the concepts of customer trust and loyalty and then move to discuss what is known about how SM can build trust and loyalty in B2B customer relationships. A model is presented that proposes three SM communication practices that may influence trust and loyalty in customer relationships. This is followed by an explanation of the

methodology applied in the study including a discussion of the application of SM by the life sciences company used for data collection, the data analysis, and findings. Finally, a discussion of the conclusions and managerial implications that can be drawn are presented.

2. Theoretical background

2.1. The B2B social media context

Social media information systems (SMISs) are the information systems that support the sharing of content amongst networks of users and are generally discussed in the context of innovative information systems (Bodea et al., 2017; Kroenke & Boyle, 2019). SMISs typically have a three-fold application: for users, communities and SM providers. They contribute to key value chain activities, including supply chain management, marketing, communications, manufacturing, and customer relationships (Kroenke & Boyle, 2019). SM itself is defined by Kaplan and Haenlein (2010) as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (UGC) (p. 16). The key distinction from traditional media is that SM has become "a platform whereby content and applications are no longer created and published by individuals, but instead are continuously modified by all users in a participatory and collaborative fashion" (Kaplan & Haenlein, 2010, p. 61). UGC has become the key point of difference for this form of communication, allowing both customers and vendors to create and disseminate content and opinions about many topics, including products and services. SM can therefore play a key role in supporting the sales process for organisations (Agnihotri et al., 2012; 2016) which is an area of focus within this study. Moore, Hopkins and Raymond (2013) identify the importance placed by B2B sales representatives on the use of relationship-oriented SM tools,

including B2B online communities. Their research found that SM tools were particularly relevant to the B2B sales process at the prospecting stage, but also in handling the continuation of customer relationships post-sale both of which rely on the development of trust, a concept that is explored in this study.

The advanced use of SM in B2C marketing is well documented **(**Dijkmans, Kerkhof & Beukeboom, 2015; Harrigan et al., 2015; Hudson et al., 2015; Kumar et al., 2016; Paniagua & Sapena, 2014) but distinctive differences in B2B customer buying behaviour influence the use of SM application in B2B markets compared to consumer markets. Habibi et al., (2015) provide a useful overview of these buying characteristics and their effects on B2B SM implementation. Typically, a number of individuals are influential in B2B purchase decisions, and purchase cycles may be longer whilst decision-making slower. Products tend to be high value and therefore high risk, and customers will require greater reassurance to support the purchase. Products tend to be complex, and customers are more knowledgeable about the context in which they are to be used. For these reasons, the nature of B2B customer relationships are more personal and intense than in B2C markets. These characteristics lead to specific implementation of B2B SM. SM can be effective in targeting identified audiences to engage in conversations and dialogues that build knowledge and understanding of products. This is evident in the life sciences firm within the study who use SM to engage in dialogue around scientific topics and product usage. SM can set the tone and content of the discussion with customers, and content can signal the technical competency and experience of the firm. Questions about quite complex products can be addressed, and the sales process can be supported via direct dialogue with the vendor that builds credibility in the vendor's brand. The life sciences firm in this study demonstrates these

characteristics including the importance of expertise, knowledgeable scientific users and more direct and intense customer relationships. For this reason, the life sciences company provided an appropriate context for the study.

As a response to these characteristics, particular applications are predominantly used in B2B SM. Webinars and blogs can be used by companies to communicate direct and complex messages around product information to identified audiences (Agnihotri et al., 2012; Zhang & Li, 2019). Public platforms such as LinkedIn or Facebook are now used for B2B marketing as they enable communication at corporate and/or product level to individuals who have self-identified their interest (Stelzner, 2020). Brand hosted B2B online communities offer not only content but also enable customer-to-customer and vendor-to-customer communications that facilitate collaboration and sharing of knowledge (Katona & Sarvary, 2014), building community-centred environments, promoting information sharing, support and collaboration that are essential to effective customer relationships (Lin, Spence & Lachlan, 2016; Wang et al., 2017). Finally, SM is now used internally within organisations to facilitate communications between employees and/or with management that enables sharing and collaboration of ideas and experiences quickly and transparently (Leonardi, Huysman & Steinfield, 2013), as well as to enterprise management processes such as in operations and supply chain management (Huang, Potter & Eyers, 2020). Whilst we have explored ‘what’ SM applications are used in B2B markets we should also consider ‘how’ organisations are set up for this shift in customer communications. There appears to be an agreement in the literature on the importance of the role SM can play in the development of firm’s strategic capabilities (Habibi et al., 2015; Nguyen et al., 2015; Wang et al., 2017). As a result, it is evident from such papers that there is a need for

culture change within B2B firms in order for effective implementation of SM (Wang et al., 2017).

Evaluation of the effectiveness of SM is crucial. Financial and non-financial metrics are used to evaluate SM effectiveness. Typically, non-financial indicators are focused on measuring "the exposure, the reach, the level and depth of the interaction of [social media] users with the company" (Costa e Silva, Duarte & Almeida, 2020: p. 4). Financial metrics focus on revenue, which involves tracking sales and costs associated with SM implementation (Costa e Silva, Duarte & Almeida, 2020; Cytron, 2013; Hoffman & Fodor, 2010). Although a number of attempts have been made to create metrics to measure SM ROI in both B2C and B2B, Järvinen et al. (2012) conclude that there is still a lack of effective methods in determining B2B social media ROI, which is ultimately one of the major barriers to investing in digital marketing (Cawsey & Rowley, 2016; Iankova et al., 2019; Järvinen et al., 2012). Agnihotri et al., (2012) identify the important link between the measurement of SM metrics and the motivation of salespeople using it. They advocate that clear performance criteria metrics should be set out for salespeople that recognise their contribution towards the effectiveness of SM.

Having reviewed the B2B SM context, the focus of our study is on the SM communication practices of a US life sciences company that manufactures highly technical, high cost products. There are a limited number of studies in the context of B2B life science firms (Buratti, Parole & Satta, 2018). Negruşa, Rus and Sofică (2014) explore the role of SM for networking purposes in a cluster initiative in life sciences. Their study concludes that SM serves as a useful tool that allows an effective exchange of know-how and innovation information

between networks and clusters. Customers of the firm in our study include healthcare organisations, hospital units such as oncology departments, pharmaceutical companies, forensic departments, and university laboratories. The organisation uses SM to communicate with customers via a range of applications. Specifically, these customers are the users of their products who, as identified by Habibi et al., (2015) may influence the buying decision but are often not the final decision-makers. The applications used include firm hosted webinars, podcasts, blogs, and a branded online customer community. The online community platform enables sharing of expertise and scientific resources (such as academic papers), opportunities to ask questions to scientists at the vendor organisation and to hold community discussions in which experiences and opinions can be shared. This shared communication vendor-to-customer(s) as well as customer-to-customer enables value co-creation either with, or between, customers. The intention of this SM activity is two-fold. First, to enhance customer value and the experiences of users of complex products via communications across a number of SM applications. In so doing, the organisation seeks to build credibility and trust in both products and corporate brand reputation (Lachlan et al., 2014). Second, the SM activity aims to support a sales strategy that leverages SM communication to provide ongoing dialogue with customer organisations (Agnihotri et al., 2012). The objective of the study is to identify the role that such two-way communication has upon building trust and loyalty with customers using SM. We now explore the literature that supports the theoretical development of the research model used in the study to identify the linkage between SM communication practices and trust and loyalty.

2.2. Trust and loyalty in B2B relationships

Trust has been most often conceptualised in relation to the degree to which one party can rely on the word of another, with reliability and integrity being key elements (Morgan & Hunt, 1994). Moorman, Deshpande and Zaltman (1993) define trust as "a willingness to rely on an exchange partner in whom one has confidence", emphasising the importance of confidence in the other party (p. 82). The seminal literature around B2B customer trust focuses on an understanding of trust in relation to four elements: vendor credibility, vendor benevolence, customer confidence in the vendor, and customer willingness to be vulnerable (Doney & Cannon, 1997; Ganesan, 1994; Grayson, Johnson & Chen, 2008; Mayer, Davis & Schoorman, 1995; Moorman, Zaltman & Deshpande, 1992; Morgan & Hunt, 1994; Ritter & Geersbro, 2012). Confidence and credibility are based on evidence of vendor expertise and/or ability to get the job done effectively. Credibility is often measured in terms of 'trustworthiness' although Lachlan et al., (2014) distinguish between trustworthiness and 'institutional trust' the latter concept involving elements of reputation in addition to knowledge and expertise alone (Eisenman et al., 2012). Similarly, Zhang and Li (2019) distinguish between interpersonal trust and inter-organisational trust, the latter requiring "faith from general people" rather than at individual level but propose that SM enables customers to assess trustworthiness by enabling interpersonal communication, say, with a salesperson (p. 1422). Benevolence on the other hand embodies some form of intentionality and goodwill towards the customer (Mayer, Davis & Schoorman, 1995). Money et al. (2017) identify the role stakeholder behaviours play in building relational strength. This includes trust as an important stakeholder outcome, which is a fundamental intangible asset for the organisation (MacMillan, Money & Downing, 2000; Money & Hillenbrand, 2006; Money et al., 2012).

Customer loyalty can be defined in terms of behavioural loyalty, attitudinal loyalty, or as a composite of both. Three key advantages result from customer loyalty. First, loyal customers are less likely to switch to competitor suppliers and to behave opportunistically. Second, loyal customers reduce marketing costs due to the lower cost of acquisition. Third, loyal customers have been found to generate profitability via repeat purchasing behaviour (Ndubisi & Nataraajan, 2016). For these reasons, loyalty may not be measurable only in behavioural outcomes like repeat purchase, because other factors such as high switching costs may be influencing customer behaviour. Word of mouth is possibly the best indicator of "intense loyalty" (Reichheld, 2001, p. 48) with attitudinal loyalty the more "enduring loyalty" (Caceres & Paparoidamis, 2007, p. 839). MacMillan, Money and Downing (2000) refer to such attitudinal loyalty as "active allegiance", which is demonstrated in positive customer behaviour towards the firm (p. 79). In addition to advocating for the firm, this may include supportive behaviours such as standing up for the brand at times of performance failure. SM may provide a useful platform for customers to demonstrate their 'active allegiance' towards the firm. Community building, including networking and conversations within the community, now facilitated by SM have also been found to help build customer loyalty (McKee, 2010).

2.3. Social media effects on trust and loyalty

An increasing stream of literature is now focused on the trust building effects of B2B SM (Lachlan et al., 2014; Lin & Spence, 2019; Westerman, Spence & Van Der Heide, 2014; Zhang & Li, 2019). We draw on the theory of social capital to inform this B2B study of SM and its effect on trust. Social capital refers to factors, tangible or intangible, that enable the activities of

members within a social group (Coleman, 1988). Social capital exists within a social structure and the social relations amongst the persons within that structure. If trust exists amongst the actors in a particular social structure, the social capital of 'trust' can facilitate a more productive environment for all members. In the context of SM this proposition means that building trust within an online group of customers would facilitate a more productive environment such as the effectiveness of 'conversations' or the willingness to exchange information and/or experiences between a vendor and members of the community.

Vendor credibility and benevolence are two dimensions of trust that SM activities particularly support. First, credibility is built by demonstrating expertise or competence (Westerman, Spence & Van Der Heide, 2014). SM users can become reliant upon particular sources that have credibility for them (Lachlan et al., 2014). Additionally, use of particular SM channels or online technology can influence credibility and trust (Lin & Spence, 2019). By enabling vendor content to be shared such as showcasing products, providing service reviews or providing customer testimonials, SM can build credibility with current or prospective customers (Agnihotri et al., 2012). A useful framework by Agnihotri et al. (2012) proposes that by linking two forms of SM ('social content enabler' e.g. blogs or Twitter and 'social network enabler' e.g. online communities or discussion forums), with three salesperson behaviours (trust building, information sharing and customer service), value can be created both for the customer and the organisation. This framework demonstrates the importance of trust building practices aligning between vendor SM practices and salesperson behaviour. Zhang and Li (2019) similarly identify the importance of the timely exchange of information between a salesperson and customer on SM as a crucial component of the trust building process.

Second, belief in the benevolence or goodwill of the organisation towards the customer is a key element of trust (Money et al., 2017). Zhang and Li (2019) propose that when customers are confident in the salesperson's competency and benevolence they are more likely to process information. In their study of the use of SM by B2B buyers in China they specifically tested the effect of SM usage upon belief about the benevolence of a vendor (as a component of trust) and purchase risk, and their effects upon customer loyalty. Their findings indicated that a buyer's trust belief in the benevolence of the vendor improves customer loyalty and reduces perceptions of purchase risk. In this study we therefore similarly propose a relationship between trust and loyalty in the context of B2B SM communication practices.

3. Model development and hypotheses

The research model is shown in Figure 1. The model outlines three antecedent constructs that represent vendor-sponsored SM communication practices. These practices are proposed to have a direct influence upon customer trust. Customer trust, in turn, influences customer loyalty. Trust is therefore presented as a mediator of the effect of vendor-sponsored SM communication practices upon loyalty.

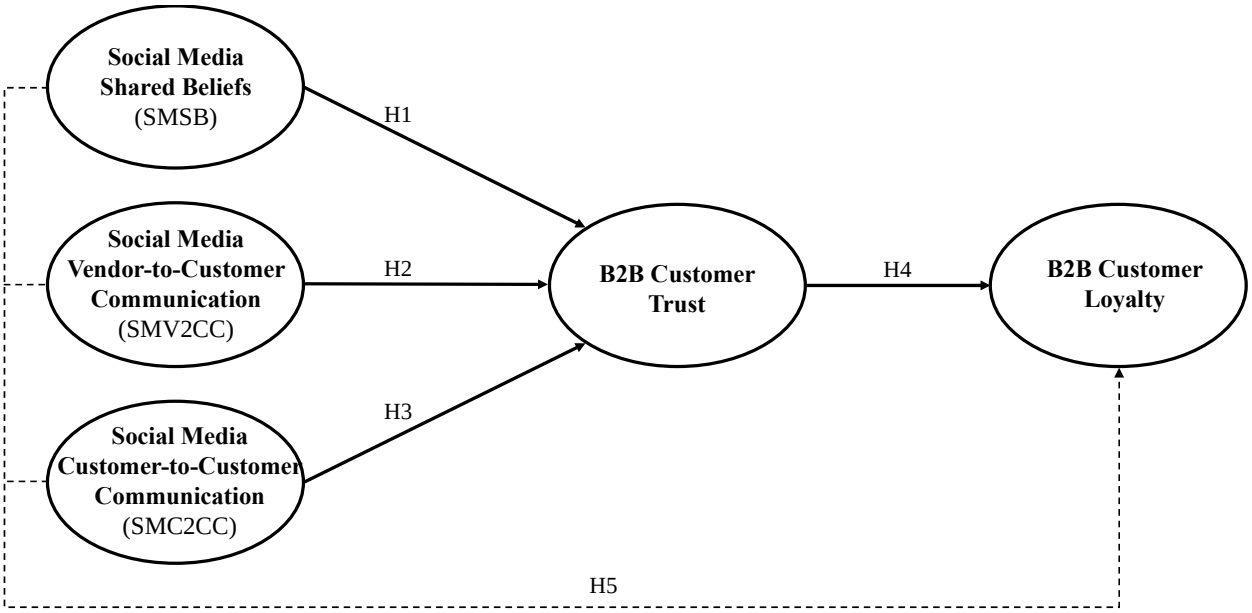

Fig. 1. *Conceptual model of the effect of vendor social media communication practices upon B2B customer trust and B2B customer loyalty*

3.1. Social media shared beliefs (SMSB)

A perception of vendor benevolence can be fostered by developing shared values (Doney & Cannon, 1997). Morgan and Hunt (1994) define B2B shared values as "the extent to which partners have beliefs in common about what behaviours, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong" (p. 25). Shared beliefs are important to the relationship development process between customers and vendors as well as to the maintenance of the relationship (Dwyer, Schurr & Oh, 1987). The congruence of shared values, and therefore beliefs, is identified by Mayer, Davis and Schoorman (1995) and Morgan and Hunt (1994) as an antecedent to trust. Porter, Donthu and Baker (2012) propose that a vendor's behavioural manifestation of shared values acts as an indicator to customers that the vendor is not opportunistic towards them and, therefore, facilitates customer trust in the vendor.

The core features of SM are participation, sharing, and collaboration, and for this form of communication to be effective, both parties must share similar beliefs about the role of SM in B2B relationships and specifically how vendor-sponsored SM should be practiced. The importance of the customer's belief in a salesperson's integrity and benevolence has been identified (Zhang & Li, 2019), and one manifestation of this can be via the customer's experiences of how SM is practiced by the vendor and/or specific employee. Therefore, a shared belief about how SM communication should be practiced may influence credibility and trust. Westerman, Spence and Van Der Heide (2012) further make the point that elements of the SM system may in itself influence beliefs about the source credibility which in turn builds trust. Therefore, in the proposed model we hypothesise that shared beliefs about how vendor-sponsored SM should be practiced will affect B2B customer trust.

Hypothesis 1 SMSB has a direct positive effect on B2B customer trust in the vendor.

3.2. Social media vendor-to-customer communication (SMV2CC)

One way to mitigate uncertainty and risk is via the effective use of communication (Lachlan, Spence & Lin, 2014; Theron, Terblanche & Boshoff, 2008). Communication has been identified as an antecedent to trust; a history of effective communication between vendors and their customers will drive increased trust (Anderson & Weitz, 1989; Morgan & Hunt, 1994). Many research studies have identified openness as an antecedent to trust (Butler, 1991; Farris, Senner & Butterfield, 1973; Gabarro, 1978; Hart et al., 1986; Mayer, Davis & Schoorman, 1995). This study assumes that openness is primarily operationalised through communication.

Palmatier et al. (2006) define communication as the "amount, frequency, and quality of information shared between exchange partners" (p. 138). Their research also includes vendor expertise, defined as "knowledge, experience, and overall competency of seller" (Palmatier et al., 2006, p. 138) as a separate antecedent to trust. As has previously been suggested in Section 2.1, vendor ability is one of the few prevalent trust antecedents throughout the extant literature. It is argued that vendor expertise is a foundational factor in B2B communication and is embedded in the definitional element 'quality information' included by Palmatier et al. (2006). In this study quality information is assumed to be a key element of UGC in B2B SM communications.

B2B communication often includes informational updates such as new product releases, or communication between, say, scientific customers and vendors, which allows sharing of scientific content and research. Effective communication opens up the opportunity for customer access to supplier 'know-how' (Palmatier et al., 2013). The effect of B2B SM in building beliefs in expertise as part of trust building has been recognised (Agnihotri et al., 2012). For this reason, this study recognises SM communication as being inclusive of vendor expertise and hypothesises that such SM facilitated communication between the vendor and customer has a positive effect upon customer trust.

Hypothesis 2 SMV2CC has a direct positive effect on B2B customer trust in the vendor.

3.3. Social media customer-to-customer communication (SMC2CC)

SM platforms enable the creation of online brand communities within which users of the brand can share communication which may contribute to the development of customer trust and loyalty. Bruhn, Schnebelen and Schaefer (2014) provide a specific definition of online B2B

brand community as "an accumulation of interrelated business people who come together in the virtual space of the internet and interact voluntarily, based on common, brand-related economic interests and goals" (p. 168). They go on to posit that there are three central attributes of online B2B brand communities: "business interaction relationships, a culture of mutual trust-based engagement, and common values" (Bruhn, Schnebelen & Schaefer, 2014, p. 168). What is particularly characteristic of B2B communities, compared to B2C communities, is that they facilitate the exchange of brand-related knowledge, experiences, technical information, or solutions that will enhance the job performance of community members (Snow et al., 2011). Therefore, customers join and participate in B2B community C2C communication in order to benefit from the social interactions that build brand knowledge and experience. The context of this study is a firm-hosted community of B2B customers exchanging communications with the vendor and each other via SM.

Social interactions in B2C have been found to be part of how online brand communities communicate and function (McAlexander, Schouten & Koenig, 2002; Muniz & O'Guinn, 2001). McAlexander, Schouten and Koenig (2002) identify that such communities are always involved in the creation and sharing of meaning. This dynamic has also been found to be important in interactions amongst customers when establishing a B2B brand (Mäläskä, Saraniemi & Tahtinen, 2011). This has clear implications for how firms that utilise SM should leverage SM platforms. The opportunity to create and negotiate meaning about brand messages quickly and globally, including trustworthiness, now partially resides with the customer when online. Given community participants' sense of accountability towards each other (Muniz & O'Guinn, 2001),

they may feel morally obligated to share their thoughts and feelings about the brand, whether positive or negative, thus impacting upon trust.

When discussing B2B online brand communities, the importance of the ability of customers to interact with each other emerges, as do the consequences of such interactions. Customers feel connected to each other and are reassured by knowing that there are other customers who have similar product experiences or challenges (Bruhn et al., 2014). Feelings of security and reduced uncertainty have also been identified (Bruhn et al., 2014; Muniz & O'Guinn, 2001), and benefits such as engagement, loyalty, satisfaction and empowerment, trust and commitment have been found to be enhanced (Brodie et al., 2013).

Of particular note is the work of Bruhn et al. (2014), in which a conceptual framework of the relationship between customer-to-customer interactions, brand trust, and brand loyalty have been tested. Bruhn et al. (2014) hypothesised that trust in both the brand and the brand community itself influence the quality of C2C interactions, which affect perceived benefits (functional, experiential, symbolic), which in turn affect brand loyalty. Whilst the findings of their study identified a positive relationship between the quality of C2C interactions and their consequences in terms of benefits and the effect on brand loyalty, they did not confirm an effect of brand trust upon C2C interactions (although an effect was found between brand community trust and C2C interactions). The Bruhn et al. (2014) study incorporates trust at brand and community levels, whilst in our study we take a broader B2B customer/vendor relationship perspective. However, the Bruhn et al. (2014) study led us to question the direction of the effect

between trust and C2C communications. In this study we chose to reverse this relationship and hypothesised that SM C2C communication has a direct effect upon customer trust in the vendor.

Hypothesis 3 SMC2CC has a direct positive effect on B2B customer trust in the vendor.

3.4. The relationship between B2B customer trust and loyalty

Given the earlier theoretical support to the established relationship between trust and loyalty in the context of SM (Zhang & Li, 2019), it is assumed in the development of the research model that in B2B customer–vendor relationships supported by SM, trust will continue to drive loyalty. The effect upon customer loyalty to the vendor is hypothesised to be mediated by customer trust.

Hypothesis 4 B2B customer trust in the vendor has a direct positive effect on customer loyalty towards the vendor in the context of social media practices.

Hypothesis 5 B2B customer trust mediates the effect of vendor-sponsored social media practices (SMSB, SMV2CC, SMC2CC) upon loyalty.

4. The research study

The research study employed a quantitative cross-sectional design to test and validate the proposed research model. The context of this study is a vendor-hosted community of B2B customers of a US life sciences company drawn from a range of industries as previously identified. The company manufactures and distributes high tech instruments for use in scientific work and other associated supplies to its customers. In addition to a company-hosted private online customer community, the focal organisation interacts with its customers via publicly

hosted SM platforms and uses a range of SM applications (including webinars, podcasts, videos, and blogs written by their scientists) to share product and scientific knowledge information. The objective of the SM activity is to promote products, to support the sales process and to share information and expertise in order to position the organisation as at the forefront of scientific research (direct technical support is provided by a dedicated department to the customer). In so doing the intention is to build the brand reputation and build trust and loyalty. An online survey was distributed to individual users of their products within customer organisations who were engaging in SM actitivies.

4.1. Sample selection and data collection

Adopting Blois's (1999) definition of B2B, the unit of analysis was individual employees of customer organisations, such as scientists, medical personnel, and laboratory technicians, in an existing customer–vendor relationship with the vendor and using their products. The sample therefore consisted of users of the firm's products who formed the vendor's buying group. This unit of analysis was selected because the focus of the study is on SM shared beliefs and communication experiences at the individual customer level and is consistent with social capital theory as discussed in Section 2.3. The research focus was to capture customer responses regarding their use of vendor-sponsored SM from the perspective of the individual executing her/his job whilst in the customer role.

A probability sample was drawn from the United States customer database of the life science company. Incentivisation to participate in the study was offered, which consisted of a $20 Amazon gift card for 50 randomly selected eligible participants who completed the

questionnaire. We followed Hair et al. (2010) and Hair et al.'s (2017) guidelines to establish a minimum sample size appropriate for the analysis (e.g. see Ashok, Day & Narula, 2018). A total of 18,859 customers were contacted to participate in the research and 529 questionnaires were received, yielding a 2.8% response rate. This response rate is relatively low when compared to published data (Baruch & Holtrom, 2008) but can be explained by the highly specialised nature of the customer database in the life sciences industry. After data cleansing a sample size of 196 was used to test the model, which is consistent with the guidelines of Hair et al. (2014, 2017).

4.2. Measures

Following Churchill (1979), the data collection instrument was a multi-item questionnaire survey – with the exception of customer loyalty, where a well-recognised single-item measure was used. Building on Jarvis, MacKenzie and Podsakoff (2003), the proposed conceptual model incorporates five reflectively measured constructs, which represent perceptions and attitudes of individuals towards SM practices. Reflective measures are typically interchangeable and induce perceptual manifestations or 'reflection' of each underlying construct (see Diamantopoulos & Siguaw, 2006; Prigge, Homburg & Fürst, 2018) in contrast to formative measures that 'form' or 'build' the construct (see Diamantopoulos & Winklhofer, 2001; Menguc & Auh, 2008).

Consistent with our conceptualisation, the measure of vendor-to-customer SM communication was adapted from Theron, Terblanche & Boshoff (2008) and Harris and Goode (2004). To measure customer-to-customer SM communication, we utilised scales by Laroche et al. (2012) and Bruhn et al. (2014). Customer trust and customer loyalty were assessed using measures developed by Doney and Cannon (1997) and Cater and Cater (2009) respectively. The

five items measuring shared beliefs about SM practices were developed by the research team as no pre-existing questions could be found. Considering requirements for successful development of reflective indicators (e.g. see Diamantopoulos & Siguaw, 2006), these five items were developed by following DeVellis's (2016) guidelines using a process of qualitative B2B key informant interviews, coding, and thematic analysis. The five scale items were verified quantitatively[1]. The constructs were measured using seven-point Likert-type scales.

The final questionnaire items are presented at Appendix A. The survey was implemented using the firm's Verint online survey tool[2]. Respondents were invited to participate in the research via email invitations with an embedded link to the Verint online survey tool. The email explained the purpose of the survey, requested consent, explained anonymity and confidentiality, and explained the incentive. The study was approved by the University's standard ethical procedures.

4.3. Common method bias

To evaluate whether the collected data suffered from common method bias, a statistical procedure offered by Harman (1976) was performed (Podsakoff et al., 2003). Specifically, a single-factor test revealed that in an unrotated factor analysis a total variance of 43.02% was explained by one factor, which is below the required threshold of 50%. We, thus, concluded that it was unlikely that the collected data suffered from common method bias.

[1] The rotated initial solution resulted in one factor, which explained 60.08% of the variance, including the Kaiser–Meyer–Olkin measure of sampling adequacy of 0.836 and the significant Barlett's Test of Sphericity of $p<0.001$.

[2] Verint is a proprietary product that provides online survey delivery. Further information can be found at: https://www.verint.com.

4.4. Analytical approach

The developed model was tested using structural equation modeling partial least squares (PLS-SEM) (e.g. see Aliasghar, Rose & Chetty, 2019; Iankova et al., 2019; Itani, Agnihotri & Dingus, 2017). PLS-SEM is considered appropriate when: (a) assumptions regarding data distribution are not met; (b) the focus is on prediction and theory development; and (c) the sample size is relatively small (Hair et al., 2014, 2017, 2019; Reinartz, Haenlein & Henseler, 2009; Sarstedt et al., 2016; Sarstedt, Ringle & Hair, 2017). Given that this exploratory study is focused on predicting key driver constructs with a sample size of 196 and non-normally distributed data, PLS-SEM appeared to be a suitable approach. We used the SmartPLS 3.2.8 software and conducted a two-stage approach to analysing a PLS model, including: (1) evaluation of the measurement model; and (2) assessment of the structural model (Hair et al., 2017). Finally, mediation analysis was evaluated following Hair et al.'s (2017) recommendations, by performing a bootstrapping of 5000 samples to estimate direct and indirect effects. This approach is suggested to be robust in identifying mediation effects compared to more traditional techniques (e.g. see Lussier & Hartmann, 2017; MacKinnon, Lockwood & Williams, 2004).

5. Results

5.1. Evaluation of the measurement model

With an outer model comprising reflective measures, reliability was assessed via individual and composite reliability (CR) and Cronbach's alpha scores. Convergent validity was evaluated using average variance extracted (AVE) and examination of the outer loadings, whilst

discriminant validity was tested using the Fornell–Larcker criterion. Table 1 summarises the results of the measurement model evaluation.

In the case of indicators, individual loadings exceed the established threshold of 0.7 (Hair et al., 2017). CR scores are found to be satisfactory as they are above the required minimum of 0.7 (Hair et al., 2017). The AVE for each latent variable exceeds the minimum of 0.5 (Hair et al., 2017), providing sufficient evidence of convergent validity. Finally, the Fornell–Larcker criterion shows that the square root of AVE for each latent variable exceeds the correlation with any other variable, confirming discriminant validity (Fornell & Larcker, 1981). Overall, we can conclude that the measurement model has satisfactory levels of reliability and validity of all latent variables.

Table 1 Measurement model estimates

Latent Variables	**Mean**	**SD**	**CR**	**Cr.A**	**AVE**	1.	2.	3.	4.	5.
1. SMV2CC	4.98	0.993	0.928	0.896	0.763	***0.873***				
2. B2B Customer Loyalty*	6.11	0.864	1.0	1.0	1	*0.39*	***1***			
3. B2B Customer Trust	5.58	0.961	0.936	0.898	0.831	*0.57*	*0.709*	***0.911***		
4. SMC2CC	4.98	1.01	0.922	0.887	0.747	*0.677*	*0.346*	*0.511*	***0.864***	
5. SMSB	6.04	0.818	0.885	0.838	0.607	*0.335*	*0.454*	*0.426*	*0.268*	***0.779***

Note: * single-item measure; SD–Standard Deviation; CR–Composite Reliability; Cr.A–Cronbach's Alpha; AVE–Average Variance Extracted; Results in italics – the Fornell-Larcker criterion; results in grey–square root of AVE

5.2. Evaluation of the structural model

Table 2 outlines the results of the structural model evaluation. R^2 values for the endogenous constructs indicate a moderate level of predictive accuracy (see Hair, Ringle & Sarstedt, 2011; Henseler, Ringle & Sinkovics, 2009), specifically 0.411 for B2B customer trust

and 0.503 for B2B customer loyalty. We employ a one-tail test for significance as the developed hypotheses are directional and based on strong theoretical grounds (e.g. see Chen, Li & Arnold, 2013). Following Henseler, Hubona and Ray's (2016) guidelines, we performed a bootstrapping of 5000 samples to test for significance.

Table 2 Structural model estimates

Paths	Path coefficient	t-value	p-value	Hypotheses	Acceptance
1. SMSB -> B2B customer trust	0.255	4.307	0.000	Hypothesis 1	Yes
2. SMV2CC -> B2B customer trust	0.342	4.229	0.000	Hypothesis 2	Yes
3. SMC2CC -> B2B customer trust	0.211	2.542	0.006	Hypothesis 3	Yes
4. B2B customer trust -> B2B customer loyalty	0.709	20.710	0.000	Hypothesis 4	Yes

The effects of the three predictor variables on B2B trust are all found positive and significant at the $p<0.01$ level, with path coefficients of $\beta=0.255$ for SMSB, $\beta=0.342$ for SMV2CC, and $\beta=0.211$ for SMC2CC. These results provide strong support for Hypotheses 1–3. In addition, Hypothesis 4 predicted a positive relationship between B2B customer trust and B2B customer loyalty. The results reveal that this hypothesis is also supported at the $p<0.01$ level, with the path coefficient of $\beta=0.709$.

5.3. Mediation analysis

Hypothesis 5 suggests that B2B customer trust mediates the relationships between SMSB, SMV2CC, SMC2CC, and B2B customer loyalty. Table 3 shows that all three indirect effects are found significant for each of the indicators. Moving on to the direct effects, the results reveal that the direct effects of SMV2CC and SMC2CC are not significant, suggesting that B2B customer

trust fully mediates the relationships between the two predictor variables and B2B customer loyalty. Interestingly, the direct effect of SMSB and B2B customer loyalty is significant at $p<0.01$ level, suggesting that this relationship is only partially mediated by B2B customer trust. Thus, we can conclude that Hypothesis 5 is partially supported.

Table 3 Mediation analysis: direct and indirect effects

Effects of:	Effect on: **B2B customer trust**			Effect on: **B2B customer loyalty**		
	Direct	*Indirect*	*Total*	*Direct*	*Indirect*	*Total*
SMSB	0.255***		0.255***	0.192***	0.167***	0.359***
SMV2CC	0.342***		0.342***	-0.041	0.225***	0.184**
SMC2CC	0.211***		0.211***	-0.012	0.167***	0.155*
B2B customer trust						0.698***

Notes: one-tailed tests of significance. *p<0.1; **p<0.05; ***p<0.01

6. Discussion

The objective of the study was to identify the role that SM communication practices can have on two key elements of B2B customer relationships (namely trust and loyalty) and our study provides a number of contributions to this field of enquiry. First, consistent with social capital theory, all three predictive variables show a positive and significant effect upon trust. The study has demonstrated that the three SM communication practices tested in the study (SMSB, SMV2CC, and SMC2CC) do have a direct and positive effect and therefore can be important to firms in building both trust and loyalty with customers. This outcome contributes to the academic literature used in support of the model's development. Specifically, Morgan and Hunt's (1994) commitment–trust theory supports predictive relevance, with both shared beliefs and vendor communications with customers positively influencing customer trust. Doney and Cannon's (1997) study of the nature of trust in customer–vendor relationships found that a buying firm's trust of their supplier influenced anticipated future interactions. This study extends

such pre-existing relationship marketing theory and shows that SMSB and SM communications with customers (SMV2CC, SMC2CC) similarly have positive influences upon customer trust in the vendor.

A second, and key contribution of the paper is the adaptation made to the Bruhn et al. (2014) study of trust in B2B brand communities. Our study hypothesised that SMC2CC has a direct positive effect on B2B customer trust in the vendor. In so doing our study hypothesised a reverse relationship to that of Bruhn et al. (2014) and which more closely aligns with Laroche et al. (2012, p. 1760). Neither Bruhn et al.'s (2014) hypothesis of brand trust positively affecting the customer-to-customer interactions nor Laroche et al.'s (2012) hypothesis that community engagement positively influence brand trust were supported in their studies. Our study hypothesised that Bruhn et al.'s (2014) B2B relationship between these two constructs was likely to be valid, but the direction of the independent and dependent variables was tested in reverse in our study. Whilst the SMC2CC variable was not the strongest influence upon trust, the findings of the study support this directional change, providing a new contribution to vendor–seller relationship marketing theory. This finding suggests that customer-to-customer communication is still a valuable tool that may boost positive e-WOM (word of mouth) and enable stronger levels of trust between vendor and B2B customer.

Third, of the three SM practices SMV2CC was found to have a stronger effect on trust. From this, we conclude that customers are most influenced by the vendor's messages communicated via SM, rather than the shared beliefs about SM or what customers hear from other customers online. Our original assumption, based on the work of Palmatier et al. (2013), was that effective communication by B2B firms with their customers is important because it

keeps customers informed (about their products and services) and bolsters the customer's beliefs about the vendor's expertise. The findings of our study suggest that this assumption is correct. SM may be a direct and vivid mechanism for informing existing customers, which in turn influences existing levels of trust. In this study our respondents were in existing relationships with the vendor. SM is often viewed as a tool to build new customer relationships. This study suggests that SM is also a valuable tool to reinforce trust in existing B2B customer relationships.

The fourth contribution is that the study demonstrates that the existing theory that customer trust positively influences customer loyalty (Doney & Cannon, 1997; Ganesan, 1994; Moorman et al., 1992; Morgan & Hunt, 1994) continues to hold in the context of SM. However, we should be mindful of the fact that in this study the three SM practices together were found to account for 41% of the variance in trust overall in the vendor. This suggests that whilst there is still unexplained variance to be identified in the context of SM practices, they do explain nearly half of customer trust in vendors in B2B relationships. This indicates that academics should consider including SM practices when exploring B2B customer relationships today.

Furthermore, the study demonstrates that customer trust mediates the relationship between all three SM practices (SMSB, SMV2CC and SMC2CC) and customer loyalty. Most interestingly, only SMSB has a direct and significant effect upon customer loyalty. SMSB refers to shared beliefs about how SM should work and be delivered to customers, and so this finding suggests that customers are likely to be loyal to firms that appear to mirror their views about how SM should be implemented.

Finally, we can conclude from the mediation results that as SMV2CC and SMC2CC do not have a direct effect on customer loyalty, that B2B customer trust fully mediates the relationship between these two predictor variables and B2B customer loyalty. This suggests that trust must still be present for SM communications to be effective in maintaining customer loyalty.

6.1. Implications for practice

A number of managerial implications can be identified from this study. First, the study demonstrates that, for B2B vendors, using SM as a form of two-way communication with customers is an effective mechanism for influencing both trust and loyalty. It suggests that in a SM context trust can be built in B2B customers by the SM practices of the vendor. This should encourage vendors to engage with this form of customer communication and allocate resource to the development of knowledge and skills within their digital marketing teams to adapt to this form of customer engagement.

Second, the study particularly demonstrates the importance of trust as a mediator of both vendor-to-customer and customer-to-customer communications. This suggests that vendors should continue to build trust via customer activities (both within and outside SM platforms) rather than being solely reliant on existing forms of customer exchange. This implies that SM is not a substitute for existing customer engagement practices, but rather an important addition to traditional communication practices, such as corporate communications, trade advertising etc.

Third, the relevance of shared beliefs about SM practices indicates that firms should be known not only for what they say in their SM messages, but also what they stand for in terms of

why and how they use SM. From the scale items tested within this study, these beliefs surround what is communicated (*Is it informative to the customer? Does it help them to do their job?)*; how it is communicated (*Does it make sense to them?* – which may be important in a highly technical or complex field); and is SM used fairly (*Do I have an opportunity as a customer to give feedback?*)? As customers judge firms by their behaviour (offline and online) and then infer from that what they stand for and what their future actions might be (MacMillan et al., 2000), firms should be aware of the importance of how their online SM practices will be viewed and the effect upon customer beliefs. This means ensuring that SM activities are given senior-level accountability and are recognised as a central element of a customer-oriented digital marketing strategy. SM practices are not just about sharing what the firm wants to say to customers, but also about how firms run and manage the SM that is being shared with the customer as part of their digital marketing strategy.

6.2 Limitations and future research

A number of limitations should be taken into consideration when drawing conclusions and managerial implications from this study.

First, aspects of the sample may create constraints with regard to the generalisability of the research findings. Given the response rate, the sample size could be considered small in comparison to the population of customers at the life science company. Additionally, the fact that this research was undertaken within one organisation and one industry, and data was only collected within the United States, could limit the generalisability and application of the findings and implications drawn. Further replication of the model across a further range of industries and

geographies would enable wider validation of the model and confirmation of its relevance. Second, the data used within this study was drawn from B2B customers using a range of SM applications and no control was applied for differences across them, or differences in the capacity for customer-to-vendor and customer-to-customer communications offered by each.

Further research is called for that utilises a methodology to test the effect of vendor practices within specific SM applications upon customer trust and loyalty.

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Appendix A
Table A.1 Questionnaire items

Construct	**Question**	**Source**
SMSB	1. [Vendor] should offer content via social media that helps customers conduct their research/do their jobs 2. Vendor-sponsored social media should relate to customers in a way that makes sense to them 3. [Vendor] should use social media to communicate new product launches/new product features to customers 4. Social media should offer customers the opportunity to comment/give feedback 5. Vendor-sponsored social media should offer content that is highly informative	Developed by authors [1–5]
SMV2CC	1. The [Vendor] keeps me well-informed via their social media 2. The [Vendor] provides frequent social media communication about issues that are important to me 3. The [Vendor] provides accurate information via their social media 4. The [Vendor's] social media provides useful information to answer customer questions	Theron et al. (2008) [1–3] Harris and Goode (2004) [4]
SMC2CC	1. The [Vendor's] customers share experiences about their vendor's products online with other customers 2. The [Vendor's] vendor-sponsored social media communities are useful for gathering information about products or the brand 3. Members of the [Vendor's] vendor-sponsored social media community benefit from the community 4. I am very satisfied with the quality of interaction with other [Vendor] customers via their vendor-sponsored social media	Laroche et al. (2012) [1–3] Bruhn et al. (2014) [4]
B2B Customer Trust	1. [Vendor] is genuinely concerned that our research/business succeeds 2. I trust the vendor keeps our interests in mind 3. The vendor is trustworthy	Doney and Cannon (1997) [1–3]
B2B Customer Loyalty	1. I would recommend [Vendor] to my colleagues	Cater and Cater (2009) [1]