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Social media and customer relationship management technologies: Influencing buyer-seller information exchanges

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1. Introduction

Effective information exchange between buyers and sellers is crucial for salesperson success. Buyers serve as a major source of market intelligence for sellers. Further, the means of communication between buyers and sellers via information technology continues to rapidly progress. Technologies such as social media and customer relationship management (CRM) facilitate two-way information exchanges between buyers and sellers and provide an additional lever for value co-creation. Information technologies, such as these, support the collection and assimilation of information from internal and external environments (Lacoste, 2016; Ward & Zhou, 2006) and help build durable relationships with customers (Trainor et al., 2014). In general, increasing information communication channels and information sources enables boundary-spanning employees to collect more information leading to improved individual and organization performance (Moncrief et al., 2015; Teigland & Wasko, 2003).

The extant literature shares a reasonable consensus that social media and customer relationship management technologies are valuable enablers of the buyer-seller interface (Agnihotri et al., 2016; Guesalaga, 2016). Social media usage increases marketing opportunities for salespeople (Andzulis et al., 2012; Guesalaga, 2016) through market-sensing (Trainor, 2012). It can also be a powerful tool to collect market intelligence (e.g., Pérez-González et al., 2017; Scuotto et al., 2017). In a similar vein, sales organizations use customer relationship management technology to attain sustainable competitive advantage (Phan & Vogel, 2010; Zahay & Griffin, 2004) by improving marketing strategies, facilitating communication with

buyers, and providing better services and support (Wang et al., 2013). Buyer-seller partnership success depends to a great extent on communication behaviors such as information sharing and participation (Mangus et al., 2020; Monczka et al., 1998).

Information sharing is a key relational behavior in industrial relationships (Itani et al., 2019; Mangus et al., 2020; Newell et al., 2019) as it can reduce information asymmetry and uncertainty between organizations (Dyer & Chu, 2003; Pei & Yan, 2019). Information acquisition from buyers helps sellers gain information and leverage the buyer's information advantage (Li et al., 2018). Today's marketplace increasingly expects the professional salesperson to function as a knowledge broker (Verbeke et al., 2011) who ensures information sharing occurs within the business relationship. Information sharing within business relationships can be difficult, however, because most buyers are not willing to share their information for nothing (Li et al., 2018).

Researchers have examined the rising utilization of sales technologies such as customer relationship management systems and social media and their transformative effects on sales processes (Ancillai et al., 2019; Guesalaga, 2016; Limbu et al., 2014; Trainor et al., 2014). Despite this increased attention to the effects of these technologies, few studies have explored how these tools can engage buyers to co-create value through two-way information exchange (Agnihotri et al., 2017).

To address this gap in the literature, this study examines the impact of customer relationship management and social media technologies used by sellers on buyer information sharing in a business-to-business selling context. Specifically, we assert that the social media and customer relationship management technologies uniquely aid salespeople in carrying out two major job tasks, that of competitive intelligence collection and product information

communication.

We present a conceptual model grounded in *social exchange theory* and *task-technology fit theory*. The model outlines our hypothesized pathway from the salesperson's use of social media technology and customer relationship management technology to the buyer's intent to share information. Next, we forward our hypotheses and analyze our model using buyer-seller dyadic data. Also, we offer a post-hoc analysis where we examine the extent to which the technologies have a differential effect based upon the degree of salesperson's experience. The paper ends with a presentation of our findings and a discussion of our contributions and the academic and managerial implications of our findings.

2.   Theoretical lens and conceptual model

2.1.   *Social exchange theory*

Social exchange theory (Blau, 1964; Cook et al., 2013; Cropanzano & Mitchell, 2005; Emerson, 1976) and task-technology fit theory (Goodhue & Thompson, 1995; Rapp et al., 2008) serve as the theoretical underpinnings for our examination of how sales technology enables behaviors that benefit buyers and ultimately lead to reciprocating behaviors that benefit sellers. We argue that individuals are motivated to interact by an expectation to benefit economically or socially from the interaction (per social exchange theory) (Blau, 1964) and that they can extract benefits of technology *only* if they use technology and align its use with the task in hand (per task-technology fit theory) (Goodhue & Thompson, 1995). Integrating these theoretical notions, our model is built upon the logic that a seller's relationship efforts, involving the use of different sales technologies (i.e., social media and customer relationship management) for specific tasks

(i.e., market-sensing and customer-linking), will encourage the buyer to share his or her market intelligence due to the norm of reciprocity.

Social exchange theory has been invoked to examine relational behaviors in intra-organizational contexts (e.g., Nowlin et al., 2018) as well as exchanges involving buyers and sellers from different organizations (e.g., Griffith et al., 2006; Pulles et al., 2016). In both contexts, social exchange theory supports the notion that social relationships between parties are established and maintained because the parties offer reciprocal benefits to one another over time.

The premise that relational behaviors such as communication and information sharing are influenced by norms of reciprocity serves as an underlying driver for this study. The determination of behaviors is often based on the difference between the cost of an interaction and the reward from the interaction (Cook et al., 2013). In other words, the more often an action is rewarded, the more likely a participant in the exchange will act again. Furthermore, when exchange participants benefit from an interaction, they develop a sense of obligation and are likely to reciprocate with "appropriate attitudinal and behavioral responses" (Griffith et al., 2006, p. 86). Such reciprocation captures a dyadic effect and is best explicated as quid pro quo communication (Posey et al., 2010) or "you tell me and I'll tell you" (Jourard, 1971, pp. 25–26). Moreover, this reciprocation leads to additional rounds of exchanges and provides the foundation for the nurturing of an ongoing social exchange relationship (Cropanzano & Mitchell, 2005).

We suggest that when the salesperson provides competitive intelligence and product information to the buyer, it creates an opportunity for reciprocity, through an intent to share information. For instance, information is a commodity that individuals share based on the model of reciprocal exchange (Constant et al., 1994). This line of logic is also supported by the literature that suggests individuals share information with the expectations of reciprocation (Foa

& Foa, 1980; Lussier & Hall, 2018). For instance, a salesperson sharing information regarding product information or competitive information may engender a sense of reciprocity by the buyer.

As shown in our conceptual model (Figure 1) we identify two different paths that each lead to buyer information sharing. The sales technology literature (Hunter & Perreault, 2006; Rapp et al., 2008; Salo, 2017) endorses a consistent premise: the relationship from sales technology tools to sales effectiveness occurs through different pathways. Hunter and Perreault (2007, p. 30) posit that each specific technology has "differential effects on various aspects of performance . . . thus, how a sales representative uses technology and on which behavioral tasks (work processes) matters."

2.2. *Sales technology and buyer-seller information exchange*

Salespeople, as technology users, respond to benefits and disadvantages from using certain technology. They understand when a given technology can assist or hinder their performance on different tasks (Goodhue, 1995). As such, they "will choose those tools and methods that enable them to complete the task with the greatest net benefit" (Dishaw & Strong, 1999, p. 11). To positively impact desirable outcomes, the functionality of the technology must be compatible with the task requirements (Goodhue, 1998). Therefore, a high degree of fit between technology and task is defined as "the degree to which a technology assists an individual in performing his or her portfolio of tasks" (Goodhue & Thompson, 1995, p. 216). Our conceptual model aligns with this logic and demonstrates how the use of two distinct technology tools, customer relationship management, and social media, facilitate the exchange of buyer-seller information through two important salesperson tasks: market-sensing and customer-linking (Day, 1994).

Customer-linking describes the ability to develop and sustain relationships with the customer (Rapp et al., 2010). Market-sensing describes the ability to use market intelligence to enable a market focus, including an awareness of its marketplace (Day, 1994) and the competitive environment. The literature reaffirms the importance of these behavioral tasks. From a customer-linking standpoint, the salesperson is the main customer interface and represents, "the most critical vehicle for building and maintaining strong customer relationships." (Palmatier, 2008, p. 83) and "salespeople have long played a key role in managing relationships and information flow between selling firms and their customers" (Hunter & Perreault, 2006, p. 99). According to Sangtani and Murshed (2017), "salespeople play a vital role as firms seek to develop market-sensing and customer-linking capabilities." (p. 726). Therefore, our model conceives product information communication as a means of customer linking and integrates seller competitive information collection as one means of market sensing. We posit that customer-linking and the market-sensing tasks possess distinct characteristics. Thus, to carry out the tasks most effectively, the salesperson chooses to use either social media or customer relationship management technology (e.g., Avlonitis & Panagopoulos, 2005; Goodhue & Thompson, 1995; Zigurs & Buckland, 1998).

Customer relationship management technology helps salespeople convert increasing volumes of data into a practical form that can be communicated to and shared with buyers in an efficient and organized way (Hunter & Perreault, 2006). This technology facilitates a salesperson's evaluation of "alternative proposals" and "prepare graphics to help communicate a recommendation" (Hunter & Perreault, 2007, p. 21). Customer relationship management technology will help salespeople gather and analyze data regarding the product use patterns of customers in the past. Customer relationship management databases are also used to accumulate

information regarding service requests and other challenges related to the customers' product use. The information gleaned from customer relationship management technology helps salespeople configure current product offerings or service warranties, solutions per customer needs. Customer relationship management technology, therefore, is valuable for ensuring salespeople are well-versed as well as for executing product information communication behaviors. Social media technology, on the other hand, is best aligned with market-sensing tasks that help salespeople learn more about competitors as well as customer reactions to their own and competing products within their social network. Therefore, our model highlights the two distinct paths that social media and customer relationship management technology will directly influence and, ultimately, positively affect the likelihood of buyer information sharing.

3.   Hypothesis development

3.1.   *Social media effects*

Social media technology offers ample opportunity for salespeople to access knowledge and learn about competitors and customers (Andzulis et al., 2012; Rodriguez et al., 2012). Social media is recognized as a tool that can be used to collect market information (Dey et al., 2011; Pérez-González et al., 2017). Salespeople may use a range of social media platforms such as, LinkedIn, Facebook, and Twitter to collect information about competitors. These platforms hold valuable tools (e.g., social monitoring and listening) for businesses to explore and capture knowledge about competitors (Scuotto et al., 2017). As such, social media is viewed by businesses as a mechanism to collect competitive and market intelligence (He et al., 2013, 2015). Competitive intelligence collection describes the salesperson's behaviors of "gathering information concerning competitors and the competitive environment" (Rapp et al., 2015, p. 360). A

salesperson using social media can follow the updates of competitors' social media pages, customers communicating their perspectives about competitors' products, and other user-generated content concerning the competitive environment.

Further, competitive intelligence collection adds to organizational knowledge, especially, when this collection occurs at lower levels of the organization. This type of information helps discover opportunities as well as risks and guides managerial decisions. Competitive intelligence collected by the salesperson is unique because of its usability and practicality, thereby allowing timely responsive reactions (Agnihotri & Rapp, 2011; Rapp et al., 2011). For example, Scuotto et al. (2017), found the use of social media to acquire competitive intelligence can enhance the firm's innovative performance. As such, we argue that the greater the usage of social media, the greater the degree of seller competitive information collection.

H1a: Seller social media utilization will have a positive effect on seller competitive information collection.

We also argue that social media has a positive impact on buyer information sharing intention. Social media is recognized as an important buyer-seller communication channel (Siamagka et al., 2015; Wang et al., 2016) and is considered a powerful two-way communication and interaction tool for marketing, sales, and customer service (Huang et al., 2013; Shang et al., 2017). By using social media, salespeople provide buyers with an easier and faster communication channel. This allows social media to facilitate the buyer-seller information sharing process. For instance, Tajudeen et al. (2018) studied the effect of social media usage among organizations. Their study shows that the use of social media improves information accessibility as well as customer relationships by helping users easily share information.

Information exchanges through social media can enable positive relationship experiences and an ongoing sense of relationship trust and satisfaction (Agnihotri et al., 2016; Ahearne et al., 2007). Social exchange theory suggests that these positive experiences will lead buyers and sellers to engage in more frequent communications. Increased frequency of interactions between business entities reduces perceptions of risk, enhances the trust in the relationship, and thereby engenders greater cooperation (Palmatier et al., 2006). Furthermore, the relationship marketing literature provides evidence that sellers will be inclined to invest more (time, effort, and resources) in their relationships with their buyers, leading to expectations of "reciprocation that can help strengthen and maintain a relationship" (Palmatier et al., 2006, p. 140). Hence, we argue that social media use facilitates a greater intention by the buyer to share information within the relationship.

H1b: Seller social media utilization will have a positive effect on buyer information sharing intention.

Our next hypothesis proposes that seller competitive information collection positively affects buyer information sharing intention. We suggest that the salesperson's collection of competitive information serves as a valuable resource for the buyer. Menon and Varadarajan (1992) note the value of information associated with the marketplace. Competitive information collection provides a source of information and knowledge because competitors affect the buyer's needs and preferences and the way a market functions (Kohli & Jaworski, 1990). Further market information and intelligence "represents real, actionable information" (Rapp et al., 2015, p. 358). Market information is an important knowledge source for organizations as it supports marketing planning capabilities (Morgan et al., 2003).

Moreover, a salesperson's effort to collect competitive information demonstrates an investment in the relationship that will likely be noticed by buyers. Armed with competitive intelligence, the salesperson can demonstrate a greater understanding of the competitive market by asking questions of increasing depth. The buyer will likely recognize this depth of understanding as an investment made by the seller. As stated earlier, such relationship investments have been shown to lead to enhance relationships and lead to feelings of reciprocity (Palmatier et al., 2006). By receiving knowledge resources from a seller, the buyer will likely feel inclined to reciprocate and consider sharing some of their market and competitor information.

Finally, the competitive information collection efforts that include asking buyers about competitive information may increase the level of buyer information sharing intentions. The collection provides a basis of expertise, which has been shown to positively affect the trust in the relationship (Crosby et al., 1990; Doney & Cannon, 1997).

H2: Seller competitive information collection efforts will have a positive effect on buyer information sharing intentions.

3.2. CRM technology enabled information activities

Customer relationship management technologies are defined as a "group of information systems that enable organizations to contact customers and collect, store and analyze customer data to provide a comprehensive view of their customers" (Khodakarami & Chan, 2014, p. 27). These information systems are integrated across organizations to support collaboration (Kim & Lee, 2010) and facilitate the electronic transmission of information within organizations and between organizations leading to improved performance outcomes (Ward & Zhou, 2006). With time,

buyer-seller relationships develop and allow sellers to gather and move buyer information throughout the organization (Zahay & Griffin, 2004). The customer relationship management system is "designed to help the sales organization meet its objectives in managing customer relationships" (Hunter & Perreault, 2007, p. 17). Customer relationship management systems help organizations collect and constantly generate customer knowledge and intelligence (Garrido-Moreno et al., 2014; Khodakarami & Chan, 2014). These systems facilitate the knowledge creation processes (Khodakarami & Chan, 2014), knowledge management (Garrido-Moreno et al., 2014), and customer-based performance, which support business growth (Zahay & Griffin, 2004). For instance, due to their data collection abilities, customer relationship management systems enable firms to better align products and services with customer requirements and aid in creating of customer-centered product information (Mithas et al., 2005).

Organizations invest substantially in customer relationship management technology to facilitate the sharing of information with customers (Soltani & Navimipour, 2016) and create a customer-seller learning relationship (Zahay & Griffin, 2004). The ability of a salesperson to communicate information with buyers is enriched with the use of sales technology (Agnihotri et al., 2009). The technology enables the salesperson to understand their firm's product portfolio and serves as a resource of product knowledge. Research shows that technologies, such as customer relationship management, enable a richness of information and ease of access to the information (e.g., Chuang & Lin, 2013; Li & Mao, 2012; Wang et al., 2013) and can create a clear, more precise level of communication valued by the buyer (Agnihotri et al., 2009). Customer relationship management technology allows better knowledge sharing and partnering, which in turn increases organizational responsiveness leading to increased customer satisfaction (Dobrzykowski et al., 2015). Customer relationship management technology, therefore, provides

an informational resource that the salesperson can easily access and disseminate to the customer base. We suggest that as customer relationship management technology use increases, product information communication will also increase. Therefore,

H3a: Seller customer relationship management technology utilization will have a positive effect on seller product information communication.

Next, we suggest that the greater use of customer relationship management sales technology leads to buyer intention to share market information. The sales technology literature notes "A central purpose of information technology is to help users connect available data into information that can be used effectively" (Hunter & Perreault, 2006, p. 99). Similarly, customer relationship management technologies are found to positively enhance knowledge management by collecting buyer information, disseminating the knowledge across the different departments, and applying the knowledge to provide solutions (Hunter & Perreault, 2007; Phan & Vogel, 2010).

A seller's use of customer relationship management technology is in effect an investment in the buyer-seller relationship. As the seller invests more time, he/she is developing expertise, a greater knowledge base, and investing in the relationship. The literature suggests that relationship investments that involve time, effort, and resources, such as in the case of customer relationship management utilization, create opportunities for creating a sense of trust within the relationship (Palmatier et al., 2006) and ultimately open opportunities for sharing. Hence, we propose the following hypothesis.

H3b: Seller customer relationship management technology utilization will have a positive effect on buyer information sharing intentions.

Next, we suggest that as seller product information is increasingly communicated, the buyer's intention to share information also increases. The information that the salesperson shares with a buyer is a fundamental unit of exchange. This exchange may include information about the products and services, usage methods, previous user reviews, and recommendations (Khodakarami & Chan, 2014). As noted in the literature, quality information is critical for planning activities and preparation processes (Hunter & Perreault, 2006). Information communication reveals customer-contact employee knowledge which, according to Froehle (2006), is a key characteristic that contributes to customer satisfaction. Further, effective information demonstrates an investment made by the salesperson toward understanding the customer and creating meaningful value (Hunter & Perreault, 2006; Itani et al., 2020). As such, the communication of product information can provide valued resources to assist the buyer's in meeting business responsibilities and facilitate the buyer's willingness to reciprocate.

The salesperson's communication of information can also reduce the level of risk perceived by the buyer (Johnston & Lewin, 1996), and, thereby, create a greater willingness by the buyer to share information. Research suggests that reciprocity engenders a strong effect on individuals' communication behaviors (Allen et al., 2008). According to Teigland and Wasko (2003), reciprocity is a cooperation mechanism that facilitates informal information sharing in cross-boundary exchanges. According to Hughes et al. (2013), a salesperson can "creates an environment conducive to the reciprocal nature of the social exchange, encouraging the buyer to respond in kind with something of benefit" such as "the sharing of information that might be unknown to and useful to the salesperson" (p. 95). Accordingly, we hypothesize:

H4: Seller product information communication efforts will have a positive effect on buyer information sharing intentions.

Insert Figure 1 about here

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4.   Methodology

4.1. Sample

Buyer-seller dyadic and time-lag data were collected from industrial salespeople and buyers. The use of dyadic data reduces the opportunity for common method bias (e.g., Doty & Glick, 1998; Podsakoff et al., 2003; Rindfleisch et al., 2008). Sales organizations located in India and operating in an industrial-market setting were randomly chosen and sent an invitation to participate in our study. The setting provides an opportunity for greater theoretical and managerial understanding. The literature notes the value of studies using samples outside of traditional western-based settings (e.g., Bagozzi, 2006; Podsakoff et al., 2000; Purani & Sahadev, 2008) as examinations are relatively sparse, especially within a sales context.

Upon identification, sales organizations were approached for possible participation and were told about the academic purposes of the study. Upon the organization's consent to participate, salespeople were randomly chosen within each organization. Salespeople surveyed represented various industries (e.g., automotive, financial, information technology, etc.). See Appendix 1 for a breakdown by industry.

The sales organization was asked to provide a list of buyers served by each of the salespeople. The buyers surveyed were randomly chosen. Within each group of buyers submitted, the randomly chosen buyer was approached for completing the questionnaire. The buyers were contacted, and the academic purpose of the study was discussed. The buyer was informed that the data collected was not to evaluate the performance of the salesperson. In the case that the buyer refused to participate or was not able to be contacted, another buyer was

randomly chosen. The process was repeated until data from a buyer matched that of a salesperson. The questionnaires of salespeople and buyers were assigned identifying codes to allow matching between the questionnaires. In some cases, the responding salesperson was dropped from the final sample when none of the counterpart buyers could be contacted. On average the time between a salesperson filling out their survey (Time 1 or T1) and a buyer completing his or her survey (Time 2 or T2) was one fiscal quarter. Fifty-seven responding salespeople could not be part of the final sample because of missing buyers' data. The final data set consisted of 162 salesperson-buyer dyads.

For our study, salespeople served as the respondents to the following constructs: social media utilization, customer relationship management technology utilization, and competitive information collection. The salesperson also served as the respondent for the following control variables: adaptability, polychronicity, and other demographics and work-related factors. Buyers served as the respondents to the following constructs within our study: seller product information sharing, and buyer information sharing intentions. The buyer also served as the respondents for the following control variables: buyer perceived inducements, and buyer satisfaction with the seller.

4.2. Measures

Before collecting the data for this study, seller and buyer questionnaires were pretested on two different samples of salespeople and buyers, respectively. The pretest helped us confirm the clarity and applicability of the statements and questions used. Moreover, three sales scholars from India and the US examined the questionnaire. Very minor refinement to some of the questions was recommended.

The measures utilized in this study were adapted from prior studies. We utilized 7-point Likert scales for all the variables in our model. The measures utilized were generally utilized and validated in prior studies. The scale used by Sundaram et al. (2007) was adapted to measure seller customer relationship management technology utilization. This multi-item scale captures the extent to which salespeople use customer relationship management technology. It includes items such as, "*My use of CRM technology on the job has been integrated and incorporated at the highest potential.*" The seller social media utilization scale was adapted from Agnihotri et al. (2016). It describes the extent to which salespeople use social media and includes items such as, "*My use of social media is pretty much integrated as part of my normal work routine.*"

A four-item scale developed by Ahearne et al. (2007) was used to measure product information communication. We adapted the scale of Le Bon and Merunka (2006) to measure seller competitive information collection. The dependent variable, buyer information sharing intention, was measured by a three-item scale based on the information sharing scale developed by Cannon and Homburg (2001) in a buyer-supplier context. The items were modified to fit in the current context and specifically tapped both ease and willingness to share market information.

In terms of the control variables, buyer satisfaction with the salesperson (e.g., Gabler et al., 2017) was included to control for its effect on buyer information sharing intentions because satisfied buyers are likely to hold positive intentions toward the salesperson (e.g., word-of-mouth, repurchase, information sharing intentions). We controlled for several seller variables (adaptability, polychronicity, education level) and two firm-level variables (number of employees, industry type). Adaptability was measured using a scale adapted from (Spiro & Weitz, 1990). Buyer perceived inducements were measured based on a scale adapted from

Ahearne et al. (2007). Polychronicity was measured using a scale of three-item adapted from Conte et al. (1999). The number of employees is used as a proxy of the firm size. The list of the measurement scales is provided in Appendix 1.

4.3. Measurement model

Partial least square path modeling technique was used to test the conceptual model using SmartPLS 3.0 software. Partial least square path modeling allows us to analyze complex models with small sample sizes as it is the case in our study (Chin, 1998; Hair et al., 2012). The psychometric properties of the constructs used were examined. We calculated coefficient alpha (α), composite reliabilities (CR), and average variance explained (AVE) of the measures used as a means of assessing the reliability and validity of the measures deployed.

All factor loadings were significant at p < .01, supporting the convergent validity of the measures. Moreover, none of the items have higher loading than perspective construct loading onto other constructs (Gefen & Straub, 2005). All multi-item scales have a Cronbach alpha greater than or equal to .7 level, and CR greater than or equal to .75 level, demonstrating evidence of the reliability of the measures used. AVE exceeded the .5 cutoff level for all variables. The inter-correlations of each construct with other constructs in the model were compared to the construct square root of the AVE. None of the inter-factor correlations was greater than the construct square root of the average variance extracted, demonstrating evidence of discriminant validity. Moreover, a second test was conducted to check for discriminant validity. The "heterotrait–monotrait ratio" test (HTMT) (Henseler et al., 2015). The test shows that the HTMT between different pairs of the latent factors was lower than the cutoff level of (.85) providing additional evidence of discriminant validity (Henseler et al., 2015; Voorhees et al., 2016). Table 1 shows correlations, reliability indices, and AVE.

5.   Results

An overall structural model using the full sample was analyzed by examining the standardized

coefficients of the relationships hypothesized and their relevant significance levels utilizing the

bootstrapping technique. The models that were analyzed also included an interaction that

represents the product-term between seller customer relationship management technology

utilization and seller social media utilization referred to as SocialCRM following the study of

(Trainor et al., 2014).

Within the market-sensing activities, our results show a positive effect of seller social

media utilization on the seller's competitive information collection ($\beta = .17$, $p < .05$) in support of

H1a. Nevertheless, seller social media utilization effect on buyer information sharing intentions

is not significant ($\beta = .02$, $p > .1$). Seller competitive information collection effort is

hypothesized to increase buyer information sharing intentions. Results didn't support a

significant association between seller competitive information collection and buyer information

sharing intentions ($\beta = .08$, $p > .05$). No support of H2 is found.

Salespeople are also responsible for customer-linking activities. We find that seller

customer relationship management technology utilization is positively related to product

information communication ($\beta = .26$, $p < .01$) and buyer information sharing intentions ($\beta = .27$,

$p < .01$) in support of H3a and H3b. The results demonstrate the customer-linking capabilities of

customer relationship management. Furthermore, the seller's product information

communication effort is positively related to buyer information sharing intentions ($\beta = .42$, $p <$

$.01$) in support of H4.

5.1.   Post-hoc analysis

SocialCRM: While not initially proposed, our data collection and study also offer a few interesting additional analyses. Based on prior studies, we conducted additional analyses related to the interaction between seller social media utilization and seller customer relationship management technology utilization or SocialCRM. The literature suggests that integrating the power of social networking, applications, and online communities with customer relationship management systems hold marketing, communication, and interactive opportunities (Wongsansukcharoen et al., 2015). According to Greenberg (2009), "Social CRM takes that traditional CRM set of functions and capabilities applicable to sales, marketing, and customer support and extends it by integrating the social tools for communication with the customers - and to allow you to capture even richer knowledge of that particular customer or that deal opportunity." (pp. 6–7). In our post hoc analysis, we analyzed the effects of an interaction term, SocialCRM, (i.e. seller social media utilization and customer relationship management technology utilization) on our three endogenous variables. Results demonstrate that the interaction term, SocialCRM, positively affects seller competitive information collection ($\beta = .22$, $p < .01$) in the overall model. The results of the overall model are summarized in Table 2.

Multi-group analysis: We also test whether the effects of seller social media utilization and the effects of customer relationship management technology differ according to seller experience level. We suggest that less experienced sellers will initially possess a limited, but potentially expanding, knowledge base related to buyers and their organizations. To compensate for their inexperience, these sellers may utilize technology to a greater extent than their more experienced counterparts (Ko & Dennis, 2004). For instance, a newly hired seller may be motivated to build her business network through LinkedIn or Facebook. Conversely, a more experienced seller may

have had more time to grow their business network. Thus, the seller from high experience group may feel less dependent upon social media to build and expand their social connections while "salespeople with more experienced learned how to be effective without the use of modern sales technologies" (Hunter & Perreault, 2006, p. 98). Similarly, less experienced sellers may be more motivated to exploit the rich data available in a customer relationship management repository. More experienced sellers, on the other hand, have a wealth of personal experiences and product knowledge from which to draw. As such, the experienced sellers may feel less dependent on customer relationship management technology to gain contextual knowledge about their firm and their customers. Further, the high experienced seller may have more self-efficacy in their abilities and choose not to rely on technology.

To conduct the post-hoc analysis we relied on the mean-splitting approaches used by prior studies (e.g., Ju & Gao, 2017; Laroche et al., 2007; Menon & Dubé, 2007). In this approach, salespeople were categorized into low experience (mean years = 3.49) versus high experience (mean years = 9.39). This categorization method was supported using the K-means clustering approach. Before running the multi-group analysis (MGA), the measurement invariance for composite models (MICOM) approach proposed by Henseler et al. (2016) was conducted to establish measurement invariance. MICOM approach follows a three-step procedure. The first step is configural invariance; the second step is compositional invariance; and, the third step is the equality of composite mean values and variances Henseler et al. (2016). The results demonstrate full measurement invariance with configural invariance, compositional invariance, and equality of mean values and variances between the high and low seller experience group. Based on the MICOM results, the MGA was conducted using the bootstrapping method (Hair et al., 2017). The Partial Least Squares Multi-Group Analysis (PLS-

MGA), as well as Parametric Test, approaches within the SmartPLS provide evidence of the significant differences in some of the path coefficients between the High and Low seller experience groups (Henseler et al., 2009; Sarstedt et al., 2011).

The results from the MGA demonstrate that the positive link between seller social media utilization and seller competitive information collection is greater for less experienced salespeople ($\beta = .22$, $p < .01$) compared to more experienced salespeople ($\beta = -.06$, $p > .05$). The coefficient difference between the two groups ($\Delta\beta = .28$, $p < .05$) is significant. The results demonstrate a stronger positive effect of seller social media utilization on buyer information sharing intentions for less experienced salespeople ($\beta = .15$, $p < .05$) versus more experienced salespeople ($\beta = -.14$, $p > .05$). The coefficient difference between the two groups ($\Delta\beta = .29$, $p < .05$) is significant.

The findings also show a positive effect of customer relationship management technology on product information communication for less experienced salespeople ($\beta = .41$, $p < .01$) compared to a nonsignificant effect for high experienced salespeople ($\beta = .13$, $p > .05$). This finding suggests that less experienced salespeople are more likely to assist themselves with customer relationship management technology when sharing information with buyers. The coefficient difference between the two groups ($\Delta\beta = .28$, $p < .05$) is significant. The effect of seller customer relationship management technology utilization on buyer information sharing intentions is positive and significant for low and high experienced groups. No significant differences were found between the two groups.

Place Table 2 about here
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6.   Discussion

In today's buyer-seller relationships, the buyer is increasingly perceived as a value co-creator (Vargo & Lusch, 2008). Information technology and digitization have allowed industrial buyers to conduct extensive research, collect market information, and better understand competitive offerings. As such, buyers serve an important role in the development of market knowledge (Menguc et al., 2013) and the provision of market intelligence (Hughes et al., 2013; Rapp et al., 2015). Buyers can provide knowledge about products and services within their industry and information regarding competitive offerings and their distinct benefits (e.g., Khodakarami & Chan, 2014). Hence, buyers have evolved into an increasingly valued source of information by salespeople and the selling organization. Salespeople can integrate buyer-developed information into their firm's knowledge base, thereby aiding the selling organization in developing more valued market offerings and creating a competitive barrier.

However, the salesperson faces a challenge. She must ensure her activities create an opportunity for the buyer to share information. Our study focuses on this vital salesperson role. We attempt to understand how the salesperson's use of technology may enable the willingness of the buyer to share information with the seller.

Using task-technology fit theory and social exchange theory, we suggest that the salesperson must ensure alignment between the technology tools used and the sales behavior required (Goodhue & Thompson, 1995; Hunter & Perreault, 2007). Accordingly, our model focuses on understanding how a salesperson's investment of time and resources in sales technologies may yield returns, such as the buyer sharing information with the salesperson. More specifically, we posit that a seller's relationship efforts, including the use of time and resources

in sales technologies, will encourage the buyer to share his or her market intelligence due to the norm of reciprocity.

Our results contribute to the literature by demonstrating that social media and customer relationship management technology are tools that aid the salesperson in fulfilling two distinct roles, that of market sensing activities and customer-linking activities. Specifically, our findings show that a seller's social media utilization enhances the competitive information collection abilities of the seller. Conversely, the seller's use of customer relationship management enabled information activities to help with the seller's ability to communicate product information. As such, we demonstrate that salespeople may be increasingly expected to understand and harness distinctive forms of sales technology to meet their ever-expanding boundary-spanning role.

Second, we contribute to the literature by demonstrating a specific pathway that originates from the salesperson's use of technology through a customer-linking mechanism that influences the buyer's willingness to share market information. Our results show that seller customer relationship management technology utilization positively affects the level of seller's product information communication and that seller's product information communication facilitates buyer information sharing intentions. While, in the past, the investment in customer relationship management technology has been questioned (Rapp et al., 2010), our findings demonstrate the value created by customer relationship management utilization. Our results highlight that salesperson customer relationship management use can facilitate important tasks related to customer linking.

In a similar vein, our results also demonstrated a direct path from the use of customer relationship management technology to buyer information sharing intention. This finding reinforces the value of the salesperson's use of customer relationship management. We suggest

such use demonstrates a relationship investment that is valued by the buyer (Palmatier et al., 2006). As such, this investment in the relationship plausibly garners additional resources from the buyer, namely information sharing. Further, this finding contributes to the literature, as many scholars have noted the relative hesitation of salespeople to fully adopt customer relationship management technology (e.g., King & Burgess, 2008; Rapp et al., 2010). We suggest our research demonstrates the value for salespeople in understanding and using customer relationship management technology.

Third, we demonstrate how the use of sales technology is related to an important salesperson objective, that of the buyer sharing information. Previously, research has examined the role of social media and customer relationship management on more salesperson performance-based results, such as relational performance (Ogilvie et al., 2018; Rodriguez et al., 2016; Trainor et al., 2014), selling performance (Itani et al., 2017; Schultz et al., 2012), and brand sales performance (Rapp et al., 2013). Our research makes a unique contribution by examining an important but relatively under-researched performance outcome, that of the buyer's intention to share information. As such, we examine a distinct form of customer engagement and value creation (Brodie et al., 2011).

Fourth, we also contribute to the literature by demonstrating one potential limitation involved with the salesperson's usage of social media. We align with prior literature that has suggested the value of salesperson's usage of social media lies in enabling important sales-based activities, such as knowledge-gathering, identifying buying needs, and determining sales opportunities (Ancillai et al., 2019; Andzulis et al., 2012). Our findings add another valued activity in which social media use can assist the salesperson, that of competitive information collection. Interestingly, we find the seller's use of social media does not directly facilitate the

buyer's information sharing intention. Nor do our results show that seller competitive

information collection efforts possess a positive effect on buyer information sharing intention.

We suggest that the findings show that while social media enables a valuable market-

sensing responsibility, (i.e. competitive data collection,) the seller's investment of time and

resources into social media may not be a highly valued relationship investment by the buyer

(Palmatier et al., 2006). Similarly, the expertise generated by the seller's competitive data

collection may not be a valued form of expertise by the buyer (Palmatier et al., 2006). Perhaps a

buyer may perceive that competitive data information collection serves as a more beneficial

outcome for the seller as compared to the benefit accruing to the buyer. In summary, our results

provide a more nuanced view regarding the salesperson's use of social media.

7.   Managerial implications

Our findings also provide several implications for managerial practice. The salesperson's

boundary spanning role encompasses many activities and responsibilities. The expectations for

salesperson performance continue to increase and the role continues to be redefined.

For B2B firms that promote a value-based selling approach to serve their customers, our study

serves as an advisory on seller social media and customer relationship management utilization

and provides direction on both forms of sales technology.

First, our findings suggest that a more nuanced view may be needed concerning the

salesperson's use of sales technology and the activity in which she is attempting to fulfill. Sales

organizations are required to support boundary spanning and information sourcing from internal

as well as external sources (Krush et al., 2013; Teigland & Wasko, 2003). Our findings

demonstrate that distinct forms of sales technology enable the salesperson to carry out distinct

activities within their boundary-spanning role. Because social media use is better equipped for competitive intelligence collection and customer relationship management technology is better suited for enabling product information communication, the salesperson will increasingly need to be versed in both technologies.

This finding is managerially relevant because an important sales manager role is to enable salesforce productivity. By championing the value of both customer relationship management technology and social media, the manager encourages an approach to enable more productive customer interactions. The salesperson will possess technological competencies that enable him/her to understand competitive offerings and better understand how the solution may align with the customer's needs.

Second, managers often champion the need for salespeople to enhance buyer-seller engagement. Our findings make a strong case for dual-use and integration of social media and customer relationship management that delivers a seamless experience to both, the seller and the buyer, as they build meaningful and productive information opportunities and the potential to co-create and share value. Hence, managers can enable these competencies in their salesforce through either selection or training. When selecting salespeople, sales managers may want to ensure candidates possess experience in customer relationship management and social media technologies. This might be done by asking for a portfolio of previous work, examining past social media, or providing a skills assessment focusing upon customer relationship management technology.

For salespeople, in their first role, managers may choose to use an onboarding process that provides training in customer relationship management and social media. Further, the onboarding process could: a) instill the value of using both forms of sales technology and, b)

demonstrate the unique value that each technology brings as applied to specific activities within the sales role. Social media enabled information activities to enhance the information collection abilities of the seller concerning competitive information and the salesperson's use of customer relationship management enabled information activities provides a pathway from product information communication to the information sharing intentions of the buyer.

Third, our post-hoc multi-group analysis provides additional insight to managers. Our results demonstrate that lesser experienced salespeople rely more heavily on these sales technologies to understand their competition and develop product communication. Perhaps, this suggests that lesser experienced salespeople need and utilize social media and customer relationship management technologies earlier in their career, as their personal network may not be as developed as a more tenured salesperson. Therefore, the sales technologies serve as an early-career substitute for a formal, developed professional network. Sales managers should consider deploying salespeople with lesser experience with more experienced salespeople in team-selling situations. This combination may provide an interesting combination of resources and knowledge.

8.   Limitations and future research

We recognize several limitations of this study, many of which offer research opportunities for scholars. First, the study sample was cross-sectional and represented a very broad and diverse set of industries. Given that durable business relationships develop over time, a longitudinal study can better inform our understanding of how relational investments develop into reciprocal norms that can aid salespeople. Further, it is possible that the relationships tested in this study may be less applicable to certain industries that may not see demand among customers for social media

use. Future studies examining the applicability of these findings to different industries and settings is necessary and encouraged.

Similarly, future studies may focus on singular industries or collect samples that allow cross-industry comparisons. Considering the nascent nature of social media research in the business-to-business realm, researchers have several enticing opportunities to better understand the relationship between sales technology use and information sharing and exchange.

Second, our measurement of social media and customer relationship management technology utilization relies on self-reported measures of seller technology usage. While this approach is commonly found in sales technology research, an opportunity exists to empirically test the effect of these technological tools using objective usage data from these systems, rather than rely on a salesperson's recollection of how they use these tools. The use of social media and customer relationship management technology can be plausibly measured and quantified. Such an approach would also allow researchers to tease out how the frequency of use and how the type of technology usage influences the constructs in our model. This would provide researchers with a more nuanced understanding of how these sales technologies facilitate or hinder sales processes, and activities.

Third, we only evaluated two distinct sales technologies. Future studies could involve several distinct sales technologies, other than social media and customer relationship management. Insight into other applications and their use would advance substantially the sales literature by comparing various sales technology applications and understanding their role within the sales process.

Fourth, our research was situationally set in India. Future research could focus on other countries, multiple countries, or make comparisons across distinct countries or regions (e.g.

North America and South America). By doing so, sales researchers could better understand the contextual effects on the relationships within our study.[1]

Fifth, our post-hoc examination of seller experience as a moderating variable highlights the idea that other factors may heighten or attenuate the relationships in our model. It is plausible that seller experience is highlighting that less experienced salespeople are simply more comfortable with social media or customer relationship management technologies and they have higher self-efficacy related to these tools. Related to that, organizational training and on-boarding have been shown to play a role in how well sales technologies achieve desired outcomes. Researchers are encouraged to examine other organizational and individual factors (e.g., Macintosh & Krush, 2014) that could enhance or diminish the effects of sales technology on salesperson information exchange behaviors and the resulting buyer responses.

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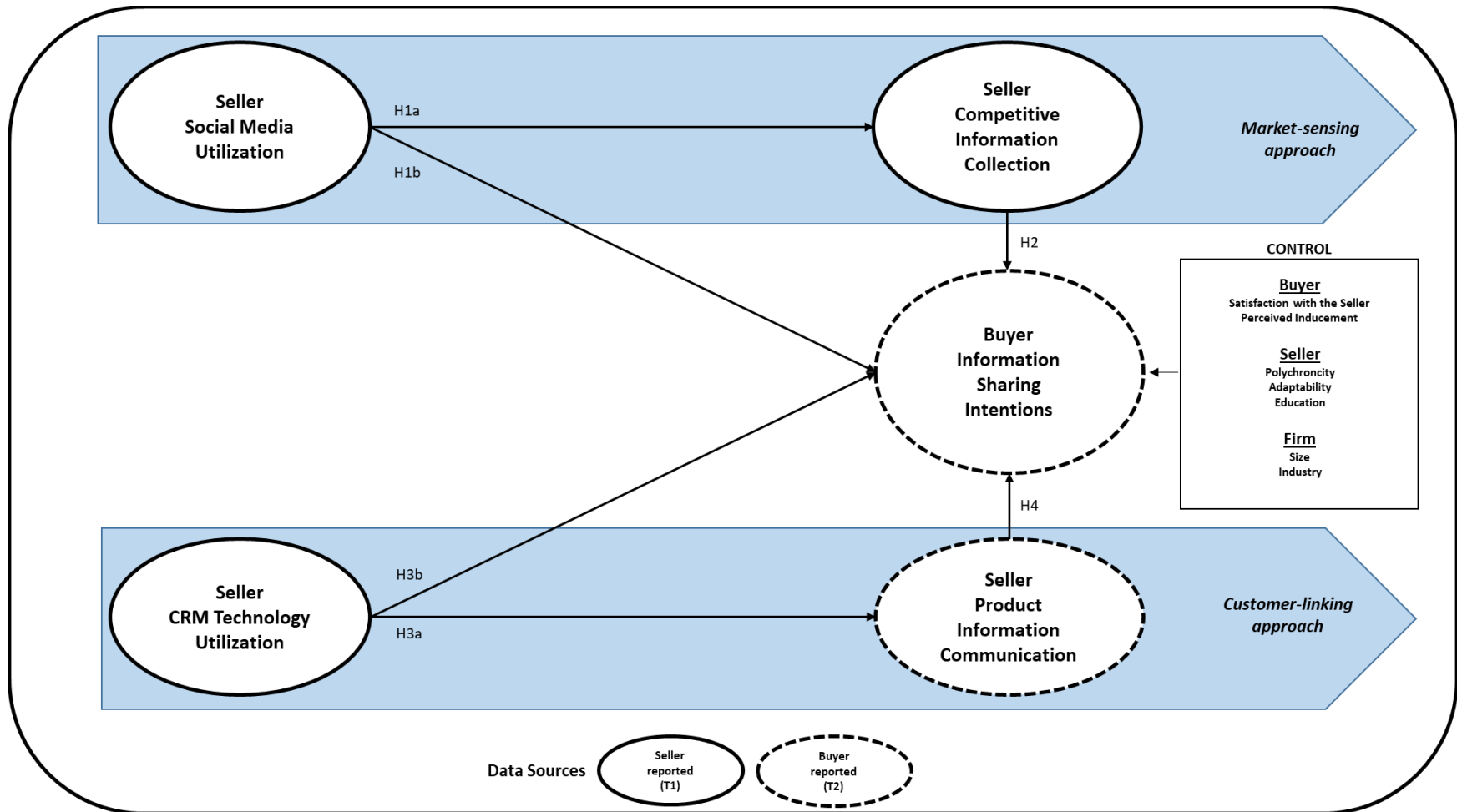
Figure 1

Hypothesized Model

Table 1

Correlations, descriptive statistics, reliability and average variance extracted.

	1	2	3	4	5	6	7	8	9	10
1. Seller social media utilization	.85	.27	.49	.09	.17	.12	.17	.15	.46	.13
2. Seller CRM technology utilization	-.24**	.85	.47	.33	.42	.20	.10	.23	.24	.07
3. Seller competitive information collection	.44**	-.42**	.92	.14	.26	.13	.15	.46	.73	.12
4. Seller product information communication [a]	-.02	.28**	-.08	.81	.78	.28	.32	.14	.21	.17
5. Buyer information sharing intentions [a]	-.09	.31**	-.12	.55**	.79	.58	.09	.31	.23	.09
6. Buyer Perceived Inducements [a]	.04	.04	.10	-.08	-.19*	.71	.22	.08	.25	.06
7. Buyer satisfaction with seller [a]	-.13	-.08	-.07	.02	.47**	.18*	[b]	.05	.09	.10
8. Seller polychronicity	.14	-.19*	.39**	.16*	.20**	.03	.13	.92	.32	.15
9. Seller adaptability	.28**	-.20*	.60**	-.08	-.11	.16*	.04	.22**	.78	.09
10. Firm size - Number of employees	.13	-.07	10	-.13	-.12	.02	-.11	-.17*	.07	[b]
11. Seller education level	.05	-.20*	.19*	-.04	.01	.06	.16*	.17*	.15	.09
Mean	5.75	4.73	5.69	4.55	4.01	2.34	6.10	4.31	5.89	113
Standard deviation	1.19	1.11	1.69	1.16	1.08	.97	1.32	2.14	.95	347
Cronbach's alpha α	.82	.90	.92	.83	.70	.70	[b]	.92	.71	[b]
Composite reliability	.89	.93	.95	.88	.83	.75	[b]	.95	.82	[b]
Average variance extracted	.73	.72	.86	.65	.62	.51	[b]	.86	.61	[b]

* $p < .05$; ** $p < .01$. Correlations are added below the diagonal. The numbers added along the diagonal are the square root average variance extracted. The numbers above the diagonal represent the HTMT values. [a] buyer data, [b] single item.

The number of employees is used as a proxy of seller firm size. CRM: Customer relationship management utilization.

Table 2

Results – overall model.

Predictors	Competitive information collection	Product information communication	Buyer information sharing intentions
	Dependent variables		
Seller social media utilization	$.17^{*}$ (.07) [H1a: Supported]	.12 (.07)	.02 (.05) [H1b: Not supported]
Seller CRM technology utilization	$-.25^{**}$ (.05)	$.26^{**}$ (.08) [H3a: Supported]	$.27^{**}$ (.06) [H3b: Supported]
Seller competitive information collection			.08 (.07) [H2: Not supported]
Seller product information communication			$.42^{**}$ (.05) [H4: Supported]
SocialCRM (Social media utilization × CRM technology utilization)	$.22^{**}$ (.05)	-.09 (.07)	.06 (.06)
Controls			
Buyer Perceived Inducements	-.01 (.05)	$-.20^{**}$ (.07)	$-.25^{**}$ (.07)
Buyer satisfaction with seller	$-.10^{*}$ (.04)	.18 (.10)	$.49^{**}$ (.05)
Seller polychronicity	$.26^{**}$ (.05)	$.17^{*}$ (.07)	.06 (.05)
Seller adaptability	$.44^{**}$ (.06)	-.11 (.08)	-.04 (.05)
Firm size (number of employees)	.05 (.02)	-.08 (.05)	.04 (.04)
Seller educational level	.03 (.05)	-.03 (.07)	-.01 (.04)
Industry	$-.12^{*}$ (.06)	.10 (.08)	.06 (.05)

$^{*}p < .05$; $^{**} p < .01$. Standardized coefficient is reported with standard deviation in parentheses. Industry (1 = service; 0 = product).

Appendix 1

Sample breakdown by industry.

Industries	%
Automobile	13.5
Basic Materials	4.9
Beauty and Cosmetics	1.8
Engineering and Construction	2.4
Financial	21.6
Fast moving consumer goods	8.0
Healthcare	10.5
Hospitality	1.2
Information Technology	2.4
Marketing	3.7
Pharmaceutical	21
Others	9.0

Appendix 2

Measures.

Construct and measures	*Loadings*
Seller customer relationship management technology utilization	
I am using CRM technology to its fullest potential for supporting my own work	.68
I am using capabilities of CRM technology in the best fashion to help me on the job	
I doubt that there are any better ways for me to use CRM technology to support my work	.84
My use of CRM technology on the job has been integrated and incorporated at the highest potential	.93
My use of CRM technology has been incorporated into my regular work schedule	.94
My use of CRM technology is pretty much integrated as part of my normal work routine	.80
My use of CRM technology is a normal part of my work	
Seller social media utilization	
I am using all capabilities of social media in the best fashion to help me on the job	.89
My use of social media is pretty much integrated as part of my normal work routine	.90
I am using social media to its fullest potential for supporting my own work	.76
Seller competitive information collection	
When I am in the field, I try to gather and transmit reliable information	.90
I always assign myself objectives to obtain information about competitors	.95
I ask customers about the competition's products and strategies	.92
Seller product information communication [a]	
This salesperson frequently uses reprints to support his/her claims	.81
This salesperson acknowledges the strengths and weaknesses of his/her product offerings	.87
This salesperson uses company brochures to emphasize points	.82
This salesperson makes objective comparisons between product offerings	.65
Buyer information sharing intentions [a]	
When talking to this salesperson I am willing to provide the market relevant information	.75
When talking to this salesperson I am willing to answer the queries related to the market updates	.83
When talking to this salesperson I feel comfortable in sharing market information	.78
Buyer perceived inducements [a]	
This salesperson consistently remembers birthdays and anniversaries	.70
This salesperson will sometimes do-little things like give out holiday presents	.81
This salesperson remembers my spouse's and children's names and asks about them	.61
Seller polychronicity	
I like to juggle several activities at the same time	.90
I believe people do their best when they have many tasks to complete	.95
I believe it is the best for people to be given several tasks and assignments to perform	.92
Seller adaptability	
Each customer requires a unique approach	.80
When I feel that my sales approach is not working, I can easily change to another approach	.81
I vary my sales style from situation to situation	.73
Buyer satisfaction with seller [a b]	
Overall, I am extremely satisfied with this salesperson.	

All factor loadings are significant at $p < .01$. A 7-point Likert agreement scale "Strongly disagree = 1, strongly agree = 7" was used. [a] buyer data, [b] single item. Items in italic were dropped for loadings.