

LINKING CUSTOMER RELATIONSHIP MANAGEMENT (CRM) PROCESSES TO SALES PERFORMANCE: THE ROLE OF CRM TECHNOLOGY EFFECTIVENESS

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In this paper the authors develop and empirically test a model of customer relationship management (CRM) technology effectiveness. The model considers the effect a selling firm's customer relationship initiation and customer relationship maintenance processes has on its CRM technology effectiveness and subsequently the firm's sales performance. The conceptual model is tested by conducting Structural Equations Modeling (SEM) of a cross-industry data set collected from 1,227 managers. Results indicate firms that successfully implement customer relationship initiation and customer relationship maintenance processes are much more effective with their CRM technology use than firms that do not have such processes in place. Further, the results of this paper suggest that the positive effect a firm's customer relationship initiation and maintenance processes has on firm performance can be partially explained by an increase in the effectiveness of its CRM technology use. Implications for these findings as well as directions for future research are provided.

INTRODUCTION

Managing a sales force remains a key challenge for middle- and top-level management. Some examples of the quandaries that managers are faced with include leading a more complex work environment, hiring, training, and retaining competent people, an ever-evolving customer buying process, technology influences (e.g., CRM systems and social media) on the sales process, and increasing customer expectations (e.g., Adamson, Dixon, & Toman, 2012; Colletti & Fiss, 2006; Jones, Brown, Zoltners, & Weitz, 2005; Trailer & Dickie, 2006; Verbeke, Dietz, & Verwaal, 2011). Because of these and other issues the sales function is undergoing an unsurpassed transformation, driven by a plethora of changing circumstances (Leigh & Marshall, 2001).

Piercy (2010, p.349) further lamented that "the pressures on traditional sales organizations from new types of relationship- and value-based marketing strategies...and above all new

and higher requirements from customers for service and relational investments mandate a fundamental change." One of the most substantial changes in this new landscape is the growing importance of technological resources in the sales cycle (Trainor, Andzulis, Rapp, & Agnihotri, 2013). Sales forces are now armed with customer relationship management (CRM) technologies which include traditional sales force automation technology (SFA) as well as social CRM provisions such as LinkedIn, Chatter and SlideShare (Trainor et al., 2013). An important question for both sales practitioners and academicians to consider is: What can firms do to best manage the sales force to maximize its effective use of such CRM technology?

The purpose of this paper is to address this question, by examining the role institutionalized customer relationship management (CRM) processes play in leading to the effective use of CRM technology. Specifically, the links between customer relationship initiation processes, customer relationship maintenance processes and CRM technology effectiveness is examined. Additionally, the link between CRM technology effectiveness and firm sales

performance is also considered. These theoretical predictions are tested utilizing Structural Equations Modeling (SEM) of data collected from a global and industry diverse set of 1,227 sales managers.

There are several important contributions of this research. First, this research conceptualizes and measures CRM technology effectiveness. This represents a contribution beyond published research in the area which traditionally examines CRM technology use but yet fails to consider the efficacy of such technology use. Second, this research goes beyond examining the antecedents and consequences of CRM technology use by examining the factors that lead to and the implication of the *effective* use of CRM technology by the sales force. Third, by using data from such a diverse sample of sales managers we provide important generalizability to research in the area. Finally, we provide additional evidence to the importance of firms institutionalizing customer relationship initiation and customer relationship maintenance processes. We do this by linking such processes to firm sales performance by including the mediating variable CRM technology effectiveness in the theoretical model.

The manuscript is organized as follows: next the concept of *CRM technology effectiveness* is introduced. Following this the conceptual model is presented and formalized research hypotheses are developed. The research methodology, data analysis, and results are subsequently addressed. Finally, the manuscript is concluded with a discussion of the results and directions for future research.

CRM Technology

The term CRM technology is broadly defined as “a suite of IT (*information technology*) solutions designed to support the CRM process (Jayachandran, Sharma, Kaufman, & Raman, 2005). CRM technology is used to track customers and remain relevant with their needs. Substantial research has examined how and why sales representatives adopt and utilize such technologies (e.g., Chang, Park, & Chaiy, 2010; Jelinek, Ahearne, Mathieu, & Schillewaert, 2006; Speier & Venkatesh, 2002). Research however, has yet to examine the institutional

level factors that lead to the effective use of CRM technologies. Therefore, a better understanding of what firms can do to optimize the deployment of CRM technology is needed. Similar to prior work in the area (Kim, Suh, & Hwang, 2002; Trainor et al., 2013) *CRM Technology Effectiveness* is defined as a firm’s competency in utilizing CRM technologies to build and maintain relationships with customers. The word ‘customer’ refers to both individuals who are engaged in an active exchange relationship with the firm as well as prospective customer (i.e., prospects). Unlike prior research that examines the role of CRM technology use on the link between sales processes and sales performance (e.g., Jayachandran et al., 2005); we consider the antecedents and consequences of CRM technology effectiveness. This is important because it goes beyond simply examining why individual sales managers and representatives use CRM technology. Rather, a better understanding of the factors that lead to the *effective* use of CRM technology is sought here.

Customer Relationship Management

Grounded in the relationship marketing literature, the theoretical foundation of CRM suggests that establishing and maintaining long term customer relationships is at the core of the ‘marketing concept’ (Morgan & Hunt, 1994). Customer relationship management can be conceptualized as a process which involves the proactive management of relationships from beginning to end (Reinartz, Krafft, & Hoyer, 2004). Just as products have life-cycles, so too does the relationship between customer and company. Successful customer relationship management requires the utilization of different components of the CRM process at different stages of the customer life-cycle. During prospecting, or relationship initiation stage for example, firms must focus on processes which facilitate customer acquisition. During the relationship maintenance stage, firms must focus on retention, cross selling and referral management. Finally, at the relationship termination stage firms must actively work to cease relationships with unprofitable customers (Reinartz et al., 2004).

In this paper we focus on the first two stages of the CRM process: customer relationship

initiation processes and customer relationship maintenance processes. We predict firms that deploy rigorous customer relationship initiation and maintenance processes will be more effective in their utilization of CRM technology resources. The formal hypotheses are developed in the subsequent section. Figure 1 depicts our conceptual model.

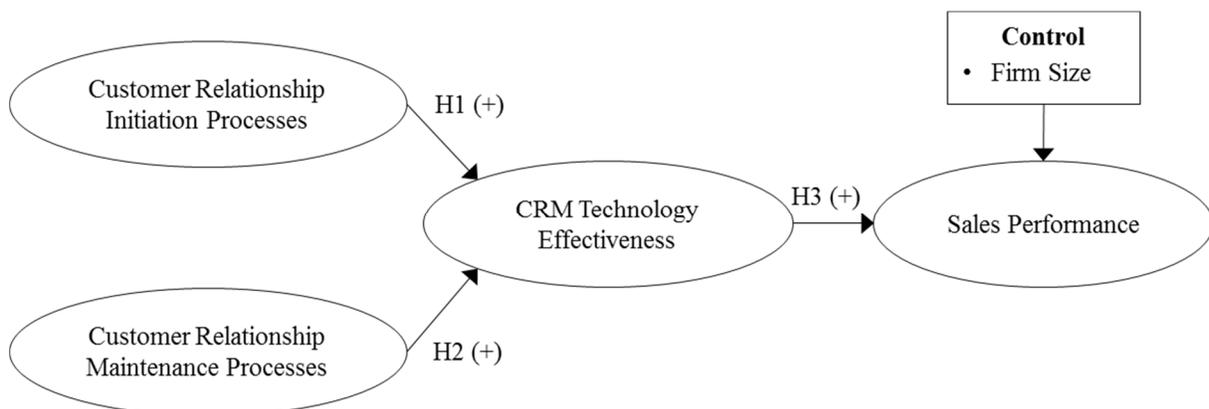
Customer Relationship Initiation Processes

A core principal of sales and marketing is that while individuals within a selling organization (i.e., account executives) may develop close relationships with customers, the customer's purchase will eventually be serviced by the entire selling firm. Robust processes ensure that customer-firm relationships endure even though salespeople may be promoted or turnover. Selling today involves complex solution-based offerings that often involve more than one business function. This complexity suggests sales can be considered a cross-functional, strategic process rather than predicated on a lone salesperson (Storbacka, Ryals, Davies, & Nenonen, 2009). Process-oriented approaches advocate a conscious management of the relationship initiation by establishing process-dependent measures and criteria. This view calls for deployment of defined processes for creation and maintenance of relationships with the buying firm that transcend the individual salesperson. In this scenario, salespersons may be role carriers – a medium that implement these processes.

Similar to Reinartz et al. (2004), we define *customer relationship initiation processes* as the systematic approach firms utilize to create relationships with new customers. During initiation, the main goal is to attract new prospects through the use of various offers to incite a purchase. When working to create new relationships in the market, the entire organization, notably the sales and marketing teams, should be aligned in a) choosing the target customer firms, b) assessing the customers' wants and needs, and c) responding to both marketing and sales generated leads (Sabnis, Chatterjee, Grewal, & Lilien, 2013). Research further suggests that alignment between the sales and marketing functions is particularly important at the relationship initiation stage as valuable leads are often lost when there is a misalignment between these two functions (Sabnis et al., 2013). A selling organization can ensure such alignment by putting in place a formal relationship initiation process. Such a process will establish common criteria or expectations in terms of how all members of the organization (e.g., marketing personnel and sales personnel) utilize the firm's CRM technology. This consistency should enhance the performance of a firm's CRM technology. Thus, it is predicted here that a firm's customer relationship initiation processes will have a positive effect on CRM technology effectiveness.

H₁: Relationship initiation processes will have a positive effect on CRM technology effectiveness.

FIGURE 1:
A model of CRM Technology Effectiveness



Customer Relationship Maintenance Processes

Relationship maintenance processes is defined as the mechanisms firms deploy to nurture and strengthen the relationships they have with existing customers (Reinartz et al., 2004). Due to customers' previous purchases, the goal of the firm is often to up-sell and cross-sell their products or services with new customized, individualized offers. Process-based management of key relationships ensures smooth two-way communications between the selling and the buying firm at various levels. This, in turn, fosters a solution-based sales approach, leading to inter-firm value on an ongoing basis. A formal relationship maintenance process requires the selling firm to continually review the results of the solutions with strategic customers. Relationship maintenance processes also help track the quality and extent of relationships and dialog at the highest executive levels with all strategic accounts.

Relationship maintenance processes involve a continual dialog with the customer. This not only provides the selling firm with multiple touch points with the customer, but also with multiple data points to include in their CRM databases. The capabilities of CRM technology are limited by the quantity and quality of data available in the system (Jayachandran et al., 2005). Formalized relationship maintenance processes should ensure that the data available in a firm's CRM system is current and accurate. Considering the importance of such data integrity to the effectiveness of CRM technology, Hypotheses 2 is put forth:

H₂: Relationship maintenance processes will have a positive effect on CRM technology effectiveness.

CRM Technology Effectiveness and Sales Performance

Competent salespeople and processes are both key to effective firm performance; however, in the fast-paced, changing market place, access to timely and accurate information can make the difference between a converted sale and a missed opportunity. Insightful, specific and credible information detailing customers is one

of the best supports for sustained firm performance when one considers that processes can be easily replicated and competent salespersons easily poached by the competition. This suggests that the effective use of CRM technology may be a particularly important antecedent of sales performance.

In a study using data collected from the sales force of a pharmaceutical firm, Ahearne, Jones, Rapp, & Mathieu (2008) demonstrated that technology use by salespeople influences performance in terms of the percentage of sales quota achieved. This positive effect was achieved through salesperson behaviors that improved customer service via salesperson knowledge and adaptability. The focal pharmaceutical firm used a customized version of the Siebel Pharma Sales software. Ahearne et al. (2008) reported that the software is designed to facilitate the salesperson on all important tasks – from planning a sales call, to post call reporting, to coordinating with the sales manager, to acquiring product updates. Other studies on use of Sales Cloud, a brand of sales force automation (SFA), and customer relationship management (CRM) converge on similar findings. Rapp, Agnihotri, & Forbes (2008) found that salespersons using SFA and CRM – technological provisions – were able to save effort in terms of hours of work for similar results, and also improve adaptive selling behavior. In another study, Ko & Dennis (2004) confirmed that the use of knowledge management-based SFA improves sales performance – the more knowledge the salespersons had the more likely they were to exceed their sales quota. In summary, we expect the effective use of CRM technology (CRM technology effectiveness) to be positively related for sales performance in sales organizations.

H₃: CRM technology effectiveness has a positive effect on sales performance.

METHODOLOGY

Sample

To examine our hypotheses, we used data gathered in conjunction with Miller Heiman, a global leader in sales performance consulting. After participation in the survey, respondents

received an executive summary of the results, as well as a copy of the findings from the previous year’s study. Respondents were invited to participate via email invitations. Of the 13,041 individuals invited to participate in the study, 1,891 (14.5 percent) completed the survey. Of these 1,891 respondents, 1,227 respondents indicated that their sales process was “complex”, involving at least three buying influences. These were the only ones considered for inclusion in the study. To assess non-response bias (Armstrong & Overton, 1977), early and late respondent means were compared and this analysis yielded no significant differences between the respondents. Respondents came from a variety of industries, see Table 1. Notable representations (7% or more in each category) were from the consulting and professional services, technology -software, and manufacturing sectors. Business services, technology-services, technology–hardware, industrial and chemical, construction, and oil/gas sectors were also adequately represented (4% to 7%). Twenty other industries comprised the rest of the sample. Approximately 49% of the respondents worked in organizations that employed 24 or fewer salespeople: 20.4% for those employing 25-99 salespeople, 15% for those employing 100-499 salespeople, and 15.9% for those employing more than 500 salespeople.

The sample is globally represented with respondents coming from firms headquartered in 40 different countries. Australia, the United Kingdom, Germany, and Canada were sizably represented, with respondents from the United States comprising 47.4%. Males comprised 85.5% of the sample. Typically, the respondents were business executives in revenue-generating roles across job functions. Sales vice presidents and sales directors comprised the largest percentage of respondents in the sample (26.4%), followed by sales managers (17.6%). Other categories of respondents who represented more than 5% of the sample were business development managers (13.1%), sales representatives (7.2%), presidents (8.1%), C-level executives (9.8%), and account managers (6.4%). A breakdown of respondents by job title is contained in Table 2.

**TABLE 1:
Industry Data**

Industry	Percent
Aerospace and Defense	2.5
Banking	1.5
Business Services	6.3
Construction	4.2
Consulting & Professional Services	9.9
Consumer Products	2.0
Education	1.5
Energy	1.4
Financial Services	3.2
Food Service	1.6
Government	1.6
Healthcare - Capital	3.3
Healthcare - Consumables	2.4
Healthcare - Services	2.3
Hospitality	.6
Industrial & Chemical	4.7
Insurance	2.3
Manufacturing	8.1
Media	1.9
Oil/Gas	4.1
Pharmaceuticals	2.3
Technology - Hardware	4.9
Technology - Services	5.9
Technology - Software	8.9
Telecommunications - Equipment	2.3
Telecommunications - Services	3.1
Transportation	3.3
Utilities	1.0
Wholesale	1.5
Missing	1.2
Total	100.0

**TABLE 2:
Respondent Job Titles**

Job Description	Percent
C-Level Executive	9.8
President/GM	8.1
Sales VP/Director	26.4
Sales Manager	17.6
Sales Representative	7.2
Marketing	2.9
Training	3.4
Human Resources	1.1
Business Development	13.1
Account Management	6.4
Sales Operations	3.3
Customer/Client Service	.7
System	.1
Total	100.0

Measures

For the data analysis, we followed standard procedure (Churchill, 1979; Churchill & Peter, 1984) and utilized multiple indicators for each variable to ensure sufficient representation of the construct domains. To measure the constructs *customer relationship initiation processes* and *customer relationship maintenance processes* we used 3 and 4 items, respectively. These items are similar to those used by Reinartz et al. (2004). *CRM technology effectiveness* represents a new construct to the literature and is measured using four items available in the data set. Finally, we utilized five available items in the data set to measure

the sales performance construct. These items can each be found in Table 3.

Data Analysis

Adopting generally-accepted psychometric methods (Anderson & Gerbing, 1988), we followed a two-step approach. First, a confirmatory factor analysis (CFA) was specified in Amos 20.0 including the 16 items which represent the study’s four constructs. The fit indices of the CFA provide initial evidence to the validity of the study constructs (χ^2 (df) = 432 (98), $p < .001$, GFI = 0.96, CFI = 0.97, NFI= 0.86, RMSEA = 0.053). Importantly, all but two standardized factor loadings exceed .6.

**TABLE 3:
Measurement Items and Factor Loadings**

	loading
Customer Relationship Initiation Processes	
1 Sales and Marketing are aligned in what our customers want and need	.87
2 Sales and Marketing are aligned in the types of prospects to target	.88
3 We have a formalized value proposition that is very compelling to our prospects	.54
Customer Relationship Maintenance Processes	
1 We always review the results of our solution with strategic accounts	.73
2 When we lose a strategic account, we always know the reasons why	.63
3 We jointly set long-term objectives with our strategic accounts	.80
4 We have relationships and dialog at the highest executive levels with all our strategic accounts	.75
CRM Technology Effectiveness	
1 Our sales management team is highly confident in the data available from our CRM system	.78
2 Our CRM system significantly improves the productivity of our salespeople	.93
3 Our CRM system significantly improves our ability to prepare for interactions with our customers	.94
4 Our CRM system is highly effective for enabling our organization to collaborate across departments	.85
Sales Performance	
1 Compared to last year, our productivity per salesperson has:	.77
2 Compared to last year, our average account billing (or average purchase per customer) has:	.69
3 In terms of revenue, how well is your sales organization currently performing compared to last year?	.81
4 Compared to last year, quota achievement for our sales force has:	.71
5 Compared to last year, the number of qualified opportunities/leads has:	.56

Fit Indices (CFA): CFI = .97; NFI = .86; GFI = .96 RMSEA = .053

Additionally, evidence of convergent validity is provided as the average variance extracted (AVE) of each construct is greater than .50 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Each construct yielded a Cronbach’s alpha score above .70 providing evidence for the reliability of the scales. Finally, to ensure discriminant validity the protocol outlined by Fornell and Larcker (1981) was utilized. The average variance extracted (AVE) of each construct exceeded the squared correlation of each pair of constructs indicating the constructs are different. The factor loadings of each individual item can be found in Table 3. Table 4 contains the descriptive statistics, construct reliabilities and average variance extracted of each construct as well as the correlations between the constructs.

Hypotheses Testing

To test the hypotheses the data were fit to the conceptual model using Structural Equations Modeling (SEM). To assess the degree to which CRM technology effectiveness mediates the relationship between the process variables and performance, direct paths between the two exogenous variables and sales performance were also included (Iacobucci, Saldanha, & Deng, 2007). Additionally, firm size was included as a control variable in the model to account for any systemic effect company size may have on sales performance.

The fit indices of the structural model are (χ^2 (df) = 585 (99), $p < .001$, GFI = 0.95, CFI = 0.95, NFI= 0.94, RMSEA = 0.063), which indicate good overall model fit. The individual path coefficient between customer relationship initiation processes and CRM technology

effectiveness is significant ($\beta = .33$. $p < .01$) providing support for Hypotheses 1. Next, the path between customer relationship maintenance processes and CRM technology effectiveness is significant ($\beta = .23$. $p < .01$) lending support to Hypothesis 2. In support of Hypothesis 3, the path between CRM technology effectiveness and sales performance is significant ($\beta = .13$. $p < .01$). The path between the control variable firm size and sales performance is not significant ($p > .05$).

The direct (unmediated) path between customer relationship initiation processes and sales performance is significant ($\beta = .12$. $p < .05$). Additionally, the direct (unmediated) path between customer relationship maintenance processes and sales performance is also significant ($\beta = .12$. $p < .05$). Empirically, this indicates that CRM technology effectiveness partially mediates the relationship between customer relationship processes and sales performance (Iacobucci et al., 2007). Implications of this are discussed subsequently.

DISCUSSION

The conceptual model proposed and empirically tested indicates the degree to which firms deploy formalized customer relationship initiation and customer relationship maintenance processes has a significant and positive effect on CRM technology effectiveness. This is important because while prior research has examined many of the antecedents to CRM technology use, limited research has considered the factors that lead to the *effective* use of CRM technology by sales organizations. By formalizing customer

TABLE 4:
Correlation Matrix and Descriptive Statistics of Study Measures

Variable	M	SD	CR	AVE	1	2	3	4	5
1. Relationship Initiation Processes	4.75	1.25	.80	.54	1				
2. Relationship Maintenance Processes	4.81	1.20	.82	.61	.40*	1			
3. CRM Technology Effectiveness	4.01	1.54	.93	.77	.40*	.34*	1		
4. Firm Performance	4.79	1.39	.83	.51	.19*	.16*	.20*	1	
5. Firm Size	3.09	2.20	---	---	-.20*	.12	-.02	.08	1

Note: * correlations significant at $p < .01$

relationship management processes at various stages of the customer life-cycle, firms can help ensure the capabilities of CRM technology provisions are being fully capitalized. This is especially important considering the pressure managers face in financially justifying large investments such as the investments required to acquire and maintain CRM technology (Jayachandra et al., 2005).

Collecting data from multiple contact points with customers is only useful if the data is stored and used by members of the firm. Merely having CRM technology does not ensure that it will deliver value. Value occurs when the salesperson is able to communicate and collaborate with others, especially with customers. This focus on the customer from a relational view, rather than a transactional one, is the foundational premise of having and successfully using a CRM technology. The scant empirical findings about the moderating impact of CRM technology on performance have been inconclusive thus far (Ernst, Hoyer, Krafft, & Krieger, 2011). Our analysis however, suggests that how well a firm effectively uses their implemented CRM technology leads to increased sales performance.

Members of a firm's sales force are the boundary spanning agents of the firm; they are responsible for building relationships with customers which in turn, ultimately enhances firm revenues. The close relationships developed between customers and salespeople can represent a potential risk if a salesperson leaves the selling organization (Palmatier, Scheer, & Steenkamp, 2007), or simply is not available at that precise moment to interact with the customer. The model presented here suggests that companies can mitigate this risk by developing robust customer relationship initiation and customer relationship maintenance processes. The analyses suggest that these firm-controlled processes have a positive effect on performance through their effect on the CRM technology effectiveness.

An essential goal of CRM technology is to enable salespeople and marketers to improve client facing efficiency and effectiveness (Sharma & Sheth, 2010), which leads to improve performance as evidenced in this

study. Results from the study show that by pursuing a customer relationship initiation process, along with a relationship maintenance process it has positive effects on sales performance. The key is to have management convince the sales team of the importance that CRM technology plays in this course of action resulting in sales performance. Moreover, CRM technology effectiveness should be viewed as a tool to drive a customer-centric culture within the selling firm and it starts with prospect initiation and is carried through the relationship maintenance process.

One other contribution of this paper is the generalizability of the findings. As Staelin, Ehret, & Johnston, (2005) noted, CRM research results tend to be rather idiosyncratic, and they called for a more cross-industrial and cross-cultural approach to CRM studies. Given the varied industries involved in this study, consulting, technology, construction, manufacturing, business services, (see Table 1) the results are robust from a commerce perspective. Additionally, with respondents from 40 differently countries, this allows the cultural nuances that Boulding et al., (2005) called for to permeate the data and findings.

Limitations and Directions for Future Research

There are several important limitations in this research which must be addressed. First, the cross-sectional survey design of the study limits our ability to make causal statements. That is, the dependent variable (firm sales performance) and mediating variable (CRM technology effectiveness) were gathered at the same time as the antecedent variables were collected. Therefore, it is possible that high performing firms are simply better able to utilize CRM technologies. To overcome this limitation, future research can test this research model using a longitudinal survey design when the antecedent variables are collected at one point in time and the dependent variable is collected at some later date.

A second limitation in this study is the parsimony of the conceptual model. While the model presented and empirically tested does simultaneously examine the effect of several factors on firm performance, it is possible that

important variables that affect firm performance were omitted from the model. Future research can address this limitation by continuing to examine in a holistic fashion the many factors related to sales management that can affect CRM technology effectiveness and firm performance. Despite these limitations this paper does provide a starting point in terms of examining the importance of customer relationship processes and CRM technology effectiveness in predicting firm sales performance.

Third, as noted earlier, only respondents who indicated that their sales process was “complex”, (i.e., involving at least three buying influences) were included in this study. Therefore, generalizing the study’s results to companies involved in simpler sales processes must be made with caution.

A further limitation of this study lies in the fact that the scale construction occurred with industry experts and by consulting existing literature. The dimensionality, reliability, and validity of the new measure CRM technology effectiveness has been set, future research could further study the construct by testing it in a single company. After gathering the quantitative data from one company and analyzing it, researchers could follow up with qualitative interview data in which the informants describe the activities and situations in which they used the CRM technology effectively. While our research has established that using CRM technology effectively leads to firm sales performance, what is yet to be understood are descriptive examples of some ways that salespeople use customer relationship initiation and maintenance processes through their CRM technology. This research paves the way for future scholars to ponder and qualitatively inquire into how a salesperson integrates customer relationship processes into the use of their CRM technology.

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