

CHAPTER 16

SALES TECHNOLOGY

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16.1 INTRODUCTION

Business-to-business (B2B) exchange has long been a fundamental driver of economic growth and a focal point of marketing and sales scholarship. As an economic catalyst, great importance rests in efficient and effective networks among business sellers and their customers. Spanning boundaries between sellers and buyers, according to the US Bureau of Labor Statistics, in the United States alone over 16 million people—more than 11% of those employed—worked in sales or related' jobs in 2008. Of course, global expenditures are multiples of these US-based figures. Not only do sales force investments constitute a healthy portion of economic spending, exceeding US\$ 800 billion, sales costs are among the most dominant line items for the firm, representing as much as 40 per cent of revenues (Zoltners, Sinha, and Lorimer 2009). These realities signal the high priority that executives place upon the sales function,

While the term 'marketing' conjures up notions of advertising for the layperson, in aggregate, US companies invest almost three times as much in their sales forces as they do on advertising (Zoltners, Sinha, and Lorimer 2009). While a significant portion of those expenditures represent compensation, much is spent on information technology (IT) tools (hardware, software, and systems) and the training and support they need. For example, estimates of 2008 spending on customer relationship management (CRM) software (which includes sales, customer service, and

marketing applications) exceeded \$US12 billion. Yet publications centered on sales research in premier marketing journals have declined significantly over the past two decades (Williams and Plouffe 2007). With the rapid pace and ongoing diffusion of complex and costly technologies and their accompanying transformational effects on sales strategy, process, and people, more research on IT and the sales function is warranted.

There is continuing debate in both the academic literature and business practice over what or how this domain of inquiry should be referenced. How those differences are resolved remains open for the research and discourse that will follow in the years ahead. For clarification, this chapter uses the term "sales technology" as an umbrella term under which the interrelationships among sales strategy, sales processes, salespeople, and information technology are explored. More formally stated, "sales technology" (ST) refers to information technologies that can facilitate or enable the performance of sales tasks (Hunter and Perreault 2007).

ST includes sales-based CRM and sales force automation (SFA) applications. This use is consistent with other scholarly contributions to the present-day resurgence of this stream of research (Ingram, LaForge, and Leigh 2002, LaPlaca 2005, Schillewaert, Ahearne, Frambach, and Moenaert 2005, Hunter and Perreault 2006, Jelinek, Ahearne, Mathieu, and Schillewaert 2006, Bush, Bush, Orr, and Rocco 2007, Hunter and Perreault 2007, Mathieu, Ahearne, and Taylor 2007, Ahearne, Jones, Rapp, and Mathieu 2008, Rapp, Agnihotri, and Forbes 2008).

Of course, ST management has gone far beyond buying the latest technological innovation and putting it on laptops for sales reps to use. Many firms have organized ST departments, appointed ST general managers, developed ST training programs, formed alliances with ST software vendors, and hired reps with different skills than those sought in contexts better characterized as "low-tech," transaction-based selling. Simply put, ST is having a dramatic impact on personal selling and sales management.

This chapter reviews the current literature on ST and discusses some opportunities for future research. The chapter highlights issues related to the dynamic nature of ST and its pervasive influence on the firm, and argues that the topic warrants more attention from both scholars and managers.

16.2 DEFINING SALES TECHNOLOGY AND ITS RELATIONSHIP TO CRM AND SFA TECHNOLOGIES

This section discusses ST relationship with to two relevant concepts used in both marketing scholarship and practice—namely, sales force automation (SFA) and customer relationship management (CRM).

16.2.1 Defining Sales Technology

"Sales technology" refers to information technologies that can facilitate or enable the performance of sales tasks (Hunter and Perreault 2007). To elaborate, essential work refers to "all the tasks that a company must perform to meet the needs of its customers and prospects" (Zoltners, Sinha, and Zoltners 2001). As such, sales tasks are the essential work expected from direct and indirect sales forces. These tasks include interest creation, pre-purchase information sharing, proposing solutions, cooperative or competitive inter-firm negotiations, and post-purchase relationship management. Information technology can facilitate (make easier) or enable (make possible or practical) many of these sales tasks.

Inevitably, ST affects sales tasks in different ways, including some that may result in sustainable competitive advantage. Thus, it is not surprising that sales organizations continue to invest in and explore new ways to leverage sales technology. It is worth noting that SFA and CRM software represent only a portion of a firm's ST portfolio. A firm's ST portfolio is defined here, as implied elsewhere, as all the information technologies associated with implementing, evaluating, and controlling a firm's selling effort. As such, ST includes mobile hardware technologies, "office suite" software, and the innovations that will inevitably follow an economic activity of such notable magnitude and influence. To elaborate, the domain of ST includes laptops, cellphones, PDA devices, word processing, spreadsheet, graphics, and database applications.

16.2.2 ST, SFA, and CRM technology

Figure 16.1 proposes a conceptualization of the relationships among three relevant domains that intersect IT with the sales function: ST, CRM, and SFA technologies. The figure is adapted from a previously published discussion (Hunter and Perreault 2007). Despite the explicit references in early and widely cited research on CRM as a strategy or framework for business (Winer 2001), some research on CRM and relationship marketing excludes any reference to the sales function or to salespeople. This shortcoming could occur as a failure by authors either to realize or to acknowledge a role for the sales function in CRM. Some clarification in semantics may be necessary. This shortcoming may relate to the transformation of salespeople, in some industries, from roles focused on acquisition (hunters) to new roles which center more on account retention, maintenance, and business relationship management (farmers). Another alternative is that the absence of "salespeople" in recent "CRM" or relationship marketing research may result from the CRM literature's principle focus on the business-to-customer (B2C) financial services industry and an adaptation of that industry's jargon. Ironically, much of the pioneering work on relationship marketing, the basis for the CRM literature, had more focus on B2B sales contexts (Dwyer, Schurr, and Oh 1987, Sheth, Parvatiyar,

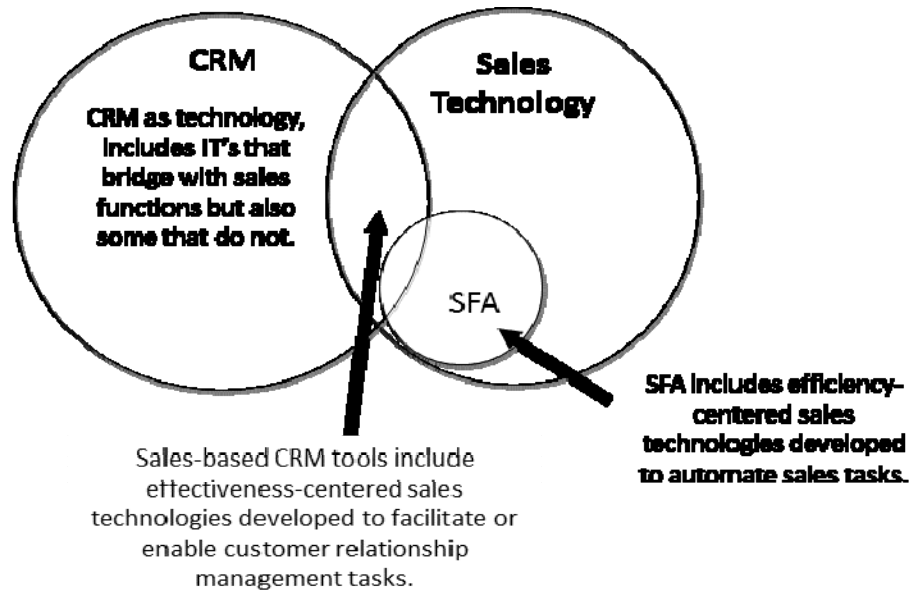


Fig. 16.1. The relationships among sales technology (ST), CRM, & SFA domains

and Roberto 1994, Parvatiyar and Sheth 2000). That is in stark contrast to managing a business relationship with a key account, as is done by B2B salespeople working with business customers.

In any case, if salespeople played no role in CRM or relationship marketing, the relationship between ST and CRM technology would best be depicted by a Venn diagram representing their mutual exclusiveness. On the other hand, in "pro-sales" research, CRM technology is referenced as if CRM applications were used exclusively by salespeople. If that were the case, the CRM technology domain would subsume the ST domain. Yet CRM technologies neither consume sales technologies nor vice versa. Instead, these two domains of technology overlap, and here's why.

16.2.3 Relationship Marketing, Customer Relationship Management, and ST

Indeed, salespeople often play a critical role in managing customer relationships (Weitz and Bradford 1999). Such sales roles occur when the sales force is employed in the firm's go-to-market strategy and charged with responsibility for achieving long-term outcomes with (key) customer accounts. The inter-firm exchanges

pursued through such buyer-seller relationships include both personal and economic dimensions whose relative importance is contingent upon several factors. These differences in the nature of buyer-seller relationships also alter the type of ST needed and the ultimate usefulness of any given technology.

In any case, salespeople are so prevalently involved in relationship marketing efforts that ST vendors routinely target sales organizations with ST solutions intended to improve the efficiency (e.g. administrative performance) and effectiveness (e.g. relationship-building performance) of the sales process. Over the past decade, such ST tools have become both increasingly sophisticated. Getting beyond common SFA era applications-which primarily yielded returns through efficiency (e.g. accounts and contact management)-innovative ST applications now offer improvement in sales effectiveness (e.g. analytics and forecasting). For example, new analytical functionality helps salespeople develop better market knowledge upon which they can customize better solutions for their business customers (Ahearne, Hughes, and Schillewaert 2007, Hunter and Perreault 2007).

Collectively, changes in strategy and technology catalyzed new opportunities for competitive advantage through superior sales force differentiation strategies.(Hunter and Perreault 2007). Concurrently, CRM emerged as both a strategy and technology industry with a range of definitions and accompanying ambiguity (Plouffe, Williams, and Leigh 2004, Payne and Frow 2005). In the information industry, CRM is the term used to describe "methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way" (Xu, Yen, Lin, and Chou 2002). Strategically, CRM builds on the rich foundations of scholarship on relationship marketing (Gummesson 2008). As such, it is far more than a technology, and, in addition to supply chain management (SCM) and product development management, can be considered as one of three core processes that constitute the domain of marketing (Srivastava, Shervani, and Fahey 1999). In an effort to coalesce CRM research around a common definition, recent research states that

CRM relates to strategy, the management of the dual creation of value, the intelligent use of data and technology, the acquisition of customer knowledge and the diffusion of this knowledge to the appropriate stakeholders, the development of appropriate (long-term) relationships with specific customers and/or customer groups, and the integration of processes across the many areas of the firm and across the network of firms that collaborate to generate customer value. (Boulding, Staelin, Ehret, and Johnston 2005: 157)

Thus, in essence, most scholars would agree that CRM is an organization-wide strategy centering on customers in which technologies play an important role (Landry, Arnold, and Arndt 2005). Whether one quibbles over definitions or not, the undeniable reality of CRM is that salespeople are typically involved in the strategy (relationship marketing). Moreover, salespeople use IT (sales-based CRM and others) to help identify, develop, propose; or carry out relational objectives. These evolutionary changes make the interrelationships between salespeople,

information technology, and sales processes central to any CRM strategy that involves the sales function as a go-to-market participant. CRM strategy can be decomposed into stages ranging from imitation to maintenance to termination (Reinartz, Krafft, and Hoyer 2004). Recent research found that ST tools have different effects on different stages constituting a customer relationship that occurs through different mediation mechanisms (Moutot and Bascoul 2008).

Such strategies include person-to-person interactions centered on resolving the inevitable conflicts of interests that exist between sellers and buyers. This relationship marketing evolution is evidenced by many firms referring to salespeople with titles such as "relationship managers," "account managers," or "customer business development (CBD) representatives." It is worth noting that these title changes often reflect real changes in the roles salespeople perform. Also, the types of sellers represent products ranging from goods to services to experiences, and so on. Most notably, the nature of selling shifted from mainly "pushing products" (such as goods or services) that optimize returns on transactions (transactional selling) to proposing integrative solutions that help build long-term mutually beneficial business relationships (relational selling). Concurrently, there has been a shift stressing the use of high-tech, knowledge-leveraging innovations over low-tech, persuasive selling tactics.

Thus, many CRM software solutions are designed for use by "salespeople" and can be referred to as sales-based CRM technologies (Hunter and Perreault 2007). Some CRM technologies are sales technologies, yet others are intended as solutions which facilitate, enable, or automate tasks assigned to marketing or customer service roles. Still others help organizations, who from an evolutionary economics perspective should employ excellent process thinking skills to avoid the doom of selection-on-selection market processes (Dickson, Lassar, Hunter, and Chakravorti 2009). Moreover, this process thinking should occur *before* deciding between purchasing commercially available ST and developing proprietary applications customized to support idiosyncratic sales processes.

16.2.4 Technology "Automates" Tasks

Many consider SFA technologies as forerunners to CRM technologies, leading many ST experts to consider the CRM technology industry as an outgrowth of the SFA industry (Chen and Popovich 2003). Yet "automation" is an old term, and thus has an established literature that intersects many social and natural science disciplines. Many claim Del S. Harder of the Ford Motor Company first used the term in 1946, more than a half-century ago. Harder defined automation as a "new word denoting both automatic operation and the process of making things automatic" (Diebold 1952). Generally, the term "automation" refers to this established meaning in both the extant social sciences literature and long-standing business practice.

In general, today, social scientists define automation as "the execution by a machine agent (usually a computer) of a function that was previously carried out by a human" (Parasuraman and Riley 1997). Consistent with this widely held understanding of automation, some sales scholarship adopts the notion for SFA by noting that "automation typically focuses on facilitating tasks that salespeople previously handled in other ways" (Hunter, Perreault, and Armstrong 1998). Additionally, seminal social science research notes the "ironies of automation" that have befuddled researchers and industries for years by three realities associated with automating (using a technology to complete an existing task). Specifically, it is ironic that in automating tasks, one (a) does not necessarily remove its difficulties, (b) may introduce new difficulties, and (c) may induce a need for even greater technological ingenuity to resolve newly created difficulties (Bainbridge 1983).

Understandably, sales scholars may misuse the term "automation" as many SFA vendors use the term to refer to ST tools which never had the potential to displace a salesperson's completion of an existing task. Yet it is not used with a universal meaning in either industry or academic research. In sales research, the rationale for SFA is that "some sales tasks can be done more quickly, cheaply, or effectively through the application of information technology" (Hunter et al. 1998). The idea behind SFA is that by doing administrative tasks more quickly, one improves the ratio of time spent selling to time spent on non-selling tasks.

Indeed, a contact management application simply automates the task of managing contacts. On the other hand, an analytical sales-based CRM application that estimates marketing mix outcomes subject to inputs and interpretations by the salesperson enables use of more sophisticated algorithms which form the basis of solutions customized to the customers' markets. Thus, in a relationship marketing context, the technology enables the salesperson to develop and propose integrative solutions that help build better relationships with her customers (Hunter and Perreault 2007).

16.2.5 Some Firms "Make" Their Own ST Tools

Yet technology can facilitate or enable "selling" tasks-and both SFA and sales organizations realized that soon after the automation era began. For example, multinational enterprise (MNE) sellers faced classic "make or buy" alternatives associated with investments in ST. By the early ~990s, firms like P&G, who had significant enough economies of scale to "make" proprietary ST solutions, organized internal "sales technology" departments. These ST departments worked across key account teams of the global sales organizations to find new ways to employ information technology to improve the efficiency of administrative tasks and the overall effectiveness of their relationship marketing efforts. Software prototypes were developed by studying "best practices" across key account sales

teams. The ST department then developed software prototypes to demonstrate its intended functionality. IT specialists then worked to ensure computer programmers developed software consistent with the specifications and desires of the sales force managers. Subsequently, or perhaps concurrently, SFA vendors worked to develop technology solutions for similar purposes. Other similar processes for developing proprietary ST applications are still being used in the consumer pack- aged goods industries, among others.

16.2.6 Sales Technology Goes Beyond Automating Tasks

Simply put, these evolutions in both academic ideals and practical use reflect efforts to use technology in ways that go beyond the concept of "automation." Clearly, many technological innovations, particularly during more recent years, were developed to *enable new* tasks (Hunter et al. 1998)-and not just to automate existing (old) tasks. Thus, the use of the term "sales automation" captures neither the intent nor their true capability. To elaborate, the intent is not to displace a person's performance of a task with a technology. Likewise, some ST innovations are designed to add organizational capability by centering on ways to make salespeople more effective by enabling the performance of new tasks, and are not limited to automating existing tasks.

16.3 A STRATEGIC PERSPECTIVE ON SALES TECHNOLOGY AND COMPETITIVE ADVANTAGE

This section discusses a strategic conceptualization of ST from the perspective of the selling firm.

16.3.1 Sales Technology and Competitive Advantage: "Lengthening the Spear"

In the military sense, technology is the application of science to war. However, even before the expansion of science in early modern times, man coupled deduction with intuition to produce weapons. The idea that drove the Macedonians to lengthen the spear was impelled by the same spirit that produced the nuclear weapon: the desire to gain advantage over one's opponent. (Greiss 1984: 14)

The annals of military history evidence the importance of technological superiority, and chronicle the natural pursuit of competitive advantage through achieving it.

While the stakes of ignoring technology in warfare far exceed those associated with a similar ignorance in business (sales) practice, technological superiority plays a role in deciding the eventual winners and losers in economic competition.

Yet, while most recognize the importance of ST, many sales managers continue to struggle with how best to use technology to improve the efficiency and effectiveness of their sales efforts. This is reasonable, as ST is both a complex and costly consideration for which no universal solution exists. Specially, contingency theory suggests that use of a technology varies across contexts.

Nonetheless, just as modern salespeople customize and tailor solutions to meet the differing needs of business customers (Tuli, Kohli, and Bharadwaj 2007), so too must sales managers customize their ST portfolios. That customization spawns new ST training programs and needs for ST support. Beyond decisions about ideal portfolios, salespeople themselves must decide which technologies to employ, in what manner they will employ them, and to what extent ST use is helpful to achieving their desired objectives. Managers need better understanding of the contingent factors associated with ST and its interrelationships with sales strategy, sales processes, and salespeople across a much broader range of sales contexts.

16.3.2 ST as a Replacement for a Sales Force: Fully Automating Sales Tasks

Some organizations use a portfolio of technologies to connect their selling function, or elements of it, to its buying organizations. In these cases, there is no reliance on person-to-person communications between buyers and sellers, as a technology interface conducts exchanges-as is the case with online reverse auctions (Jap 2003). Such uses of information technology represent a strategic decision to "automate" fully the sales role by displacing salespeople with technology. For some accounts, this is both viable and ideal strategy, as the costs of such systems may be less than the people-dependent alternative. With people-dependent solutions, managers should consider value added from staffing, supporting, and equipping the sales force with a prospective portfolio of ST tools. Moving along the continuum between a fully automated sales force and one that performs independent of ST, a seller may either automate some tasks across all accounts (full task automation) or automate selected tasks across selected accounts (selected task automation).

16.3.3 ST as an Aid to Adding Value in Collaborative Relationships

Value remains a dominant strategic concern in assessing whether automated sales systems are better alternatives than those which integrate technology with salespeople and sales processes. Sales managers should consider whether salespeople

can add value to exchange processes beyond the capabilities of a technology-only (fully automated) buyer-seller boundary. Simply put, when salespeople add no value beyond an automated process, automation makes sense.

In essence, human intelligence or "insight" represents a principal ingredient of value that salespeople afford. That value is delivered within new sales roles in which salespeople need to be embedded in both their firms' and their customers' organizations (Bradford et al. 2010). The current era may be best characterized as one in which B2B salespeople add value to exchanges by transitioning from experts to advisers in collaborative relationships (Sheth and Sobel 2002). Buyers expect solutions to combine goods and services tailored to their specific needs (Tuli et al. 2007). The provision of successful integrative solutions by the salesperson to the buying organization can be improved through the salesperson's use of analytical ST applications (Hunter and Perreault 2007). In this context, salespeople must establish trust through value and loyalty in the relationship exchanges (Sirdeshmukh, Singh, and Sabol 2002) with business buyers-and when buyers agree to the salesperson's proposals, the value provided in those solutions are tested over time.

ST can help salespeople provide better solutions, and the extant research proposes mechanisms through which that may occur. In fact, the extant ST research centers on the antecedents and consequences of ST use.

16.3.4 Sales Technologies Used by Salespeople as a Means for Competitive Advantage

The customer-relating, or customer-linking, capability associated with effective outside-in processes (Day 1994) should be a focal point for firms who seek competitive advantage through integrating ST. Selling firms need to align performance metrics, incentives, structures, and processes to improve their customer relating capability. Yet, instead of considering sales processes first, as proposed in the ST literature (Hunter and Perreault 2007), most firms react to market pressures and think first about information technology (Day 2003). This is suboptimal and costly.

When firms seek to integrate ST with sales processes and salespeople to pursue their sales strategy (Zablah, Bellenger, and Johnston 2004), IT does not displace salespeople, but instead supports salespeople in their performance of assigned sales tasks. Importantly, firms should assess the costs and benefits of ST solutions. By projecting the potential of individual or a portfolio of sales technologies, sales executives can implement STs that go beyond facilitating essential tasks (automation) to enabling accomplishment of new tasks (Hunter 1999, Hunter and Perreault 2006, 2007).

Process thinking skill refers to one's ability to think broadly, deeply, and creatively about selecting, configuring, and implementing superior processes and the

ability to lead the implementation (Dickson et al. 2009). Technology can have the opposite of its intended effects if it is applied to poorly designed processes-as it can amplify and accelerate adverse effects-Thus, after applying excellent process thinking skills, managers should consider (a) whether IT solutions already exist, (b) which combinations of ST and salespeople best accomplish the essential work at hand, (c) whether partnering with an ST vendor is desirable, and (d) the potential merit of outsourcing the development of ST tools. In essence, the objective is to design solutions that combine sales-services and product offerings (goods or services) to develop solutions tailored to each business buyer's strategy. When such sales-services are notably unique from those offered by competitor(s), the sales strategy of differentiation is referred to as a "sales-service differentiation strategy" (Hunter and Perreault 2007).

16.3.5 ST from a Sales Management Perspective

At an aggregate level, from a sales management perspective, the impact of technology has been a double-edged sword. On the one hand, the development of information technologies has automated many tasks that previously were handled, at least primarily, by a salesperson.

Today, these tasks may be managed through an online marketplace or handled by a customer service call center, each differentiated by the value they afford. For example, the skills needed by call center reps may be significantly different from the analytical demands placed upon a sales team dedicated to a key account.

Thus, for many key account relationships, information technology enables salespeople to do things that in the past were slow, difficult, or impossible to accomplish. For example, salespeople in such roles often use sophisticated demand forecasting algorithms (akin to those found in the marketing science literature) made possible through technology applications that simplify inputs and interpreting outputs. Even a decade or so ago, few sales managers would imagine a sales force comprising individuals who could both estimate such sophisticated models and, in turn, communicate their forecasts well enough to persuade buyers to adopt and implement the integrative solutions represented as outputs of such analytical, technology-dependent sales processes.

16.3.6 The Pervasive Effects of ST Throughout Determinants of Sales Performance

Meta-analytic studies on salesperson performance and satisfaction (Churchill, Ford, Hartley, and Walker 1985, Brown and Peterson 1993) pre-date much of the research on ST. Thus, little is understood about the pervasive effects of ST on

salespeople, sales processes, salesperson performance and satisfaction. Yet it makes sense to use proven frameworks to better understand ST, as here. Specifically, there is growing consensus that sales performance is determined by five categories of variables: (1) role, (2) aptitude, (3) skill level, (4) motivation, and (5) personal, organizational, and environmental factors (Hutt and Walker 2006).

Several factors affect the capacity of ST to yield returns on investment, including salesperson skills and abilities, sales organization objectives, the nature of the buyer-seller relationship, the fit between ST and sales tasks, and ST competitive intensity. Thus, each sales industry, organization, role, and even salesperson has different needs for the types of ST most suited to its needs. As such, there exists substantial variance in types of ST adopted, the extent of use by salespeople within an organization, the final acceptance of ST types by salespeople, and the types of returns they afford. So, it is well understood, following Stephen Roach's findings, that investments in ITs do not necessarily lead to improvements in productivity-which has been dubbed the IT productivity paradox (Lucas 1999). Similarly, investments in ST yield variable returns that are difficult to predict prior to implementation or to ascertain in post-implementation phases. This also helps explain why the manner in which salespeople use a sales technology portfolio matters in relation to antecedents, mediation mechanisms, and ultimate outcomes (Hunter and Perreault 2007).

Essentially, the extant research has not fully explained how ST affects sales performance and satisfaction across conditions, industries, salesperson characteristics, sales processes, and so on. Moreover, these issues have not been resolved in practice, as most sales executives report dissatisfaction with their investments in ST investments. There is simply far more heterogeneity in sales processes, strategies, tactics, organizational designs, salesperson characteristics, and STs that have not been adequately addressed by the extant literature.

16.4 EQUIPPING, TRAINING, SUPPORTING, AND MOTIVATING SALESPEOPLE TO ADOPT STs

This section discusses the ST industry and how its offerings, or proprietary ST innovations, influence sales management decisions on how best to equip, train, and support their sales forces with ST tools. Additionally, this section discusses how STs may influence the salesperson motivation.

16.4.1 The ST Industry

Forrester Research estimates that 2010 worldwide CRM spending will exceed \$US11 billion (Band et al. 2008). Additionally, firms spend three times the costs of CRM software on the integration, support, and maintenance that accompanies it (Ang and Buttle 2006). Commercial software products that are designed as "one size fits all" standardizations of sales processes may only help sales forces meet the competitive imperatives associated with the aforementioned escalations in their customers' escalating expectations for ST use. Some commercial products can be customized for firm-specific applications, but the nature of software development is to gain economies of scale by selling similar solutions to multiple buyers. Thus, to get a truly customer ST solution, some firms develop proprietary applications. The actual size of the ST market is likely a multiple of the above estimates.

16.4.2 Interfirm and Intrafirm (Cross-functional) STs

The impact of ST on selling has been more far-reaching than the simple effects associated with a firm's decision to adopt new commercial software. For example, Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP), Electronic Markets (EMs), Online Marketplaces, Local Access Networks (LANs), and Advanced Planning and Scheduling (APS) may be more hardware-intensive than they are software-dependent. Such technologies may have less to do with *directly* influencing the ways and means salespeople accomplish their tasks. They are also underrepresented in the extant literature, and relevant to strategic ST decision-making concerns related to automation decisions.

These information technology infrastructures serve as necessary support for salespeople in managing relationships with key accounts that often generate multi-million- (or even billion-)dollar annual revenue streams. Such accounts are often represented by an account team of salespeople who negotiate collaborative deals with buying centers. While a fundamental understanding of major factors in the procurement process is essential for key account salespeople (Hunter, Bunn, and Perreault 2006), interfirm STs can improve the efficiency and effectiveness of the exchange process.

In view of the scope and capacity of interfirm technologies to create economic worth, it is not surprising that this field is dynamic and continues to spawn needs for more academic research and better management understanding. Firms and scholars continue their quest to find new ways to employ ITs to improve supply chain management capabilities (Wu, Yenyurt, Kim, and Cavusgil 2006). For example, private EDI systems are being displaced by Internet Electronic Markets (EMs) to reduce distribution costs (Yao, Dresner, and Palmer 2009). As information sharing has been shown to improve a B2B salesperson's ability to develop

better relationships with customer accounts (Hunter and Perreault 2007), ERP systems may improve the efficiency through which such information sharing occurs (Bendoly, Rosenzweig, and Stratman 2009). Some sharing becomes automated, while other information sharing is conducted primarily through social discourse.

Among other functions, some STs integrate sales force functionality across individual applications (e.g. APS software often includes a contact management application). Others may provide operational linkages (e.g. Extranets can link users across firms). Finally, some provide the information inputs required for analytical sales processes (e.g. UPC scanners generate retailer POP data that is often used by manufacturers' key account teams). There are well-documented cost advantages of a coordinated sales forecasting and production planning process over the obsolete silo-based approach through the reductions in the so-called "bullwhip effect" in supply chains (Lee, Padmanabhan, and Wang 1997). ST systems may be used to automate and improve such cross-functional coordination tasks.

16.4.3 An Ever-Expanding Set of ST Choices for Sales Organizations

The wide range of information technology solutions-and differentiated offerings from ST providers-add complexity to ST purchase decisions and scholarship. In either the "make" or "buy" conditions, ST solutions are often very expensive. The logic of ST is that salespeople can employ IT to more efficiently or effectively meet their business customers' needs. While the logic is simple, ST garners scholarly and managerial attention as a complex, costly, and strategically important business concern (Hunter and Perreault 2007). ST research needs both broader and deeper, theoretically and empirically driven insights across a range of selling contexts, as the extant literature focuses primarily on consumer goods and pharmaceutical industries. And there are stark differences both within and across industries that are driven, in part, by role assignments. Variation in contexts alters the essential work demanded and therefore alters the nature and usefulness of different ST solutions.

16.4.4 Extensive Costs of ST Portfolios

ST software implementations often require investments in hardware, training, and support which are even more costly for proprietary applications than for commercial offerings. While sales managers arm salespeople with SFA and CRM software applications, there is a host of other commonly used software programs used by sales organizations. These include spreadsheet (Excel), presentation (PowerPoint),

word processing, database (Access), and statistical estimation (SPSS) applications. Additionally, hardware *STs* go well beyond a "PC for every rep", as the hardware infrastructure (e.g. servers) needed by enterprise applications can be quite extensive. Finally, today's salespeople are mobile warriors with technologies ranging from telecommunications devices like cell phones and personal digital assistants (e.g. BlackBerrys or Palms) to home office equipment such as laser printers and facsimile machines (Hunter 1999).

16.4.5 Motivating Salespeople to Use ST: Effective Training, Post-Adoption Support, and Buyer Encouragement

The adoption issue has primarily been reduced to the factors Rogers highlighted as those which accelerate the adoption of innovations (Hunter 1999). The technology acceptance model (Davis 1989) and its successor (Venkatesh and Davis 2000) draws on Rogers' logic and frames consistently with the theory of reasoned action (TRA). These models have been widely used in both sales (Jones, Sundaram, and Wynne 2002, Avlonitis and Panagopoulos 2005, Robinson, Marshall, and Stamps 2005a, 2005b) and non-sales settings (Legris, Ingham, and Collette 2003). The technology acceptance model (TAM) proposes that determinants of technology acceptance (usage) fall into two major categories: (1) perceived ease of use and (2) usefulness. These models, among others, focus on predicting usage, and while they can 'explain as much as 40 per cent of an information system's use (Legris et al. 2003), essentially they are silent on the consequences of use (Ahearne, Weinstein, and Srinivasan 2004).

Perhaps the most apparent means through which a sales manager can increase usefulness is through the selection or design of technologies comprising the firm's *ST* portfolio. To increase ease of use, sales managers should offer effective training (especially during the initial phases of an *ST* implementation) and effective *ST* support (during post-implementation phases). Additionally, sales managers should consider different customer expectations when assigning accounts to salespeople or sales teams.

"Training effectiveness" refers to the extent to which salespeople consider their *ST* training to have been effective (Hunter 1999)-and could be conducted either internally or externally to the sales organization. While larger organizations often have internal *ST* training and support, outsourcing is often used by smaller firms. While effective training can occur through either means, it is one of the most widely used methods for making *ST* easier to use. Training methods vary from classroom instruction to self-help menus on software products (Hunter 1999). Moreover, training effectiveness is a key driver to motivating information technology adoption in sales settings (Hunter et al. 1998, Ahearne, Jelinek, and Rapp 2005)

that generalizes to other non-sales settings (Forman and Lippert 2005, Lippert and Forman 2005, Lippert 2007).

Once STs have been implemented, sales managers need to provide enough support to uphold usage levels (Hunter and Perreault 2006, 2007). As new ST innovations are considered, the training and support they require should be part of the sales manager's ST portfolio procurement decisions. The range and variation in innovations with what is dubbed the ongoing 'CRM 2.0' surge in sales technologies demonstrates that technology will continue to evolve favoring dynamic ST portfolio assessments. Assessment cycles may even accelerate as innovations like software as a service (SaaS) reduce switching costs for enterprise and salesperson adoption.

Finally, beyond training and support, the customers' IT expectations provide a strong social influence for salespeople to use ST, and has been found to increase different types of ST use (Hunter and Perreault 2007). Customers do not offer homogeneous encouragement to salespeople to use ST tools as their expectations vary. However, if a sales force can effectively increase their customers' IT expectations, that should, in turn, influence negatively their satisfaction levels with other (competing) sales organizations. As such, customer IT expectations hasten innovation diffusion across industries. When buyers confront important procurement decisions that stimulate consideration of alternative suppliers (Hunter, Bunn, and Perreault 2006), salespeople who fail to respond may retard significantly the continued development of business relationships.

Despite the influences employed, salespeople do not simply embrace and integrate new ST into their routines for several reasons. For example, some ST solutions evoke adverse psychological responses, such as reduced capacity to cope with or commit to using new ST innovations (Panagopoulos and Hunter 2009). Such psychological barriers help explain why sales managers and sales scholarship has primarily centered on motivating salespeople to adopt new technologies (Schillewaert et al. 2005, Cho and Chang 2008). However, the continued focus on adoption prompted leading ST scholars to call for research that goes beyond adoption (Ahearne, Jelinek, and Rapp 2005).

16.5 SALES TECHNOLOGY TO PERFORMANCE RELATIONSHIPS

The overwhelming majority of the extant research focuses on the antecedents and consequences of ST (including SFA or CRM) use. This practice assumes implicitly that all types of use have equivalent interrelationships with variables of importance. That seems implausible, and marks one of the most significant contributions of the

recently proposed multiple dimensions of technology use (Hunter and Perreault 2007). Additionally, individual usage may cluster to form different categories of users (Lapierre and Medeiros 2006).

Generally, while most scholars propose and test direct and indirect effects (through mediators and moderators) of ST on sales performance—referred to as the "technology to performance relationship" or chain (Hunter 1999, Rapp et al. 2008). Several empirical papers support a range of antecedents and consequences of ST use—including both direct and indirect effects on aggregate and different aspects of quantitative and subjective measures of performance. It is worth noting that salesperson performance also has multiple dimensions (Behrman and Perreault 1982, 1984). Thus a more detailed perspective of the technology to performance relationship would include multiple dimensions of both ST use and salesperson performance. The number of dimensions included is a function of the research design and the study's objectives.

16.5.1 Sales Technology Use: Conceptualization

Conceptualizing and defining ST use has been a focal area of inquiry in the extant ST literature, perhaps rightfully so. Most scholars agree that different technologies, different uses of ST, and different fits between those specific ST and assigned tasks will have differential effects on performance. In fact, sound theoretical grounding mandates clarity in construct definition and explains why studies must seek better clarity in conceptualizing ST and how it is being used.

16.5.2 Sales Technology Use: Measurement

Over time, the literature shifted from focusing on individual technologies (e.g. cellphones) towards aggregate measures of ST use. When the salesperson is the study's unit of analysis, the most common way to measure use has been to employ an aggregate measure of the salesperson's use of the firm's portfolio of ST tools. When the firm has been the study's unit of analysis, the focus has been on total investment in firm's ST portfolio.

A significant shift in measure employs an intermediate aggregation of use by proposing the underlying dimensions of use based on learning theory (Hunter and Perreault 2007). Specifically, there are three different categories of use—(1) accessing, (2) analyzing and better understanding information, and (3) communicating information—that have established measures and known differential effects on salespeople, processes, and strategy (Hunter and Perreault 2007).

Different categories of use have different interrelationships and effect sizes with the antecedents and consequences of a one-dimensional measure of use (Hunter

1999). More work is needed to test how these different categories of use influence sales processes, tasks, and outcomes across industries, contexts, nationalities, and other contingent factors.

Without clarity in definitions, the burgeoning ST literature is unlikely to achieve the theoretical richness it needs to sustain itself as a scholarly pursuit. As has been discussed, ST is broader than SFA and inconsistent with the consensus definitions of CRM technology, so the terms should not be used interchangeably.

The current trend of a number of ST researchers and visionaries is to use the term "sales technology" to refer to the portfolio of tools made available to salespeople (Buehrer, Senecal, and Pullins 2005, Honeycutt 2005, Robinson, Marshall, and Stamps 2005a, 2005b, Tanner and Shipp 2005, Hunter and Perreault 2007, Ahearne et al. 2008, Rapp, Agnihotri, and Forbes 2008, Tanner et al. 2008). These scholars typically refer to SFA technology (e.g. contact management) as those systems primarily centered on the provision of returns on efficiency (Hunter, Perreault, and Armstrong 1998, Ingram, LaForge, and Leigh 2002), while sales-based CRM technologies are software applications centered on providing returns on customer relationship effectiveness (Hunter and Perreault 2007, Rapp et al. 2008). Other ST tools exist, so SFA and sales-based CRM software applications do not define an exhaustive set representing the domain of sales technology. Moreover, the domain is dynamic and the tools that constitute the domain will change as new ST innovations are used by sales organizations. Ambiguity in terminology is common, and even acceptable, for the industrial press, as it is not based on the scientific method. As sales scholars begin to use terms with consistency, the industrial press may follow, but in the meantime, better clarity is needed to help ST research advance.

16.6 SALES TECHNOLOGY, PRODUCTIVITY, AND PERFORMANCE

This section discusses some of the different approaches used to research sales technology's influence on productivity and performance.

16.6.1 Firm-Level Perspectives on IT and Productivity

At one extreme, the relationship between technology and performance can be addressed through an aggregate modeling of organizational inputs and outputs—the "black box" approach. In the late 1980s, studies conducted by Stephen

Roach, the chief economist at Morgan Stanley, found that firm spending on

technology had no relationship to firm productivity—a finding later dubbed the "Roach productivity paradox." While some studies supported Roach's findings (Powell and Dent-Micallef 1997), other studies have reported a positive relationship between technology spending and productivity, contradicting Roach's findings (Sharda, Barr, and McDonnell 1988).

There has been debate and some creative proposals about the proper dependent variable in the technology-performance relationship. For example, Tobin's q ratio is useful as a forward-looking, capital market-based measure of the potential impact of information technology investments (Bharadwaj, Bharadwaj, and Konsynski 1999). Some scholars suggest that contradictions in findings about value may stem from use of different theoretical perspectives—ranging from theories of production and competitive strategy to theories of consumer behavior (Hitt and Brynjolfsson 1996). Generally, these studies use the firm as the unit of analysis and estimate relationships between firm spending and productivity—which is measured as a ratio of firm outputs to inputs.

16.6.2 Individual Sales Technologies and How to Optimize Their Use

In contrast to the black box approach, which treats all technology applications as equals, some scholars have placed more focus on how workers can optimize individual technology tools across multiple business disciplines. For example, marketing scholars have placed a special emphasis on the usage and impact of specific information technology tools.

Among others, Collins and his colleagues published an insightful and forward-looking series of articles on microcomputer applications in personal selling and sales management (Collins *et al.*, 1984b, 1988, 1989a, 1989b, Martin and Collins 1991, Honeycutt, McCarty, and Howe 1993). These articles evaluate normative uses and potential benefits of individual technologies ranging from spreadsheets to contact management software. In a similar vein, a wide variety of individual technologies were proposed to fit into a classification system (Wedell and Hempeck 1987).

This forward-looking work on individual technologies made important contributions by informing both scholars and prospective users about the functionality of specific technology tools, stimulating attention to their potential benefits, and prompting adoption in several organizations.

16.6.3 Asking Salespeople What Works Best

Another major domain of research on the impact of information technology relies on user evaluations as a surrogate for IT (especially management information

system, MIS) success. One reason to move to this approach is that a financial investment in a particular technology does not necessarily ensure that it is used, or used as intended, by members of the organization.

There has been substantial research on factors that influence the level (and validity) of user evaluations and debate about the advantages and limitations of this approach. For example, Hunter (1999) found that salespeople's reliance on ST did not parallel the estimated value those technologies provided to the selling process. Since asking salespeople to evaluate STs assumes they know which STs add value and in what ways, Hunter's (1999) evidence contradicts the validity of such naive estimation. However, a seminal contribution from research on user evaluations is the tenet that evaluations result from the corresponding fit between task needs and information system or IT functionality (Goodhue and Thompson 1995).

Goodhue's task-technology fit theory-and the related validation of a task-technology fit instrument (Goodhue 1998)-provide a useful framework for assessing the ability of an organization's MIS to meet the needs of its managers. It also directs attention to several important considerations ignored in the "black box" approach, making the approaches complementary to better understanding. First, it stresses the conceptual distinction between tasks that need to be performed by some individual, and differentiates them from the technology itself. His framework also directly incorporates the human factor in evaluating technologies, and highlights the distinction between discretionary and compulsory use of technology. As such, it calls for consideration of factors, such as social norms and experience, that impact use. It also calls for consideration of how a user's expectations about outcomes motivate her use.

16.6.4 Relationship-Forging Tasks and Other Mediators of ST Effects on Sales Performance

Relationship-forging tasks (Hunter and Perreault 2007) represent the key mechanisms that salespeople, or boundary spanners in general, perform to forge or merge their organizational boundaries with an external organization's boundaries. As such, they build on the rich literature on working harder versus working smarter (Sujan, Barton, and Kumar 1994) as new ways for salespeople to practice smart selling behaviors. It is important to note that relationship-forging tasks (RFTs) influence a salesperson's ability to build effective relationships with customers-irrespective of one's use of information technologies (Hunter and Perreault 2007).

However, sales reps can use ST to help accomplish some RFTs. This section focuses on the extant literature on relationship-forging tasks (RFTs) and suggests that this is only a partial set of such tasks.

Two RFTs, the underlying logic for their effects, and their strong explanatory power for relationship-building performance are: sharing market expertise and proposing integrative solutions (Hunter and Perreault 2007).

"Sharing market expertise" refers to the extent to which salespeople develop and share their knowledge of the product market both with their associates and with their customers.

"Proposing integrative solutions" refers to the extent to which salespeople propose recommendations that are mutually beneficial to the selling firm, the buying firm, and the buying firm's customers.

More RFTs should be conceptualized and proposed in future research by ST scholars as they consider different effects in across sales contexts. For example, another RFT, coordinating activities, has been proposed, but warrants additional research (Hunter 1999).

"Coordinating activities" refers to the extent to which salespeople coordinate the activities of members of the selling firm with those of members of the buying firm. Such coordination places the salesperson in the role of advocating solutions to her associates in an effort to better provide solutions that meet business customers' objectives.

Some RFTs may be automated while others are not. For example, EDI could be used to automate the ordering process for frequently purchased goods. More research into the boundary conditions associated with decisions concerning task automation decisions is warranted.

16.7 CONCLUSION

This chapter goes beyond an understanding of how sales technology, sales strategy, sales processes, and salespeople interact and how they can be used as a means for achieving sustainable competitive advantage. Beyond automating or facilitating accomplishment of an existing technology to process relationship, ST may enable new tasks, thereby suggesting changes in organizational design. The perspective presented here discusses how ST research has evolved from its focus on optimizing the functionality of specific technologies towards a better understanding of how different sales strategies, processes, and salespeople can be integrated. The current B2B context centers on relationship marketing strategies and ST plays an important role in helping salespeople build better relationships with buying organizations (Hunter and Perreault 2007).

It is worth noting that sales managers control both investments in technology and design of work processes. That is, one need not limit the consideration of sales technologies to those that impact existing work processes (e.g. automation technologies). Instead, managers and scholars should consider the potential of redesigning

work processes which incorporate ST in ways that optimize returns on both effectiveness and efficiency. A behavioral process modeling approach that begins with the desired outcomes and works in reverse to identify tasks (mediators) and their determinants has been proposed (Hunter and Perreault 2007).

ST may lead to new sales structures or vice versa. For example, there may be some advantage to functionally specialized roles in which individuals assume responsibility for integrating technology across multiple sales teams. Activities such as specialized marketing research inquiries that identify integrative solutions across accounts could be among the responsibilities of the ST specialists. Of course, identification of those integrative solutions is a prerequisite activity to proposing integrative solutions (Hunter and Perreault 2007). While some ST specialists could identify integrative solutions, another member of the sales team might propose the solution to customer accounts. Such specialization in work processes could capitalize on the aptitude and attitudes of various members of an organization-assigning skilled technology specialists to technology-intensive roles while employing people with strong interpersonal communication skills in traditional selling roles.

New sales strategy and structure will alter the skills and abilities required of sales leaders and salespeople (Ingram et al. 2002). Alternatively, of course, an individual may be assigned the entire set of activities constituting a new technology-intensive sales process. Some organizations may view persuasive selling skills and ST analytical skills as separable across individuals, while others may seek individuals who possess both types of skills and aptitudes. On the other hand, other cultures may dictate otherwise. Favoring functionally specialized over more "generalist" sales designs may include consideration of ST and its use by occupants of assigned sales roles. In any case, the structural design decision may well be driven by institutional conditions.

Institutional conditions, such as an organizational culture, may influence ST decisions. For example, an organization with a strong customer-centric culture may design sales processes starting with the customer interface and working back to other functions supporting the sales effort (e.g. accounting, logistics, marketing, and finance). Less customer-centric cultures, on the other hand, may use salespeople as implementers of a centralized strategy, thus relegating salespeople to roles as communicators of marketing strategy. This is a very limited use human potential-and thus affords access to a much larger labor pool.

Thus, while the extant ST literature provides a starting point for better understanding one of the most pervasive and dominant catalysts of change in modern sales organizations, it is merely a starting point. Many issues and concerns related to sales technology and its effects have not been addressed by the extant literature. Sales managers need better insights from academic research to help guide costly and complex decisions in this area-and thus the research domain is relevant to marketing practice.

For academics interested in making their research relevant to practice, as the ST imperative spreads across industries, so too should it become more germane to

sales, marketing, and management research. While recent research demonstrates the validity of cross-sectional studies in this area, it also points towards conditions where better insights might be gained through longitudinal designs (Rindfleisch, Malter, Ganesan, and Moorman 2008). Sales scholars are uniquely positioned to add value to the efficiency and effectiveness of sales operations through advancing better understanding of ST, its antecedents, and consequences across various combinations of technologies, processes, salespeople, and strategies.

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