SALES FORCE AUTOMATION USE AND SALESPERSON PERFORMANCE

by

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DISSERTATION

submitted to the Faculty of Business Administration and
Economics of
University of Paderborn

in partial fulfillment of the requirements
for the degree of
Ph.D. of Management (Dr. rer. pol.)

June 2009

for Laure...

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Abstract

Understanding how technology investments create business value is a research priority in today's technology-intensive world. Drawing on a literature review as well as a qualitative study in the pharmaceutical industry, this research suggests that sales technology can support both: externally focused tasks towards managing customer relationships and internal administrative tasks. Building on this distinction, our quantitative analysis reveals that sales technology impacts salesperson performance directly when used as a customer relationship tool. In contrast, it has a perfectly mediated impact when used for internal coordination purposes. To unleash its real potential, sales technology should be designed to enable customer relationships rather than being perceived as a cost cutting tool. In addition, the motivational structure for using sales technology differs between two SFA-use dimensions. While the customer relationship dimension is driven by factors that trigger voluntary usage, the internal coordination dimension is predominantly explained by factors imposed from outside. Management should not impose technology usage. Rather, they should support self-initiating factors that stimulate technology usage for improving customer relationships. Combining upstream research focusing on the drivers of SFA-usage with downstream research shedding light on its performance impact, the study offers important implications for maximizing the pay-back from SFA-technology investments.

Sales Force Automation Einsatz und Außendienstmitarbeiter Leistung

Murat Serdaroglu

Zusammenfassung

In der heutigen Technologie-intensiver Wirtschaft ist es wichtig zu verstehen, wie Informationstechnologie Unternehmenswert schafft. In einem ersten Schritt unserer Forschung wurden eine Literaturrecherche sowie eine qualitativen Studie in der pharmazeutischen Industrie durchgeführt. Diese zeigen, dass Vertrieb orientierte Informationstechnologie (Sales Force Automation, SFA) sowohl nach außen fokussierte Aufgaben zum Management von Kundenbeziehungen als auch interne administrativen Aufgaben unterstützen kann. In einem zweiten Schritt wurde eine quantitative Studie, basierend auf diese Unterscheidung zwischen zwei Dimensionen, durchgeführt. Diese bestätigt, dass SFA Technologie die Außendienstmitarbeiterleistung direkt beeinflussen kann, wenn es als Customer-Relationship-Tool verwendet wird. Im Gegensatz hat SFA nur eine voll vermittelte Auswirkung, wenn es für interne Koordination und Verwaltung verwendet wird. SFA soll als Kundenbeziehungsmanagement Tool wahrgenommen werden, um sein eigentliches Potential zu enthüllen. Darüber hinaus wird die „Customer-Relationship“ Dimension von innerlichen Faktoren beeinflusst, die die freiwillige Akzeptanz auslösen. Die zweite Dimension, „Internal Coordination“, wird eher durch externe Faktoren bestimmt. Unsere Studie kombiniert die Einflussfaktoren des SFA-Einsatzes mit den Folgen solcher Anwendung und bietet dadurch signifikante Implikationen für die Maximierung der Rentabilität von SFA-Technologie-Investitionen.

Acknowledgements

This dissertation is the result of a research effort that started just about four years ago. In this part, I would like to take the opportunity to thank to those people who have contributed to its development and refinement in one way or another.

First of all, I would like to express my greatest appreciation to my advisor, Prof. Dr. Andreas Eggert, for his continuous support, encouragement, and valuable ideas during the entire research process. His remarks and suggestions were always stimulating and constructive. His mentorship has equally great influence on my thesis and on my future research career. Thank you again, Andreas.

Secondly, I am very grateful and honored for having Prof. Dr. Bettina Schiller, Prof. Dr. Hartmut Holzmüller, Prof. Dr. Klaus Rosenthal and Prof. Dr. Bernd Frick in the dissertation committee. Their valuable comments and questions on my dissertation have provided me a deeper insight into my research work.

Furthermore, I greatly appreciate my mentor Nils at the company sponsoring my research. He believed in me with enthusiasm and stayed behind me since the beginning of our work. Our constructive discussions have been an inexhaustible source of inspiration for me. It was my great opportunity to work together with you. I am also greatly indebted to the head of marketing department François for his financial support and recognition. I value Christine equally for her great mentoring at later stages of the study.

Also, I would like to thank to the head of sales department in Brazil for permitting me to collect data in Brazil. My special thanks here are for Antonio, who supervised the pilot and actual data collection in Brazil. I thank also to the heads of sales departments in Germany, Belgium, Austria, India and the U.K. for their remarks and suggestions which helped me shape and position our research problem. The same holds for the head of sales force effectiveness and his team.

Moreover, I am most grateful to Prof. Dr. Gary Hunter from Illinois State University for providing me with detailed comments and suggestions aimed at improving the quality of our study. In addition, I wish to express my sincere thanks to the members of the marketing chair, Dr. Ina Garnefeld, Franziska Weis, Sabine Hollmann, Eva Münkhoff and Lena Steinhoff. With their continuous support I never felt as an external Ph.D. candidate.

Last but not least, I am indebted to Maria Leonor Alvarenga, a best friend who has also double-checked the translation of our questionnaire into Portuguese.

Finally, I thank my Mother, my Father and my Brother for making me who I am. Without you I could never come so far. Thank you.

Murat Serdaroglu

Frankfurt, 1st of February 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

> Sales forces are caught in the middle. On the one side, their customers have changed dramatically in terms of how they purchase and what they expect. On the other side, their own corporations have shifted, going through downsizing, restructuring, and cost cutting. Traditional boundaries such as those between sales and marketing have crumbled. Salespeople have to cope with more products, introduced faster with shorter life cycles, and less competitive differentiation. (Rackham and De Vincentis 1999, p. ix)

Sales forces today face many challenges originating from both outside and inside of their organizations (Jones, Brown, Zoltners, and Weitz 2005). As the biggest external actor, customers constantly raise their expectations. Through the Internet they inform themselves about product alternatives before making a purchase. They expect from salespeople to be equally well informed about the best solution possibilities and the latest market trends. Recent advances in communication technologies give the capacity to communicate quickly and effectively, making customers demand quick response and accessibility from the salesperson side. Buying procedures are becoming complex and require salespeople to deal with greater networks within client organizations. Furthermore, customers are increasingly opting for customized solutions which place additional burden on salespeople in terms of information gathering, communication and coordination within both buyer and seller organizations (Zoltners et al. 2001).

In addition to rising customer expectations, intense competition places great pressure on salespeople by squeezing the profit margins. Globalization brings down the borders and makes market entry easier for competitors. Companies and sales forces have to deal with a reduced amount of differentiation from competition and increased product complexity. As product life cycles shorten, salespeople must more frequently update their product knowledge. It gets increasingly difficult to access profitable customers, and companies need to develop better ways of allocating their resources to the right customer segments (Reinartz and Kumar 2000).

Emerging ethical and legal environment also constrains sales organizations' ability to freely pursue certain selling activities. Companies are introducing codes of conduct which set strict standards that must be upheld when encountering clients. Salespeople are increasingly asked to document their activities and be accountable for their actions such as managing expense accounts, giving gifts, making promises about product performance and delivery, and selling products that can be perceived as 'unnecessary.' In industries such as pharmaceuticals and medical equipment, salespeople have to keep a record of the samples and other material they distribute to their clients.

Companies respond to challenges in their markets with various strategic, organizational and operational measures which bring additional burden on salespeople. They move the strategic direction of their sales forces away from a transaction focus to a relationship focus (Ingram 1996; Weitz and Bradford 1999). In this setting, salespeople are expected to shift their time from order taking to creating customized solutions for their customers and seeking new business (Shoemaker 2001). Besides, companies adopt new selling models and organization structures such as team selling and key account management (Jones, Dixon, Chonko, and Cannon 2005). This development makes sales, marketing and other functions merge gradually to better identify customer needs and offer solutions addressing those needs (Rouzies et al. 2005). Last but not least, innovative sales channels are being introduced such as Internet and call-centers (Stone et al. 2002). In this overall framework, salespeople are required to act like an orchestrator to manage the value-generating network by communicating in real time with their companies and coordinating their activities with their team members, chain partners and clients.

With the anticipation to meet these challenges and improve sales force effectiveness, companies continue investing in information technologies (IT) (Shoemaker 2001; Parthasarathy and Sohi 1997). Sales specific IT, which is often called Sales Force Automation (SFA),[1] enables salespeople to store, retrieve, and analyze customer data and manage important information throughout the sales cycle (Morgan and Inks 2001). However, it has not been straightforward for companies to realize this potential so far. Lack of SFA adoption and vanishing person-job fit may be the outcomes of an ambitious SFA project (Speier and Venkatesh 2002). One typical reason of failure is shown to be the lack of measuring the impact of sales technologies on sales force (Erffmeyer and Johnson 2001). The impact of SFA technology on salesperson performance and organizational profitability has been largely neglected in literature.[2]

It is crucial for firms investing in SFA technology to understand how IT contributes to sales effectiveness. In the end, firms cannot keep investing in a technology without knowing its return on investment. Our research objective is to understand how SFA impacts salesperson performance. We propose that not every salesperson benefits from SFA in the same way. How

[1] Refer to Chapter 2 for a detailed definition of the Sales Force Automation technology.
[2] Refer to Buttle et al. (2005) and Landry et al. (2005) for reviews of SFA research.

salespeople use SFA should be determining the extent to which they benefit from this technology. We further argue that salespeople have different motivations when using SFA. We expect to offer substantial insights on how SFA-use impacts salesperson performance and the factors drive that usage, which in turn should help firms maximizing their return on SFA-technology investments.

In this chapter we present our motivation for a research in sales technology field. We first discuss the importance of SFA technology for businesses and identify the gaps in relevant literature (section 1.1). Following that, we define our research problem and formulize research questions based on the identified gaps (section 1.2). After introducing our research questions, we elaborate on the potential contributions of our study for both theory and practice (section 1.3). We present the structure of our thesis in the last section (section 1.4).

1.1. Research Justification

1.1.1. Importance of SFA Research for Businesses

SFA technology represents a significant research field with important implications for businesses. This is mostly because, although SFA promises great benefits to companies, it is often not easy to realize and quantify these benefits. In this section we will be discussing the benefits, costs and risks of investing in SFA technology.

Despite the emergence of new direct channels such as the Internet and call-centers, sales forces still occupy an important position in linking companies to their customers today. This is mainly the result of an increased emphasis on developing and maintaining strong customer relationships (Cannon and Perreault 1999; Ingram 1996). Salespeople still carry the primary responsibility of building, and maintaining relationships with customers (Homburg and Stock 2004). They are a strong enabler of market orientation (Brown and Peterson 1993) and market intelligence (Pass et al. 2004; Le Bon and Merunka 2006). Salespeople have a strong influence in reducing customer defection (Johnson et al. 2001). As a result, the strategic importance of the sales force to organization success is at an all-time high. For businesses and researchers alike, understanding the efficiency and effectiveness of sales force should be a high research priority.

SFA can improve sales force effectiveness by freeing salespeople from costly administrative activities in favor of relationship building tasks, which better suit the skills and abilities of the sales force (Ingram et al. 2002). SFA can enhance communication and increase the overall quality of the sales effort through faster access to relevant and timely information (Jelinek et al. 2006). SFA carries significant potential for sales management and salesperson effectiveness which cannot be ignored by sales organizations. Therefore, it represents a phenomenon deserving strong research attention.

Consistent with the big potential promised by customer relating technologies, the Customer Relationship Management (CRM) market should continue to grow significantly, reaching $18 billion worldwide in 2010, according to a market report from AMR Research (Beal 2006).[3] Strong competition and shareholder pressure for increased profitability force

[3] Most CRM solutions stem from SFA functionality and often represent customer relationship technologies serving organizational functions other than sales, such as marketing and service. The terms CRM and SFA are used often interchangeably in literature although they stand for different concepts. We use the term SFA to ensure consistency throughout the text. More on the association between CRM and SFA is given in section 2.2.2.

companies to spend more on their CRM investments, increasing also the demand for sales force specific SFA solutions (Buttle et al. 2006). On the supply side, information technology vendors invest in improving the ability of their SFA solutions to integrate with back-office applications, add mobile capability, develop attractive licensing solutions and tailor them to meet the needs of particular industry verticals. SFA is a significant research topic as the investment for SFA systems gets bigger shares in corporate budgets.

However, SFA is an expensive investment. A typical SFA system costs from $5000 to $15000 per salesperson (Erffmeyer and Johnson 2001). The implementation of a classic CRM solution may last up to 24 months (Rigby et al. 2002).[4] Moreover, SFA technologies consist of computer-based equipment, which become rapidly obsolete. Hence, there is a substantial continuous expense if the SFA system is to be kept up to date over the years (Parthasarathy and Sohi 1997). The decision to automate the sales force is made even more difficult because in the short run it is difficult to measure most of its benefits in dollar terms and to quantify the gain that can be enjoyed by the adoption of such a system.

What's more, implementing SFA has turned out to be a difficult task and a painful experience for many companies. Despite its intuitive appeal and continual advancements in technology, SFA initiatives regularly fall short of expectations (Bush et al. 2005). SFA projects suffer failures at high rates; estimates predict 55 percent to 80 percent of initial efforts to end up with either losses or no improvement in company performance (Morgan and Inks

[4] CRM software is nowadays available in two ways. It can be installed on a client's own servers (on-premise) or it can be accessed on a provider's servers via the Internet in a manner much similar to an ordinary website (on-demand) (Buttle 2006). The former is often preferred by many large-scale enterprises and the costly option. The alternative on-demand deployments, in contrast, require much less investment at the beginning (due to the low set-up costs and shorter implementation times) and are suitable for smaller scale deployments of small and medium scaled enterprises.

2001; Reinartz et al. 2004; Rivers and Dart 1999). In a recent survey of business executives, only less than 50 percent of the respondents appeared to be satisfied with the business value delivered by their CRM and SFA systems (Beal 2008). SFA deployment is a difficult and complex task which should be taken seriously. It is important to understand why some organizations are successful at implementing SFA and why others are not.

To sum up, sales force effectiveness represents a significant opportunity for organizations and is high in corporate agendas. SFA is promising substantial benefits for sales force and companies are heavily investing in this technology. However, SFA is expensive and it is often difficult to quantify this technology's benefits, making it in the end difficult to justify the investment made in SFA. Therefore SFA and its impact on sales effectiveness represent a significant research field.

1.1.2. Literature Review

Major investments have been made in SFA to enhance the effectiveness and efficiency of sales personnel, even though it is expensive, difficult to manage and fast changing. In the light of the potential and risks simultaneously inherent in sales technology, interest in CRM and SFA is gaining momentum among academicians.[5] Conflicting reports on the success rates of SFA implementations have initiated strong calls for additional research in this domain.[6] For that reason, considerable amount of conceptual and empirical studies about SFA is coming out in the last years.

5 Ahearne et al. 2008; Boulding et al. 2005; Jayachandran et al., 2005; Payne and Frow 2005, 2006; Rigby and Ledingham 2004; Srivastava et al. 1999; Thakur et al. 2006

6 Engle and Barnes 2000; Ingram et al. 2002; Jones et al. 2002; Landry et al. 2005; Leigh and Marshall 2001, Marshall et al. 1999; Tanner and Shipp 2005; Tanner et al. 2005

As intended outcomes of an IT system can be realized only through system-use, IT-adoption is suggested to be a key link between IT investment and performance (Dixon 2000; Devaraj and Kohli 2003). As a matter of fact, a given technology cannot deliver any benefit if end-users do not use it. Researchers therefore argue that low adoption of installed systems is a major reason of the missing returns on organizational investments in IT (Venkatesh and Davis 2000). Besides, salespeople have been among the most technophobic employee groups in organizations (Greenberg 2004). One of the major risks of introducing IT to a sales force is that individual salespeople resist using the technology (Parthasarathy and Sohi 1997). Early empirical work and anecdotal evidence also support the argument that the failure of SFA initiatives is, in part, being prompted by limited user acceptance of the implemented technology (Speier and Venkatesh 2002).

Consequently, issues associated with the underutilization of technology in the sales force is a research priority (Jones et al. 2002). Most of the early research on SFA has been either about explaining the adoption and diffusion of SFA[7] or retrospectively examined salesperson failure to adopt technology and the consequences for organizational commitment, job satisfaction, and fit.[8] While this research stream has explained a great deal of salesperson intention to adopt SFA and actual adoption of SFA, it has fallen short of explaining the consequences of that SFA adoption. In both practice and research, the lack of SFA adoption among salespeople has usually been equated with SFA project failure (Honeycutt et al. 2005). Motivating use has often been assumed to be the only critical issue for SFA implementation success (Hunter and Perreault 2007). Ahearne and his colleagues (2004) reveal this assumption clearly:

[7] Some studies which investigate the antecedents of SFA adoption and use: Jones et al. 2002; Morgan and Inks 2001; Robinson et al. 2005a; Schillewaert et al. 2005

[8] Speier and Venkatesh (2002) study the dynamics of SFA implementation in two sales organizations after the SFA initiatives failed.

> Each model [to explain technology acceptance] has the same dependent variable, usage, but uses various antecedents to understand acceptance of technology. An implicit assumption in all these models is a positive and linear relationship between performance and usage. There is an underlying assumption that technology utilization is a proxy of its perceived effectiveness. (p. 297)

However, SFA adoption among salespeople does not automatically translate into better sales performance (Landry et al. 2005). Ahearne and others (2004) empirically disprove the positive and linear assumption of SFA use and performance link and demonstrated a curvilinear relationship between sales performance and technology use, which hints for the negative effect of SFA over-use. SFA use may also result in negative perceptions among salespeople such as role conflict and ambiguity (Rangarajan et al. 2005). It is not plausible to assume that SFA adoption by itself will bring increased salesperson effectiveness. End-user adoption alone should not be the ultimate objective of any SFA effort.

In fact, SFA is gathering interest in academic research as a fundamental business process with significant impact on organizational results (Srivastava et al. 1999). Researchers are increasingly calling for additional research in the area of technology use and its realized impact on salesperson performance (Good and Stone 2000; Jones et al. 2002; Leigh and Marshall 2001; Marshall et al. 1999; Marshall and Michaels 2001; Raman et al. 2006). The call for additional research on the impact of SFA usage on salesperson performance is well warranted. As Ahearne and others (2005) argue, what should really matter in an SFA project is the technology's actual contribution to salesperson efficiency, effectiveness, or both:

> Technology adoption is only important if it truly leads to performance improvements. (…) The proper criteria by which to judge if an SFA initiative has been successful rest not simply in determining whether or not salespeople adopt technology, but whether or not adoption (i.e. use) actually improves performance. (p. 380)

There are actually a number of studies in the literature which investigate the relationship between technology usage and sales performance.[9] Using multi-source empirical data, Ko and Dennis (2004) show that salespeople with higher expertise benefit more from an SFA system. Jelinek and others (2006) demonstrate in a longitudinal setting that SFA-adoption increases salesperson performance. In another study, no frequency of use but infusion (i.e., the degree to which the person maximizes the potential of the technology) explains salesperson performance (Sundaram et al. 2007). On the other hand, Rivers and Dart (1999) can report no apparent relationship between the extent of SFA acquisition and the benefits generated. Similarly, Avlonitis and Panagopoulos (2005) cannot empirically validate a significant relationship between SFA acceptance and salesperson performance.

Many of these studies theorize a direct link from SFA adoption to salesperson performance and do not investigate the facilitating mechanisms through which this link occurs. SFA research, in general, has focused on people and technology issues and mostly neglected the business processes (Buttle et al. 2006). Uncovering the processes through which technology influences sales force performance should be a research priority (Avlonitis

9 Refer to Collins and Schibrowsky 1990; Moriarty and Swartz 1989; Wedell and Hempeck 1987; and Zablah et al. 2004 for early conceptual studies on SFA and performance relationship, and Keillor et al. 1997 and Moncrief et al. 1991 for exploratory studies applying descriptive data.

and Panagopoulos 2005). Mithas and others (2005) conclude in their paper that additional research is necessary to consider how SFA technology is used by employees to improve business processes:

> CRM applications merely enable firms to collect customer knowledge. Only when firms act on customer knowledge by modifying service delivery or by introducing new services will they truly benefit from their CRM applications. There is a need for further research to trace the causal chain linking CRM applications and customer satisfaction at a finer level of granularity by specifically accounting for such complementary actions. (p. 207)

Such a granular view of the relationship between SFA-adoption and performance may be established by incorporating SFA-specific salesperson behavior into research models. There are certainly different ways to use an information technology tool and the way SFA is used should have a decisive impact on customer satisfaction and the bottom line (Hunter and Perreault 2007). In fact, while some salespeople benefit from the SFA technology, others do not (Ahearne et al. 2005). However, the differences between salespeople in terms of their SFA-use behavior are often overlooked in the literature, where the analysis is limited to answer the question if the salesperson uses SFA or not. Research in outcomes of sales technology use needs to examine the circumstances under which such use leads to higher levels of salesperson effectiveness, efficiency, and customer satisfaction (Tanner et al. 2005; Parthasarathy and Sohi 1997).

Even when the link between the right way of using SFA and sales performance were completely illuminated, present research could not answer the question of what motivates salespeople to use SFA technology in that right way. While there are studies successfully explaining the drivers of increased SFA-adoption and use (Schillewaert et al. 2005), to best of our knowledge, there is no study which examines the impact of such driver factors on a specific direction of SFA-related behavior. In one relevant study, Ahearne and others (2005) report that the salespeople who received adequate training also benefited more from SFA technology. In their literature synthesis on performance impacts of IT, Soh and Markus (1995) draw attention to ‘appropriate’ use of IT and call for additional research to study “what constitutes appropriate use, how organizations promote appropriate use, and how appropriate use translates into IT impacts” (p. 39).

1.2. Research Problem and Research Questions

The literature has developed a rich understanding of SFA technology and its use in the workplace. Both organizational and individual drivers of SFA adoption have been widely tested so far and it has been made clear that the performance impacts of SFA technology must be the focus of future research. In contrast, empirical analysis is mostly limited to modeling salesperson performance as a simple linear function of SFA-use. Such a conceptualization of the relationship between SFA-use and salesperson performance restricts the value of the theory for both researchers and practitioners. Researchers lack empirical evidence to evaluate competing theoretical models. Practitioners lack guidelines to decide on the appropriate form and extent of SFA-use under different sets of conditions.

Our research objective is to build upon existing literature by understanding how SFA technology relates to salesperson performance. Specifically, we want to demonstrate empirically that *how* salespeople use SFA to accomplish their daily tasks, and not only if they are using SFA or not, has a direct impact on their performance. We further aim to show that salespeople have different motivations when using SFA technology and different antecedent factors drive certain SFA-use behavior. Based on the theoretical foundations of resource based view of IT business value (Melville et al. 2004) and process-oriented models of IT business value (Barua et al. 1995), we develop and empirically test a conceptual model to investigate the following research problem:

The mechanism through which Sales Force Automation technology affects salesperson performance has not been fully clarified in the literature yet. Above all, further research is necessary to explain how particular SFA-use behavior[10] *impacts salesperson performance. Furthermore, we do not know yet for which reasons a salesperson uses SFA in that particular way.*

[10] We define SFA-use as the application of sales technology by a salesperson to support sales job relevant tasks and processes. We define ‘particular SFA-use behavior’ as the specific behavior which distinguishes a salesperson from others in terms of using SFA technology. Refer to Chapter 4 for a discussion on these issues in greater detail.

This research problem is subdivided into the following research questions:

(1) *How should the SFA-use construct be conceptualized to better incorporate the particular SFA-use behavior of a salesperson?*
In order to further illuminate the functioning mechanism of SFA when affecting salesperson performance, a granular view of SFA-use is necessary. In this way it will be possible to better distinguish salespeople in terms of their SFA-use and identify the cases where SFA-use makes a positive contribution. Therefore, our first objective is to conceptualize an SFA-use construct which will enable to better incorporate the particular SFA-use behavior of a salesperson.

(2) *Does the way SFA is used by salespeople impact their performance?*
Our second research objective is to test how SFA-use impacts salesperson performance. We will link our SFA-use construct to salesperson performance in a conceptual model and empirically test their relationship to see how a particular SFA-use behavior affects sales performance.

(3) *Which antecedent factors will explain those particular ways SFA is used by the salespeople?*
Organizational and individual antecedents of SFA-adoption which already exist in literature should be tested again for their effects on differentiated SFA-use behavior. Our third research objective is to test a number of well established antecedents of SFA-adoption to see how they drive SFA-use in a certain behavioral direction.

1.3. Intended Contributions

We expect our study to provide practical guidance to sales and marketing practitioners on critical areas such as key sales processes supported by IT, type and quality of IT assets, specification of appropriate SFA-use, and its outcomes. The intended contributions of our research are threefold:

First, we argue that SFA-use should be conceptualized as a task-based construct. Tapping the job-related tasks achieved by employing the system along organizationally relevant dimensions (Doll and Torkzadeh 1998), we can better distinguish salespeople in terms of their SFA-use behavior.

Then, we insert our SFA-use construct into an operational selling context by linking it to its antecedent variables and salesperson performance. By the granular sight provided by our task-based SFA-use construct, we can shed more light on the process through which SFA impacts the bottom line. Therefore, our second contribution lies in better explaining the relationship between SFA-use behavior and salesperson performance.

Our third contribution derives from the antecedents driving our SFA-use construct. By applying well established antecedents of SFA-adoption to explain our SFA-use construct, we can make more precise recommendations to practitioners in order to stimulate SFA-use in the desired manner.

In sum, our research approach can offer substantial insights on how SFA-use impacts salesperson performance and which factors drive that way of usage, which in turn helps firms maximizing their return on SFA-technology investments.

1.4. Thesis Structure

In this thesis, we first define SFA technology and present its benefits and implications for sales management and businesses in general (chapter 2). Next, we devote a chapter for the theoretical underpinnings of how information technology creates business value (chapter 3). Following that, we argue the necessity of a task-based multidimensional measure of SFA-use to understand sales technology's impact on salesperson performance (chapter 4). Against the background of a literature review and a qualitative study, we further conceptualize task-based dimensions of SFA-use. This section is then followed by our conceptual model and hypotheses (chapter 5). After, we present our empirical design decisions and data analysis methodology and results (chapters 6 and 7). We conclude the thesis with a discussion of our results, limitations and suggestions for future research (chapter 8).

2. SALES FORCE AUTOMATION AND SALES MANAGEMENT

2.1. Introduction to the Chapter

The introduction of Information Technology (IT) to the sales profession has many implications for how salespeople and sales managers do their jobs. The objective of this chapter is to draw an overall framework for IT deployment in sales environment and to provide insight regarding the capabilities of the technology and the potential impact of such applications on organizations. In the first section of the chapter a definition of Sales Force Automation (SFA) technology is given. This will be followed by a brief discussion of Customer Relationship Management and its association with SFA. Finally, potential benefits of SFA sought by sales management are presented. In the second part, we discuss the implications these technologies have for sales profession and the salesperson.

2.2. Defining Sales Technology

2.2.1. Sales Force Automation

SFA can essentially be described as the application of information technology to support salespeople in their selling and/or administrative activities (Morgan and Inks 2001). SFA systems utilize computerized hardware, software, and telecommunications technology to capture, access, analyze, and exchange high quality information in order to improve sales force productivity and effectiveness (Jayachandran et al. 2005).[11] This information generally includes transactional and profiling data about customers, market data, competitor profiles, product libraries, pricing schedules and other information (Buttle et al. 2006). Such rich information can support salespeople when developing long-term mutually beneficial relationships with customers.

However, there has been no clear and widely accepted definition of SFA (Rivers and Dart 1999). SFA means different things to different people and to different firms (Erffmeyer and Johnson 2001). The exact nature of SFA varies dramatically from one firm to the next (Morgan and Inks 2001), as "each firm is unique, as are its customers, markets, business objectives, resources, and perhaps most important, the stakeholders who will be germane to its specific CRM circumstances" (Plouffe et al. 2004, p. 324). Some researchers and firms prefer narrow conceptualizations of SFA. Schillewaert and others (2005) do not include general office tools (e.g. word processing and presentation) or separate e-mail and Internet applications into their SFA definition. Parthasarathy and Sohi (1997) define SFA systems consisting of centralized database systems that can be accessed through a modem by remote laptop computers. Ko and Dennis (2004) define SFA as hardware and software applications to provide knowledge that enhances learning and improves performance. Other authors who make broader conceptualizations of SFA also include information technology that salespeople use to perform their roles such as mobile phones, e-mail, word-processors and web browsers in their definitions and not just the dedicated software offered by SFA vendors (Erffmeyer and Johnson 2001; Hunter and Perreault 2007).

[11] An overview of common SFA functionality is given in the Appendix.

In general, a definition can be classified according to its specificity, as either narrow or broad. Narrow definitions help fine-tune our understanding of a specific application of a phenomenon in a given setting. Such narrow definitions are useful within the limited scope of a research context; however it is difficult to generalize the findings to other situations. Moreover, narrow definitions of IT may suffer from reduced relevance as technologies, systems, and skills become obsolete over time. In contrast, broad definitions have the advantage of being easily generalized beyond a specific research situation. However, broad definitions tend to be overly abstract and can be therefore difficult to apply at narrow situations.

It is recommended in the literature that not a specific SFA system, but the functionality, sales processes and tasks supported by technology should be considered when defining the scope of the SFA definition (Tanner and Shipp 2005). According to Honeycutt and others (2005):

> Rapid technological changes and rate of technological obsolescence suggest that future researchers should concentrate on SFA as a process of automating routine and manual sales tasks rather than getting bogged down in the details of what specific technology and equipment constitutes SFA. (p. 321)

Against the background of this discussion, we define SFA as dedicated computer systems designed for salespeople to manage customer, market and product information and perform daily sales activities. The technology pool provided to a given sales force may vary considerably, whereas sales tasks are relatively comparable across different organizations. Our definition focuses on those sales activities supported by SFA, rather than a specific IT tool. This approach does not allow us to go deep into the characteristics of a specific SFA system; nonetheless, it helps us establish a certain level of consistency within the literature and generalizability to other contexts.

In the meantime, Customer Relationship Management (CRM) is gaining momentum across industries as a dominant approach in managing customer facing activities. CRM strategies pursued by companies have significant reflections for sales organizations and the information technology geared solely towards the salespeople (i.e., classic SFA solutions). There has been a recent interest in considering SFA as a part of a broader CRM network with additional capabilities and responsibilities for the salesperson. In the next section we briefly present CRM as a strategy and technology, and contrast it with classic SFA deployments. We argue that SFA and CRM are not rival but relevant concepts complementing each other. Our aim is to present an actual view on CRM applications and to enrich our definition of the SFA technology.

2.2.2. Customer Relationship Management

CRM is defined as “a cross-functional process for achieving a continuous dialogue with customers, across all of their contact and access points, with personalized treatment of the most valuable customers, to increase customer retention and the effectiveness of marketing initiatives” (Day and Van den Bulte 2002, p. 5). In sales force intensive organizations implementation of the CRM strategy relies heavily on salespeople. The sales force is the main means of customer contact and it plays a critical role in realizing a relationship marketing philosophy and maintaining customer relationships (Cannon and Perreault 1999). In addition, salespeople are increasingly asked to take greater roles in other important activities of the firm—such as product design, customer service, production, and research and development (Pass et al. 2004).

In such companies, SFA tools are frequently implemented to facilitate the CRM processes (Speier and Venkatesh 2002). In fact, the bulk of CRM functionality is originally designed to enhance sales and sales management (Shoemaker 2001). Early functionality was geared towards solely the improvement of salesperson efficiency (doing same things faster, easier). “Regardless of the nature of any particular SFA system, its primary purpose is to reduce the time spent on support activities and thereby free up the sales force to sell” (Rivers and Dart 1999, p. 60). In such settings, research on CRM has its roots in understanding SFA. Typical foci of the studies thus include the use of e-mail to communicate with customers, contact management software to guide salesperson/customer relationship development, and sales presentation technologies (Ingram et al. 2002). Many papers have been more narrowly focused on SFA, in particular the factors driving acceptance and use of IT by the sales force.

Actually, CRM is rather a business strategy and philosophy, integrating customer focus, relationships with customers and team-based consultative selling into a coherent organizational strategy (Brown 1999; Swift 2001). CRM encompasses different functions such as marketing and service, production and logistics in addition to sales. Whereas much of the extant literature on SFA technology has focused narrowly on personal selling, CRM clearly speaks to the management of organizational processes (Leigh and Marshall 2001). Ingram and others (2002) make a very clear distinction between classic SFA and modern CRM thinking:

> The basic purpose of SFA is to automate selling and administrative tasks so that salespeople and sales managers can perform current activities more efficiently. CRM technology includes this efficiency capability, but also addresses effectiveness issues, such as salespeople doing different things. Thus, sales organizations can use the technology to address the effectiveness and efficiency of their customer relationship processes. (p. 564)

Indeed, "as organizations recognize the enterprise-wide nature of CRM, SFA is being overtaken by broader, relationship-wide (or enterprise-wide) technology." (Tanner et al. 2005, p. 170) Basic SFA tools are further integrated into enterprise-wide data management systems encompassing sales, marketing, and customer service (Morgan and Inks 2001). The fundamental drive is to reduce transaction costs while providing better service (Donaldson and Wright 2004). Salespeople also favor SFA when the sales processes are integrated with other functions (customer service and marketing) and back-office (e.g., billing, logistics, purchasing) systems (Shoemaker 2001), because such technological advances represent new capabilities for the salesperson which were not possible before. As the strategic focus of IT applications move to optimizing resources by serving the selected customers, a firm progresses beyond the idea of simply reducing transaction costs[12] to maximizing revenues (Landry et al. 2005). Leigh and Marshall (2001) explain the changes a company goes through to be more customer-centric in addition to installing SFA technology:

[12] In literature computerizing repetitive tasks which were previously used to be done per hand is often suggested to increase the efficiency and reduce costs. For instance, electronic data interchange (EDI) technology is used to transfer data electronically between buyers and suppliers in an attempt to reduce selling costs (MacDonald and Smith 2004).

> Organizations that are interested in becoming more customer-oriented are (…) more likely to consider the sales force to be only one of several channels to reach customers. In fact, these firms may employ a full range of sales and channel options to reach different target markets as well as serve strategic customers. They are more likely to stress selling as a core business process, to adopt CRM technology, and to customize their systems to better select, train and reward employees who deliver customer value, profitably. In short, market-driven firms treat customer relationships as the core of their business enterprise. (p. 83)

To sum up, a bigger picture of IT is necessary when conceptualizing sales related technologies in future research. The terms SFA and CRM are merging and used in the literature interchangeably to mean the same, yet increasingly broader concept (Hunter and Perreault 2006). Sales related technology is clearly being developed to include many new uses and integrated to other organizational functions. While involving this CRM thinking in our SFA definition, we stay with the term SFA for the sake of consistency with past research.

2.2.3. Benefits of Sales Force Automation

SFA technology promises many benefits to sales management and salespeople. By increasing available selling time and enhancing communication and providing faster access to relevant and timely information, SFA can increase the overall quality of the sales effort (Rivers and Dart 1999). The expected end-effect is to facilitate a greater understanding of the selling situation, to deliver superior customer value and to forge close mutually beneficial relationships needed to develop market-relating ability for competitive advantage (Dickie 1999). In this section we present potential benefits of SFA technology that encourage companies invest in SFA technology.

Improved Salesperson Efficiency and Productivity

One of the most important reasons companies invest in SFA is to increase the efficiency and productivity of the sales staff (Erffmeyer and Johnson 2001). SFA can minimize the amount of time salespeople spend on routine, repetitive, easily automated tasks such as sending sales call reports, expense reports, and ordering promotional material (Gohmann et al. 2005). Moreover, SFA improves time management and call planning (Weeks and Kahle 1990). Automated routers can interface with planners to identify the downtime in a salesperson's schedule and direct new leads to the salesperson during such time (Khandpur and Wevers 1998). Eventually, by reducing the amount of downtime in a salesperson's workday and optimizing call schedules, the amount of time devoted to activities more closely associated with selling can be maximized (Ahearne et al. 2005). Furthermore, SFA facilitates and improves information processing and communication, which in return can increase the quantity of work performed in a given time period (Good and Stone 1995). Technology also helps reduce errors and thus saves from time consuming corrective action.

Improved Customer Relationships

Many companies are turning to SFA to help them increase customer acquisition and retention and enhance their customer relationships (Ingram et al. 2002; Wright and Donaldson 2002). SFA increases the depth, the breadth, and the mobility of knowledge through increased communication speed and access to customer relevant information (Campbell 2003; Jarvenpaa and Ives 1994; Jayachandran et al. 2005). Sales representatives can in return employ this high quality knowledge to support their customer relationships (Day 1994; Huber 1991; Sinkula 1994).

SFA applications can help salespeople manage customer relationships more effectively across the stages of relationship initiation, maintenance, and termination (Reinartz et al. 2004). Traditionally, salespeople have been best in capturing information about customers and competitors as boundary-spanners of an organization (Pass et al. 2004). At initiation stage, technology assists salespeople in their role as market sensors; salespeople have the important task of sensing the trends and opportunities in the marketplace. Salespeople can search databases, pull data from outside sources, and easily enter new data themselves (Marshall et al. 1999). Search engines enable salespeople to quickly access vast amounts of information at a mouse-click. Through SFA systems, information obtained from various sources such as call-center data, marketing campaigns or other outside suppliers can be rapidly merged and forwarded to the sales force (Shoemaker 2001). Thus, technology can reduce the amount of time spent searching for potential sales prospects (Keillor et al. 1997).

SFA allows salespeople to manage higher quality information about a greater number of customers (Ahearne et al. 2005). At later stages of the customer relationship management process, SFA technology can inform salespeople about the business potential of each prospect to decide which prospects to target (Ahearne et al. 2007). The complete customer information from purchase history to account preferences captured across multiple service encounters is available and accessible for all future transactions, helping salespeople customize their value proposition and offerings to suit the individual needs of their clients (Mithas et al. 2005).

Salespeople who possess context relevant information have higher chances of successfully closing a sales call (Weitz et al. 1986). SFA systems give sales force quick access to timely information that can be beneficial in closing a sale (Rivers and Dart 1999). For instance, a salesperson can convincingly contrast product benefits with the weaknesses of competitive offerings based on the market and technical knowledge provided by the system (Ahearne et al. 2007). Salespeople also attribute a key role to presentation technology in terms of the level and quality of information they are able to provide during sales calls (Marshall et al. 1999).

Improved Operational Efficiency

SFA technology brings superior internal synergies in serving the customer and offering better value-adding service through its ability to share information between departments within a company (Pullig et al. 2002; Swenson and Parrella 1992). At the organization level, better within organization communication can facilitate seamless purchase transactions with improved order accuracy and cost savings (Shoemaker 2001). Through a well integrated SFA system, order status can be checked in real time for shipment and delivery dates (Mithas et al. 2005). In the end, the sales force benefits from an increased speed of response (e.g. shorter sales cycles) and the management benefits from cost savings (e.g., reduced support costs, reduced inventory requirements, reduced transactional errors) and faster revenue generation (e.g., accelerated cash flow) (Erffmeyer and Johnson 2001).

At the individual level, SFA enhances salesperson's ability to communicate to customers in a precise manner and makes him a reliable business partner (Hunter and Perreault 2007). Enhanced accessibility of the salesperson reduces the time it takes to deal with customer concerns even when the salesperson is away from the customer's site. Strong within organization communication can also aid the salesperson in timely identifying and solving the problems that customers face. This gives the salesperson an increased perception of dependability (Keillor et al. 1997). Last but not least, technology can facilitate quick access to information about specific customer needs, product knowledge, industry trends and competing products and thus boost the perceived competency of the salesperson (Hunter and Perreault 2007).

Better Within-Team Collaboration

SFA tools can mediate the information flow and consequently improve the communication within sales teams (Brown and Jones 2005). Improved within-team communication can in return help salespeople become more efficient at synchronizing team activities and setting appointments. On the other hand, technological tools such as collaboration software and networking portals can link a salesperson to other professionals within and across organizational boundaries and simplify the process for sharing tacit information (Shoemaker 2001). The use of tools such as e-mail newsletters and company intranets can keep salespeople informed about company policies, procedures, products, and goals (Hanover 2000).

SFA deployments usually bring significant changes in the way salespeople do their jobs (Speier and Venkatesh 2002). Without the perception of a real advantage, a sales force is less likely to accept the SFA system and whole-heartedly use the technology. Consequently, the benefits of SFA (e.g., the capture and flow of strategic information) will be diminished. To address this type of resistance, management needs to clearly demonstrate the advantage(s) (e.g., more selling time, shorter sales cycle, less paperwork) of using the SFA system over the current system (Morgan and Inks 2001).

2.3. Implications of SFA for Sales Management

SFA technology brings new informational and communicational capabilities which were not available in the past. Such capabilities have a potential to change the way salespeople and sales managers do their jobs. In this section we discuss the implications of SFA implementations for sales organizations by reflecting on the general framework proposed by Tanner and his colleagues (2005).

2.3.1. Strategic Issues

Perhaps one of the greatest consequences of SFA deployments is seen in the way companies make strategic decisions regarding their sales forces. Sales force objectives, structure, and salesperson empowerment have to be rethought in the SFA era. In this part we will be discussing the consequences of SFA technology in strategic issues.

Strategic Account Management

Salespeople generally have the greatest influence in customer retention and reducing customer defection (Johnson et al. 2001). As companies across industries move from a transaction focus to a relationship focus, the sales function is viewed as firms' means of 'partnering' with customers (Ingram 1996; Weitz and Bradford 1999). In this context, SFA is positioned as an enabler for the sales force's role of developing market relating capability. With the introduction of SFA technology, many simple after-sale service tasks may take less time or no longer be performed at all, leaving the salesperson only more complex tasks (Shoemaker 2001). The integration and alignment of internal and external processes through SFA offer salespeople further empowerment and control over company resources when meeting customer needs. Furthermore, SFA technology makes a much greater amount of information transparent to the sales force. This includes aspects of the firm's strategy that in the past often have been withheld from salespeople or only provided on a need-to-know basis. In the end, the role of the salesperson is redefined upwards, where salespeople become more like relationship managers or strategic account managers, with a partnering perspective on the customer (Yim et al. 2004). Clearly, the role of the selling function as informant and decision maker becomes essential (Leigh and Marshall 2001).

Sales Force Structure

The introduction of relationship management philosophy initiated a growing emphasis on selling the way customers want to buy. Consequently, today's sales organizations are using a variety of methods in their selling strategies. These methods may include the traditional field sales force, team selling, cross-selling by sales divisions and other evolving sales structures such as contact centers, part-time salespeople, sales support personnel, supply-chain personnel, and organizational partners (Tanner et al. 2005). While these methods have different elements and organization structures, they all require a right functioning knowledge management capability. With multiple employees now responsible for customer relations within an account, an information system harmonizing account information is crucial to give all participants access to updated knowledge (Sharma 2002). The introduction of SFA technology has certainly been a catalyst to this shift towards such collaborative approaches, into which the salesperson has to adapt.

Another change stimulated by SFA technology is the multichannel selling. Sales channel alternatives range from relatively inexpensive electronic channels to extremely expensive multi-functional teams, such as a global account management program. The specific sales channel mix for each customer group shall be determined by defining the selling activities to be performed for each customer group and choosing the optimal sales channel alternative for each selling activity (Ingram et al. 2002). In such an overall framework, the sales force may just be one of the channels which an account interacts with.

Sales Force Objectives

On the one hand, the customer-centric model emphasizes customer and market responsiveness, consultative selling, integrated customer solutions and cross-functional linkages (Leigh and Marshall 2001). SFA systems can provide salespeople with high amounts of customer, product and competitor information; facilitate relationship selling processes and help salespeople be more ‘customer oriented’ (Moncrief and Marshall 2005). On the other hand, SFA technology, by automating repetitive processes and reducing costs, can also support industries where transaction efficiency and price leadership are crucial. Such firms may further prefer to implement multichannel strategies as a method of reducing costs (Tanner et al. 2005).

Salespeople conventionally sell to customers within target segments. Trying to sell to all of these customers in the same way will not be effective as some customers are simply less profitable and should be dealt with differently or dropped altogether (Dwyer et al. 1987). The type of relationship and the selling model used for each customer segment must balance customer value and cost (Rackham and De Vincentis 1999). Therefore, a key goal must be to allocate available resources more effectively so that customers receive the appropriate attention, at the right cost (Zeithaml et al. 2001). SFA provides a much more complete view of customer segments and supports the salesperson in better prioritizing them. Among the new segmentation techniques made available to the individual salesperson through SFA are customer portfolio analysis, sales forecasting, activity-based costing, and customer lifetime value (Buttle 2004; Levin and Zahavi 2001). Early sales process efforts can thus refocus from identifying potential new customers to identifying customers with greatest profitability (Shoemaker 2001). The emphasis is the appropriate relationship, meaning that the objective is not always a deeper relationship and in some cases no relationship at all (Landry et al. 2005). However, serving only a limited set of customers and redesigning how less-profitable accounts will be served may be distressing to some salespeople.

Cultural and Environmental Issues

SFA has implications for organizational culture through increased transparency of salesperson activities. Most SFA systems provide sales management with real-time access to salesperson activity and performance information. The number of sales calls per day, the amount of attention given to each customer, the position of customers in the sales cycle, and the implementation of promotional programs are made instantly available to management. This increased visibility of salesperson activities may lead to a feeling of 'big brother'-style management, eliminating any gain from the new system (Widmier et al. 2002; Gohmann et al. 2005). To help reduce concerns about management interference in selling activities, SFA should be positioned and used as a tool to help improving the productivity of the sales force, rather than as a monitoring tool for sales management.

2.3.2. Data Ownership and Management

Data Gathering

Businesses are increasingly realizing that a complete record of customer interactions in a single cross-functional and integrated database (360-degree view of customer) is a key for enterprise-wide relationship management success. Such a holistic view of the customer will enable enterprise-level marketing, sales, and channel decisions that drive customer satisfaction through more timely, relevant, and personalized product and service offers, messages, and interactions (Tanner et al. 2005). Yet, success of these efforts depends on the quality and completeness of the underlying customer data. In this context, salespeople will play an important role in data collection and analysis because of their boundary-spanning role (Pass et al. 2004; Le Bon and Merunka 2006). Salespeople will help initiate new data management processes and technologies, because they are experts in the types of information needed to enhance the performance of their sales role (Ingram et al. 2002). As a result, “the sales role may become increasingly intertwined with the information system manager and data analyst roles” (Landry et al. 2005, p. 239). On the down side, capturing detailed customer information can be a tedious task when badly managed. Salespeople naturally expect to receive a real benefit out of their input. The history of SFA implementation has shown that attention must be paid to organizational issues and incentives if adequate data are to be collected.

Data Ownership

To many salespeople, customer information is a property of the salesperson but not of the firm. Salespeople often tend to take their customer lists with them when they change their firms. Compared with transactional marketing, relationship marketing requires a much greater degree of customer information sharing (Selnes and Sallis 2003). In an SFA setting, salespeople could be charged with accumulating and relaying the customer data needed for the firm to properly analyze and manage overall customer profitability (Abbott et al. 2001; Anderson and Kerr 2002). This situation could be perceived by salespeople as a potential loss of control over their own customer accounts and could easily be viewed as aiding in the elimination of their role in the organization (Speier and Venkatesh 2002). Salespeople may hence be reluctant to transfer their customer knowledge base into an SFA system which is accessible for management. Management must therefore ensure that its salespeople perceive SFA as a productivity tool, not as a tool for the management to gain control over sale force's customers (Morgan and Inks 2001).

Data Analysis

There are a wide variety of sales-analytics tools available for salespeople. According to one sales analytics hierarchy, data analysis methods can be classified in a pyramid. Basic descriptive reporting tools come at the base level, followed by correlation analyses at the second level to understand the reasons behind descriptive data, and sophisticated predictive models which use data mining algorithms come at the third level (Desisto 2004). Such analytics tools can make salespeople precious sources of market insight for their clients. For example, a salesperson in retailing business can use data analysis tools and scanner data to identify current retail market trends in his territory. Such insight can later be used to optimize shop floor allocations. Thus, the representative's capacity to use the SFA system is tested over time as customer accounts monitor the results attained from the salesperson's recommendations. Salespeople whose recommendations are beneficial to the retailer add incremental value and differentiate the seller's offering.

However, the availability of such sophisticated technologies demands new skills to be an effective salesperson (Hunter and Perreault 2007). What's more, these data analysis techniques often produce tacit knowledge which is difficult to quantify. For these reasons, it is likely that salespeople will have difficulty in justifying any effort to learn and apply analytics tools in their daily jobs. In the end, additional management effort may be necessary to convince salespeople for the usefulness of these tools.

2.3.3. Implementing SFA Technology

SFA Adoption

No matter how technically advanced a given SFA system is, it is the sales force in the field who is ultimately responsible for accepting and making use of that system. Therefore, a critical issue in realizing the intended gains is the acceptance and use of the system by the sales force (Jones et al. 2002). However, successful implementation of SFA is a serious challenge for companies as it involves significant organizational change. Turbulence and uncertainty are likely outcomes of an SFA implementation due to the changes in business processes, salesperson tasks and sales priorities, all of which any typical SFA system brings along with (Morgan and Inks 2001). Salesperson buy-in to such organizational change initiated by the SFA system is one of the major determinants of project success (Bush et al. 2005).

Some of the potential reasons to explain the underutilization of SFA are: natural inertia, low perceived value (costs vs. benefits), lack of support from the organization, personal and demographic factors, and lack of rewards to change (Jones et al. 2002; Parthasarathy and Sohi 1997). The organization is suggested as the major responsible for such negative feelings among salespeople (Schillewaert et al. 2005; Bush et al. 2005). For instance, companies which fail to get appropriate salesperson feedback right at the planning stage will likely face missing salesperson ownership towards the system (Morgan and Inks 2001). Honeycutt and others (2005) suggest that lack of clearly defined goals, missing communication strategy and inadequate compensation metrics are further reasons of SFA project failure. Indeed, Wright and Donaldson (2002) suggest missing SFA strategy and poor company-wide and executive-level backing as biggest barriers to SFA success. Interestingly, organizations participated in their study reported rather technical barriers such as high development costs and fragmented data quality as more important.

Pullig and others (2002) suggest, the organization should be responsible for creating the ‘facilitating conditions’ necessary for successful implementation. Among the listed important enabling conditions are training, encouragement, facilitative leadership and organizational support. While facilitating conditions guarantee a right functioning SFA system, the fit between organizational members’ shared values and the characteristics of the SFA innovation is necessary for company-wide commitment to effective SFA implementation. Five shared values emerged as important correlates of SFA success: customer orientation, adaptive cultural norms, an information-sharing culture, entrepreneurial values and high levels of interpersonal trust (Pullig et al. 2002).

The salespeople who participated in an often cited longitudinal field study reacted fairly positively to SFA tools immediately after training (Speier and Venkatesh 2002). However, this initial response turned negative after they had access to the SFA tool for six months. The result was not only the rejection of the SFA tools but also increased absenteeism and voluntary turnover among the salespeople. The primary driver of this reversal was interpreted by the authors as the growing lack of professional fit between the SFA tools and the sales force. Salespeople perceived that the SFA tools had a negative impact on the sales process to the point that the system did not play to their strengths as salespeople.

To sum up, missing SFA adoption among salespeople seems to be a serious problem and represents a significant impediment to the SFA project success. Companies implementing SFA technology have to pay sufficient attention on the issues put forward in the literature in order to maximize the potential promised by SFA.

SFA Outcomes

It is crucial for companies investing in SFA technologies to document the Return on Investment (ROI) numbers to justify their investments. Due to the nature of SFA investments, which are often made to facilitate customer relationship management strategy, a new class of 'soft' metrics is needed in addition to the often used quantitative, traditional sales metrics (e.g., sales, profitability, call-to-sales). In fact, one significant implication of sales related technologies to the sales force is the introduction of customer-centric metrics to monitor the sales force. Such metrics may include, among others, customer satisfaction, customer profitability and lifetime value, share of customer or wallet, retention or attrition rates, customer satisfaction, loyalty, up-sell and cross-sell rates, and cost to serve.

However, it has not been easy to quantify the outcomes of SFA adoption and use so far. Erffmeyer and Johnson (2001) inform in their paper that only a limited number of their respondents could present formalized goals and objectives for their SFA projects. Similarly, Wright and Donaldson (2002) report that their sample failed to measure achievement of their strategic SFA objectives, opting instead for operational measures such as number of sales generated, contribution to profits, opportunities identified and revenue per customer.

3. THEORETICAL FOUNDATION

3.1. Introduction to the Chapter

To justify the large amounts of financial and human capital invested for information technology (IT) projects, it is critical for companies to demonstrate the return of their IT systems. Therefore, there is a strong research tradition investigating the impact of IT investments on specific operations and overall firm performance.[13] Early efforts in this stream have been rather inconclusive, leading to the coining of the 'IT Productivity Paradox'— the case in which businesses demonstrated higher levels of investments in IT even in the absence of measured productivity gains.[14] The paradox was then followed by an extensive stream of investigation by various IT researchers and economists.[15] Finally, Brynjolfsson (1993) concluded the debate on the productivity paradox:

> After reviewing and assessing the research to date, it appears that the shortfall of IT productivity is as much due to deficiencies in our measurement and methodological toolkit as to mismanagement by developers and users of IT. (p. 67)

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13 Refer to Brynjolfsson (1993), Brynjolfsson and Yang (1996), Brynjolfsson and Hitt (2000) and Melville et al. (2004) for literature reviews of return on IT investments.

14 Ahituv and Giladi 1993; Baily and Chakrabarti 1988; Berndt and Morrison 1992; Loveman 1994; Roach 1987; Strassmann 1985; Weill 1992

15 Brynjolfsson and Hitt (1993; 1996), Lichtenberg (1993; 1995), Lee and Barua (1999) showed using different secondary data sets that IT contributes to firm productivity, while acknowledging output and input measurement challenges. For instance, Hitt and Brynjolfsson (1996) assessed the value of IT in terms of productivity, profitability, and consumer welfare and found a positive relationship.

Indeed, “the ‘whether’ of IT value research now lies in the past” (Kohli and Grover 2008, p. 26). A significant number of recent studies demonstrate a positive relationship between IT and business value (Brynjolfsson and Hitt 1996, 2000; Devaraj and Kohli 2003). Founding a theory to explain *how* IT can affect performance is the significant challenge now (Ray et al. 2005).

In response, IT business value research represents an important stream of work that examines the organizational performance impacts of information technology. It deals with economic impacts of IT and its manifestations, at economy, industry and firm levels (Melville et al. 2004). The main goal is to understand how and to what extent the application of IT leads to improved organizational performance.

The conceptual question addressed in this thesis is *when, how*, and *why* a firm’s investments in information technology result in improved organizational performance. In the end, our argument is that, how IT is used is different than whether IT is used or not. We believe that the insights of IT business value research have strong applicability in explaining the SFA phenomenon and SFA’s impact on salesperson performance. For this reason, we devote this chapter to a discussion of the conceptual foundations of IT business value research and its implications for our research model.

We structured this chapter as following: first, we give an overview of the IT business value research. Then, we present three theoretical lenses applied to understand how IT increases business value. We place particular emphasis on the resource based view and process-oriented models of IT business value. We conclude the chapter by summarizing the implications of these views for our conceptual model.

3.2. Theorizing Information Technology Business Value

The scope of IT business value research includes conceptual, analytic, and empirical studies.[16] Conceptual studies apply theory and grounded observation to explain IT business value.[17] Analytic studies utilize game theory and other modeling techniques to develop models of IT business value whose solutions inform our understanding of the organizational performance implications of alternative IT investment and ownership regimes as well as the role of the competitive environment.[18] Finally, empirical studies include qualitative research—case studies and field studies[19]—and quantitative studies estimating IT business value at the process, business unit, firm, industry, and country levels of analysis.[20]

IT can create value in the form of productivity similar to other forms of capital. Mukhopadhyay et al. (1995) refer to the business value of IT as the "impact of IT on firm performance." Indeed, the term IT business value is commonly used to refer to the organizational performance impacts of IT, including productivity enhancement, profitability improvement (return on assets), cost reduction, competitive advantage, process improvements (e.g., inventory turnover, cycle time), and consumer surplus (Barua and Mukhopadhyay 2000; Devaraj and Kohli 2003; Hitt and Brynjolfsson 1996; Kriebel and Kauffman 1988). Value can also be created through improvements in supply chains or innovation at inter-organizational levels (Rai et al. 2006).

[16] Brynjolfsson 1993; Brynjolfsson and Hitt 1996, 2000; Brynjolfsson and Yang 1996; Dedrick et al. 2003; Devaraj and Kohli 2003; Jorgenson 2001; Jorgenson and Stiroh 2000; Kohli and Devaraj 2003; Kraemer and Dedrick 2001; Mukhopadhyay et al. 1995; Oliner and Sichel 2000; Santhanam and Hartono 2003; Wilson 1995

[17] Lee 2001; Mata et al. 1995; Porter 2001; Soh and Markus 1995

[18] Bakos and Nault 1997; Belleflamme 2001; Clemons and Kleindorfer 1992

[19] Clemons and Row 1988; Cooper et al. 2000

[20] Alpar and Kim 1990; Dewan and Kraemer 2000; Siegel 1997

IT business value appears at many levels (e.g., individual, group, process, firm, or industry) (Kohli and Grover 2008). IT business value at individual and group levels may comprise personal productivity or group effectiveness (DeLone and McLean 1992). IT value at process level denotes a range of measures associated with operational efficiency enhancement within specific business processes, such as on-time shipping (McAfee 2002), customer satisfaction (Devaraj and Kohli 2000), and inventory turnover (Barua et al. 1995). Firm level IT value denotes aggregate performance impacts across all firm activities, with metrics capturing bottom-line firm impacts through operations measures (cost reduction, productivity enhancement, etc.) and market-based measures (e.g., stock market valuation, Tobin's q) (Brynjolfsson and Hitt 2003; Dehning and Richardson 2002). However, the range of potential measures is not limited to financial metrics, and may include perceptual measures, usage metrics, and others (Tallon et al. 2000).

There are a variety of theoretical lenses applied to study IT business value, among which microeconomic theories, resource-based view and process-oriented models are discussed more in detail in following sections.

3.2.1. Microeconomic Theory

Microeconomic perspectives provide useful insights into the contribution of computerization on economic growth. Papers following this stream often use econometric techniques to estimate the contribution of IT to several measures of multifactor productivity growth. They provide a rich set of well-defined constructs such as product/service demand, capital costs, labor costs, and the total cost of doing business, being interrelated via theoretical models and mathematical specifications.

Microeconomic theories such as transaction cost economics and production theory offer guidance on how information technology can interact with organizational processes to add value. The *production theory* has been particularly useful in conceptualizing the process of production and the contribution of various inputs to output.[21] This theory posits that each firm employs a method for transforming various inputs into outputs, which is generally represented by a production function. For any given set of inputs, the maximum amount of output that can be produced, according to the known laws of nature and existing technology, is determined by this production function. Depending on prices and desired levels of output, different firms may choose different combinations of inputs and outputs, but they will all adhere to the set defined by their production function (Berndt 1991). No inputs will be 'wasted,' so the only way to increase output for a given production function is to increase at least one input. In ideal case, the marginal cost of each input should just equal the marginal benefit produced by that input. Organizational inputs may include capital and labor. Organizational outputs include the products and services delivered by the organization and other monetary returns, such as units produced, revenue, and market share.

Taken as an investment good and an organizational input, the effect of IT on economic welfare depends on how successfully it supports the production of other goods and services. Computer hardware and software can typically be substituted for labor or other types of capital along a given production function. With a straightforward thinking, users of ever-cheaper computer equipment can achieve greater output for a given cost of inputs. However, IT possesses certain characteristics elevating it to a unique kind of

[21] Brynjolfsson and Hitt 1995, 1996; Brynjolfsson and Yang 1996; Dewan and Min 1997; Hitt and Brynjolfsson 1996; Lehr and Lichtenberg 1999; Lichtenberg 1995; Morrison and Berndt 1991; Siegel 1997

organizational input. By capturing, manipulating, storing and disseminating information, IT can support work systems and influence the combination of inputs that can be used to generate a certain level of output (Alter 1999; Hitt and Brynjolfsson 1995). Computers can change the production process itself and provoke complementary innovations within and among firms in an act of computerizing a business process or collection of processes. Rather than merely substituting a cheaper input (e.g., computers) for another input (e.g., labor) in the context of a fixed production process, companies can thus combine computers with other innovations to fundamentally change their production function. Viewed another way, the complementary innovations can themselves be thought of as a kind of input, or organizational capital (Brynjolfsson et al. 2002). This could lead to an output elasticity that is greater than computers' input share and the appearance of excess returns on computer capital stock.

Microeconomic view on IT business value provides empirical specifications enabling estimation of the relationship between growth in computer spending and growth in output productivity.[22] The widely used production function approach relates production inputs such as labor, IT, and other capital to firm performance (Melville et al. 2004). For the single output case, one can use a parametric production function which simply returns the maximum output per unit time, given the amount of inputs used during the same time period. The strength of these approaches derives from their reliance on commonly accepted economic theories and the use of existing accounting data that makes them transparent for review and comparison.

[22] Brynjolfsson and Hitt 1995, 1996; Devaraj and Kohli 2000; Dewan and Min 1997; Hitt and Brynjolfsson 1996; Hitt et al. 2002; Lee and Barua 1999; Lehr and Lichtenberg 1999; Lichtenberg 1995; Siegel 1997; Tam 1998

Although these economic perspectives offer a high degree of objectivity, however, they treat the firm as a ‘black box’ and do not “adequately control for other factors (other than IT) that drive firm profits” (Bharadwaj 2000, p. 170). Many studies measure IT capital spending, but do not study whether such spending is transformed into actual hardware and software functions or whether such functions are actually used (Lee 2001). Mooney (1994) similarly criticizes such analyses that they do not stand up to more detailed scrutiny, and that the datasets which they are based on are problematic. They provide limited insight as to how productivity gains can be realized by individual firms and are limited in capturing intangible impacts such as improved product and service quality, increased managerial effectiveness, or enhanced customer relations. IT impacts business performance probably through a much complex process of transformation, which is difficult to capture by production function models (Tallon et al. 1999). The lack of intermediate mapping of IT impacts on processes provides limited insights into the dynamic process by which business value is created and measured and makes firm-level approaches problematic for determining whether IT investments do pay off (Pavlou et al. 2005).

In the case of SFA deployments, such production functions could be applied by setting SFA investment at firm level as the direct determinant of sales performance. While this would be an extreme case, a number of studies apply a similar logic when the degree of SFA-adoption or use is modeled as the direct determinant of salesperson performance. Higher level of SFA-adoption and use is expected to increase performance. This way of modeling represents a ‘black-box’ approach without telling much about the mechanisms inside the ‘box’ through which business value is created. There are yet mediating and complementary factors playing a role in determining the organizational outcomes of SFA investment.

3.2.2. Resource Based View

While economic theories offer guidance that IT can add value by processing standard inputs and reducing transaction costs, organizational theories such as *resource based view* (RBV) help understand how IT can bring differential value to firms when compared to their counterparts in the industry.[23] RBV is taken as a robust theoretical perspective in IT research for anticipating the conditions under which aspects of a firm's IT deployments will be sources of competitive disadvantage, when they will be sources of competitive parity, and when they will be sources of either temporary or sustained competitive advantage (Clemons and Kimbrough 1986). Strategy researchers have applied RBV to analyze the competitive advantage implications of information technology (Mata et al. 1995) and to empirically assess the complementarities between IT and other firm resources (Powell and Dent-Micallef 1997).

RBV focuses on firm resources as sources of economic rents and, therefore, as fundamental drivers of performance and competitive advantage (Conner 1991). Among those resources, some enable firms to achieve competitive advantage, and a further subset leads to superior long-term performance (Barney 1991; Grant 1991; Penrose 1959; Wernerfelt 1984). The resources possessed, developed, and deployed by an organization and the relationships of those internal resources with competitiveness characterize the subjects of RBV (Jarvenpaa and Leidner 1998).

As in industrial organization-related theories, a firm's ultimate objective in a resource-based approach is generally assumed to be above-normal returns (Barney 1986, Wernerfelt 1984). However, in contrast to the production-

[23] Amit and Shoemaker 1993; Barney 1986, 1991; Bharadwaj 2000; Caldeira and Ward 2003; Powell and Dent-Micallef 1997; Rumelt 1984; Wernerfelt 1984

function view, the RBV places relatively less emphasis on the size of capital and focuses instead on the importance of the scope of resources (e.g., properties of resources) (Radhakrishnan et al. 2008). Several information systems researchers have argued in this line that establishing a direct link between the size of IT investment and firm performance can be problematic and even misleading (Soh and Markus 1995). Bharadwaj et al. (1999) assert that IT investment is a necessary but not a sufficient factor that affects organizational performance.

Firm resources include all financial assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney 1991). Wade and Hulland (2004) describe resources as a set of assets and capabilities available for a firm to detect and respond to market opportunities or threats. *Assets* are defined as anything tangible (e.g., hardware, network infrastructure) or intangible (e.g., software patents, strong vendor relationships) the firm can use in its processes for creating, producing, and/or offering its products (goods or services) to a market (Hall 1997; Itami and Roehl 1987). Assets can serve as inputs to a process, or as the outputs of a process (Srivastava et al. 1998).

Capabilities, in contrast with assets, are firm specific repeatable patterns of actions in leveraging assets to produce value for the market (Sanchez et al. 1996). They transform inputs into outputs of greater worth. Capabilities can include skills, such as technical or managerial ability, or processes, such as systems development or integration. Typically, firms create organizational capabilities by using standard resources.[24] Capabilities, thus, refer to an organization's ability to effectively deploy valued resources, usually in

[24] Amit and Schoemaker 1993; Capron and Hulland 1999; Christensen and Overdorf 2000; Sanchez et al. 1996; Schoemaker and Amit 1994, Mata et al. 1995

combination or co-presence (Amit and Schoemaker 1993). Capabilities in RBV embrace the notion of organizational competencies and are rooted in organizational processes (Prahalad and Hamel 1990).

In the same line of reasoning, many studies divide IT resources into two categories that can be broadly defined as IT assets (technology-based) and IT capabilities (systems-based) (Kohli and Jaworski 1990, Marchand et al. 2000, Mata et al. 1995, Powell and Dent-Micallef 1997). Research has suggested that IT assets (e.g., infrastructure) are the easiest resources for competitors to copy and, therefore, represent the most fragile source of sustainable competitive advantage for a firm (Leonard-Barton 1992; Teece et al. 1997). In contrast, there is growing evidence that competitive advantage often depends on the firm's superior deployment of capabilities (Christensen and Overdorf 2000; Day 1994) as well as intangible assets (Hall 1997; Itami and Roehl 1987; Srivastava et al. 1998).

The RBV of the firm is based on two underlying assertions, as developed in strategic management theory.[25] The first is that, the resources and capabilities possessed by competing firms differ (resource heterogeneity). RBV assumes that the resources needed to conceive, choose, and implement strategies are heterogeneously distributed across firms (Barney 1991). Second, the resource heterogeneity across firms remains stable at least in the short and middle term (resource immobility). Barney (1991) justifies this assumption by stressing that resource heterogeneity cannot be feasible if firm resources are perfectly mobile. In such a case, any resource that allows some firms to implement a strategy can easily be acquired by other firms to implement the same strategy in question.

[25] Barney 1986, 1991; Rumelt 1984; Wernerfelt 1984

Resource Attributes

Although firms possess many resources, only a few of these have the potential to lead the firm to a position of sustained competitive advantage. RBV prescribes specific sets of resource attributes to separate regular resources from those that confer a sustainable competitive advantage. The objective is to connect the conditions of resource heterogeneity and resource immobility to sustained competitive advantage. Only resources exhibiting all of these attributes should be able to lead to a sustained competitive advantage for the firm (Jarvenpaa and Leidner 1998).

Barney (1991) argues that advantage-creating resources must possess four key attributes: value, rareness, inimitability, and non-substitutability.[26] Resources that are valuable and rare and whose benefits can be appropriated by the owning (or controlling) firm will provide a temporary competitive advantage. When the firm is able to protect those resources against imitation, transfer, or substitution; that advantage can be sustained over longer time periods (Wade and Hulland 2004). In contrast, if a firm possesses a resource or capability that is possessed by numerous other competing firms, that resource or capability cannot be a source of competitive advantage. Such common sources do not meet the resource heterogeneity requirement and are, at best, sources of competitive parity (Mata et al. 1995).

Firm resources can only be a source of sustained competitive advantage when they are *valuable*. RBV describes a resource as valuable when it enables a firm to implement strategies that improve efficiency and/or effectiveness (Barney 1991).[27] In the selling context, an SFA system is a

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[26] Refer to Amit and Schoemaker (1993), Black and Boal (1994), Collis and Montgomery (1995), and Grant (1991) for other resource attribute typologies.

[27] The studies of Bharadwaj (2000), Feeny and Willcocks (1998), Lopes and Galletta

valuable resource for a sales force as long as it helps salespeople increase their efficiency and effectiveness. In addition to IT hardware and software, 'soft' aspects of a sales organization such as knowledgeable and experienced salespeople, sales processes and sales culture represent valuable resources for the firm.

Resources that are valuable cannot become sources of competitive advantage if they are in plentiful supply. *Rarity* refers to the condition where the resource is not simultaneously available to a large number of firms (Amit and Schoemaker 1993). IT infrastructure can be acquired or copied relatively easily once it has been in existence even for a comparatively short period of time, although it may be very rare initially. This is the case for SFA and CRM applications. First generation of customer relating IT systems were welcomed as sources of competitive advantage when first introduced to the market in early 1990's. However, the market has been highly saturated since then, and SFA technology, by itself, cannot be taken as a source of competitive advantage anymore. In contrast, soft metrics tend to be socially complex and cannot be easily acquired in factor markets, and must instead be developed through on-going, firm-specific investments or through mergers with and/or acquisitions of other companies. Therefore, such intangible resources are likely to be associated with a higher degree of rarity than are tangible IT resources.

The *appropriability* of a resource relates to its rent earning potential (Amit and Schoemaker 1993; Collis and Montgomery 1995; Grant 1991). The advantage created by a rare and valuable resource or by a combination of resources may not be of major benefit if the firm is unable to appropriate the returns accruing from the advantage. While SFA infrastructure is a valuable

(1997), Marchand et al. (2000), Mata et al. (1995), and Ross et al. (1996) show that IT resources have value to their firms.

resource, it is not appropriable unless salespeople use it in the right way. On the other hand, salespeople capable of using SFA to bring additional profits are a valuable, rare and appropriable resource for the firm. In general, the appropriability of the soft resources—salespeople, processes, an innovative culture, etc.—tends to be lower than that of the hard resources. This stems from the fact that they tend to be organizationally complex, and thereby more difficult to deploy successfully.

In order to sustain a competitive advantage, firms must be able to defend that advantage against imitation. The advantage accruing from newly developed features of computer hardware, for instance, is typically short-lived since competitors are able to quickly duplicate the technology (Mata et al. 1995). According to Barney (1991), there are three factors that can contribute to low *imitability*: unique firm history, causal ambiguity, and social complexity. The role of history recognizes the importance of a firm's unique past that other firms are no longer able to duplicate. Causal ambiguity exists when the link between a resource and the competitive advantage it confers is poorly understood (Dierickx and Cool 1989; Reed and DeFillipe 1990). Finally, social complexity refers to the diverse relationships within the firm and between the firm and key stakeholders such as shareholders, suppliers, and customers (Hambrick 1987; Klein and Lefler 1981). Over time, pure IT resources such as SFA technology become easier to imitate. In fact, existing empirical evidence suggests that IS infrastructure is particularly easy to imitate over moderate to longer time periods (Wade and Hulland 2004). 'Soft' resources such as the innovativeness of employees and right modeled business processes are likely to be more difficult to imitate because these resources will develop and evolve uniquely in time for each firm. Moreover, these resources are likely to be socially complex.

A resource has *low substitutability* if there are few, if any, strategically equivalent resources that are rare and inimitable (Amit and Schoemaker 1993; Black and Boal 1994; Collis and Montgomery 1995). Resource substitutability may involve the use of very different resource sets, but could also reflect a decision to acquire and deploy resources in-house versus obtaining them from third parties. In the case of SFA technology, it seems unlikely that strategic alternatives exist that lead to the same ultimate competitive position. Paper-based systems of the past to manage customer information have no place in today's competitive markets. Thus, the substitutability of this resource at first glance will be low. However, firms may still be able to outsource their IT development and other operations to third parties and thereby compete effectively. For instance, 'on-demand' solutions allow companies to hire full SFA functionality installed on external servers owned and operated by a vendor (Buttle 2006). In contrast, strategic substitutes for 'soft' resources are likely to be rare, although it may be possible for firms with a subset of these capabilities (e.g., market responsiveness) to compete on an equal basis with firms possessing a different subset (e.g., IT-business partnerships).

The second resource-based condition, that the differences in resources and capabilities may be long lasting (resource immobility), depends on the transferability of a resource. A resource is mobile if firms without a resource (or capability) face no cost disadvantage in developing, acquiring, and using that resource compared to firms that already possess and use it. A primary source of resources is factor (i.e., open) markets (Grant 1991). If firms are able to 'purchase' a resource necessary to imitate a rival's competitive advantage, the resource can only be a source of temporary competitive advantage. Thus, a requirement for sustained competitive advantage is that resources be *imperfectly mobile* or *non-tradable* (Barney 1991). Some resources are more easily bought and sold than others. Technological assets, for example, such as computer hardware and software, are relatively easy to acquire. Technical knowledge, managerial experience, and many skills and abilities are less easy to obtain. External relationship management, market responsiveness, and IT-business partnership capabilities are generally not readily available in factor markets. Other resources, such as company culture, brand assets, and so on, may only be available if the firm itself is sold (Grant 1991).

Based on our discussion of resource attributes above, we posit that organizations can create differential value over their competitors by effectively deploying IT to create unique, hard to copy, non-substitutable and immobile organizational capabilities. In particular, the key driver of a longer-term competitive position is more likely to be the result of superior 'soft' resources. Firms possessing superior supplier relations, lean business processes and motivated human resources are likely to initially outperform competitors that rely more on 'hard' resources that are rather internally focused (e.g., IT infrastructure). Furthermore, because it is harder to imitate, acquire, or find strategic substitutes for the former set of resources than for the latter, outside-in and spanning resources are more likely to maintain their rarity, and thus support a sustainable competitive position for a longer period of time.

Contingency View

The RBV is criticized for not adequately considering the fact that resources rarely act alone in creating or sustaining competitive advantage (Wade and Hulland 2004).[28] In fact, IT resources often act in combination with other firm resources to provide strategic benefits (Keen 1993; Walton 1989). These resources together "form part of a complex chain of assets and

[28] Refer also to Amit and Schoemaker 1993; Dierickx and Cool 1989; Teece 1986

capabilities that may lead to sustained performance." (Wade and Hulland 2004, p. 109) In response, a number of researchers suggest that the strategic value of IT resources must be understood in conjunction with a firm's strategy and stresses the importance of a 'good fit' between business strategy and IT strategy (Chan 2000; Chan et al. 1997; Kohli and Devaraj 2004; Sabherwal and Chan 2001).

Other variables (e.g., IT characteristics, management practices, organizational structure and culture, competitive and macro environment, complementary investments) may mediate or moderate the payoff from IT investments.[29] For example, IT used in an efficient process will be expected to bring more value to performance than the same IT used in an inefficient process (Kohli and Grover 2008). The issue of complementarity is important since it implies a more complex role for IT resources within the firm (Alavi and Leidner 2001; Henderson and Venkatraman 1993).

A number of studies reveal that IT investments bring indeed greater returns when IT resources are aligned with complementary resources. Milgrom and Roberts (1990) show that due to the complementary nature of new technological advancements such as shorter cycle time, smaller batch size, and more product improvements, it is optimal for manufacturing firms to adopt an entire series of new changes instead of isolated one. In another study, the efficiency of process, the extent of IT used, and users' incentive systems are identified as major complementary factors in a reengineering project (Barua et al. 1996). According to Kettinger and others' (1994) study, IT-based success rests on the ability to "fit the pieces together". Powell and Dent-Micallef (1997) conclude that the complementary use of IT and human resources lead to superior firm performance. Benjamin and Levinson (1993)

[29] Refer to Barua et al. 1996; Brynjolfsson et al. 1998, 2002; Cooper et al. 2000; Dewan and Kraemer 2000; Doty et al. 1993; Markus and Soh 1993; Weill 1992

conclude that performance depends on how IT is integrated with organizational, technical, and business resources. Jarvenpaa and Leidner (1998) note that IT can generate competitive value only if deployed so that it leverages preexisting business and human resources in the firm via co-presence or complementarity.

In CRM literature too, the contingency view has a firm place. Zablah and others (2004) argue in their conceptual paper that CRM success requires a fit between employee skills, process definitions and IT capabilities. Mithas and others (2005) emphasize the risk of relying on CRM technology alone:

> CRM applications merely enable firms to collect customer knowledge. Only when firms act on this knowledge by modifying service delivery or by introducing new services will they truly benefit from their CRM applications. Furthermore, firms may need to make changes in their incentive systems and institute complementary business processes to leverage CRM investments. (p. 207)

Similarly, Campbell (2003) comments on the significance of further complementary factors for CRM success:

> Integrating customer information into an organization's marketing and selling efforts requires more than just the more efficient use of technology. (...) To reap the rewards of CRM, managers need to complement new CRM technologies with organizational processes that integrate customer information throughout the firm; improve the

> strength of ties between marketing and IT departments; signal senior management involvement; and encourage employees to adopt new customer-focused behaviors both within the firm and with external customers. (pp. 378-382)

From the preceding discussion, it seems clear that there will be conditions under which specific IT resources (SFA technology in the sales context) must interact with non-IT resources if they are to confer competitive advantage on the firm, both in the immediate and longer terms. It is not the SFA itself, but how it is used, that should define the end results. The real difference must be resting on the success of the salespeople in realizing the strategic objectives of a company by applying the SFA system in question.

3.2.3. Process-Oriented Models

Aforementioned studies on the aggregate impact of IT at the economy, industry and firm levels measure the relationship between IT spending and firm performance often directly without examining the possible underlying mechanisms. Chan (2000) note that such models contribute to the IT literature by addressing the question "what value do IT investments provide?" It is yet equally important to address questions such as "why, where, when, how, and to whom do [IT] investments provide value?" (Chan 2000, p. 245) Furthermore, classical approaches of resource-based view (RBV) have certain limitations, again inherent in taking aggregate firm performance as the focal dependent variable. In fact, RBV "assumes that resources are always applied in their best uses, saying little about how this is done." (Melville et al. 2004, p. 291) Perhaps the use of aggregate measures of firm performance alone has actually supported the productivity paradox, suggesting the need for a combination of both aggregate and intermediate measures of IT impact.

Ray and others (2004) give three reasons to adopt business process effectiveness as the dependent variable in strategic management research. First, capabilities typically consist of a combination of firm assets and business processes. A firm may excel in some of those business processes, be only average in others, and be below average in still others. A firm's overall performance depends on, among other things, the net effect of these business processes. Second, it is possible for a firm's stakeholders to appropriate the economic profits that can be generated by a firm's business processes before those profits are reflected in a firm's overall profitability. Profits generated by a firm may not always appear as higher levels of performance for that firm (Coff 1999). Third, the potential of resources and capabilities for generating competitive advantage can be realized only if they are used in business processes, as it is through business processes that a firm's resources and capabilities get exposed to the market, where their value can be recognized. Porter (1991, p. 108) argue that "resources are not valuable in and of themselves, but they are valuable because they allow firms to perform activities (...) business processes are the source of competitive advantage." In all these cases, aggregating the outcomes of numerous business processes can make it very difficult to examine whether a particular set of firm resources and capabilities actually creates competitive advantage for a firm. A more appropriate way is to adopt the performance of a business process as the dependent variable, and to examine the kinds of resources and capabilities that can generate competitive advantages at this level of analysis (Ray et al. 2004).

Ray and others' (2004) remarks for strategic management research are applicable for studies of IT business value as well. In fact, there should be a significant causal distance between IT systems and firm performance (Lee 2001). IT interacts with many other variables, going through layers of interactions to finally make an impact on profit (Mooney et al. 1995). By attempting to relate IT spending directly to output variables at the firm level, the intermediate processes through which IT impacts are felt are mostly ignored (Barua, et al. 1995, Radhakrishnan et al. 2008). Moreover, given the complexity of the technology and the difficulty of implementing it in organizations, some systems may be effective, while others may bring negative returns. By aggregating over all systems, the favorable impact of effective systems may be nullified by poorly designed systems (Mukhopadhyay et al. 1995).

In response, *process-oriented* IT success models attempt to answer the 'how' question by linking IT success variables to intermediate success measures and then to higher-level firm performance measures (Byrd et al. 2006).[30] Process-based models posit that IT investments essentially influence intermediate level activities and processes which are critical to a firm's success, such as supply chain management and marketing (Tallon et al. 1999). The resultant 'primary' effects may include improvements in capacity utilization, inventory turnover, relative quality, relative price, and new products. These primary effects consecutively relate to higher levels of performance measures such as revenues, return on assets, and market share. Process-based models of IT business value have been applied in a number of studies).[31] Figure 3.1 depicts such a process oriented model of IT value.

[30] Refer also to Barua et al. 1995; Byrd et al. 2006; Hitt and Snir 1999; Hu and Quan 2005; Mukhopadhyay et al. 1995, 1997; Ray, Muhanna, and Barney 2005; Tallon et al. 2000

[31] Using data from the manufacturing sector for a period of five years, Barua and others (1995) report that IT has a mostly favorable impact on intermediate variables. Intermediate variables are found to be significant determinants of high-level economic variables such as ROA and market share. Francalanci and Gallal (1998) propose that managerial choices regarding the mix of clerical, managerial, and professional employees mediate the relationship between IT and firm performance. For other studies

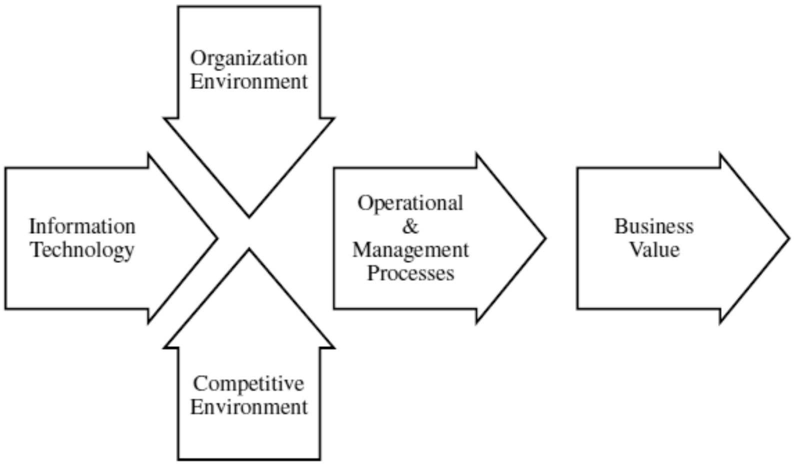

Figure 3.1: A process oriented model of IT business value
(source: Mooney et al. 1995)

Process-oriented models have certain advantages against other research models applying aggregate data to measure the outcomes of IT use. As the distance between a first-order effect and higher levels increases, the ability to detect and measure an impact decreases. Furthermore, any organization is expected to have multiple IT applications in each primary or supporting activity and the effectiveness of these applications is not uniform across all activities. “To capture these impacts, measurements should be taken in the organization where the potential for first-order effects exists.” (Barua et al. 1995, p. 6) The principal aim of process-oriented models of IT business value is therefore to identify and isolate the economic impacts of IT at lower responsibility units in an organization. By isolating economically and technologically distinct activities within a business, one may better identify the value added of IT to individual outputs. In the end, studying business processes is a way of illuminating the black box of microeconomic production theory.

refer to Mukhopadhyay, Lerch and Mangal 1997; Davamanirajan, Mukhopadhyay and Kriebel 1999; Rogawski and Adams 1998 and Weill 1992.

Another advantage of process-oriented models is the generalizability of empirical findings. A process focus should enhance the validity of the business value assessment, since the analysis is conducted at the same level that the technology is deployed. This is usually the lowest possible level of analysis where situation specific external effects are kept at minimum. Therefore, the impact of IT at intermediate business process level is generalizable to other situations where comparable processes and IT systems are in question. In contrast, the impact on the 'bottom line' depends on many contingent factors and harms the generalizability of results (Mooney et al. 1995).

Process-oriented models can be applied in sales and marketing research to capture SFA's contribution to individual sales tasks. As we argue in Chapter 4 in greater detail, an isolated measurement of SFA use to facilitate separate sales tasks should provide with a clearer view of the value creation mechanism of SFA. Furthermore, such a process-oriented (task-based) approach should make generalizations to other sales contexts possible.

Business Processes and Business Value of IT

An important concept which highlights the role of IT in a company's business processes is the "value-chain" framework suggested by Porter (1985) (figure 3.2). Porter's (1985) framework divides a corporation's activities into distinct processes necessary for engaging in business activities. Products pass through all activities of the chain in order and at each process the product gains some value. These distinct processes are classified as primary activities (e.g., inbound logistics, operations, outbound logistics, marketing and sales, and service) and support activities (e.g., firm infrastructure, human resource management, technology development, and procurement).

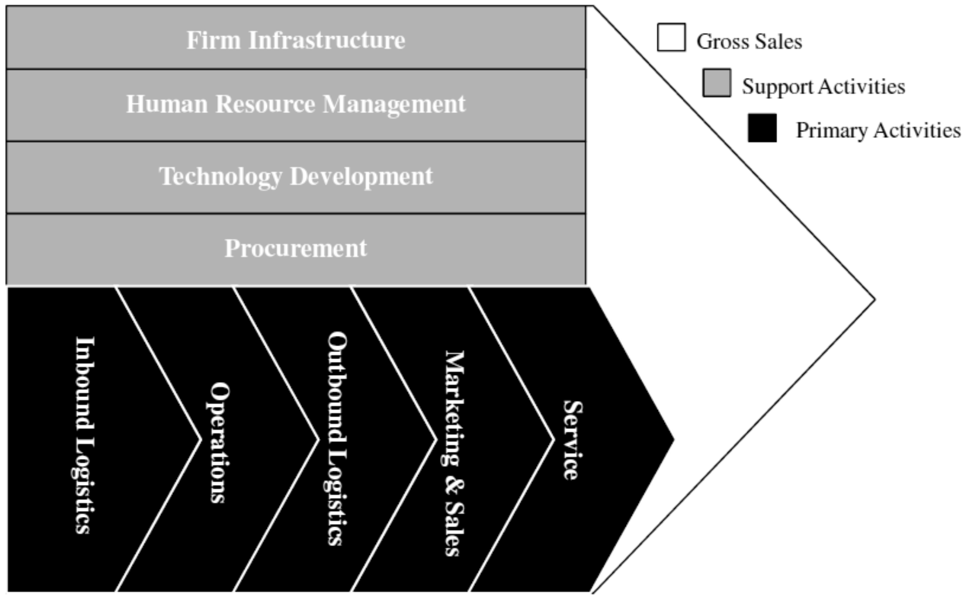

Figure 3.2: The Value Chain (source: Porter 1985)

A similar approach to value creation mechanism of organizations is suggested by Day (1994). Day (1994) argues that the capabilities (as a subset of the firm's resources in resource based view) held by a firm can be sorted into three types of processes: inside-out, outside-in, and spanning. Inside-out capabilities are deployed from inside the firm in response to market requirements and opportunities, and tend to be internally focused (e.g., manufacturing, logistics, human resource management, technology development, cost controls). In contrast, outside-in capabilities are externally oriented, placing an emphasis on anticipating market requirements, creating durable customer relationships, and understanding competitors (e.g., market responsiveness, managing external relationships). Finally, spanning capabilities are needed to integrate the firm's inside-out and outside-in capabilities (e.g., managing IT/business partnerships, IT management and planning).

Davenport (1993), in his discussion of the role of IT in supporting process innovation, provides a comprehensive analysis of the interaction of IT and organizations from a process perspective. Davenport (1993) states that "process improvement and innovation are the best hope we have for getting greater value out of our vast information technology expenditures, yet neither researchers nor practitioners have rigorously focused on business process change as an intermediary between IT initiatives or investments and economic outcomes." (p. 45) Davenport develops a typology of business processes and classifies them into operational processes and management processes. On the one hand, operational processes are those that embody the execution of tasks comprising the primary activities of an organization's value chain. For this reason, operational processes can be argued to represent the 'doing of business.' Management processes, on the other hand, are those activities associated with the administration, allocation of resources, communication, coordination and control within organizations. Management processes are not directly related to the primary (core) activities of the value chain but they help in efficiently and effectively carrying out the primary operations of an organization (Radhakrishnan et al. 2008). Figure 3.3 illustrates the typology:

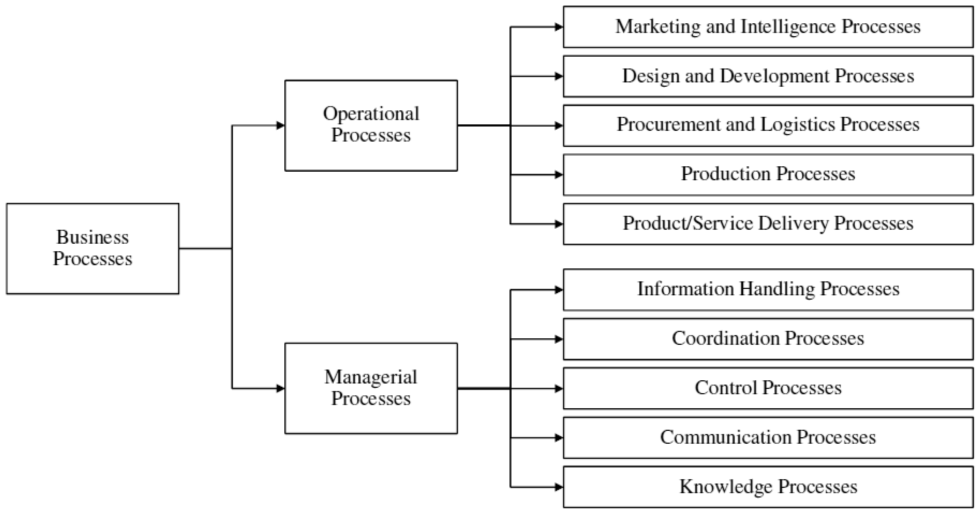

Figure 3.3: Typology of Business Processes
(source: Mooney et al. 1995)

A typical salesperson has to perform a wide variety of daily tasks in order to accomplish his or her job (Marshall et al. 1999). While some of these tasks are more related to the customer and ultimately making a sale, others are internally oriented that are necessary for a correct functioning sales organization. In this sense, sales tasks can also be classified into two groups as prescribed by the business process typologies given above, where one group consists of core value creating (i.e., operational) processes and the other stands for support and coordination (i.e., management) processes. We build on this typology in Chapter 4 as we conceptualize a task-based SFA-use construct.

IT Impacts on Business Processes

Davenport (1993) defines a business process as the specific ordering of work activities across time and space, with a beginning, an end, and clearly identified inputs and outputs. Business processes include, among others, supplier relations, production, marketing, support, and customer relations.

How well business processes perform individually and how well they are linked are important determinants of the added value created by an organization. As IT continues to permeate and penetrate the organization, impacting an increasing number of business processes at a deeper level, the potential value of IT increases (Porter and Millar 1985). This potential is further enhanced by redesigning business processes and by associated modifications to the organization structure. Such structural modifications result in new organizational forms that enhance the productivity and business value potential of IT (Mooney et al. 1995).

In order to evaluate IT business value, the key processes vital to a business must be identified and the linkages and contributions of IT to those processes defined. Mooney and others (1995) propose that IT can have three separate but complementary effects on business processes; *automational*, *informational* and *transformational effects* (see figure 3.4).

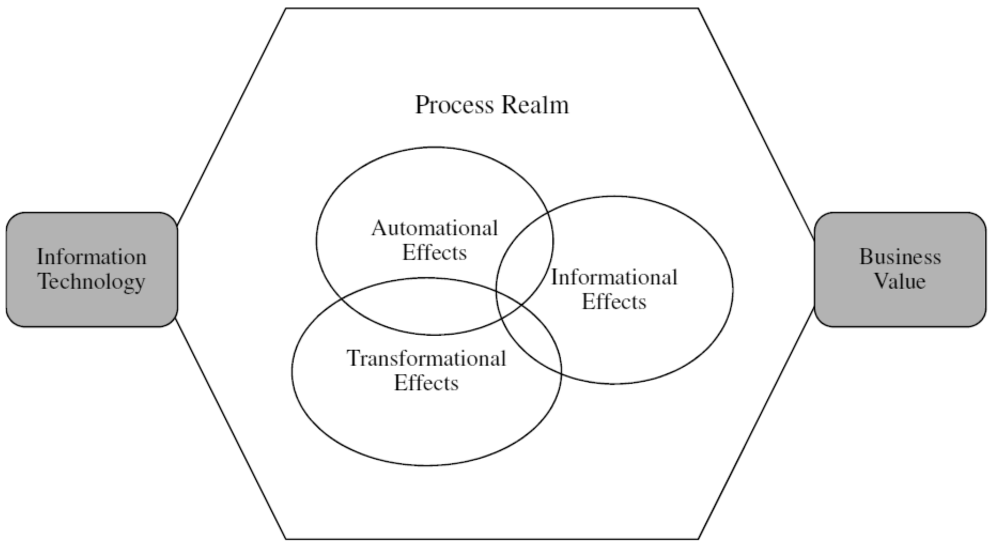

Figure 3.4: Dimensions of IT business value
(source: Mooney et al. 1995)

First, *automational effects* refer to increased efficiency when IT as a capital asset is substituted for labor and other factors of production. Within this dimension, value derives primarily from productivity improvements, labor savings and cost reductions. Such automational effects help organizations do things more quickly and cheaply (Grover et al. 1998). For instance, computer aided design (CAD) can automate the product design process. Similarly, salespeople in many industries can use their SFA tools to configure products to fit their offers to specific customer needs. In pharma industry, salespeople can easily order product samples for their clients through their SFA tools.

Second, IT can have *informational effects* which emerge from the capacity of IT to capture, store, process, and distribute information. Business processes are enhanced by the availability and communication of critical information. Some expected positive outcomes of informational effects are improved decision quality, employee empowerment and coordinated utility of organizational resources. For instance, e-mail, databases, and video-conferencing can improve the effectiveness of communication inside an organization. In sales context, SFA helps salespeople quickly enter and later access customer information. SFA technology can also provide salespeople with market statistics, product information and competitive intelligence. Through team management facility of SFA technology, salespeople can coordinate their activities around the customer.

Third, *transformational effects* refer to the value deriving from the ability of IT to facilitate and support process innovation and transformation. Through such effects new tasks can be executed which were previously not possible without technology, offering new capabilities and skills to businesses (Grover et al. 1998). The business value associated with transformational effects will appear as reduced cycle times, improved responsiveness, downsizing, and service and product enhancement as a result of re-engineered processes and redesigned organizational structures. For instance, IT can be applied to support interorganizational business processes, such as the end-to-end linking of value chains of two partner organizations. A buyer's inbound logistics could thus be linked with the outbound logistics of a supplier. SFA technology offers significant opportunities to sales organizations to employ innovative CRM strategies as better connections between the sales force, call center and online channels. IT can also provide stronger links between sales and marketing departments in an organization, with the potential for better developed and customized marketing campaigns targeted at the individual customer. Last but not least, it is possible to access inventory levels and even manage the entire supply chain through SFA, again making salespeople a valuable and reliable partner of the client.

3.3. Concluding the Theoretical Discussion

In Chapter 3 we have presented three complementary theoretical lenses applied in IT literature to explain the business value of IT investments. In this last section of the chapter we make a brief overview of these views and highlight their implications for our research.

Early papers on the business value of IT apply microeconomic theories and attempt to directly link IT investments to firm performance at aggregate levels. These studies usually report inconsistent results, resulting in the ‘productivity paradox.’ In the meantime, IT has become a highly replicable, standardized commodity available to all entrants in an industry. For this reason, IT in itself cannot provide any sustained advantages to an organization anymore (Carr 2003). In contrast, RBV focuses on differences in performance in terms of the types of resources and capabilities that different firms possess. According to the RBV, valuable resources explain variance in performance across competing firms depending on how rare and costly to imitate these resources are (Ray et al. 2005). Bringing RBV a step further, contingency theorists suggest that IT resources should be acting in combination with non-IT resources to provide strategic benefits. Last but not least, process-oriented models of IT business value suggest that the greater the extent to which IT impacts individual processes and their linkages, the greater is the contribution of IT to firm performance (Tallon et al. 1999).

Our discussion in this chapter reveals firstly that companies derive differential value from their IT investments. Second, it is necessary to open the black box of IT investments by disaggregating the input and output constructs into meaningful subcomponents. In this way, how IT creates business value can be better understood. Third, 'hard' IT resources interact with 'soft' non-IT resources such as employee practices, business processes and organizational structure when realizing organizational outcomes. Soft resources seem to have potentially higher value than hard resources to firms as they are typically complex, intertwined and difficult to replicate. Third, IT impacts organizational performance via intermediate business processes. Business critical processes affected by IT should be considered when modeling IT business value.

4. SALES FORCE AUTOMATION AND SALESPERSON PERFORMANCE

4.1. Introduction to the Chapter

Improving employee performance in organizations is a primary goal for organizations to increase competitiveness (Marshall et al. 2000). Sales force represents an employee group whose performance have a direct impact on company results. SFA creates business value by increasing salesperson performance, which should as a consequence bring a positive impact on organizational performance (DeLone and McLean 2003). Understanding the "consequence of use, the impacts (direct and indirect, intended and unintended) of [IT] artifacts on the humans who directly (and indirectly) interact with them, structures and contexts within which they are embedded, and associated collectives (groups, work units, organizations)" must be a research priority (Benbasat and Zmud 2003, p. 186). Therefore, the business value created by SFA technology is necessary to find out.

The objective of this chapter is to explain how SFA impacts salesperson performance. Our central argument is that, *how* SFA is used by salespeople must have an impact on performance. We will first illustrate the problem inherent in past studies which often apply reflective SFA-use constructs in their models. Later, we will suggest that multidimensional conceptualization and task-based operationalization of the SFA-use construct is better at understanding how SFA is used and thus theorizing the SFA-performance relationship. Finally, we will conceptualize a multidimensional SFA-use construct based on our literature review and a qualitative study.

4.2. SFA Adoption and Use: One-Dimensional Measurement

Beyond conceptual discussions and anecdotal arguments, papers are being published in recent years which empirically investigate the relationship between SFA technology adoption and salesperson performance.

A positive impact of SFA adoption on salesperson performance has been demonstrated more than once. For instance, Gulati and others (2004) collected responses from 335 independent sales agents who were members of a national manufacturer’s agents association in U.S. Their results support a positive relationship between a sales agent’s Internet utilization and self reported sales performance. Good and Stone (2000) surveyed 183 industrial-marketing executives familiar with computers. Their results suggest that ease of use and encouraged use impact individual performance in a positive fashion, suggesting easy to use systems improve individual user performance. Similarly, Jelinek and others (2006) confirmed in a longitudinal setting that adoption of SFA technology relates positively to improvements in sales performance. In another study, infusion affected salesperson performance, where routine or mere frequent use had no direct impact (Sundaram et al. 2007).

It has also been proposed that the SFA adoption - performance relationship depends on a number of contingent factors. Ahearne and others (2005) demonstrated that increased IT use enhances sales efficiency and effectiveness only under the conditions of sufficient support and training. However, increased IT use decreased sales efficiency and hurt effectiveness dramatically when salesperson received low levels of support and training. In another study based on objective measures of technology usage and performance collected for 1340 pharmaceuticals salespeople, salesperson expertise moderated the SFA – performance relationship. Sales representatives who exceeded their sales quota in the previous year derived significantly greater benefit from SFA system use than other sales representatives did (Ko and Dennis 2004).

A number of studies investigated how SFA impacts performance by assessing some factors expected to mediate the relationship. Robinson and others (2005b) tested a model based on the data collected from a sample of 118 field salespeople working for an information services company. Their results provide evidence that behavioral intentions to use technology positively affect salesperson performance through enhanced propensity to practice adaptive selling. Mithas and his colleagues (2005) revealed that the effect of SFA applications on customer satisfaction is mediated by the improvement in firms' customer knowledge. Hunter and Perreault (2006) collected data from the sales force of a major consumer packaged goods company. Their results indicate that a salesperson's technology orientation affects performance with customers through a double-mediated mechanism involving effective planning and adaptive selling behaviors. Again, two recent studies show that salespeople who use IT, gain in return improved customer service, adaptability and targeting and presentation skills, which help them increase their performance (Ahearne et al. 2007; Ahearne et al. 2008).

On the other hand, a number of papers reached some conflicting findings. Ahearne and others (2004) obtained objective measures of technology usage and performance by 131 sales reps in a mid-sized American pharmaceutical company to discover a curvilinear relationship between SFA usage and salesperson performance. Technology may have a negative impact on salesperson beyond a certain level of technology use. Based upon self-reported perceptional data from 240 salespeople who utilize a CRM system, Avlonitis and Panagopoulos (2005) report that perceived usefulness of the system positively impacts salesperson performance, whereas SFA adoption do not.

From this review of the literature we can conclude that, despite exceptional cases, SFA has a positive impact on salesperson performance. Research efforts are slowly refocusing towards understanding how and under which circumstances SFA technology makes a positive contribution to sales organizations and salesperson efficiency and effectiveness. We also observe that most of these papers tend to overlook the drivers of SFA-use behavior and do not answer the important *'why'* question.

Another remark of the literature is how the relationship between SFA and organizational outcomes is modeled. A big majority of the empirical studies in sales literature measure SFA-adoption and -use behavior with one-dimensional constructs (e.g., only considering hours of usage). For instance, SFA-use is operationalized in these studies as the total number of system hits and number of screens used (Ahearne et al. 2004; Ahearne et al. 2008), number of knowledge documents displayed (Ko and Dennis 2004), rated score of general adoption and use (Ahearne et al. 2005, 2007; Avlonitis and Panagopoulos 2005; Jelinek et al. 2006; Schillewaert et al. 2005; Speier and Venkatesh 2002), rated score of intention to use (Jones et al. 2002; Robinson et al. 2005a, 2005b), rated score of routinization and infusion of technology in daily job (Gulati et al. 2004; Jones et al. 2002; Rangarajan et al. 2005; Sundaram et al. 2007), and rated score of general attitude towards technology (Hunter and Perreault 2006; Keillor et al. 2001). As exceptions, two studies apply multidimensional measures (Hunter and Perreault 2007; Moutot and Bascoul 2008) and one study applies a task-based multidimensional measure (Engle and Barnes 2000).

Application of one-dimensional constructs are justified to the extent that SFA-adoption and -use is thought to be an adequate indicator of SFA implementation success, either taken as sufficient by itself (as a dependent variable) or theorized to bring increased performance (as an independent variable). In such settings, it has often been enough to conceptualize SFA-usage construct as a continuum, where the salesperson is asked to report the extent to which he or she uses the system. As Tanner and Shipp (2005, p. 307) point out, another reason why researchers prefer one-dimensional technology use constructs may lay in the difficulty in distinguishing the various tasks carried out by salespeople:

> Developing a framework of mutually exclusive functions for technology is difficult, in part because, while the full range of duties carried out by salespeople are well defined (e.g., Moncrief, 1986; Marshall et al. 1999); sales researchers have concerned themselves with the functions associated primarily with acquiring customers. Other important functions such as knowledge management, customer support and internal relationship building were somewhat ignored. Non-selling functions that salespeople might have carried out were not considered interesting or important.

However, one-dimensional constructs may prove to be problematic. The outcome of such approaches to measurement is often a '*yes-no' dichotomy* where the salesperson reports if he is using the system or not. These constructs often represent a 'black-box,' while they inform *whether* SFA is used or not, they do not give details of *how* SFA is used in a sales setting. They implicitly overlook the impact of SFA on individual tasks, specific processes, or intermediate outcomes (such as the quality of services) (Hunter and Perreault 2006). They do not consider the cost of usage (for example, the time which could well be spent with clients) and thus implicitly assume that more usage is always better than less, which is not sustainable in effect (Ahearne et al. 2004). In fact, "in post implementation context, hours of use may be a success measure, but less rather than more hours is desirable." (Doll and Torkzadeh 1998, p. 173) DeLone and McLean (2003, p. 16) in the same way criticize approaches where one-dimensional IT system use constructs are applied:

> The problem to date has been a too simplistic definition of this complex variable (system use). Simply saying that more use will yield more benefits, without considering the nature of this use, is clearly insufficient. Researchers must also consider the nature, extent, quality, and appropriateness of the system use. (…) Simply measuring the amount of time a system is used does not properly capture the relationship between usage and the realization of expected results.

On the contrary, there is heterogeneity in SFA-use across salespeople which is not easy to detect by one-dimensional measurement items. A firm's investment on sales technology does not ensure it will be used equally by all salespeople. It is usually at the salesperson's discretion to choose how much to rely on individual technologies (Morgan and Inks 2001; Hunter and Perreault 2006). While some people welcome new technologies enthusiastically, others may prefer the old way of doing business. In the study of Bush and others (2005), the companies implementing SFA had a target buy-in percentage, ranging from 50% to 70%, which is not a high rate at all. In other cases, salespeople are forced to use the SFA, soon after the organization adopts it (Buehrer et al. 2005). Since, in this context, adoption is against their will, these salespeople will likely use the system at a minimum level and underutilize its capabilities (Parthasarathy and Sohi 1997). For instance, although the respondents in one study were predominantly satisfied with their SFA tools, they reported to be using SFA only as a basic personal efficiency tool (Stoddard et al. 2002). To illustrate, close to 80% of the respondents use e-mail to communicate with their sales managers, customers and each other. In contrast, less than 40 percent of the respondents use SFA for sales forecasting and less than 25 percent use SFA for order entry and order status, which represent more sophisticated functionality where the real potential of SFA is (Stoddard et al. 2002). In another study, Donaldson and Wright (2004) observed that pharmaceutical salespeople cannot achieve their strategic-level objectives such as enhancing customer relationship management due to the limited use of their SFA systems. Jasperson and others (2005, p. 532) comment on the multifunctional nature of IT systems and its consequences on voluntary use:

> Typically, IT applications have many more features than those mandated for work accomplishment. After some individuals have gained experience in using a specific feature (or set of features), they may discover ways to apply the feature that go beyond the uses delineated by the application's designers or implementers, thereby engaging in feature extension behaviors. By definition, feature extensions are always voluntary.

Widmier and others (2002) argue that as a result of this multi-purpose nature of SFA tools salespeople may benefit from some part of the SFA functionality instead of completely refusing to adopt the system:

> Respondents may be finding some of the technology introduced by a failed SFA initiative to be helpful and useful in their jobs. Given the range of activities supported by sales technology, it is not surprising that many implementations are failures, although most salespeople feel that some part of the sales force technology introduced in an SFA implementation helped them in their jobs.

Indeed, modern SFA systems come with a bunch of functionalities, from account management to data analysis and from call planning to sales forecasting (Buttle et al. 2006). Reflective measurement of SFA-use may be problematic in such cases where the SFA system consists of various functions and use is voluntary. For example, one salesperson may be using the system mainly for administrative purposes, while another may be using for targeting and analysis. Both of these salespeople might report similar levels of adoption, but their actual system usage (as well as drivers and consequences of that usage) might be very different. SFA research should adopt better developed SFA-use constructs which take the multifunctional nature of SFA technologies into account. We deal with the problem of one-dimensional measurement of SFA-use by suggesting a task-based multidimensional SFA-usage construct in the next section.

4.3. SFA Adoption and Use: Multidimensional Measurement

IT-use is necessary, but not sufficient, to produce business value (DeLone and McLean 2003; Seddon 1997). SFA may improve the performance of an organization and its salespeople but only to the extent that the system is properly utilized by the sales force (Morgan and Inks 2001). In this section, we argue that how a salesperson uses an SFA system makes the real difference, and thus, SFA-use construct should be operationalized in a way to better capture the SFA-related salesperson behavior. A multidimensional SFA-use construct, operationalized with task-based items is necessary.

At organizational level, more investment in IT does not always bring profitability (Brynjolfsson and Hitt 2000). Companies differ in the extent to which they benefit from their IT investments. Stratopoulos and Dehning (2000) compared successful users of IT that have successfully integrated IT into their business processes with less successful users of IT by using a quasi-experimental design. Their results confirmed that successful users of IT have superior financial performance relative to less successful users of IT. As the Resource-Based View[32] puts out, besides IT investment, a bundle of non-IT assets and capabilities determine the impact of IT on company performance, such as complimentary investments, new strategies, new business processes and new organizations (Brynjolfsson and Hitt 1998; Kohli and Grover 2008).[33] One significant factor defining IT success is the various ways IT is used within the firm (Barua et al. 1995). In a recent study, Ray and others (2005) make out that the shared knowledge between

[32] Resource-Based View and its implications for IT Business Value are given in Chapter 3 more in detail

[33] Markus and Soh (1993) describe “IT assets” as an intermediate outcome between IT investments and organizational performance. IT assets are outcomes of a conversion process in which IT spending is necessary, but not a sufficient condition.

IT and business managers moderates the impact of IT investment on firm processes. They further highlight the manner and context of IT deployment for positive results:

> Superior relative process performance from IT rests less on the level of IT spending or on the technical skills of the IT staff and more on how these resources are deployed in a firm-specific manner in general, and on creating effective partnerships between IT and business managers in particular. This reaffirms the growing consensus that the context within which IT is applied is as important as the IT itself. This contingency view of the relationship between IT investments and performance suggests that just throwing technology at a process does not necessarily improve that process. Indeed, such indiscriminant applications of technology may actually reduce process performance. (p. 643)

At individual level, more usage of SFA technology does not guarantee increased performance. "As how simply accessing information usually does not lead to an integrative proposal, data alone does not become usable knowledge without further value-adding activity." (Hunter and Perreault 2007, p. 21) Therefore, system-usage is a necessary but not sufficient condition to produce value (Igbaria and Tan 1997). Value to individuals arises when use of the knowledge in the SFA system (for example, market trends) changes their behavior and enables them to perform their work in ways that are more efficient, more effective, or more satisfying (Ko and Dennis 2004). This improved individual performance, then, may ultimately lead to improved organizational performance (DeLone and McLean 1992). IT must be ‘appropriately’ used to create the intended effects (Lucas 1993, McKeen and Smith 1993). For instance, Sundaram and others (2007) demonstrate how the technology is used mediated the relationship between the extent of use and performance. In Gelderman’s (1998) empirical study, not frequency-of-use but user-satisfaction did explain performance. Similarly, in the absence of training and user support, increased IT usage decreased salesperson effectiveness (Ahearne et al. 2005). In another study, where salespeople with greater expertise benefited four times more than other salespeople, Ko and Dennis (2004) conclude that that high-performing salespeople know better how to apply SFA in their jobs. SFA increases sales effectiveness only when salesperson has better knowledge management, adaptive selling and relationship building skills (Ahearne et al. 2007; Ahearne et al. 2008; Hunter and Perreault 2007). Overall, how a salesperson uses the SFA is much more decisive than whether he uses it or not. Increased SFA-use alone, particularly in compulsory settings, means rather compliance than motivated involvement. Empirical studies on SFA-use should incorporate the quality dimension of SFA-related behavior in their research models in addition to simple quantity measures.

The limitations of one-dimensional system-use constructs in properly capturing technology related salesperson behavior necessitate multidimensional conceptualizations of SFA-use construct. Hunter and Perreault (2007) highlight the importance of considering various dimensions of SFA-use:

> Although one-dimensional conceptualizations of use provide enlightening theoretical and empirical results, a consideration of multiple dimensions of use may enrich the understanding of [SFA]. In

> essence, there is a gap in the literature regarding how different uses of [SFA] influence behaviors that can help representatives build stronger relationships with customers and improve administrative performance. (p. 18)

The need for multidimensional measures of SFA-adoption and -use has its place in the literature. Jayachandran and his colleagues (2005) invite further research to examine the differential influence of aspects of CRM technology use such as sales support, marketing support, and service support on customer relationship performance. Ahearne and others (2004) propose that "research on the specific effect of individual screens or groups of screens (i.e., call planning versus analysis versus calendaring, etc.) will enhance our understanding of the differential effect of the various components of the CRM technology" (p. 308). Young and Benamati (2000) suggest that full functional use of an e-commerce system should include informational use, transactional use, and customer service use. As Jelinek and others (2006) suggest, "the literature would benefit from examining performance enhancement stemming from adoption and use of presentation tools as compared to enhancement resulting from adoption and use of prospecting tools" (p. 19). Good and Stone (2000) ask questions in the same direction:

> What computerization tools (hardware, software) are the most (and least) useful to marketers and their organization? An investigation into emerging information technologies would also allow marketers and IS personnel to develop a stronger grasp on the impact of specific technologies within specific frameworks. For instance, are there certain types of computer technologies (e.g. software) that

> are more promising than others within specific organizational functions and responsibilities? (p. 50)

Multidimensional constructs have been successfully applied in Marketing and CRM literature (Reinartz et al. 2004; Brady and Cronin 2001). In sales management research, Engle and Barnes (2000) created an index of salesperson activities which are supported by technology. Their exploratory factor analysis based on data from pharmaceuticals salespeople has identified 5 dimensions of SFA use each having a different impact on performance. Hunter and Perreault (2007) have developed a 3-dimensional SFA-use construct. Their results indicate that using SFA to analyze and communicate information helps salespeople forge relationships with customers (2007). In another recent study, the proportion of successful sales calls significantly increased because of the call planning function and proposal configuration related positively to the number of sales calls and reports, whereas the use of reporting functionality decreased the number of sales calls, the ratio of successful calls, and the number of proposals (Moutot and Bascoul 2008). Except the exploratory study of Engle and Barnes (2002), most of the studies applying multidimensional constructs did not attempt to mirror the complete functionality in their SFA-use constructs and preferred a selected sample of functions instead (for example, call planning, proposal configuration and call reporting). Moreover, the SFA-use dimensions were most of the time measured by reflective items, which, in certain cases, may be unsuitably favored against formative items (Diamantopoulos and Winklhofer 2001).

DeLone and McLean (2003) suggest that the complex nature of system use could be better addressed by determining whether the full functionality of a given system is being used for the intended purposes. Melone (1990) likewise calls for new system-use measures that consider the context in which work is actually accomplished and the extent to which information provided by the system is actually used. Kallman and O'Neill (1993) argue that success with computer technology must be viewed within the context of specific users and the results valued to the user, as the functional differences in an organization vary (e.g., marketing, human resources). For example, accounting computer systems should be evaluated differently than marketing and sales systems (Good and Stone 2000). In this line, operationalizing system-use as a task-based multidimensional construct may help understand “why different users evolve very differing patterns of feature use and, as a result, extract differential value from an IT application” (Jasperson et al. 2005, p. 531).

Doll and Torkzadeh (1998) criticize the literature for devoting “little effort in developing a multidimensional concept of system-use (a taxonomy of performance-related behaviors) that recognizes the organizational functions for which IT is utilized in the post-implementation context” (p. 173). In response, they develop a task-based multidimensional measure of system-use. Based on their operationalization, the respondent rates the extent to which he or she uses the given system to achieve a conclusive index of business related tasks. How extensively IT is used to perform these job-critical tasks should define how effectively it is employed in the organizational context (Doll and Torkzadeh 1998).

Doll and Torkzadeh (1998) argue that a task-based system-use construct which measures the impact of IT on job-relevant tasks can help better hypothesize the link between IT-use and organizational outcomes. This makes conceptual sense as “the extent to which the expected benefits of an innovation (...) are realized is largely reflected in the success by which an innovation has been incorporated within the organization’s operational and/or managerial work system” (Zmud and Apple 1992, p. 148). In the end, “the set of IT application features recognized and used by an individual likely change over time, and it is the specific features in use at any point in time that influence and determine work outcomes” (Jasperson et al. 2005, p. 529).

Doll and Torkzadeh’s (1998) approach, which develops a system-use construct incorporating the tasks affected by technology, is also in accordance with the general view that business processes represent a significant component of an SFA strategy. According to the process-oriented models of IT business value, IT creates value through increasing the effectiveness of intermediate business processes (and tasks) (Barua et al. 1995).[34] In fact, SFA implementations basically involve people performing selling processes with the help of technology (Buttle et al. 2006). An SFA program should be properly aligned with employees, processes, and technology (Bush et al. 2005; Zablah et al. 2004a).[35] Firms which alter processes at the same time as adding SFA generally are more successful than those that did not (Rivers and Dart 1999).

Marshall et al. (1999) identified 49 new sales activities that emerged since a previous study in 1986 (Moncrief 1986). Tanner and Shipp (2005) call for future research to understand the impact of SFA technology on those activities. Accordingly, adopting Doll and Torkzadeh’s (1998) task-based system-use construct to the SFA context has significant potential for the sales management literature. Identifying the salesperson tasks affected by SFA technology will be equivalent to modeling the intermediate business processes through which SFA technology creates business value. Since each

[34] Process-based models of IT Business Value are given in Chapter 3 more in detail

[35] CRM literature maintains that designing or re-engineering key customer facing processes so that they are both effective and efficient is critical for an organization to be able to execute its CRM strategy and to fulfill customers’ needs (Hansotia 2002; Lee 2000; Massey et al. 2001; Rigby et al. 2002; Ryals and Knox 2001; Wilson et al. 2002).

task corresponds to an intermediate business process, each task is in effect an indicator of the SFA-business value construct (Tallon et al. 1999). Combining these sales tasks along organizationally relevant dimensions in a single model will effectively disaggregate the measurement of SFA-business value into distinct components or dimensions.

To sum up, we posit that a task-based multidimensional conceptualization of SFA-usage is necessary to recognize what salespeople do with the SFA system and to hypothesize the link between SFA-usage and salesperson performance. In the next part we present how we conceptualized our SFA-use dimensions by means of a literature review and a qualitative study.

4.4. Conceptualizing SFA-Use Dimensions

In order to conceptualize a task-based multidimensional SFA-use construct with the procedure prescribed by Doll and Torkzadeh (1998), we combined a review of the personal selling and sales literature and the insights gleaned from our qualitative research. Our first objective was to describe mutually exclusive definitions of SFA-use dimensions which serve our research purposes and reflect our research setting. Second, we aimed to develop a taxonomy of salesperson tasks that are supported by SFA technology based on these dimensions. One particular challenge at this stage of our research was to agree on definitions specific enough to make sense in a certain sample and broad enough to generalize the study findings to other sales situations.

4.4.1. Qualitative Study

Sales literature has significant implications for a multidimensional SFA-use construct. We have further undertaken a qualitative study in order to confirm the literature and fine-tune the construct to fit in our research setting. For this reason we present our qualitative study methodology before conferring about the SFA-use dimensions.

The objective of our qualitative study was to identify the tasks materializing the SFA-use construct and their impact on salesperson performance. We were also interested in identifying the drivers of SFA-use. We developed an interviewer's guide around these three critical questions:

1. What do your salespeople do with the available SFA system? Which particular sales activities can be carried out by using the system?
2. How do your salespeople benefit from the SFA? Which specific organizational and personal outcomes can be accredited to the system?
3. Which factors may be playing a role in defining the level of SFA-acceptance among your salespeople?

Sample

These open-ended questions were asked to a sample of seven sales directors of a mid-sized pharmaceutical company in six countries, namely Brazil, Belgium, Germany, India, Spain and United Kingdom. Sales forces ranged in size from 68 to over 1000. These countries were selected based on the availability of modern SFA systems provided to the sales force and considerable experience with such technologies since their introduction in late eighties. The selection of chief sales executives provides a certain level of comparability between the countries (Reynolds et al. 2003).

Methodology

We have chosen semi-structured interview as the method to collect qualitative data (Aghamanoukjan et al. 2007). An *interview* is defined as encounters between a researcher and a respondent in which the latter is asked a series of questions relevant to the subject of the research. The respondent's answers constitute the raw data analyzed at a later point in time by the researcher (Ackroyd and Hughes 1983). Interviews can thus yield rich sources of data on people's experiences, opinions, aspirations and feelings. Among several interview types, the *semi-structured interview* follows a predetermined set of questions (a question catalogue) and allows the respondent to answer these in any manner he or she chooses (Aghamanoukjan et al. 2007). These types of interviews allow people to answer more on their own terms than a standardized interview permits, but still provide a greater structure for comparability over the focused interview (May 1993). Consequently, we specified standard questions for every respondent and then looked for both clarification and elaboration on the answers given. This enabled us to have more latitude to probe beyond the answers.

There are three necessary conditions for the successful completion of interviews: (1) accessibility: whether or not the person answering the questions has access to the information which the interviewer seeks; (2) cognition, an understanding by the interviewee of what is required of him or her in the role of interviewee; (3) motivation, where the subjects feel that their participation and answers are valued and their co-operation is fundamental to the conduct of the research. All of our respondents had considerable experience in the company and were all in a position to judge and inform about the SFA system deployed in their country. To fulfill the second requirement, we have made our respondents clear in advance about our research objectives and what we were interested to learn from them. A critical issue at this point was to keep the underlying hypotheses of our study obscured to avoid consciously biasing the responses. All of our respondents were fluent in English language keeping the risk of foreign-language related misunderstandings at minimum. Finally, all respondents were motivated to participate in our interviews as they expected to see interesting findings from our empirical study.[36]

We conducted personal interviews in Germany and other interviews were done via telephone due to geographical distance. On average, they lasted one hour and within in-advance agreed time limits. We have audio-taped all interviews and transcribed the recordings immediately after the sessions in order not to miss any information.

To observe real cases where SFA technology is actually used and thus to confirm our conclusions, we made two additional field sales trips with salespeople of the company in Germany. These field sales trips lasted an entire day and represented a regular day in pharmaceutical selling context.

[36] We have respected our respondents' privacy and kept their answers anonymous, actively avoided any verbal and nonverbal influence during the interviews – although a 'zero' influence would not be natural and therefore not preferable, and prepared additional questions to ask in case the discussion deviates from the main topic in line with the recommendations of Aghamanoukjan and others (2007) for conducting effective interviews.

4.4.2. SFA-Use Dimensions

Recalling Chapter 3, we build on the typologies suggested in process-oriented frameworks of IT business value to group SFA-enabled tasks into generic yet meaningful dimensions.

The main idea in such firm-level conceptualizations of business processes and consequent classifications is that, organizations conduct certain activities to bring products and services to the market (i.e., operational processes), and some other certain activities to ensure that the activities in the former group are deployed effectively and efficiently (i.e., management processes) (Davenport 1993, Porter 1985). Day (1994) offers a similar classification in which inside-out capabilities are responsible for creating product and services whereas outside-in capabilities connect inside-out processes to the external environment and enable the business to anticipate market requirements ahead of competitors and create durable relationships with customers.[37]

The same way of thinking can be applied in sales context as well. A sales organization has its primary objective of meeting its customers' needs with the product and services offered by its firm. Operational activities involved in this objective can be, among others, all types of tasks related to the customer, managing customer relationships and making most out of the customer facing time. In contrast, managerial activities could be, in this setting, all other tasks carried out 'internally,' to ensure a properly functioning sales force and sales organization. Such tasks can be, among others, reporting daily activities, all controlling activities, training, communication and team coordination, and so on.

[37] These business process typologies are discussed in Section 3.2.3 more in detail

This conceptualization has its place in the sales literature. For instance, Moncrief (1986, 1999) suggests that customer facing activities of a salesperson represent the core of the sales job, thus they can be called as operational processes in a selling context. In the same line of reasoning, internal coordination and administration activities of a salesperson constitute the "back-office" management processes, such as information management and order processing, not in the core of the selling job, but necessary to support the customer facing tasks (Moncrief 1986, 1999). Engle and Barnes (2000) conducted an exploratory factor analysis to group salesperson tasks based on overall application and influence of information technology. Salesperson tasks for direct sales-related tasks differed significantly from other task groups such as administration, planning and communication (Engle and Barnes 2000). Similarly, Hunter and Perreault (2007) argue that as salespeople are typical boundary-spanners of an organization, "some sales tasks focus more internally on the sales organization, whereas others center more externally on market constituents" (p. 19). They have empirically tested their proposition in same study and found that an SFA system can support both types of salesperson tasks (Hunter and Perreault 2007).

What we mean by this bi-dimensional formation is that, SFA systems in our sample countries can be used to support salespeople in external oriented customer relationship management activities and internal oriented team coordination and administration. The distinction between both usage dimensions is nicely laid out by one sales director:

> *It is possible to use our [SFA] to prepare for the call. All the knowledge you may need to prepare for the call can be in. What kind of doctor am I visiting? I had a call, what have I done, have I solved his problem? So, use it as a CRM [tool]. (...) 50-60% of our reps very regularly use the computer for such purposes. Everyone is using [SFA] for reporting, this is something they consider as something they have to do, but a lot of reps don't see their interest in reporting. They do it for the boss.*

As a consequence, we prefer to develop a two-dimensional SFA-use construct to apply in our study, where we call the first dimension as *customer relationship* and the second as *internal coordination*. In next two sections we will give details on the scope and contents of these dimensions.

4.4.3. Customer Relationship Dimension

Based on our conceptualization, our first dimension captures outside oriented tasks directly related to the customer and the selling job, which include processes such as managing sales contacts, understanding customer needs and profitability, organizing activities around the customer, scheduling sales calls, preparing for the visit, making the sales presentation, overcoming objections, and serving the customer after sale (Widmier et al. 2002). For instance, one country manager commented on the use of the SFA system as a customer relationship tool to target the right customers with the right frequency and the right content:

> *We are absolutely determined to ensure that contacts are made with right customers and with right frequency. We insist that all business planning is done on our [SFA] system. Our salespeople make annual, quarterly and daily business plans on the system. The system tells them which customers they should visit in a day and it gives them what happened in previous calls and hints about future calls. Our [SFA] is the system which they use to direct their efforts.*

Another constituent of the customer relationship dimension, data analysis, is mentioned by the following sales director:

> *I cannot make analysis without [SFA]. It is a tool which tells me where my doctor sits, how many times I have visited him and which results came out of these visits. (...) When a salesperson wants to make good analysis, to see whether what he did was successful, then he can do it with the [SFA].*

In return, we define the *Customer Relationship Dimension of SFA-Use* as the use of an SFA system to serve customers, to collect, analyze and manage customer information, to plan and execute sales calls and to develop sales skills with the overall objective of better managing customer relationships.

Related SFA technology for this dimension can be, among others, account and contact management, activity management, lead, opportunity and pipeline management, product configuration and visualization, sales forecasting and presentation software (Buttle et al. 2006; Marshall et al.

1999).

The outside-in capabilities given in Day's (1994) framework or the operational processes of Davenport's (1993) conceptualization will be likely affected by the customer relationship dimension of SFA-use. Outside-in processes connect the organization to the customer and other external constituencies and include market-sensing and customer-linking capabilities. Market-sensing activities involve the acquisition and distribution of market information including information about competitors, customers, and channel members. For example, contact management software captures important information that can later be synthesized and analyzed into a more complete understanding of customers and markets (Tanner and Shipp 2005). Such SFA functionality to identify and target most valuable customers makes it possible to allocate available resources optimally for salespeople and the sales management. What's more, customer-linking capabilities in Day's (1994) framework refer to the creation and management of close customer relationships. These relationships are accomplished by close communication between the customer and the firm requiring high levels of inter-functional coordination and information sharing. The outside-in processes are enhanced as information about customers is shared throughout the organization. The combined result is a more knowledgeable and competent sales force and support staff (Pullig et al. 2002). Johnson and Bharadwaj (2005) argue that SFA functionality specifically oriented at developing customer relationships elevate the salesperson to a more strategic role:

> Digitized systems produce precise data and real time analysis, allowing salespersons to perform complex analysis and sales planning for each customer. The potential to generate detailed customer-centric

> reports from digitized systems sets the stage for salespersons to develop a new and perhaps more advanced set of tacit skills that preserve their ability to create value within the firm. (p. 6)

Call targeting function specifies priority contacts or accounts and estimates optimal call-patterns. Call targeting function of SFA can be particularly valuable in the pharmaceuticals selling context:

> Certain call patterns were found to be effective in gaining trial usage of new products by physicians. Since market share for new drugs is often established in the first three to six months in the marketplace, ultimate profitability is therefore determined by this introductory period. The obvious strategy is to execute the desired call pattern starting with the highest potential prescriber physicians and working back toward lower prescribers. Since these call patterns demonstrate diminishing returns after a certain point, call targeting becomes a preeminent issue. (Petersen 1997, p. 132)

4.4.4. Internal Coordination Dimension

The second usage dimension captures internal coordination tasks such as information management, working with orders, team selling activities, training, call reporting, and sample management. For example, one SFA manager highlighted the SFA system as an effective tool for coordinating team-selling activities:

> *We have introduced team-selling to our sales force. It would be impossible to conduct team-selling without [SFA], our salespeople must exchange information every day. For example, the same doctor could be visited by three team colleagues in the same week without our [SFA] system. A good functioning system and an up-to-date database are necessary to support the team-selling activities.*

As an internal coordination tool, SFA systems can also be used for administrative purposes, as one sales director pointed out:

> *In our country we are obliged to make the bookkeeping of the samples we distribute to doctors, the batch numbers and so on, there are limits on how many samples we may distribute, and we have to know each batch number, in case of an accident with the sample we must be able to trace it. So this must be put in the system.*

We define *Internal Coordination Dimension of SFA-Use* is the use of an SFA system to communicate within organization to manage team-selling, to communicate with management, to report sales calls, to participate in professional training, and to manage various administrative tasks. In Davenport's (1993) typology, internal coordination dimension corresponds to management processes responsible from supporting the core value chain.

SFA functionality related to this dimension consists of e-mail systems, online collaboration tools, web-browsers for Internet access, intranets, online training, order processing, and reporting and sample management modules. These technologies support within-team and within-organization communication and thus improve the ability of salespeople to act in teams and in concert with customers (Keillor et al. 1997). Information-sharing technology that allow salespeople to work together to serve specific customers reduces duplication of effort and ensures adequate customer coverage (Tanner and Shipp 2005). Salespeople can also benefit from reporting tools when reporting customer information, their own activities, and other data to the management.

Interfunctional coordination (Narver and Slater 1990) or a system of spanning processes (Day 1994) is necessary in order to coordinate the commitment to utilize market information and to create superior value for the customer. This process includes the customer order-fulfillment process and other customer service activities that might involve different functions of the firm. Spanning capabilities will be positively affected by internal coordination dimension of SFA-use. SFA innovations improve the ability of the salesperson and firm to provide accurate information to the customer and shorter order delivery times (Bondra and Davis, 1996). In addition, the firm is capable of providing greater dependability in keeping its commitments to customers as the entire organization becomes more involved in providing customer service (Keillor et al. 1997). Perhaps the greatest potential of SFA systems is the sharing of contact information and increased coordination across the firm’s various customer service functions (Pullig et al. 2002).

5. RESEARCH MODEL AND HYPOTHESES

5.1. Introduction to the Chapter

In previous chapters we have first developed an understanding of SFA technology as an enabler of salesperson tasks based on the resource based view of IT and process-based models of IT business value. Following that, we conceptualized a two-dimensional SFA-use construct derived from a review of the literature and a number of qualitative interviews. Our research objective is to place this construct into a bigger research model where we can test how SFA-use dimensions relate to salesperson performance as well as to discover how these dimensions are differentiated by typical determinants of SFA-adoption. In this chapter we first give an overall view of our research model and the theoretical foundations maintaining our model. Following that, we present the hypotheses constituting the research model. We complete the chapter by a discussion of the logical structure which advises about how the research model should be interpreted.

5.2. Research Model

Doll and Torkzadeh (1991) propose a 'System-to-Value Chain' to explain how IT systems create value (see figure 5.1). The system-to-value chain consists of various system success constructs such as beliefs, attitudes, behavior (system-use) and the social and economic impacts of IT. According to this conceptualization, system-use is a pivotal construct that links the antecedents of system quality with the social and economical impacts of IT. Thus, system-use can be viewed as both a success measure in upstream research and as a complex causal agent that predicts the downstream impacts of IT (Doll and Torkzadeh 1998). A comparable approach to the system-to-value chain is suggested by DeLone and McLean (2003) in their often cited ‘IS Success Model’ (see figure 5.2). This updated model offers a comprehensive framework to assess the contribution of an information system to organizational outcomes. Again in this framework system-use, together with user satisfaction, plays a major role by fully mediating the impact of quality variables on user net benefits. Studying the antecedents and organizational consequences of system-use together in a single model is an approach rarely applied in SFA research (Avlonitis and Panagopoulos 2005).

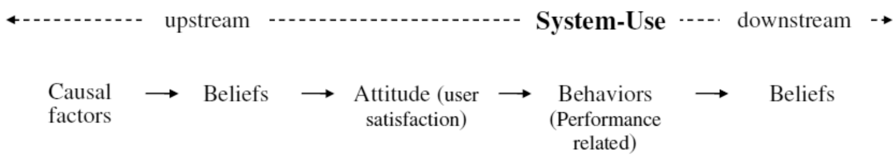

Figure 5.1: System-to-value chain (source: Doll and Torkzadeh 1991)

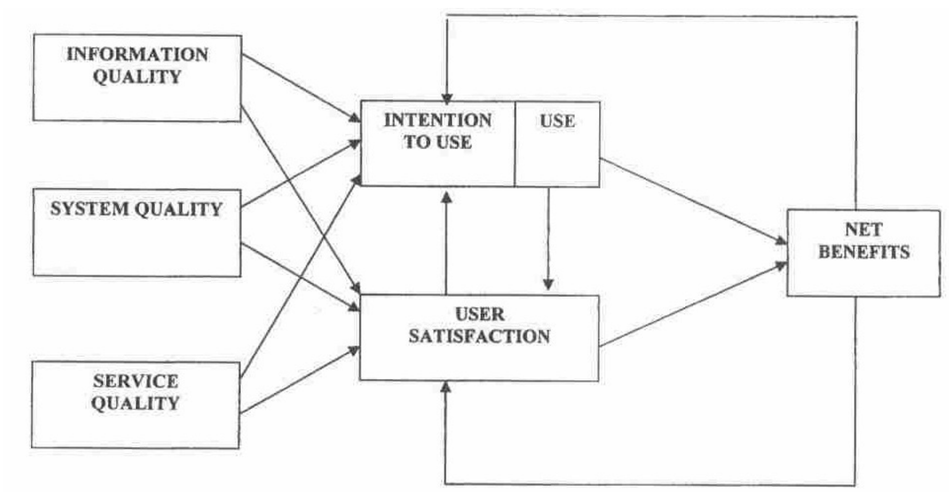

Figure 5.2: Updated DeLone and McLean IS Success Model
(source: DeLone and McLean 2003)

In fact, system-use as a focal construct makes conceptual sense from both ends of the value chain. It has long been argued that IT systems can only add value to an organization when they are fully employed by end-users (Devaraj and Kohli 2003). Furthermore, missing adoption of IT systems among intended end-users has been a chronic problem in IT implementations (Davis 1989). Therefore, there has been considerable upstream research in the past which takes system-use as a dependent variable and examines the factors that drive system acceptance and use (Venkatesh et al. 2003). Upstream research, however, cannot shed much light on the organizational outcomes of system-use. While relatively neglected so far, there is also considerable downstream research focusing on the organizational outcomes of system-use (Heine et al. 2003).

Our conceptual model (see figure 5.3) draws on the ‘System-to-Value Chain’ and the ‘DeLone and McLean IS Success Model’ and allows us to simultaneously assess our upstream and downstream hypotheses. We believe that integrating upstream and downstream perspectives into a single model represents a major strength of our study. In the following sections, we first take the downstream perspective and develop a set of hypotheses linking the two SFA-use dimensions to salesperson performance. Then, we turn upstream and present our hypotheses relating the dimensions to their direct and indirect drivers.

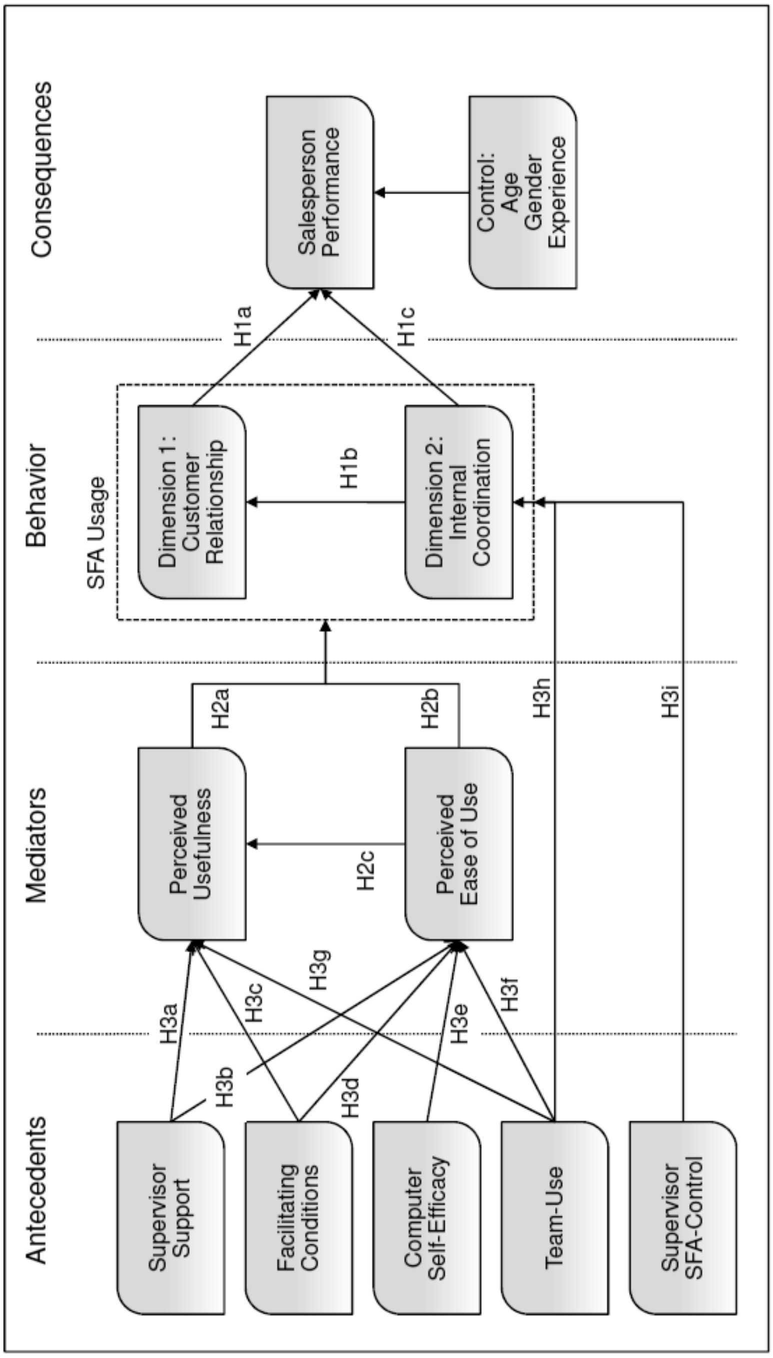

Figure 5.3: Research Model

5.3. SFA-Use Dimensions and Salesperson Performance

Sales organizations expect that sales force use of SFA technologies will lead to increased effectiveness and efficiency in managing various selling tasks which should in return mean better sales performance (Jones et al. 2002; Widmier et al. 2002). Consistent with company expectations, managers and sales representatives believe that sales technology tools will be useful in their job performance (Buehrer et al. 2005; Engle and Barnes 2000).

However, neither all responsibilities are equally important in a salesperson's job, nor do they equally impact salesperson performance (Tripoli 1998). Salespeople need to deploy their efforts wisely in order to achieve high performance. As given in chapter 3 in greater detail, the impact of SFA on performance will depend on the success and magnitude of the tasks and processes it supports (Barua et al. 1995). Therefore, we propose in our conceptual framework that SFA impacts salesperson performance through a two-dimensional mechanism. We expect that the SFA-use dimensions will have distinctive effects on salesperson performance.

5.3.1. Customer Relationship and Salesperson Performance

SFA technologies enable sales activities directly facing the customer and can help salespeople manage their customer relationships along the sales cycle, from customer acquisition to maintenance, efficiently and effectively.

First, SFA can be a very helpful tool to understand customer needs and sales opportunities. Due to its storage, retrieval, and network capacities, IT has the potential to enable and facilitate information acquisition, dissemination, and utilization (Huber 1991). Today, salespeople have extensive access to data (e.g., past shipments to distributors, retail store sales, consumer buying habits, and product performance characteristics). By the help of SFA systems, salespeople can convert such available data into high quality information about a greater number of customers, products and competitors (Tanner et al. 2005). For instance, a sales representative can search online databases or the Internet for customer- and business-related information, thus improving his or her understanding of unmet customer needs. Because greater market knowledge leads to a better sense of the potential customer base and segments, salespeople can focus their efforts accordingly and target customers who are most likely to fit the sales organization's offerings (Ahearne et al. 2007). Salespeople who can focus their efforts on customers who are qualified and ready to buy will be more efficient and be more likely able to achieve quotas (Moutot and Bascoul 2008).

Second, SFA will help salesperson approach the customer with correct timing. Calendaring and routing tools enable sales representatives to effectively manage their time, set up appointments accurately, and engage in weekly planning. Better planning helps salesperson allocate his time across clients optimally and ensure that every client receives the necessary salesperson attention (Ahearne et al. 2005).

Third, technology can play a significant role in performing a sales call. Salespeople are normally recommended to collect information about the customer to assist adaptation to a specific sales situation (Spiro and Weitz 1990) and to plan for the interactions with the buyer (Sujan et al. 1994). SFA databases and applications often have capabilities that allow sales representatives to keep detailed records about clients and past sales calls. Utilizing customer purchase history and preferences, salespeople can tailor presentations to adapt to specific buying needs and make better customized sales calls (Ahearne et al. 2008). Reviewing the account history before the actual face-to-face sales call enhances a salesperson's ability to select the appropriate sales strategy and to determine which products to emphasize during the sales call based on the customer's previously stated preferences (Hunter and Perreault 2006). The information can in return be used toward developing recommendations and proposals that balance sales objectives with customer objectives (Hunter and Perreault 2007). Salespeople report that sales technology helps make sales calls more professional (Marshall et al. 1999). During a sales interaction, the effective use of information improves the salesperson's ability to anticipate and respond to buyer concerns and objections.

Last but not least, technology should permit salespeople to serve customers more reliably. Delivering high quality customer service has emerged as a strategic imperative and a source of competitive advantage, and it is increasingly tied to a firm's overall IT resources and capabilities. Using technology, a salesperson can communicate with customers more easily and with greater precision across time and geographic location (Ahearne et al. 2007). SFA can make a salesperson a valuable partner for his customers, a reliable source of market knowledge, and a problem solver (Hunter and Perreault 2007). IT enables salespeople to more quickly access relevant databases and organizational units in order to make an order, retrieve information about inventory levels and shipping dates even during the customer visit. Such capabilities improve the speed at which salespeople respond to customers' needs. IT usage should promote reliability also through the storage and retrieval of key customer concerns and detailed notes regarding the customer's interests. Dependable information allows customers to make informed decisions about the impact of buying or not buying the salesperson's product or service (Ahearne et al. 2008).

As a conclusion, we posit that using SFA technology to support customer oriented tasks should increase salesperson performance. Consequently, we posit that:

H1a: Using SFA-technology as a customer relationship tool will have a direct and positive impact on salesperson performance.

5.3.2. Internal Coordination and Salesperson Performance

In addition to supporting the customer relationship lifecycle, SFA systems can also increase the efficiency of repetitive administrative tasks and improve communication within the organization. We expect that using SFA to perform such internal oriented tasks will have an impact on salesperson performance, yet in an indirect character.

Sales job involves a considerable amount of repetitive ‘back-office’ activities, such as submitting call reports, ordering promotional material and reclaiming expenses, which have to be most of the time performed by the salesperson himself. Such tasks are necessary for properly monitoring and controlling of salespeople, considering the fact that most salespeople work on the field and from home-offices. SFA technology can automate most of these administrative tasks and thus reduce the time salespeople spend on non-selling activities (Buehrer et al. 2005; Moriarty and Swartz 1989). In fact, such efficiency has been the explicit purpose of many sales automation software applications (Hunter and Perreault 2006).

Moreover, SFA can support team-selling by coordinating and synchronizing team activities (Widmier et al. 2002). SFA tools facilitate information flow and improve communication within sales teams (Brown and Jones 2005) and help salespeople become more efficient at synchronizing team activities and setting appointments. Effective team-selling enabled by technology should in return increase sales.

SFA also helps salespeople improve their technical knowledge with respect to their products and their ability to compare and analyze their product's standing against competitive products (Ahearne et al. 2007). When salespeople have greater insight into their markets and products, they are also in a better position to demonstrate higher levels of knowledge and competence.

On the other hand, training and development constitutes a big part of the selling job (Cron et al. 2005). A salesperson spends substantial amount of his time at training courses to improve his sales skills and strategies. Modern technologies such as Internet, or the SFA itself, make it possible to participate at online training sessions at one’s own convenience and at almost no cost.

Together, SFA can ease a salesperson’s administrative burden and facilitate better functioning internal processes of a sales force. Accordingly:

H1b: Using SFA-technology as an internal coordination tool will have a positive impact on salesperson performance.

One of the biggest promises of SFA technology is the time spared for personal selling activities by automating repetitive tasks and mundane administrative work (Ahearne et al. 2008; Honeycutt et al. 2005). By reducing the amount of ‘downtime’ in a salesperson's workday and optimizing call schedules; SFA helps salespeople fit more sales calls into a given period (Ahearne et al. 2005). Salespeople are aware that the more sales calls they can make, higher the opportunity to achieve the sales quotas will be (Ahearne et al. 2007). Indeed, no matter how sophisticated technological tools get, buyer–seller exchanges still rely heavily on cumulative face-to-face communication, relationship building and problem-solving (Goldenberg 1996; Moncrief et al. 1991; Moriarty and Swartz 1989; Rivers and Dart 1999). Moreover, there is an inherent risk that the efficiency effects of SFA will suffer additional tasks being assigned to salespeople in last decades, such as increased market intelligence and documentation (Marshall et al. 1999). Therefore, while it is true that technology reduces the time spent on repetitive tasks, the extent to which the expected impact on sales performance is realized should depend on how that additional selling time is spent by the salesperson. Hunter and Perreault (2007) comment on this important issue:

> Gains in efficiency will have a net positive effect only if they free sales representatives from time spent on non-selling activities and if the representative redirects that incremental time to tasks that improve relationship-building performance with customers (i.e., relationship-forging tasks). (p. 29)

Sujan (1986) and Sujan et al. (1994) conceptualize the direction chosen to channel effort as ‘working smart,’ while the overall amount of effort salespeople devote to their work is conceptualized as ‘working hard.’ For example, working hard would mean working more hours, making more calls, and/or putting in more effort with tough customers. In contrast, ‘working smart’ is defined as “behaviors directed toward developing knowledge about sales situations and utilizing this knowledge in sales situations” (Sujan et al. 1994, p. 40). Working smart is proposed to be a key factor for increasing sales force effectiveness (Weitz et al. 1986). In the end, salesperson performance is more strongly related to what salespeople do rather than merely how hard they work (Sujan et al. 1988).

Additional selling time available to the salesperson must be complemented with smart working behavior, such as collecting information about the customer and the specific selling situation, planning the sales strategy, and altering selling behavior during customer interaction and across customer interactions based on the situation all refer to working smart. Only in such a case the real potential of SFA can be realized. As we argued above, SFA technology, when used to support customer relationships, provides salespeople with the tools to manage customer information and to plan around the customer, which in return make it possible to adapt to the single customer and selling situation. In a similar logic, the impact of training and product knowledge on salesperson performance should depend on the customer relationship dimension. Increased product knowledge can help a salesperson only when it is used to better serve the customers. Therefore, we posit that the positive effect of internal coordination dimension on salesperson performance will be indirect in nature and hypothesize that:

H1c: The effect of using SFA-technology as an internal coordination tool on salesperson performance will be mediated by the customer relationship dimension.

5.4. Antecedents of SFA-Use Dimensions

A salesperson's motivation to act in a certain way is determined by the interplay between management, organizational, social, personal and environmental factors. In this part we embrace an upstream perspective and link a number of well-known antecedents to our two SFA-use dimensions.

5.4.1. Technology Acceptance Model

Various theoretical models have been developed in the IT literature to explain the adoption and use of technology in the workforce (Leong 2003). A major stream of this literature has focused on employing intention-based models that use behavioral intention to predict usage (Lee et al. 2003). These models focus on identifying the determinants of intention, such as attitudes, social influences, and facilitating conditions across a broad range of end-user computing technologies and settings.[38] Most of this research is grounded in social psychology models such as the Theory of Reasoned Action (TRA) (Ajzen and Fishbein 1980) and the Theory of Planned behavior (TPB) (Ajzen 1985, 1991).

The *Technology Acceptance Model* (TAM) has emerged from this literature as a powerful and parsimonious way to explain IT users' intention and behavior regarding IT usage (Davis 1989). TAM identifies two central beliefs, *perceived usefulness* and *perceived ease of use*, as the primary predictors of user's attitude or overall affect toward IT usage (Davis 1989). Perceived usefulness is the extent to which a person believes that using a

[38] Refer to King and He (2006), Legris et al. (2003), Schepers and Metzels (2007), Venkatesh et al. (2003) and Yi et al. (2006) for Meta analyses of technology adoption research.

system will enhance her performance, and perceived ease of use is the extent to which a person believes that using the system will be relatively free of effort. The core idea of the TAM is that a person's attitude toward using a technology is jointly determined by perceived usefulness and perceived ease of use (see figure 5.4). User attitude influences behavioral intention to use IT, which in turn, influences actual usage behavior.

In contrast with TRA, the mediating role of attitude played in TAM is often debated. Within professional settings, "people form intentions toward behaviors they believe will increase their job performance, over and above whatever positive or negative feelings may be evoked toward the behavior per se" (Davis et al. 1989, p. 986). Utilitarian considerations may dominate users' decision to use IT, regardless of any negative attitude toward such usage. Empirical studies demonstrate a consistent and strong perceived usefulness – intention link whereas attitude tends to have a mixed effect, especially when perceived usefulness is included as a predictor of intention (Venkatesh et al. 2003). This has led many recent TAM studies to drop attitude entirely from their models (Venkatesh and Davis 2000).

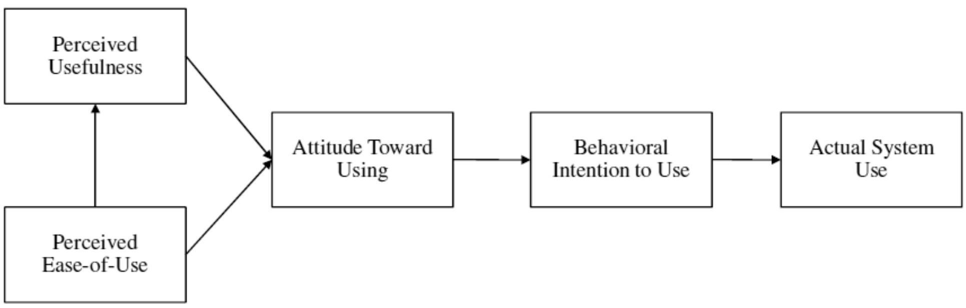

Figure 5.4: Technology Acceptance Model (source: Davis 1989)

Empirical tests of TAM have shown that it explains much of the variance in intention to use and actual usage behavior.[39] For instance, Davis, Bagozzi, and Warshaw (1989) apply TAM to examine students' usage of a word processing software at two points in time – following their initial exposure to the system and then again 14 weeks after initial acceptance – in order to demonstrate model's predictive ability for short-term and long-term (post-adoptive) usage. More recent longitudinal studies also employ TAM to examine post-adoption intention and/or behavior.[40] Perceived usefulness has consistently been the predominant predictor of user intentions to use IT and actual usage behavior, though ease of use has had a somewhat inconsistent effect, especially during later stages of usage (Venkatesh et al. 2003). Effort-oriented constructs are expected to be more salient in the early stages of a new behavior, then learning-curve effects take place and effort expectancy becomes overshadowed by instrumentality concerns (Szajna 1996; Venkatesh 1999). TAM has also frequently been applied and validated in the sales domain.[41]

Innovation processes do not take place in vacuum (Burkhardt 1994; Kraut et al. 1998). In fact, TAM suggests that organizational, social and individual variables that are not explicit in the TAM could have an impact on IT-usage (at least partially) mediated by the belief variables (i.e., perceived usefulness and ease-of-use). In this way, the model provides a source for tracing the impact of external factors on internal beliefs, attitudes, intentions and actual behavior (Davis et al. 1989). Several studies indicate that individual adoption of innovations not only depends upon beliefs but also on management policies and actions (Ives and Olson 1984; Leonard-Barton and

[39] Davis 1993; Davis et al.1989; Doll et al. 1998; Igbaria et al. 1995; Karahanna and Straub 1999; Karahanna et al. 2006; Mathieson 1991; Venkatesh et al. 2003;
[40] Karahanna et al. 1999; Venkatesh and Brown 2001; Venkatesh and Davis 2000
[41] Avlonitis and Panagopoulos 2005; Jones et al. 2002; Robinson et al. 2005a, 2005b; Schillewaert et al. 2005; Sundaram et al. 2007

Deschamps 1988). Organizational efforts to support technology (e.g., training, user support) and several social influences (e.g., originating from peers, supervisors or customers) may trigger learning mechanisms which influence technology adoption by end-users (Huber 1991; Sinkula 1994; Slater and Narver 1995).

To sum up, TAM theorizes that salesperson intention-to-use and adoption of an SFA system is explained by SFA's perceived usefulness and ease of use. External factors such as the accuracy of expectations regarding the implementation, intrapersonal attributes such as innovativeness and organizational efforts such as availability of training and technical support may have an indirect impact on usage behavior, mediated by two central beliefs, perceived usefulness and ease-of-use of the focal system. In the following part we put forward our hypotheses in which a number of well studied antecedents of technology adoption and use are proposed to explain our SFA-use dimensions.

5.4.2. Perceived Usefulness

According to the expectancy theory (Porter and Lawler 1968), within organizational settings, people evaluate the consequences of their behavior in terms of potential rewards, and they base their choice of behavior on the desirability of the rewards. Salespeople usually have a fair amount of autonomy in performing their jobs and are under constant pressure to perform as their evaluation and compensation are often directly linked to their performance. Consequently, "salespeople will choose to use or not use a technology tool to the extent they believe it will help them accomplish their job-related goals, enhance their performance, and achieve desired rewards" (Robinson et al. 2005b, p. 413). One sales director in our qualitative study has commented that his salespeople adopted SFA as it is useful for them, more specifically; technology makes daily reporting easier:

> *Our salesreps are happy just for the part that benefits them; it makes them easier to report their job daily. (...) We don't ask them to do so many things. I am completely convinced that the easier do it, better. Now it is much easier because they can do it in the morning when they are working, and sometime between visits, and when they are home they just have to plug-in the PDA (personal digital assistant), it is not hard for them, it is easier.*

In sales research, perceived usefulness of SFA technology has been demonstrated as a driver of SFA-use more than once (Avlonitis and Panagopoulos 2005; Rangarajan et al. 2005; Robinson et al. 2005a; Schillewaert et al. 2005). In a case study salespeople reported that they use SFA-technology because it is useful (Buehrer et al. 2005). In particular, they mentioned that technology helps them be more efficient and productive, save time, and improve communication with customers.

We argue in this thesis that using SFA to support customer relationships and internal coordination tasks should increase salesperson performance. If salespeople agree with this proposition, they should be inclined to use SFA in both ways. So we hypothesize that:

H2a: Perceived usefulness will have a positive impact on the customer relationship and internal coordination dimensions of SFA-usage.

5.4.3. Perceived Ease-of-Use

Employees' perceptions of a technology's accessibility relate to their intentions to use that technology (Saga and Zmud 1994). Innovation theory suggests that the degree that an innovation is perceived as relatively difficult to understand and use would affect the rate of its adoption (Rogers 1995). TAM's departure point is that, the easier a system is to interact with, the greater should be the user's sense of efficacy (Bandura 1982) and personal control (Lepper 1985) regarding his or her ability to operate the system (Davis et al. 1989).

Salespeople are among the most technophobic employee groups (Greenberg 2004). They will assess the amount of effort necessary to utilize an SFA tool and will likely develop positive attitudes toward those tools where the performance benefits are not outweighed by the required effort (Robinson et al. 2005b). There are a few studies testing the impact of perceived ease-of-use on SFA-adoption and use. Schillewaert and others (2005) have shown that PEU increases adoption. Rangarajan and others (2005) empirically demonstrate that the complexity of using SFA-technology increases role conflict, which has in turn negative consequences on salesperson effort and SFA-infusion. At least three studies show that PEU positively impacts attitude, which in turn has a significant impact on intention to use SFA (Jones et al. 2002; Robinson et al. 2005a, 2005b). Therefore, we expect that perceived ease-of-use will positively impact both dimensions of SFA-use:

H2b: Perceived ease of use will have a positive impact on the customer relationship and internal coordination dimensions of SFA-usage.

TAM posits that perceived ease-of-use has an additional instrumental impact on a salesperson's attitude toward using a technology through its link to perceived usefulness (Davis et al. 1989). To the extent that increased ease of use contributes to improved performance, perceived ease of use will have a direct effect on perceived usefulness. This logic is given by Robinson and others (2005b, p. 412):

> As a salesperson perceives that a technology will be free of added effort (or that it reduces effort), he/she may take the opportunity to redirect the unused effort toward other tasks. This will allow for accomplishment of more work for the same effort, hence greater productivity (and presumably greater rewards).

Consequently our hypothesis follows:

H2c: Perceived ease of use will have a positive impact on perceived usefulness.

5.4.4. Supervisor Support

Subjective norms reflect the normative beliefs of important others and allow the focal individual to adapt his or her own belief structure (Fishbein and Ajzen 1975). Through social persuasion and interpersonal communication, recipients learn about innovations, develop attitudes (Burkhardt 1994; Kraut et al. 1998) and finally adopt them (Barclay et al. 1995; Hartwick and Barki 1994; Rogers 1995). We define *supervisor support* as the support and encouragement from the supervisor and his or her acting as a role model in terms of instrumentality and priority of the SFA technology.

Research into the implementation of IT innovations considers supervisor support as a critical factor in successful implementation.[42] Supervisor support is critical as the implementation of IT innovations often requires substantial material resources to support end-users during implementation and continued use of the system. Such resources are more likely to be accessible when management support exists (Atuahene-Gima 1997; Sharma and Yetton 2003). Beside material considerations, supervisors can also impact adoption through their own behavior (Igbaria et al. 1996; Karahanna and Straub 1999) and persuasive communication (Bhattacherjee 1998; Leonard-Barton and Deschamps 1988). Managers may emphasize the benefits in terms of usefulness, minimize the drawbacks in terms of ease of use and use their personal influence to push technology adoption (Anderson and Robertson 1995).

In a professional selling context, sales manager is often the most influential person for a salesperson (Deeter-Schmelz et al. 2002). Through a mentor's teaching, coaching, and role modeling, salespeople develop competencies and effectiveness (Hunt and Michael 1983). The mentoring function of coaching/teaching provides a role model for necessary skills in the sales, interpersonal, and technical areas and, ultimately, leads to high performance (Brashear 2006). Support and encouragement should provide incentives that reward complying behavior (Pullig et al. 2002).

[42] Guimaraes and Igbaria 1997; Howard and Mendelow 1991; Igbaria 1990, 1993; Igbaria and Guimaraes 1994; Igbaria and Iivari 1995; Jarvenpaa and Ives 1991; Kwon and Zmud 1987; Purvis et al. 2001; Stajkovic and Luthans 2001; Sviokla 1996; Yates et al. 1999

Supervisory support has been argued to be an important driver of SFA adoption and use (Pullig et al. 2002; Jones et al. 2002). In one study, top management support was found to have a positive impact on individual perceptions of SFA technology (Speier and Venkatesh 2002). In Schillewaert and others' (2005) study, supervisor support appeared to have a significant impact on both perceived usefulness and SFA adoption. Avlonitis and Panagopoulos (2005) have similarly found that supervisory support has an immediate impact on SFA adoption. One sales director has drawn attention to managerial support as an important determinant of SFA adoption during our interviews:

> *Sometimes, if the regional manager does not push [SFA] as much as he could, that's relevant. By large, if you have a manager, an SFA expert in his region, who uses SFA and checking to make sure that things are done right, I think the usage in that region must be better. If the regional manager is not good on that, the usage in that region is bad as well.*

Consequently, we develop the hypotheses below:

H3a: Supervisor support will have a positive impact on perceived usefulness.

H3b: Supervisor support will have a positive impact on perceived ease-of-use.

5.4.5. Facilitating Conditions

Marketing researchers have shown that organizational practices affect the perceptions and behaviors of boundary spanners (Singh et al. 1996). We define *facilitating conditions* as the extent to which a salesperson believes that he or she has been provided with the resources and the external support to use SFA technology. Investing in facilitating conditions such as tutorials, help lines, training sessions and technical maintenance signals the importance an organization places on SFA technology and reassure salespeople that using sales technology is beneficial (Hunter and Perreault 2006). Such facilitating conditions enable employees to acquire the skills they need to continue to be productive members of the organization, even after the innovation has been deployed (Johnson and Bharadwaj 2005; Zablah et al. 2004b). For these reasons, some form of formalized, organization-sponsored SFA support would seem to be a necessary ingredient for the effective implementation of SFA (Morgan and Inks 2001, Pullig et al. 2002).

In many SFA adoption studies user support has been shown to be a key element for continual use of SFA-technology (Buehrer et al. 2005; Jones et al. 2002; Mathieson 1991; Schillewaert et al. 2005). Facilitating conditions can reduce nonmonetary costs such as the uncertainty and stress associated with the introduction of the new system by easing the learning process (Parthasarathy and Sohi 1997, Rangarajan et al. 2005). Salespeople that receive adequate training and support can apply information technology more effectively to specific work problems and thus achieve better performance (Ahearne et al. 2005). This, in turn facilitates increased expectations of the technology’s usefulness by users (Landry et al. 2005; Pullig et al. 2002). Consequently we hypothesize:

H3c: Facilitating conditions will have a positive impact on perceived usefulness.

Furthermore, perceived level of availability of support services is positively related to perceived ease of use (Robinson et al. 2005a). By asking for help with the practical use of technology, salespeople from firms with adequate user assistance will become more proficient users and reduce the required effort to use the sales technology (Schillewaert et al. 2005). Therefore:

H3d: Facilitating conditions will have a positive impact on perceived ease of use.

5.4.6. Computer Self-Efficacy

Compeau and Higgins (1995) define *computer self-efficacy* as "an individual's perceptions of his/her ability to use computer (software) in the accomplishment of a task" (p. 191). Venkatesh and Davis (1996) model computer self-efficacy as an antecedent of perceived ease of use, with the argument that a person uses his or her sense of overall computer abilities as an anchor to judge the usability of a computer system, even if the user has little or no knowledge about the ease of use of a specific system. Typically, lower scores on computer self-efficacy lead to more negative individual perceptions about the technology in question (Venkatesh 2000).

Only a small percentage of salespeople consider themselves as experienced technology users, and the vast majority has little to no experience (Petersen 1997). Fear of technology is a likely impediment to sales force acceptance of automation (Buehrer et al. 2005). If a salesperson feels that he or she is not capable of using the SFA system, his or her motivation to do so will be greatly reduced (Morgan and Inks 2001). Thus, computer self-efficacy is proposed to be an important personal characteristic in explaining SFA-use behavior (Speier and Venkatesh 2002; Schillewaert et al. 2005). One sales director explained his opinion on the role of computer self-efficacy in establishing SFA adoption:

> *There are some people who are more computer literate than others, there are also people who are just more interested in doing research, they are more driven to spend time looking into things, they spend a lot more time using [SFA] and they get better results after it. (…) There are always people who are more able, keen up and spend more time using [SFA] and using more effectively than other people.*

Consequently, we propose the following hypothesis:

H3e: Computer self-efficacy will have a positive impact on perceived ease of use.

5.4.7. Team-Use

In addition to superiors, there are other important others in a recipient's surrounding who can exert their normative beliefs on the recipient regarding the behavior in question (Fishbein and Ajzen 1975; Triandis 1971). Salespeople are natural boundary spanners and influenced by a variety of role partners such as their customers, managers and sales peers (Singh and Rhoads 1991). In team selling settings in particular, salespeople work in close collaboration with their colleagues.

We define *team-use* as the extent to which a focal sales representative's team colleagues employ SFA and rely on the system in managing their team-selling activities. Colleagues and peers in an organizational setting can influence an individual's beliefs and behaviors by supplying information (Thompson et al. 1991) and also by allowing the individual to observe others while using the system (Bandura 1977). Greater the number of others who are experts in using the system, easier it is for a salesperson to ask other users for help with the commands and other functions of the system (Parthasarathy and Sohi 1997). There is empirical support in the literature for a significant relationship between team-use and salesperson’s perceived ease-of-use of the system (Schillewaert et al. 2005). Therefore:

H3f: Team-use will have a positive impact on perceived ease of use.

Technology is a significant enabler of synchronized teamwork (Dennis et al. 2001). Increased connectivity between team members through information technology improve group coordination, minimize time between exchanges, and reduce the risk for communication errors (Shirani et al. 1999). In addition, chances are higher to discover useful functionalities provided by the system when colleagues heavily use SFA-technology (Schillewaert et al. 2005). Therefore, we expect that salespeople engaged in team-selling will benefit from SFA to a great extent and find it useful:

H3g: Team-use will have a positive impact on perceived usefulness.

TAM prescribes the impact of external variables on acceptance to be fully mediated by perceived usefulness and ease-of-use. However, there are recent studies demonstrating a direct impact (Burton-Jones and Hubona

2006). Such a direct impact can be relevant for the case of team-use. When team colleagues rely on the system, SFA becomes a platform to coordinate team selling activities (Good and Schultz 1997; Powell et al. 2004). Thus, the social utility of SFA applications which support team-selling (e.g. shared knowledge databases for sales teams) increases with the number of users within a focal salesperson’s social environment (Markus 1990; Schillewaert et al. 2005). Furthermore, when internal-coordination activities are managed through the SFA system, the opportunity cost for not using the SFA increases. This may make salespeople feel obliged to use SFA to facilitate team-selling activities regardless of the extent to which they find technology useful or easy-to-use. Therefore, team-usage should have a direct impact on internal-coordination dimension:

H3h: Team-use will have a direct positive impact on internal coordination dimension of SFA-usage.

5.4.8. Supervisor SFA-Control

While the aforementioned variables have already been validated as drivers of SFA usage in the extant literature, we identify *supervisory SFA-control* (Challagalla and Shervani 1996) as an important and not yet tested antecedent based on the insights of our qualitative study. The impact of sales managers’ control orientation on SFA adoption has not been tested yet:

> Management places a layer of expectations on salespeople that are influenced by the available technology. (...) That research should explicitly and carefully consider the role of technology in monitoring performance, providing strategic

> direction, (...) essential job functions of the sales manager. (Tanner and Shipp 2005, p. 308)

In many studies supervisor feedback, behavior and control orientations have been shown to direct the attitudes, learning and behavior of salespeople.[43] Sales managers evaluate salespeople not only on outputs, but also on methods, their selling processes and even organizational norms and culture (Anderson and Oliver 1987; Jaworski 1988; Tyagi 1982). Such behavior-based control systems allow managers a great deal of control over the selling operation (Anderson and Oliver 1987). Consequently, we define supervisor-SFA-control as the extent to which a supervisor (1) specifies the activities he or she expects salespeople to perform using the SFA system, (2) monitors to see whether they are performing those activities, and (3) informs them if they are meeting his or her expectations. Supervisor-SFA-control behavior is best explained by a sales director who participated in our qualitative study:

> *On the regional manager's monthly report there is a tick box to say whether the salespeople's [SFA] administration is lacking or not. If the [SFA] administration is not good, then they are disqualified from the bonus payment. There is not an incentive but a penalty that applies. The second thing, we have also a grading system to rate salespeople. Satisfactory [SFA] use is one of the criteria that they have to achieve in order to be graded.*

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[43] Jaworski and Kohli 1991; Kohli, Shervani, and Challagalla 1998; Singh 1993; Singh, Verbeke, and Rhoads 1996; Sujan, Weitz, and Kumar 1994

SFA technology certainly improves the capability of sales managers to monitor salesperson activities in great detail (Tanner and Shipp 2005). Robinson and others (2005) suspect that control/reward system utilized by the firm may influence the technology acceptance process. SFA technology is often a strategic priority of the firm and provides crucial sales information for management, rationalizing the sales manager behavior to promote technology usage as standard sales practice for his or her sales team (Gohmann et al. 2005b). The obligation to use SFA-technology in conjunction with managers' monitoring activities should have a direct impact on SFA adoption (Buehrer et al. 2005). We posit that control and monitoring behavior of sales managers will signal a clear incentive to adopt SFA, regardless of the extent to which salespeople find it useful or easy to use. Therefore, similar to the team-use variable, we expect a direct impact not mediated by perceived usefulness and ease of use:

H3i: Supervisor SFA-control will have a positive impact on the customer relationship and internal coordination dimensions of SFA-usage.

5.5. Control Variables

The likelihood of alternative explanations can be reduced in cross-sectional surveys through appropriate data collection strategies. For example, many cross-sectional studies attempt to rule out competing explanations by adding control variables to the research model which may have separate but significant impact on the dependent variable (Rindfleisch et al. 2008).

Previous research suggests that other variables need to be considered when examining IT-adoption and organizational outcome variables. Therefore, we added control factors to our model to test the impact of SFA-use on salesperson performance in the presence of other important variables. The control variables we added into our research model are as follows: (1) the length of time a sales representative had been with the company, (2) the length of time a sales representative had been working in his or her territory, (3) total sales experience, (4) age, and (5) gender.

Meta-analyses of sales literature have found that these effects significantly explain individual salesperson performance (Churchill et al. 1985). A number of researchers have investigated the connections between SFA adoption and the age or experience of the adopters. Two investigations (Buehrer et al. 2005; Keillor et al. 1997) have found that younger sales reps were more positively inclined towards technology adoption. Less experienced salespeople appear to be more receptive to using computer technology in the sales process, feel less occupationally threatened by such technology, and generally believe computers make them more productive (Keillor et al. 1997). Ko and Dennis (2004) argue that highly experienced sales reps will gain the least performance benefits from SFA system use. Others have argued that age has a negative effect on usage (Morris and Venkatesh 2000; Speier and Venkatesh 2002). Finally, studies investigating the gender and adoption relationship identified significant differences among men and women in terms of approaching information technology (Gefen and Straub 1997; Venkatesh and Morris 2000).

5.6. Logical Structure

Before concluding this chapter, we present a brief discussion on the logical structure of our research model. This discussion is necessary as the distinction between process and variance theories has important implications for the interpretation of our hypotheses.

The 'necessary, but not sufficient' cause-effect argument essentially characterizes process theories and differentiates them from variance theories (Markus and Robey 1988). In variance theories, the antecedent (the cause) is posited as a necessary and sufficient condition for the outcome. The effect is expected to happen every time contingent conditions are obtained. In process theories, in contrast, the antecedent is assumed insufficient to cause the outcome, but is held to be just a necessary condition for it to occur (Mohr 1982). The outcome can happen only under such necessary conditions, but the outcome may also fail to happen.

Variance and process theories also differ in their conceptualization of outcomes and precursors. In variance theories, these constructs are usually conceptualized as variables which can take on a full range of values. Increased levels of antecedent variables are expected to lead to equally higher levels of the outcome. In process theories, however, outcomes are conceived as discrete or discontinuous phenomena, which might be called 'changes of state.' (Soh and Markus 1995) For this reason, contrary to variance theories, process theories cannot be extended to predict what happens when there is more of the precursor variable.

The assumption of an invariant relationship between antecedents and outcomes posited by variance theories may be too stringent for IT business value research, where outcomes are not always certain—sometimes occurring, sometimes not (Soh and Markus 1995). By limiting the prediction to say only that the outcome is likely (but not certain) under some conditions and unlikely under others, process theories should better fit in our research purposes. Therefore we argue that our conceptual framework should be interpreted according to the assumptions of process theories. While we hypothesize that certain conditions (perceived usefulness, ease-of-use, and so on) are ‘necessary’ for increased SFA-use and salesperson performance; we do not imply that these factors are ‘sufficient’ in themselves for these dependent variables to occur. In the end, we are dealing with social phenomena which depend on many different factors, impossible to capture altogether in an empirical study. We also tend to avoid the proposition that higher levels of independent variables will necessarily cause higher levels of dependent variables. Such a generalization, again for the same reason of dealing with complex social phenomena, would probably be too bold for a single empirical study.

6. EMPIRICAL STUDY

6.1. Introduction to the Chapter

We have conducted a quantitative study to empirically test our hypotheses. In this chapter we present our research methodology. This discussion includes the decisions we made regarding the study design, sample selection, data collection procedure and developing our measures with formative and reflective items.

6.2. Empirical Design

The choice of an adequate research method should mainly be based on the type of research problem investigated (Kerlinger 1986). Therefore, each of the choices made in this section is evaluated in light of the specific problem investigated in this study.

6.2.1. Non-Experimental Design

Research strategies in social and behavioral sciences can be divided into two general types: *experiments* and *surveys*[44] (Crano and Brewer 2002). Surveys include all observations that occur in 'natural' (i.e., non-laboratory) settings and involve a minimum of interference over people's normal behavior or choices, whereas experiments include those observational studies in which

[44] The terms 'non-experimental design' and 'ex post facto design' are also used to call surveys in literature.

data are collected under conditions where behavioral choices are limited or in some way constrained by the controlled manipulation of variables and measures selected by the researcher (Crano and Brewer 2002). In this study, we apply a non-experimental as opposed to an experimental research method. First, non-experimental designs are plausible in cases like ours where the researcher has no direct control over the study's independent variable(s) (e.g., managerial support, facilitating conditions), as their manifestations have already occurred and/or they are not manipulable (Stone 1978). Second, while experimental research generally allows obtaining high levels of internal validity as a result of the possibility to control, randomly assign, and manipulate independent variables, its artificiality and lower external validity are considered to be weaker elements (Black 1999). In contrast, surveys have the value of 'real world' context and the availability of mass data in developing information about human actions (Crano and Brewer 2002). As our study aims at generating generalizable results, external validity is important. Third, a major advantage of correlational research is that it permits the free variation of both variables of interest so that the degree of relationship between them can be determined without the loss of information inherent in the experimental design (Crano and Brewer 2002).

However, one potential drawback of non-experimental designs is the inability to document causality. In most of the non-experimental studies, both independent and dependent variables are measured concurrently. In case the two are found to be related to one another, it is concluded that the independent variable is responsible for changes in the dependent. However, "since the researcher often knows little or nothing about numerous other variables that may be impacting upon either or both of the study's 'independent' and 'dependent' variables, the conclusion of a causal relationship between the two is totally unjustified" (Stone 1978, p. 104). For this reason, a possible conclusion that one variable 'causes' the other should be made with caution. Nevertheless, Buttle and others (2006) argue that non-experimental design could be valuable in SFA research by comparing early-adopters with non-adopters:

> Researchers have been unable to say with confidence that salespeople and companies that have adopted SFA perform better than companies that have not. None of the research has compared data from companies that have employed SFA with comparable companies that have not. No control groups have been employed. As SFA becomes commonplace in business-to-business environments, the opportunity to conduct this research will be lost. However, there will still be opportunities within individual companies to measure outcomes at the level of the salesperson. Do early adopters in a sales force obtain significantly different sales results from those who have not adopted? This would be indicative of experimentally valid effects of SFA on performance (p. 228).

We suggest that, by comparing salespeople who have successfully adopted SFA technology in terms of beliefs, attitudes and sales results with others who have not; we can achieve significant insights regarding the role of SFA in personal selling and sales management.

6.2.2. Cross-Sectional Design

Survey research can either be *cross-sectional* (i.e., surveys completed at a single point in time) or *longitudinal* (i.e., gathering data over multiple periods). Longitudinal design is recommended to reduce the threat of *common method variance* (CMV) bias inherent in cross-sectional design and enhance *causality inference* (CI) (Podsakoff and Organ 1986; Podsakoff et al. 2003). However, longitudinal surveys may raise several potential problems, such as confounds due to intervening events and a reduction in sample size due to respondent attrition (Rindfleisch et al. 2008). On the other hand, CMV bias is not caused only by cross-sectional design but it is a byproduct of the research process as a whole, including measurement procedures, the choice of respondent, and the study context (Ostroff et al. 2002). The risk of these influences can be reduced by appropriate empirical design strategies, many of which can be employed in a cross-sectional survey (Podsakoff et al. 2003).[45] Moreover, creating temporal separation between initial and follow-up data collection (i.e., longitudinal design) may not necessarily enhance CI in cases where "relational ties appear to have already passed their start date at the time of the initial survey" (Rindfleisch et al. 2008, p. 273). Moreover, CI depends on covariation and coherence in addition to temporal order, both of which can be dealt with by cross-sectional study designs as well.

Overall, we have decided to implement a cross-sectional design as (1) our constructs were relatively concrete and verifiable (i.e., based on existing sales literature), (2) low levels of response bias were expected due to our informant characteristics (i.e., salespeople are highly educated adults); (3) we have applied heterogeneous formats and scales to disrupt consistency

[45] The particular measures taken at data collection are discussed in Section 6.4.

biases and increase validity; (4) it was difficult to mark our predictors with a defined end date; (5) our research model had well-established theoretical foundations; (6) we expected intervening events to be likely (i.e., high employee turnover in sales forces in general); (7) the likelihood of alternative explanations was low; and (8) our study focused on between-subject arguments (Rindfleisch et al. 2008).

6.2.3. Data Collection Method

Non-experimental research designs can consist of observation as well as survey methods of data collection. Given our focus on relatively abstract attitudes and other perceptual data, observational research methods are not useful in the context of this study. Therefore, we opt for survey research in our study. A survey may be defined as a method of gathering information about a number of individuals, in order to measure some characteristics or opinion of its respondents (May 1993). Surveys involve administering structured and standardized questions to individuals which reduce bias and ensure reliability, generalizability and validity. A survey may measure one or more of the following things: attitudes, opinions, and demographic characteristics of a subject (Stone 1978).

Survey research consists of personal interviews, telephone interviews and mail questionnaires (Webb 2003). The mail questionnaire presents a uniform stimulus to all subjects (i.e., each subject receives an identical questionnaire) and avoids the biases resulting from researchers' subjectivity related to interpreting observed behavior inherent in studies of observation and interviews (Webb 2003). Among these options we select questionnaire administered via the Internet (Dillman et al. 1998). In comparison to mail questionnaires, online questionnaires deliver similar response rates

(Kaplowitz et al. 2004). An online questionnaire enables to cover wide geographical areas with almost no field staff (Stone 1978). The anonymity that often accompanies an online questionnaire may lead subjects to be more open and truthful than they would be in an interview situation (Webb 2003). Respondents can fill in the online questionnaire in their own time at their convenience. Online questionnaires are delivered almost instantly, responses and feedback are quick, they are cheaper than paper-based mail questionnaires, and the messages are read usually by the respondent (Kumar 1999).

On the other hand, even though an online questionnaire is sent to named individuals through their e-mail addresses, there is no way of knowing who exactly fills it (Webb 2003). Furthermore, there is no one to explain possibly ambiguous questions (Stone 1978). In general, mail questionnaires suffer low response-rates, especially the ones which are perceived to be long (Stone 1978). Finally, online questionnaires are not feasible in cases where respondents lack computer literacy (Webb 2003).

Nevertheless, online questionnaire was particularly appropriate in our case. Our respondents were geographically spread in an overseas country, they were used to working with computers, and they had regular access to the Internet (Zukerberg et al. 2000).[46] With the assistance of an external IT professional we have created an online questionnaire which could be answered with any computer connected to the Internet.

According to Podsakoff and his colleagues (2003), the most preferred data collection strategy for reducing CMV bias and increasing CI is to employ multiple respondents or obtain multiple sources of data. Although this

[46] Refer to Section 6.3 for information on our sample

sounds attractive, it would necessitate identifying respondents personally which was not desirable by management and the employees. Moreover, actual sales amount depends on many factors and objective sales data would not necessarily represent our dependent variable, salesperson performance. Therefore, we relied on our respondents as the only data source to test our hypotheses.

6.3. Sampling

We chose the pharmaceutical industry as the setting for this research. This is a profitable industry in general, enjoying scientific developments, new treatments and faster drug discovery. However, narrowing product pipelines, expiring product patents, intense competition and price scrutiny from governments have led to a decline in margins and mergers and acquisitions in the industry (Devitt 2003). In this climate, increasing costs to generate awareness and improve customer-focused service make it vital that resources, especially personal sales resources, are efficiently and effectively deployed, both before a product reaches the market and in the early stages of product launch (Kager et al. 2002).

Pharmaceutical salespeople[47] are responsible for marketing and selling[48] product lines directly to physicians. Salesreps carry information about existing and newly released products to physicians, encouraging the physician to accept and prescribe their company's products (drugs), rather than their competitors' products, to their patients. A busy physician often

[47] Pharmaceutical salespeople are often referred to in the industry as 'sales representative' or shortly 'salesrep'.
[48] Pharmaceutical selling activity is often called as 'detailing' in the industry.

needs to rely on the information provided by the salesrep in addition to reading scientific journals and joining medical associations in order to keep up with the newly introduced drugs (Ahearne et al. 1999; DeSarbo et al. 2002).

Each salesrep is normally responsible for a specific geographical area (i.e., territory) and a specific specialty for a given set of drugs. Salesreps work to increase the knowledge of disease states and firm's products during their interactions with the physicians in their territories. Salesreps call on doctors quite often, implying that doctors become very familiar with the salesreps' behaviors and characteristics. In this context, a salesrep's role is not to sell; they cannot take direct orders that immediately translate into a sale (i.e., missionary salesperson, Moncrief 1986). Rather, salesreps inform and educate physicians regarding their products that require multiple rounds of presentations. A physician's prescription of a drug that is purchased by a patient makes the 'sale' for a sales representative responsible for that territory. Thus, a sales representative's performance is tied to the number of prescriptions that are filled, and his or her ability to meet or exceed the predefined quota for sales is tied closely to his or her compensation.

Pharmaceuticals-selling is often selected as a suitable context to investigate SFA technology.[49] While salesreps maintain face-to-face contact with physicians, they use technology for retrieval of prior contact information and for planning purposes (Widmier et al. 2002). Sales representatives can manipulate and analyze sales and market data through the use of IT (Morgan and Inks 2001). Communication among colleagues and with the home office is critical in pharmaceuticals industry, and IT tools such as e-

[49] Refer to Ahearne et al. 2007; Ahearne et al. 2008; Donaldson and Wright 2004; Leonard-Barton and Deschamps 1988 for studies with pharmaceuticals-selling as the research context.

mail and groupware can facilitate such communication. (Powell et al. 2004).

We have chosen a middle-sized pharmaceutical firm to collect empirical data (the same firm from which the qualitative data were obtained). A leader in the pharmaceutical industry with headquarters in Europe, the firm develops and markets pharmaceutical products throughout the world through application of the latest research from their own laboratories with multiple locations across the world. The firm's vision is to respond to the medical needs across the Globe for the purpose of saving and improving lives while also trying to reduce health-care costs. The firm is organized by both functional and geographic business units. Research and manufacturing are organized in separate centralized business locations, but the sales department is organized by geographic region.

Study participants were salespeople who worked for the Brazilian division of the firm, which is responsible for all sales within Brazil. The Brazilian affiliate has marketing and other support functions, but its largest component is the sales department selling patent-protected prescription-only drugs to different types of customers (e.g., primary care physicians, specialist physicians, nurses, pharmacists). The success in managing these patent-protected products, each of which has only a limited life before the patents expire, is extremely important to the firm's success. In the present company, the sales representatives are responsible for marketing directly to physicians, rather than to managed-care organizations or hospitals. All sales representatives receive training for each of these product lines and receive support from top management. A division sales manager supervises several sales representatives. A salesrep's compensation consists of a fixed salary and flexible commissions based on individual performance.

The company provided salesreps with desktop computers and PDAs which salesreps regularly synchronize with central system via their desktops. SFA systems are specially designed to support the pharmaceutical salesperson in all major tasks such as call planning, post-call reporting, territory management and analysis, communication with other salespeople and sales managers. The system also provides updates on product information and company marketing activities such as customer profiling, product information and competitive product profiling. These screens deliver insights about the customer and sales environment through digital dashboards and consultative reviews which the salespeople can refer to when preparing for each sales call. Sales representatives and their managers received training on the technology prior to implementation and follow-up sessions after the system implementation.

The company provided a good sample frame for testing our empirical model as it fulfilled certain conditions necessary for our research:

(1) Salespeople conducted typical internal and external B2B sales tasks (e.g., they did not sell to end-consumers),
(2) There was a broad array of IT applications available to the sales force since a long time ensuring stable usage patterns among salespeople,
(3) The use of technologies was voluntary such that variance in IT usage among sales representatives existed,
(4) Technology skills varied across salespeople,
(5) The sales force was large enough to support statistical tests of the hypothesized relationships, and
(6) Management would encourage participation in the survey.

Choosing the respondents from a single firm (as opposed to a cross-sectional study across various firms) had certain advantages. In the present setting we developed a close cooperation with management and received their support for our research and thus could ensure a higher response rate and minimize non-response bias. Furthermore, by collecting data from a single firm helped us control for confounding external effects due to the variability in market contexts (e.g., competitive situations) and organizational factors (e.g., information systems and sales management practices). However, the limitation of investigating salespeople from any single firm can lead to a question of representativeness of the firm and the generalizability of results. What is being tested in our model is the theoretical relationship between degree of technology usage and its relationship to performance, and a rather homogeneous sample free from external effects is more favorable. Therefore, in this study’s context, having a single firm was an advantage.

6.4. Data Collection

6.4.1. Questionnaire

In a cross-sectional study like ours, measurement procedures should be handled properly to avoid CMV bias as much as possible. In this part we present the measures we have taken to minimize CMV bias when developing our questionnaire, in line with the recommendations of Podsakoff and others (2003).[50]

[50] The questionnaire in full version is available in the Appendix.

Questionnaire length

The total number of items in a set that constitute an operational definition will influence the reliability. The more questions are available, the higher is the reliability (Black 1999). However, long questionnaires carry also the risk of low response rates. As a consequence, we had to adjust the questionnaire length to optimize measurement reliability and response rate.

Question sequence

Question order is very important in establishing rapport to help ensure the quality of the interaction and the truthfulness and completeness of the answers the respondents provide the researcher (Crano and Brewer 2002). It is generally recommended to use simple, interesting, and non-threatening questions at the start of a questionnaire (Crano and Brewer 2002). We have introduced our questionnaire with a welcome screen that is motivational, emphasizing the ease of responding, and instructing the respondents on the action needed for proceeding to the next page. Our questionnaire started with general questions related to respondent's attitude to computers and technology in general. Second, demographic information should be asked at the end of the questionnaire, as the basic information should come last in case respondents discontinue answering questions. Third, scholars agree that difficult or sensitive questions should be positioned towards the middle in a questionnaire (Black 1999). Questions related to SFA-use and sales performance of the respondent, which are generally regarded as more threatening, were asked in the middle part of our questionnaire. Finally, we feared that skipping from topic to topic in a random fashion might confuse respondents and cause errors in the data. Therefore we divided our questionnaire into several logical parts such as overall IT competence, company support for SFA and opinions about sales profession.

Questionnaire layout

Physical characteristics of a questionnaire can affect the accuracy of the information obtained. We have presented each question in a conventional format similar to that normally used on paper questionnaires (see figure 6.1). We placed anchors at the top of the scales on the right. We have limited the line length and the number of questions given in one screen to avoid scroll bars which might confuse the respondents. We did not require respondents to provide an answer to each question before being allowed to answer any subsequent ones (Dillman et al. 1999). We have used a progress bar to convey a sense of where the respondent in the completion progress is (Dillman et al. 1999).

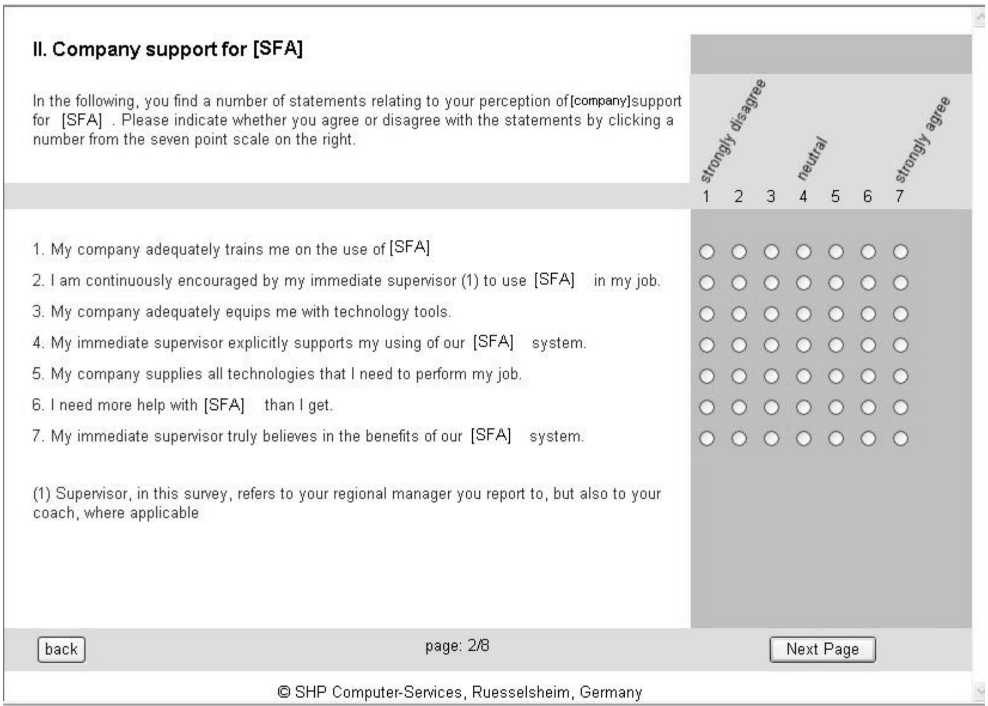

Figure 6.1: Questionnaire Layout (from an earlier test version in English)

Questionnaire instructions

It is very important to provide clear instructions to respondents. We have provided computer operation instructions as part of each question where the action is to be taken, not in a separate section prior to the beginning of the questionnaire. It is a common practice to distinguish instructions from questions by using distinctive appearance. In our questionnaire, instructions were located immediately above the corresponding questions in a separate box.

Questionnaire translation

The original questionnaire was developed in English. As the questionnaire was administered in Brazil, the original English questionnaire had to be translated into Portuguese. One professional translator first translated the original English version of the questionnaire into Portuguese. The translator was a native speaker of Brazilian Portuguese and fluent in English. In a second step, the quality of the translation was evaluated by a native Portuguese and two Brazilian colleagues from the sample on clarity and comprehensiveness of the translated questionnaire.

6.4.2. Data Collection

A major challenge with surveys is to succeed in getting the subjects to return the questionnaire (Black 1999). The degree to which sample estimates truly represent population parameters depends upon how similar the survey's respondents and non-respondents are. As the response rate of a survey increases, errors in the estimates due to non-response decrease (Cole, Palmer and Schwanz 1997). Incentives, multiple contacts, and respondent-friendly questionnaires are in general the response-enhancing techniques that have been shown to increase mail response rates across research studies and over time (Cole et al. 1997). Moreover, the saliency of the topic for the respondent is a strong determinant of response rate, as the respondent will probably be more confident that his personal input will be of some importance to the study (Heberlein and Baumgartner 1978).

Advance notifications are known to increase response rates (Fox et al. 1988; Kanuk and Berensen 1975). In July 2007, the sales director of Brazil sent an e-mail to all salesreps one week in advance introducing our research and informing them about the upcoming survey. One week after the sales director has sent another e-mail to all salesreps with a cover letter and a link to our survey. The cover letter appealed to the subjects as well as assured them that any information would be kept strictly confidential. This is essential even when no names are requested (Black 1999). The researchers' names and contact information were given in the cover letter to emphasize university sponsorship (Fox et al. 1988; Kanuk and Berensen 1975). A four-week deadline was also given in the cover letter. Simultaneously the company has placed a banner on the company Intranet informing salespeople about our study and placed a link to our survey. Following up after the initial contact is shown to increase response rates (Heberlein and Baumgartner 1978; Fox et al. 1988). Before the deadline expired the sales director has sent a reminder e-mail to every salesperson and informed them about a one-week extension of the deadline. Our efforts produced 244 usable responses representing an 82% response rate.

Non-Response Bias

One of the most important issues is to ensure that non-response was not due to some aspect of the questionnaire itself that the instrument did not offend or for some other reason prevent the person from responding (Baumgartner and Steenkamp 2001). To examine response bias, late respondents were compared to early respondents for meaningful differences (Armstrong and

Overton 1977). The observations were ordered by the questionnaires' return dates and divided into upper and lower quartiles to provide the groups of late and early respondents. A t-test was then performed for a number of variables across the early and late respondent groups. For all variables and reported performance, these t-tests displayed no meaningful differences between late and early respondents.

Common-Method Bias

When dependent and independent variables are collected from the same source, common method variance, variance that is attributed to the measurement method rather than the constructs of interest, may represent a potential problem (Podsakoff et al. 2003). Following Podsakoff and Organ (1986), Harman's one-factor test was used to examine the extent of this bias. All items were entered into an exploratory factor analysis, using principal component analysis with Varimax rotation, to determine the number of factors that are necessary to account for the variance in the variables. The analysis revealed that there are eight factors with eigenvalues greater than 1.0 which accounted for 68% of the total variance. Common method variance does not represent a serious problem because several factors were identified, the first factor did not account for the majority of the variance, and there was no general factor in the un-rotated structure (Podsakoff and Organ 1986).[51] Secondly, we added a common method factor to our structural model to explicitly estimate the amount of common method variance in our indicator variables (Liang et al. 2007). The largest method variance was under 4%, and no substantial common method bias is present in our sample (Podsakoff et al. 2003).

[51] Refer to the Appendix for the results of the Harman's test.

6.4.3. Describing the Sample

We calculated the descriptive statistics of our sample to make comparisons against any known population characteristics and to assess its generalizability. On average, respondents reported 30.13 years of age, 7.01 years of job experience in sales and 4.92 years average tenure within the company. 31 percent of the sample was female. These statistics reflect an average sales force in the literature, demonstrating generalizability of our sample.[52]

6.5. Item Generation and Testing

Modern measurement methods distinguish observable variables from theoretical constructs (Fassott and Eggert 2005), where the latter can be described as “an abstract entity which represents the ‘true’, nonobservable state or nature of a phenomenon” (Bagozzi and Fornell 1982, p. 24). As theoretical constructs, by definition, cannot be directly measured, they are often called ‘latent variable’ (Homburg and Giering 1996). In contrast, observable variables can be directly observed and called ‘indicators’ in empirical research (Fassott and Eggert 2005). The distinction between observable and latent variables is given in figure 6.2.

[52] Further details of the descriptive statistics are given in the Appendix.

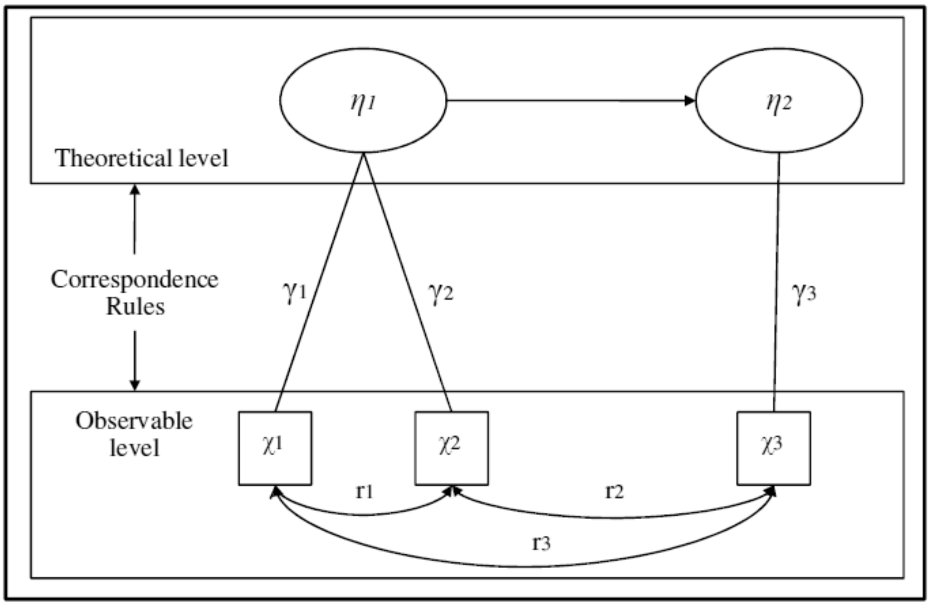

Figure 6.2: Theoretical and Observable Levels in Empirical Research (source: Bagozzi 1998, p. 50)

The objective of empirical measurement is to specify the relationship between observable variables and latent constructs and thus to make a theoretical construct empirically accessible and measureable (Homburg and Giering 1996). The strength of theoretical conceptualizations rests in their operationalization through observable indicators. Therefore, measurement quality of indicators plays an important role in empirical research. According to the classical test theory, the variation in the scores on measures of an observable construct (*observed score,* X_O) is a function of the real score of that measure (*true score,* X_T), plus *error* (Jarvis et al. 2003). The fundamental objective in measurement is to obtain an X_O which approximates the X_T of that variable as closely as possible (Churchill 1979). In principle, the researcher can only infer the X_T score through the X_O. The quality of this inference can be estimated through indices of construct reliability and validity. A measure is taken as valid "when the differences in observed scores reflect true differences on the characteristic one is attempting to measure and nothing else ($X_O = X_T$)" (Churchill 1979, p. 65). *Validity* thus constitutes the conceptual accuracy of a measure. On the other hand, the measure will be reliable when the error is kept at minimum (*error = 0*). *Reliability* thus depends on the size of the error term. Peter and Churchill (1986, p. 4) define reliability as "the degree to which measures are free from random error and thus reliability coefficients estimate the amount of systematic variance in a measure." It is possible to reliably measure a variable (i.e., with null error) but it is the validity which ensures that it is the variable of interest. Thus, a measure can be reliable but not valid, while a valid measure is always reliable (Carmines and Zeller 1979; Peter 1979).

It is generally acknowledged that multi-item measures should be preferred to single-item measures in order to measure constructs, where multiple indicators are applied to measure one latent variable (Churchill 1979). A first advantage of such a multi-item scale is its ability to better capture the full domain of multifaceted and complex constructs (Homburg and Giering 1996). Second, multi-item scales allow the assessment of reliability and validity (Dillon et al. 1993). Third, by applying multi-item measures one can make relatively fine distinctions between people. Last but not least, reliability tends to increase and measurement error to decrease as the number of items in a combination increases (Nunnally 1978).

We applied multi-item scales to measure our variables of interest. In the next section, we discuss the methods used for generating and testing scale items. We start with reflective constructs, followed by formative indexes of SFA-use.

6.5.1. Reflective Constructs

The links between latent variables and their corresponding indicators (correspondence rules) define theoretical concepts in empirical terms (Fornell 1989). The direction of the correspondence rules specifies whether indicators define the latent variable or vice versa (Fassott and Eggert 2005). In this line of reasoning, Jarvis and others (2003) distinguish two types of latent variable measurement models, namely principal factor model and composite latent variable model. In the *principal factor model*, covariation among the measures is caused by, and therefore reflects, variation in the latent factor (Jarvis et al. 2003). In this model, the direction of causality (correspondence rules) is from the construct to the indicators, and changes in the underlying construct are hypothesized to cause changes in the indicators, thus the measures are referred to as *reflective* (Fornell and Bookstein 1982) or *effects* (Bollen and Lennox 1991) indicators (See figure 6.3). Thus, reflective indicators are perceived to be observations (reflections) of the underlying construct (Homburg and Giering 1996).

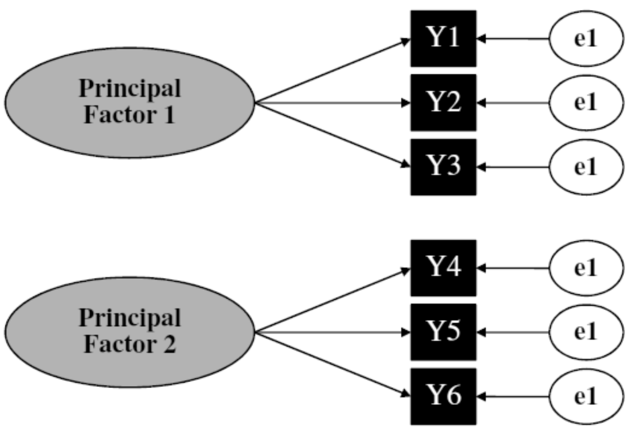

Figure 6.3: Principle Factor Model (source: Jarvis et al. 2003)

In the principal factor model with reflective indicators, error terms are captured at individual indicators level (Homburg and Dobratz 1998). The portion of the variance shared among the indicators is interpreted as the variance of the latent variable cleaned from error terms (Fassott and Eggert 2005).

Constructs of attitude can be given as typical examples of reflective measurement. Attitudes are generally viewed as subjective predispositions to respond in a consistently favorable or unfavorable manner toward an object and are usually measured on multi-item scales with end-points such as good-bad, like-dislike, and favorable-unfavorable (Jarvis et al. 2003). Reflective constructs are widely applied in marketing and sales literature.

Theoretically, reflective indicators are equally valid indicators of the underlying construct and therefore expected to be internally consistent and highly correlated (Bollen and Lennox 1991). Therefore, two highly correlated reflective measures are assumed to be interchangeable (Jarvis et al. 2003). Thus, although it would lower the overall reliability, it is not harmful to remove a single indicator from a set of reflective indicators as all facets of a unidimensional construct should be adequately represented by the remaining indicators (Bollen and Lennox 1991). The extent to which reflective items are correlated will inform about the fit of a reflective measurement model (Fassott and Eggert 2005). A high correlation between reflective indicators of a latent variable is interpreted as a reliable and valid measurement model (Homburg and Giering 1996).

We have applied reflective indicators to measure some of our constructs. There are a number of measure development guidelines focusing on developing reflective measures.[53] In the next part we present the steps we have taken when developing our reflective constructs.

Content Specification

The first step in the suggested procedure for developing better measures involves specifying the domain of the construct. Churchill (1979) recommends setting clear borders of the construct domain to describe what is included in the definition and what is excluded. Poor construct conceptualization makes it difficult to develop measures that faithfully represent its domain, leads to difficulties in correctly specifying how the construct should relate to its measures, and finally undermines the credibility of a study's hypotheses (MacKenzie 2003).

Qualitative techniques (literature review, expert interviews, etc.) can be applied to observe a construct from various angles and understand meaning of its underlying dimensions (Homburg and Giering 1996). Existing construct definitions in the literature should also be considered as "the use of different definitions makes it difficult to compare and accumulate findings and thereby develop syntheses of what is known" (Churchill 1979, p. 67).

Accordingly, we first scanned the available literature for the presence of constructs that are of interest to our study. Second, sources containing these constructs were examined for their construct conceptualizations. This examination of literature resulted in valuable insights related to definitions of our constructs. We present our construct definitions in table 6.1.

[53] Anderson and Gerbing 1982; Bagozzi 1979; Churchill 1979; DeVellis 1991; Homburg and Giering 1996; Jacoby 1978; Peter 1979; Spector 1992

Table 6.1: Reflective Construct Definitions

Construct	Definition
Supervisor SFA Control	*Supervisor SFA control* is the extent to which a supervisor specifies the activities he expects salespeople to perform using sales technology, monitors to see whether they are performing those activities, and (3) informs them how they are meeting his or her expectations (Kohli et al. 1998).
Facilitating Conditions	*Facilitating conditions* is the degree to which a person believes that he or she has been provided with the resources and the external support (e.g., tutorials, training sessions, help-lines) to use sales technology (Triandis 1979).
Supervisor Support	*Supervisor support* refers to the extent to which salespeople's immediate supervisors explicitly encourage their subordinates to use sales technology (Schillewaert et al. 2005).
Team Use	*Team use* of sales technology is the extent to which the members of a sales team rely on sales technology in conducting their day-to-day activities.
Perceived Usefulness	*Perceived usefulness* is the degree to which a person believes that using sales technology enhances his or her job performance (Davis 1989).
Perceived Ease of Use	*Perceived ease-of-use* is the degree to which a salesperson believes that using sales technology is easy to use (Davis 1989).
Computer Self-Efficacy	*Computer self-efficacy* is a salesperson's

	perceptions of his or her ability to use sales technology in the accomplishment of a task (Compeau and Higgins 1995).
Salesperson Performance	*Salesperson performance* is the extent to which a salesperson finds him or her better than company average in terms of sales results.

Item Specification

The second step in the procedure for developing measures is to generate items which capture the domain as specified. When developing measures of a construct, the goal is to make sure that (a) all key aspects of the conceptual definition are reflected in the measures, (b) the items are not contaminated by the inclusion of things that are not part of the conceptual domain, and (c) the items are properly worded (e.g., unambiguous, specific, no leading questions, no double-barreled questions) (MacKenzie 2003). Existing literature again served as a basis for drawing a comprehensive picture of existing measurement scales for each of the constructs examined. Measurement scales for all constructs were available, but some of them had to be adapted in order to suit our sample environment. In table 6.2 we indicate the sources that were used as input in order to generate items for measuring the reflective constructs in this study.

Table 6.2: Sources of Reflective Measurement Items

Construct	Source
Supervisor SFA Control	Challagalla and Shervani 1996; Cravens et al. 1993; Javorski and MacInnis 1989; Kohli et al. 1998; Oliver and Anderson 1994; Piercy et al. 2003; Rouziès and Macquin 2003
Facilitating Conditions	Hunter and Perreault 2006; Jelinek et al. 2006; Robinson et al. 2005a
Supervisor Support	Avlonitis and Panagopoulos 2005; Leonard-Barton and Deschamps 1988; Schillewaert et al. 2005; Speier and Venkatesh 2002
Team Use	Jelinek et al. 2006; Schillewaert et al. 2005
Perceived Usefulness	Davis 1989
Perceived Ease of Use	Davis 1989
Computer Self-Efficacy	Brinkerhoff 2006
Salesperson Performance	Avlonitis and Panagopoulos 2005; Behrman and Perreault 1982

Measurement Format of Items

We have applied Likert method to construct our scales, where items are presented in a ‘multiple choice’ format and participants are asked to pick one of the alternatives that indicate the extent to which they agree with the position espoused in the item (Crano and Brewer 2002). Surveys that employ a single-scale format (e.g., a seven-point Likert scale) and common-scale anchors (e.g., ‘strongly disagree’ versus ‘strongly agree’) are believed to be especially prone to CMV bias as repeated contact with a single format and/or anchor will reduce cognitive processing and thus encourage straight-line responding that has little to do with actual item content. The influence of measurement procedures can be reduced through measurement separation in a cross-sectional approach by employing different formats and scales for predictors versus outcomes (Crampton and Wagner 1994; Lindell and Whitney 2001). We used different anchors to measure attitudes, opinions and views (agree – disagree); behavior (never – more than once a day); and outcome (above average – below average). Our scales have seven-point spread as opposed to five points to better represent the range of answers and increase variance across respondents (Black 1999).

Qualitative Item Testing

It is generally recognized that data collection should never begin without an adequate pre-test of the content and physical appearance of items (Churchill 1995). Item pre-testing is considered as testing items on a small sample for the purpose of improving these items by identifying and eliminating potential understandability problems. Pre-tests are also recommended to check the content relevance of the indicators for the latent construct (Homburg and Giering 1996). Variables with unclear formulations or missing relevance to the latent variable of interest should be removed from the scale.

The items were pre-tested by selected salespeople of the company in different countries with a sample of 6 (Brazil, UK, and Belgium). Care was taken that tested salespeople were similar to those included in the final data collection in terms of age, gender, and familiarity with the topic. Respondents were asked to complete the questionnaire after which they were asked to evaluate item wording, describe the meaning of each question, to explain their answer, and to state any problems they encountered while answering questions. Moreover, respondents were asked to comment upon item sequence and layout. After each session, they described the major problems encountered. Salesperson pre-tests have lead to considerable adaptations of item wording, sequence, and layout. Based upon the literature study and the pre-tests, an initial pool of items was formulated. In the next section we present the analytical approaches we applied to further test our items by means of quantitative pilot data.

Quantitative Item Testing

It is necessary to test items' validity and reliability based on quantitative data. Four types of criteria for validity and reliability of reflective measurement items are suggested in literature (Götz and Liehr-Gobbers 2004).

Content validity is the extent to which the variables of a measurement model belong to the construct (Bohrnstedt 1970). This property of the scale, having each of its measurement items relate to it better than to any others, is known as unidimensionality (Gerbing and Anderson 1988). Unidimensionality is an assumption underlying the calculation of reliability. Unidimensionality should therefore be assessed for all multiple-indicator constructs before assessing their reliability (Hair et al. 1998). Exploratory factor analysis is a suitable method to investigate unidimensionality (Vinzi et al. 2003). When all indicators are shown to belong to their respective factors in factor analysis, further investigation of validity and reliability can be made (Homburg and Giering 1996; Krafft et al. 2005).

Item reliability reports the variance of an item explained by the corresponding latent variable. Individual item reliability can be assessed by examining the correlations (loadings) of the measures with their respective construct (Hulland 1999). An item loading of 0.7 is accepted as necessary (Hulland 1999). Since loadings are correlations, this implies that more than 50 percent of the variance in the observed variable (i.e., the square of the loading) is due to the construct rather than error variance (Carmines and Zeller 1979).[54]

Convergent validity[55]demonstrated collectively by the indicators should be considered when multiple items are used to measure a latent construct (Bagozzi and Baumgartner 1994; Bagozzi and Phillips 1982; Rodgers and Pavlou 2003). Convergent validity requires that the indicators which are assigned to a latent variable strongly correlate with each other. *Cronbach's alpha* is a popular measure of internal consistency (Cronbach 1951).[56] The square root of Cronbach's alpha is the estimated correlation of the *k-item test* with errorless true scores (Nunnally 1967). Cronbach's alpha thus indicates the success of the sample of items in correlating with the true scores (Churchill 1979). Fornell and Larcker (1981) suggest another *internal consistency* measure[57] as an alternative to Cronbach's alpha and argue that their measure is superior to the alpha since it uses the item loadings obtained within the nomological network (or causal model). Nonetheless, the interpretation of the values obtained is similar, and the guidelines offered by Nunnally (1978) can be adopted for both. Specifically, Nunnally suggests 0.7 as a benchmark for 'modest' composite reliability,

[54] In exploratory settings, items with loadings of 0.5 can still be tolerated (Hulland 1999)

[55] Convergent validity is referred also as 'composite reliability', 'internal consistency', or 'construct reliability' in literature

[56] Cronbach's alpha, $\alpha = (k / (k-1)) (1 - (\Sigma \sigma_i^2 / \sigma_t^2))$, where k is the number of indicators, σ_i^2 is the variance of indicator i, and σ_t^2 is the variance of all indicators.

[57] Internal consistency = $((\Sigma \lambda_{yi})^2) / ((\Sigma \lambda_{yi})^2 + \Sigma \text{var} (\varepsilon_i))$, where λ_{yi} is the loading of each item of the measure and ε_i is the error of measurement.

applicable in the early stages of a research.

It is also suggested that convergent validity is shown when each of the measurement items loads (outer model loadings) with a significant t-value on its latent construct (Gefen and Straub 2005). Typically, the t-value should be significant at least at the 0.05 level (t-value being above 1,645 at a one-sided test) (Hildebrandt 1984).

Discriminant validity complements internal consistency and represents the extent to which measures of a given construct differ from measures of other constructs in the same model. One criterion for adequate discriminant validity is that a construct should share more variance with its measures than it shares with other constructs in a given model (Bagozzi et al. 1991; Hulland 1999). To assess discriminant validity, Anderson and Gerbing (1993) suggest the use of *average variance extracted* (AVE).[58] For each specific construct, AVE shows the ratio of the sum of its measurement item variance as extracted by the construct relative to the measurement error attributed to its items (Fornell and Larcker 1981). This measure should be greater than the variance shared between the construct and other constructs in the model (i.e., the squared correlation between two constructs). This can be demonstrated in a correlation matrix which includes the correlations between different constructs in the lower left off-diagonal elements of the matrix, and the square roots of the average variance extracted values calculated for each of the constructs along the diagonal. For adequate discriminant validity, the diagonal elements should be greater than the off-diagonal elements in the corresponding rows and columns. In addition, an AVE less than 0.5 will be insufficient, as the majority of the variance in such a case would depend on the error term (Homburg and Giering 1996;

58 Average Variance Extracted (AVE) = $\Sigma\lambda_i^2 / (\Sigma\lambda_i^2 + \Sigma (1- \lambda_i^2))$, where λ_i is the loading of each measurement item on its corresponding construct.

Rodgers and Pavlou 2003). Finally, Gefen and Straub (2005) recommend to examine cross-loadings, as the correlation of the latent variable scores with the measurement items needs to show an appropriate pattern of loadings, one in which the measurement items load highly on their theoretically assigned factor and not highly on other factors.

Reflective indicators are assumed to be equivalent and interchangeable reflections of the same construct. Therefore, reflective indicators which demonstrate weak correlations can, in principle, be eliminated from the model (Churchill 1979; Anderson and Gerbing 1982; Homburg and Giering 1996). In this way it is possible to ex post increase the fit of a measurement model (Fassott and Eggert 2005).

We have collected data from another sales force in Belgium (n=39) as part of a pilot study to further assess the reliability of our measures.[59] Overall, the results demonstrated an appropriate fit of our reflective constructs. After a number of minor adjustments and eliminating at least one item, we have finalized the development of our reflective items.[60]

6.5.2. Formative Constructs

The *composite latent variable model* differs from the principal factor model in terms of the direction of corresponding rules. Unlike the reflective model, this model does not assume that the measures are all caused by a single underlying construct. Rather, it hypothesizes that the measures together have an impact on (or cause) a single construct. That is, the direction of causality flows from the indicators to the latent construct, and the indicators

59 We present the results of our statistical tests in table 6.6 in the Appendix.
60 Refer to Table 6.7 in Appendix for the last version of the reflective items before they were translated into Portuguese.

together determine the conceptual and empirical meaning of the construct (figure 6.4) (Diamantopoulos and Winklhofer 2001). Thus, this model's measures are referred to as *causal* (Bollen and Lennox 1991) or *formative* (Fornell and Bookstein 1982) indicators.

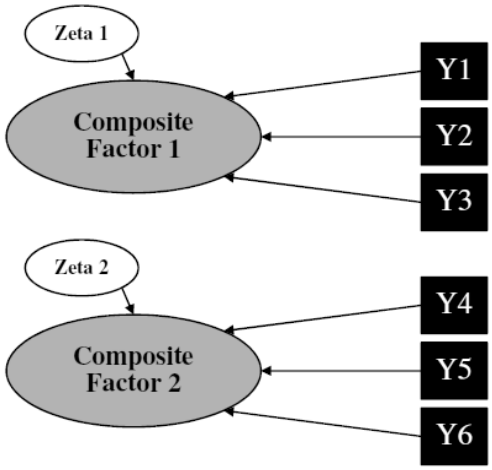

Figure 6.4: Composite Latent Variable Model

(Source: Jarvis et al. 2003)

As can be seen in the figure, the composite latent variable model includes an error term, as does the principal factor model. However, unlike the principal factor model, error is represented at the construct level rather than at the individual item level. Thus, when using this model, one obtains an estimate of the overall amount of random error in the set of items rather than an estimate attributable to each individual item. While this information allows evaluating the reliability of the scale, it is less prescriptive about how the scale can be improved, because the error is associated with the set of items rather than the individual items themselves (Diamantopoulos and Winklhofer 2001).

Formative models do not require correlation between the measures, as it is assumed that formative measures influence—rather than are influenced by—the latent construct (Cohen et al. 1990; MacCallum and Browne 1993). There is no reason that a specific pattern of signs (i.e., positive vs. negative) or magnitude (i.e., high vs. moderate vs. low) should characterize the correlations between formative indicators. Indeed, internal consistency is of minimal importance because two variables that might even be negatively related or mutually exclusive can both serve as meaningful indicators of a single construct (Diamantopoulos and Winklhofer 2001). "Observed correlations among the measures associated with a construct may not be meaningful, rendering irrelevant traditional assessments of individual item reliability and convergent validity" (Hulland 1999, p. 201). As a result, measures of internal consistency should not be used to evaluate the adequacy of formative indicator models.

In return, the evaluation of formative measurement models should be based on the weights of the indicators (Helm 2005). "The weights provide information as to what the make-up and relative importance are for each indicator in the creation/formation of the component." (Chin 1998, p. 307) The weight of a formative construct specifies its contribution to a latent variable (Sambamurthy and Chin 1994). Furthermore, Bollen and Lennox (1991) note that "to assess validity we need to examine other variables that are effects of the latent construct" (p. 312). This can be done by placing the formative construct into a broader model and observing its behavior in the presence of other latent variables. Last but not least, formative indicators should be tested for multicollinearity, as collinear formative indicators comprise a significant problem for measurement model parameter estimates.[61]

[61] More detailed discussion on the multicollinearity issue is given in Section 6.5.2.

Formative indicators differ from reflective indicators also when handling the indicators with weak properties. The latter are actually a subset of a universal item pool and therefore the removal of a reflective item does not change the essential nature of the underlying construct. In contrast, formative indicators together form a conclusive index to reflect a latent construct, thus omitting an indicator is "omitting a part of the construct" (Bollen and Lennox 1991, p. 308). Therefore, for formative indicator models, following standard scale development procedures (e.g., dropping items that possess low item-to-total correlations) "will result in the removal of precisely those items that would most alter the empirical meaning of the composite latent construct" (MacKenzie 2003, p. 324). Doing so could make the measure deficient by restricting the domain of the construct (Churchill 1979).

To date, established measurement models for SFA-usage have been of reflective nature (e.g., Jelinek et al. 2006). According to the decision rules provided by Jarvis and others (2003), however, our task-based usage dimensions require formative measurement models (see table 6.3). First, the choice of a formative versus a reflective specification depends on the causal priority between the indicator and the latent variable (Bollen 1989). Arguably, causality flows from the items representing technology-enabled sales tasks to the SFA-use dimensions. Second, the indicators are not interchangeable; each task represents a unique aspect in its respective dimension. Third, while the tasks may coincide they do not need to correlate with one another – neither within a usage dimension nor between dimensions. For example, the extent to which a salesperson applies SFA to analyze data does not need to correlate with the extent of using SFA to report his or her sales activities. Fourth, we expect the tasks along our SFA-use dimensions to have differing antecedents and consequences. Consequently, we opt for formative specification to operationalize our SFA-use dimensions.

Table 6.3: Decision rules for determining whether a construct should be formative or reflective (source: Jarvis et al. 2003)

	Formative Model	Reflective Model
1. Direction of causality from construct to measure implied by the conceptual definition	Direction of causality is from items to construct	Direction of causality is from construct to items
Are the indicators (items) (a) defining characteristics or (b) manifestations of the construct?	Indicators are defining characteristics of the construct	Indicators are manifestations of the construct
Would changes in the indicators/items cause changes in the construct or not?	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
Would changes in the construct cause changes in the indicators?	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	Indicators need not be interchangeable	Indicators should be interchangeable
Should the indicators have the same or similar content? Do the indicators share a common theme?	Indicators need not have the same or similar content/indicators need not share a common theme	Indicators should have the same or similar content/indicators should share a common theme
Would dropping one of the indicators alter the conceptual domain of the construct?	Dropping an indicator may alter the conceptual domain of the construct	Dropping an indicator should not alter the conceptual domain of the construct
3. Covariation among the indicators	Not necessarily for indicators to covary with each other	Indicators are expected to covary with each other
Should a change in one of the indicators be associated with changes in the other indicators?	Not necessarily	Yes
4. Nomological net of the construct indicators	Nomological net for the indicators may differ	Nomological net for the indicators should not differ
Are the indicators/items expected to have the same antecedents and consequences?	Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

As formative indicators altogether define a corresponding latent construct and ex post elimination of weakly correlated indicators are not feasible, item generation takes a significant role in determining the measurement fit of formative scales (Rossiter 2002). Four issues are suggested to be critical for successful index construction: content specification, indicator specification, indicator collinearity and external validity. In the following sections we present the steps we have taken when developing our two SFA-use constructs, namely customer relationship and internal coordination.

Content Specification

The first issue in index construction is the specification of the scope of the latent variable, that is, the domain of content the index is intended to capture (Diamantopoulos and Winklhofer 2001). The "breadth of definition is extremely important to causal indicators" (Nunnally and Bernstein 1994, p. 484), as the failure to consider all facets of a construct will lead to an exclusion of relevant indicators and thus exclude part of the construct itself.

In our case, we specify the domain of content of the focal constructs customer relationship and internal coordination dimensions of SFA-use.[62] Our objective is to capture in broad terms the range of tasks which are possible to carry out through a typical SFA system. See Table 6.4 for construct definitions.

Table 6.4: Formative Construct Definitions

Construct	**Definition**
Customer Relationship	*Customer relationship dimension of SFA-use* is the use of an SFA system to serve customers, to collect, analyze and manage customer information, to plan and execute sales calls and to develop sales skills with the overall objective of better managing customer relationships.
Internal Coordination	*Internal coordination dimension of SFA-use* is the use of an SFA system to communicate within organization to manage team-selling, to communicate with management, to report sales calls and to manage various administrative tasks and to attend electronic training sessions.

[62] Refer to Chapter 4 for a more detailed discussion of SFA-use dimensions

Item Specification

The items used as indicators must cover the entire scope of the latent variable as described under the content specification. Cohen et al. (1990) suggest that when the relationship is formative, researchers must be careful to employ strong theory (to identify appropriate measures) and multiple measures (to ensure acceptable content validity). Bollen and Lennox (1991, p. 307) require that researchers "need a census of indicators, not a sample. That is, all constructs that form [the underlying construct] should be included." Therefore, the indicator specification stage should be sufficiently inclusive in order to capture fully the construct's domain of content.

Table 6.5 lists the items generated to be used as formative indicators for the customer relationship and internal coordination dimensions. Reflecting on the indices of Engle and Barnes (2000) and Doll and Torkzadeh (1998), we produced a conclusive list of twelve selling tasks potentially enabled by the SFA systems in our sample countries. Relying on our definitions of SFA-use dimensions the items were assigned to their respective usage dimension. In writing up the items, conventional guidelines regarding clarity, length, directionality, lack of ambiguity, and avoidance of jargon were followed (e.g., Churchill 1979). A seven-point Likert format was used for scoring (never vs. several times a day).

Table 6.5: List of Formative Items

Construct	**Items** I use my computer…
Customer Relationship	1. To serve customers. 2. To improve the quality of customer service. 3. To identify most important customers from the list of potential customers. 4. To plan selling activities. 5. To prepare sales calls. 6. To analyze call and sales data. 7. To record and retrieve customer call information.
Internal Coordination	1. To learn about our existing and new products. 2. To report travel expenses to headquarters. 3. To receive information from, or provide information to, my manager. 4. To coordinate activities with my team members. 5. To develop my sales skills.

Indicator Collinearity

Multicollinearity happens when a particular indicator turns out to be almost a perfect linear combination of the other indicators. Whereas in reflective measurement model high correlation between indicators and thus multicollinearity is assumed, it represents a problematic issue for formative indicators (Backhaus et al. 2003). The formative measurement model is based on a multiple regression, where each indicator coefficient (γ_i) shows the direct structural relation between indicator and latent variable, and the magnitudes of γs can be interpreted as validity coefficients (Bollen and

Lennox 1991). Therefore, excessive collinearity among indicators would make it difficult to isolate the distinct influence of the individual indicators on a latent variable, making the assessment of indicator validity problematic (Diamantopoulos and Winklhofer 2001). In cases of high multicollinearity, an indicator is likely to contain redundant information and can therefore become a candidate for exclusion from the index (Bollen and Lennox 1991). Under reflective measurement, multicollinearity is not an issue because only simple regressions are involved (in which the indicator serves as the criterion and the latent variable as the predictor).

A few methods have been suggested in literature to investigate multicollinearity in a formative measurement model. One method is to calculate a linear regression where one indicator is explained by other indicators. This linear regression calculation will give a coefficient of determination (R^2), which is the proportion of dependent variable's variance explained by the independent variables. This R^2 value should be close to 0 in order to rule out multicollinearity (Hair et al. 1998). This R^2 value is then used to calculate the *Variance Inflation Factor (VIF)*,[63] which is then based on the part of the variance explained by other indicators. VIF reaches its minimum value of 1, when R^2 is minimum, namely 0. While literature gives no exact answer to the maximum value of VIF to rule out multicollinearity, a rule of thumb suggests that VIF value should be below 10, and preferably as small as possible, such as 2 (Kleinbaum et al. 1988).[64]

[63] Variance Inflation Factor = $1 / (1-R_j^2)$ where R_j^2 is the coefficient of determination for variable j when explained by other indicators.

[64] We conducted a VIF analysis for the formative items based on the pilot data collected in Belgium (n=39). Only one item received a VIF above 3 (VIF=3,279) and rest of the items were around 2.

External Validity

The fourth and last step in construct specification is checking external construct validity. Taken in isolation, the formative indicator measurement model is statistically under-identified; the model can therefore be estimated only if it is placed within a larger model that incorporates antecedents and/or consequences of the latent variable in question (Diamantopoulos and Winklhofer 2001). Therefore, one approach to 'qualify' formative indicators for the measurement model is to include the entire construct in a wider nomological context, meaning that other constructs and their relationships to the construct in question have to be measured (Bagozzi 1994). If the construct has the theoretically hypothesized impact on the other constructs in the structural model, this confirms the nomological validity of the measurement models used (Diamantopoulos and Winklhofer 2001; Eggert and Fassott 2003).[65]

[65] Due to the limited sample size in our pilot study (n=39), we report the results of external validity test based on the actual data in Chapter 7. In our conceptual model the two formative dimensions significantly relate to other reflective constructs in expected way and confirm their external validity.

7. DATA ANALYSIS

7.1. Introduction to the Chapter

Chin (1998) calls for the adequate reporting of an empirical study to assist the review process and reliable replication and argues that literature could accumulate only with complete documentation. “Enough information needs to be provided to understand (a) the population from which the data sample was obtained, (b) the distribution of the data to determine the adequacy of the statistical estimation procedure, (c) the conceptual model to determine the appropriateness of the statistical models analyzed, and (d) statistical results to corroborate the subsequent interpretation and conclusions.” (Chin 1998, p. viii)

Accordingly, we document our empirical findings in this chapter based on the data we collected from a pharmaceuticals sales force in Brazil. Section 7.2 describes choices and underlying motivations related to the use of Partial Least Squares (PLS) for data analysis. Section 7.3 clarifies the steps that were taken for examining the properties of the raw data set. In sections 7.4 and 7.5, we evaluate the performance of the measurement model and the structural model respectively.

7.2. Data Analysis Method

Recent advances in multivariate data analysis techniques have made it possible to simultaneously examine measurement quality and theoretical basis. For instance, *Causal Modeling*[66] is a multivariate technique that facilitates testing of the psychometric properties of the scales used to measure a variable, as well as estimating the parameters of a structural model – that is, the magnitude and direction of the relationships among the model variables.

Causal modeling techniques can be taken as superior to more traditional techniques (e.g., regression, factor analysis) that assume error-free measurement. Causal modeling techniques (1) account for the harmful effects of measurement error, and (2) apply multiple indicators to incorporate abstract and unobservable constructs (i.e., latent variables) that cannot be measured directly (Fornell 1982). Bagozzi (1980) suggests further that causal models are beneficial as they add a degree of precision to a theory, since they require clear definitions of constructs, operationalizations, and functional relationships.

One of the best-known causal modeling techniques applies covariance-based structural equation modeling, applying maximum likelihood estimation and using computer software such as LISREL, AMOS and EQS (Jöreskog and Sörbom 1989; Hagedoorn and Schakenraad 1994). However, maximum likelihood techniques impose strict assumptions of normally distributed residuals and interval scaling. Furthermore, such covariance-based approaches are poorly suited to deal with small data samples (Fornell 1982) and can yield non-unique (factor indeterminancy) or inadmissible

[66] Also called as 'Structural Equation Modeling' in literature

solutions (solutions outside the admissible parameter space) (Fornell and Bookstein 1982).

An alternative causal modeling approach applying component-based estimation procedure and known as *Partial Least Squares* (PLS) has been developed to avoid these limitations (Lohmoller 1989; Wold 1974, 1982, 1985). Under this approach, it is assumed that all the measured variance is useful variance to be explained. PLS estimates the latent variables as exact linear combinations of the observed measures, thereby avoiding the factor indeterminancy problem and providing an exact definition of component scores (Gopal et al. 1992). By using a fixed-point estimation technique, PLS provides a general model that encompasses, among other techniques, canonical correlation, redundancy analysis, multiple regression, multivariate analysis of variance, and principal components.

PLS estimation is sometimes considered superior to covariance based approaches (Chin 1997). PLS uses an iterative algorithm consisting of a series of ordinary least squares analyses. For this reason, identification does not represent a problem for recursive models and no distributional form is assumed for measured variables in PLS method. Because it makes no distribution assumptions, PLS is robust to violations of multivariate normality (Igbaria et al. 1995).[67] For its aforementioned advantages, the PLS procedure is gaining increasing interest and use among researchers from personal selling and sales management[68], marketing[69] and information systems fields[70].

[67] Refer to Chin and Newsted 1999 and Gefen et al. 2000 for a more detailed comparison of covariance-based and components-based approaches.

[68] Guenzi et al. 2007; Rangarajan et al. 2005; Sundaram et al. 2007

[69] Fornell, Tellis, and Zinkhan 1982; Reinartz et al. 2004; Smith and Barclay 1997; Ulaga and Eggert 2006; Zinkhan, Joachimsthaler, and Kinnear 1987

[70] Armstrong and Sambamurthy 1999; Bhattacherjee and Sanford 2006; Burton-Jones and Hubona 2006; Compeau and Higgins 1995; Igbaria et al. 1995; Real et al. 2006

The philosophical distinction between covariance and components-based approaches is whether to use structural equation modeling for theory testing and development or for predictive applications (Anderson and Gerbing 1988; Chin 1997). In situations where prior theory is strong and further testing and development is the goal, covariance based full-information estimation methods are more appropriate. However, due to the indeterminacy of factor score estimations inherent in this approach, predictive accuracy will be limited. In contrast, PLS methodology, which uses the Ordinary Least Squares (OLS) algorithm, is often more suitable for application and prediction where theory is not as well developed (Chin 1997; Fornell and Bookstein 1982; Igbaria 1990).

In addition to situations with limited theory, PLS is considered as better suited also for explaining complex relationships (Chin et al. 2003; Fornell et al. 1990). As stated by Wold (1985), “PLS comes to the fore in larger models, when the importance shifts from individual variables and parameters to packages of variables and aggregate parameters. (…) In large, complex models with latent variables PLS is virtually without competition.” (pp. 589~590)

Another strength of PLS is its suitability to work with small to medium sample sizes. Chin, Marcolin and Newsted (2003) demonstrate with a Monte Carlo study that sample size is not constrained by the number of product indicators as would be the case in covariance-based estimations, which require increasingly larger sample sizes as the number of indicators grows. Nevertheless, Chin (1998) suggests that a researcher should use a rule of thumb, where the overall sample size is 10 times the largest of two possibilities: (1) the block with the largest number of indicators (i.e., the largest measurement equation) or (2) the dependent variable with the largest number of independent variables impacting it (i.e., the largest structural equation).

The presence of identification constraints, due to the formative indicators, makes it problematic to use a covariance-based approach (MacCallum and Browne 1993). As a components-based approach, PLS allows for the use of both formative and reflective measures in the same model, which is not generally achievable with covariance based techniques (Chin 1998; Chin and Newsted 1999; Fornell and Bookstein 1982).

Another difference between covariance based modeling approaches and PLS is that there are no proper overall goodness-of-fit measures for models using the latter (Hulland 1999). The structural model in a PLS approach is evaluated instead by examining the R^2 values and the size of the structural path coefficients.

Since PLS makes no distributional assumptions in its parameter estimation, traditional parameter-based techniques for significance testing and model evaluation are considered to be inappropriate (Chin 1998). The stability and precision of the estimates is examined by using the approximate t-statistics and standard deviations obtained from the bootstrap test available in PLS software (e.g., PLSGraph, SmartPLS). In this procedure, the performance of an estimator of interest is judged by studying its parameter and standard error bias relative to repeated random samples drawn with replacement from the original observed sample data (Chin 1998; Wold 1982). This overcomes non-parametric methods' disadvantage of having no formal significance tests for the estimated parameters.

We chose PLS approach against covariance-based techniques to estimate our research model because of the mixed nature of our model (i.e., SFA-use dimensions have formative indicators, and the other constructs are reflective). We also considered the complex nature of our conceptual model (i.e., downstream and upstream variables in same model) and the more restrictive assumptions of covariance-based approaches (i.e., assumptions of normality) when making our decision. The software we used for execute our analysis was SmartPLS (Ringle et al. 2005). We proceed with the examination of our sample data.

7.3. Data Examination

7.3.1. Acceptable Sample Size: Power Analysis

PLS method is particularly suitable to work with small sample sizes. However, PLS should not be taken as a 'silver bullet' to completely ignore the appropriate sample size (Marcolides and Saunders 2006). "Being a limited information method, PLS parameter estimates are less than optimal regarding bias and consistency. The estimates will be asymptotically correct under the joint conditions of consistency (large sample size) and consistency at large (the number of indicators per latent variable becomes large)." (Chin et al. 1997, p. 39)

Despite the common rules of thumb for estimating the appropriate sample size, Chin (1998) explicitly invites researchers to apply power analysis to calculate the necessary sample size to certainly reject a poor model. The statistical power can be plainly defined as the ability to detect and reject a poor model. Statistical power depends to a large extent on the sample size. We have used G*Power 3 software[71] to calculate the appropriate sample

[71] G*Power Version 3.0.10, Faul et al. 2008

size for our research model. Based on our input parameters, the power analysis suggests a satisfactory power of 0.99.[72]

7.3.2. Handling Missing Data

Before starting with any analysis of collected data, we first checked whether coding errors appeared in the raw data sets. As our data collection procedure was fully automated, we ruled out any coding errors which might originate from manual data entry. Then, we looked at the missing data. When handling the missing parts in our data, we preferred to apply two systematic approaches. To keep the data loss at minimum, first, we have eliminated a case (i.e., entire data coming from a single respondent) when the dependent variable or an independent variable was completely missing. Eliminating ten cases has left us with a sample size of 244. For other cases where no deliberate data loss (i.e., missing answer for a single question) was detected, we have applied the mean replacement procedure built in the SmartPLS software. This procedure replaces missing values with the mean value of the item and has been executed for 10 single values.

[72] We have made a post hoc power analysis to compute the achieved power given α, sample size, and effect size with the following parameters: F-tests family/Multiple Regression: Omnibus (R^2 deviation from zero)/Medium effect size (f^2=.15)/0.05 error probability/244 total sample size/7 predictors (i.e., most complex construct in our model, customer relationship).

7.4. Measurement Model Evaluation

Although PLS estimates parameters for both the links between measurement items and latent constructs (i.e., loadings) and the links between different constructs (i.e., path coefficients) at the same time, a PLS model is usually analyzed and interpreted sequentially in two stages (Barclay et al. 1995). The first step requires the assessment of the reliability and validity of the measurement model. This allows the relationships between the observable variables and theoretical concepts to be specified. This analysis is performed in relation to the attributes of individual item reliability, construct reliability, average variance extracted (AVE), and discriminant validity of the indicators as measures of latent variables. For the second step, the structural model is evaluated. The objective of this is to confirm to what extent the causal relationships specified by the proposed model are consistent with the available data. This sequence ensures that the researcher has reliable and valid measures of constructs before attempting to draw conclusions about the nature of the construct relationships (Hulland 1999). This section starts with an evaluation of the reflective constructs and continues with the formative constructs.

7.4.1. Constructs with Reflective Items

We have applied reflective items to operationalize our perceived usefulness and ease of use, facilitating conditions, computer self-efficacy, managerial support, team-use and supervisor-SFA-control constructs. In order to describe our reflective items, we present their mean, median and standard deviation values.[73] The items are rightwards skewed to some extent with

[73] Descriptive analysis of these indicators is given in table 7.1 in the appendix

standard deviations between 0.75 and 1.66.

In a PLS setting, the adequacy of the measurement model consisting of reflective items can be assessed by looking at: (1) unidimensionality of the constructs, (2) individual item reliabilities, (3) the convergent validity of the measures associated with individual constructs, and (4) discriminant validity (Hulland 1999).

Content Validity (Unidimensionality)

Unidimensionality cannot be measured with PLS but is assumed to be there a priori (Gefen 2003; Gefen and Straub 2005). To check for unidimensionality and thus ensure the content validity of our reflective constructs, we have run an exploratory factor analysis on our reflective indicators. We have extracted the factors by the principal components method from the covariance matrix with Varimax rotation. In order to get a complete exploratory structure, we avoided predetermining the number of factors and extracted all factors with eigenvalues above 1.[74] The exploratory factor analysis extracted 8 factors with eigenvalues above 1, which together explain 71% of the variance. It can be seen in the table that there are a few problematic items which load higher on other constructs than their intended construct (shown in red color in the table). In particular, the indicators of the facilitating conditions construct appear to be problematic. Consequently, we repeated the factor analysis without facilitating conditions items.[75] In this case, all items load uniquely on their intended factors, underlining the unidimensionality of all constructs. As a result, we conclude that unidimensionality for all constructs and thus their content validity was obtained, whereas the facilitating conditions construct requires extra

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[74] Factor analysis results are given in Table 7.2 in the Appendix.
[75] Results of the modified factor analysis are given in Table 7.3 in the Appendix.

concern in next steps. We proceed with tests of reliability and validity.

Item Reliability

We looked at individual item loadings to investigate item reliability (Hulland 1999). In our measurement model, all loadings are well above 0.7 with two exceptions which are slightly below 0.7, indicating overall item reliability.[76]

Convergent Validity

The SmartPLS software automatically calculates Cronbach's alpha and Fornell and Larcker's (1981) composite reliability scores. The big majority has an alpha score above the recommended cut-off level of 0.70 (Nunally 1978). Computer self-efficacy, one exception, has a lower than optimal alpha score of 0.54. However, all constructs demonstrate high composite reliability scores above 0.80 with computer self-efficacy having 0.76, above the recommended 0.70 minimum (Nunally 1978). Therefore, we decided to retain computer self-efficacy construct along with other successful constructs in the measurement model. Moreover, all measurement items in our model load on their latent constructs with significant t-values, demonstrating further evidence of convergent validity (Gefen and Straub 2005).

Discriminant Validity

We establish the criterion of discriminant validity for our constructs in Table 7.5 in the Appendix. The table consists of a correlation matrix which includes the correlations between constructs in the lower left off-diagonal elements of the matrix, and the square roots of the average variance extracted values calculated for each of the constructs along the diagonal.

[76] An overview of the item reliability statistics as well as other validity statistics of our items is given in Table 7.4 in Appendix.

The values on the diagonal are greater than the off-diagonal elements in the corresponding rows and columns, indicating discriminant validity. Moreover, all constructs have AVE values greater than 0.50, providing further support for discriminant validity (Homburg and Giering 1996). Finally, as given in the cross-loadings table computed by the SmartPLS software (Table 7.6 in the Appendix), the measurement items load higher on their theoretically assigned factor than on other factors (Gefen and Straub 2005).

Our analysis of reflective items reveals that a number of individual statistics seem to be problematic. However, they are compensated by strong results in the remaining tests. In particular, facilitating conditions items failed to load on the intended factor in the exploratory factor analysis, indicating a problem in content validity of the construct. However, same items reveal satisfying discriminant validity statistics. Consequently, we conclude that all items and scales overall are valid and reliable, and the measurement properties of our reflective constructs are strong enough to support the structural model.

7.4.2. Constructs with Formative Items

We have applied formative items to operationalize our SFA-use dimensions, namely customer relationship and internal coordination. We measured the customer relationship dimension with 7 formative indicators and the internal coordination dimension with 5 formative indicators.

The descriptive statistics of customer relationship and internal coordination dimensions of SFA-use are presented in Table 7.7. The customer relationship dimension received higher mean scores in average, indicating that salespeople spend more time using these functions of their SFA system than the functions for internal coordination.

Diamantopoulos and Winklhofer (2001) state that conventional procedures used to access the validity and reliability of scales of reflective indicators (e.g., factor analysis and assessment of internal consistency) are not appropriate for composite variables (i.e., indexes) with formative indicators. Therefore, Cronbach's alphas are not reported for our formative constructs.

Nonetheless, it is necessary for formative items to report multicollinearity analysis results and individual item weights. Our formative items have indicator weights above .1 and they are all statistically significant.[77]

The formative items are tested regarding multicollinearity and external construct validity. In our case, multicollinearity among the 12 indicators did not seem to pose a problem as the maximum variance inflation factor came to 2.86, which is far below the common cut-off threshold of 10 (Kleinbaum et al. 1988). Therefore, all 12 items were retained.[78]

7.5. Structural Model Evaluation

In this part, we first evaluate the structural paths of our hypothesized model we presented in Chapter 5. Second, we judge the performance of a rival model in order to assess whether the hypothesized model is robust against alternative formulations of structural paths.

[77] The results of the multicollinearity analysis are given in table 7.8 in the Appendix.
[78] Multicollinearity test results are listed in Table 7.8 in the Appendix

7.5.1. Results of the Structural Model

For our sample, the estimated structural paths are visualized in figure 7.1. The model shows the hypothesized relationships between our latent constructs and their corresponding standardized path coefficients. Significant path coefficients are marked with (*). Standardized coefficients are used for comparing the relative strength of path coefficients. Moreover, the model indicates the coefficient of determination (R^2) of each endogenous latent construct, providing a relative measure of fit for each structural equation.

The multiple coefficient of determination (R2) value may be interpreted in a manner similar to the way it is in traditional regression analysis, as indicative of the proportion of variation in a variable that is explained by its relationship with the variables that are hypothesized to impact it (antecedent variables). As in traditional regression analysis, the R2 value does not show causal direction. Rather, causal ordering is specified in the research model, and is based on theoretical expectations. The path coefficients can also be interpreted within the context of a regression model (Gopal et al. 1992).

Table 7.9 in the Appendix sets out the proposed hypotheses, the path coefficients and the t-values observed with the level of significance achieved from the bootstrap test. We report one-tailed significance levels. This is appropriate because we exclusively test directional hypotheses.

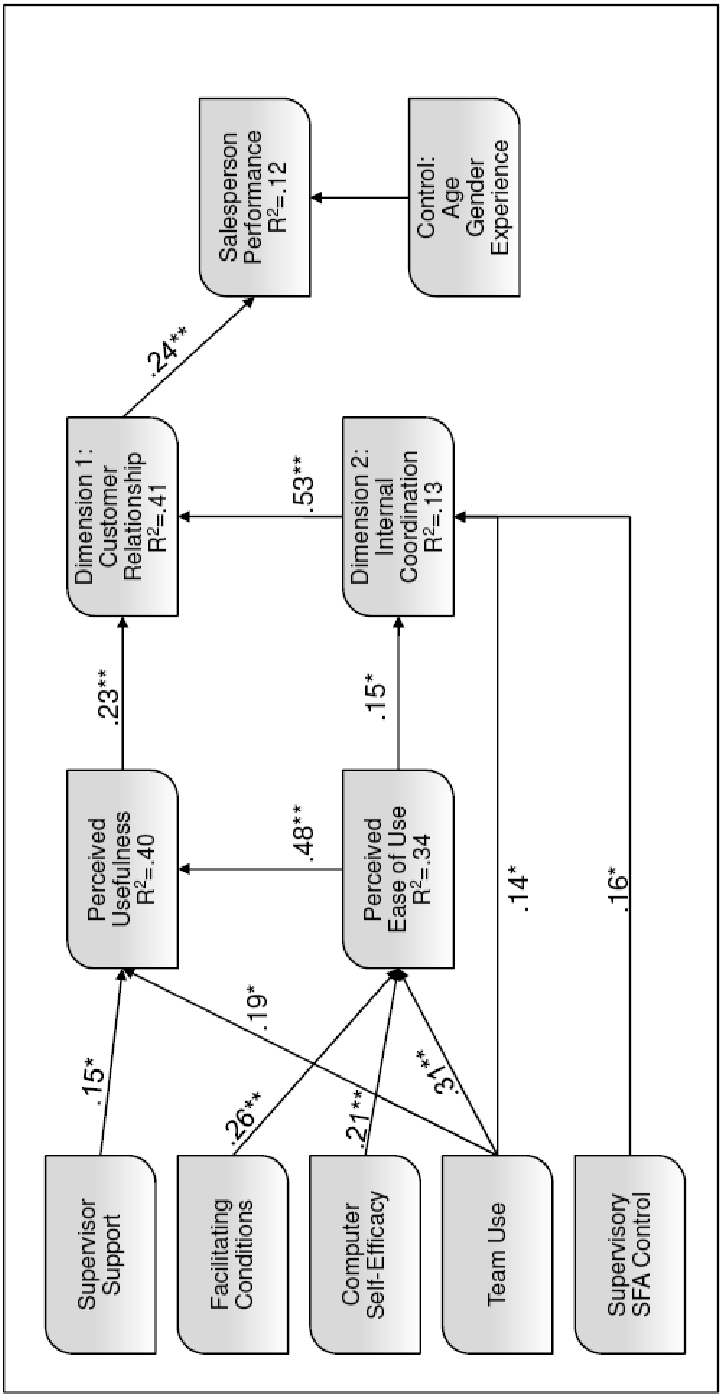

Figure 7.1: Structural Model Results

A first evaluation of the structural model involves checking whether all significant path coefficients are in the hypothesized direction (i.e., positive or negative path coefficients). For our sample, all significant relationships between latent constructs are in the hypothesized direction, providing support for our conceptual model and its related hypotheses. As nomological validity is normally assessed by testing the relationships with other constructs in a nomological framework (Ruekert and Churchill 1984; Steenkamp and van Trijp 1991), this result provides evidence for the nomological validity of the constructs integrated in the hypothesized model.

A second evaluation of the structural model is done by checking the R^2 levels of endogenous constructs. Perceived usefulness has an R^2 level of 0.40 whereas perceived ease-of-use has an R^2 at 0.34. While not particularly high, these levels are not exception in IT acceptance research (Venkatesh et al. 2003). Furthermore, customer relationship and internal coordination dimensions of SFA-use report R^2 values of 0.41 and 0.13 respectively. The internal coordination dimension is strongly linked to the former and the hypothesized direction of this path explains to some extent the difference between the R^2 values. These R^2 values may not look very high at first sight. However, the scales to measure these two constructs are newly developed for this study (in contrast with the well established and fairly generic system-use and adoption scales). What's more, applying a two-dimensional measure of SFA-use construct divides in some sense the explanatory power of antecedents into two. For these reasons, we argue that the obtained R^2 values for SFA-use dimensions are acceptable. Finally, the salesperson performance construct reports an R^2 value of 0.12. Again, this value should be taken as normal in sales research, as there are numerous factors determining the performance of a salesperson which are not all easy to incorporate into an empirical study. For example, there are differences in territory potential unrelated to the efforts of a salesperson (Behrman and

Perrault 1982). Market position of the firm, company strategy, competitor activities and macroeconomic developments among others can also play significant role in determining the end results of a salesperson.

Further evaluation of the structural model is related to testing each of the hypotheses formulated in Chapter 5. Our parameter estimates reveal several interesting findings. All hypotheses relating the task-based SFA-usage dimensions to salesperson performance (H1a-c) could be confirmed. The customer relationship dimension has a positive and significant direct impact on salesperson performance (p=.242, t=2.203), while internal coordination does not (p=-.006, t=.077). As suggested by hypothesis H1b, internal coordination has a positive and significant impact on the customer relationship measure (p=.528, t=7.554).

To test the significance of the meditative pattern as suggested in hypotheses H1a-c, we have applied the approach recommended by Iacobucci and Duhachek (2003). According to this approach, as given in figure 7.2 below, a mediating effect can be established when the indirect effect '*a* x *b*' is significant. To test for significance, the z-statistic of Sobel (1982) is applied.[79] If the z-value exceeds 1.96 (at $p < .05$) the null hypothesis can be rejected, i.e., internal coordination has no indirect impact on salesperson performance via the customer relationship dimension.

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[79] $z = (a * b) / \sqrt{(b^2 * s_a^2 + a^2 * s_b^2 + s_a^2 * s_b^2)}$, where a and b are path coefficients and s_i^2 is the variance.

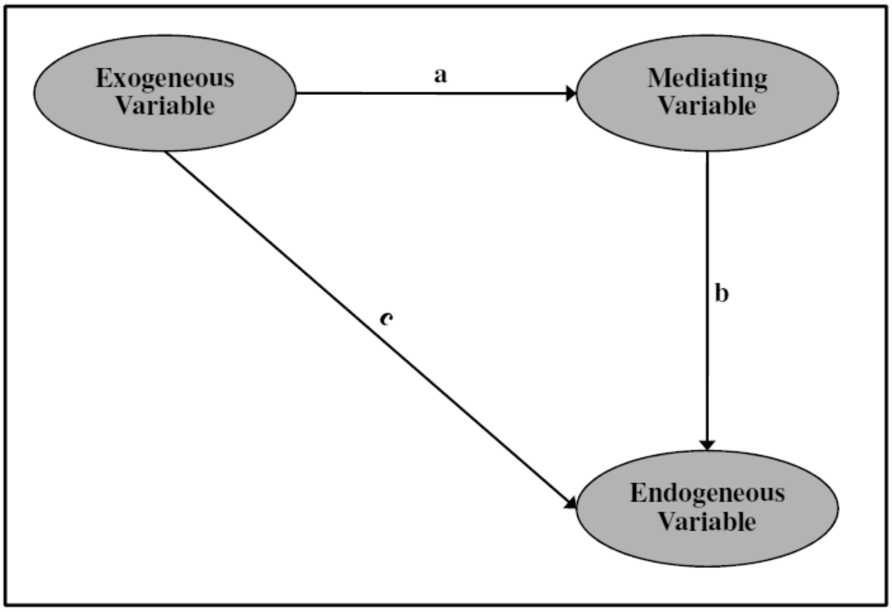

Figure 7.2: Illustration of the Mediating Effect

The indirect effect of internal coordination on salesperson performance is significant according to Sobel's z-statistic (z=2.64) (Sobel 1982).[80] Together with the non-significant direct effect of internal coordination on salesperson performance (i.e., path c=-.006), this result establishes the customer relationship dimension as a perfect mediator between internal coordination and salesperson performance.

With respect to PU and PEU as mediators of technology usage (H2a-c), we find an interesting pattern. PU has a positive and significant impact on using SFA-technology as a customer relationship tool (p=.229, t=2.513) while PEU drives its use for internal coordination tasks (p=.148, t=1.857). In line with TAM, PEU significantly explains PU (p=.427, t=4.891).

[80] $z = (.242 * .528) / \sqrt{((.528)^2 * (.096)^2 + (.242)^2 * (.078)^2 + (.096)^2 * (.078)^2)} = 2.64$

Turning further upstream to our exogenous variables (H3a-i), we could confirm the positive and significant impact of supervisory support on PU (h3a, p=.152, t=1.912) as well as the positive impact of facilitating conditions (h3d, p=.259, t=3.017), computer self-efficacy (h3e, p=.213, t=3.621), and team usage (h3f, p=.310, t=3.820) on PEU. A positive impact of supervisor support on PEU (h3b) and facilitating conditions on PU (h3c) could not be confirmed. Team usage has also a significant impact on PU (h3g, p=.184, t=2.062). As hypothesized, team usage has a direct impact on using SFA systems for internal coordination (h3h, p=1.401, t=1.704). The expected direct link between supervisory SFA control and SFA usage was only significant for internal coordination tasks (h3i, p=.156, t=1.889) but not for the customer relationship dimension. Thus h3i was only partially supported. Among the control variables we have inserted into our model to explain salesperson performance, while sales experience (p=.259, t=3.218) and gender (p=-.119, t=1.645) had a significant impact, age (p=-.090, t=1.100) had none.

Concluding, we obtained significant support for most of the hypothesized main effects. An additional means for assessing the robustness of the hypothesized model is to compare this model to a rival model. In Section 7.5.2, we present the results of comparing our hypothesized model to a rival model.

7.5.2. Evaluation of a Rival Model

For any given SEM model, there will often be alternative models that are equivalent in terms of overall model fit (Chin 1998). For instance, MacCallum and others (1993) show that such equivalent models exist in published studies, often in large numbers. Such models may produce substantially different explanations of the data. Therefore, it is often recommended to compare alternate models to test the robustness of the original proposed model (Bollen and Long 1992; Hair et al. 1998; Morgan and Hunt 1994).

In order to assess the robustness of our hypothesized model, we formulated a rival, less parsimonious model positing direct relationships from antecedents not only to SFA-use, but also to salesperson performance, Moreover, in the rival model, we estimated direct paths from perceived usefulness and ease-of-use to performance. Although this rival model has never been suggested in literature, there is some support for some of the unmediated paths estimated in the rival model.[81]

We compared the hypothesized model with the rival model on the following criteria: (1) overall fit of both models as measured by R^2 in PLS setting, (2) parsimony of both models, and (3) percentage of both models' hypothesized parameters that are statistically significant.[82] With respect to the overall fit of both models, the R^2 of the dependent variables in the rival model are overall slightly higher than the R^2 of dependent variables in the original model. However, in order to achieve this slight increase in R^2, an additional 17 paths were needed to be estimated in the rival model, reducing this model's parsimony. Moreover, only 36% (12 of 33) of the paths in the rival model were significant as opposed to 75% (12 of 16) in the original model. The robustness of the hypothesized model is further supported as all significant effects in the original model are equally significant in the rival

[81] Karahanna and others (2006) test the direct impact of individual compatibility beliefs on technology usage. Avlonitis and Panagopoulos (2005) find a positive relationship between perceived usefulness and salesperson performance. Leong (2003) tests the unmediated impact of management support and system quality on system use. Schillewaert and others (2005) insert direct links from external variables to SFA adoption in their conceptual model.

[82] The comparison of the R^2 values is given in Table 7.10 in the Appendix

model. After all, given the low sacrifice in R^2 and the major gain in parsimony, we find support for the robustness of the hypothesized model.

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8. DISCUSSION

8.1. Introduction to the Chapter

> [Future research] will require reexamination of previous findings in light of what we encounter through new or unusual research methods, relationship to a stronger nomological framework, better examination of generalizability, and observational studies. (…) What we do need is careful consideration of where the results of each study fit, what the results mean to all of those studies that were mentioned in the positioning (and what they might mean now), and, perhaps most importantly, what is the highest priority for our research in order to develop understanding of either theory, practice or both. (Tanner 2002, pp. 570-571)

With these words Tanner (2002) explains what should be expected from a good discussion of research findings. Indeed, this last chapter is particularly important as it is where the contribution of our study lies. Our intention is therefore to meet Tanner's criteria by portraying what our findings mean for literature and practice, and to draw a new picture of the literature in light of our study findings. Equally important, we will later present the limitations inherent in our study and future research possibilities inspired by our study to extend our knowledge in this area.

8.2. Implications for Theory

Understanding how technology influences organizational efficiency and effectiveness should be a research priority in today's technology-intensive world (Raman et al. 2006). Such an understanding can help organizations gain the competitive advantage they seek through their technology investments.

Computers are nowadays widely available at increasingly lower prices and they have become a commodity for most businesses. For this reason, IT, by itself, does not represent a source of absolute competitive advantage anymore (Carr 2003). The same amount of investment (this investment can be made for the same technology) in two different organizations may lead to success in one organization and failure in the other. According to Grover and others (1998), “what really matters is the extent to which IT is effectively utilized in the organization, not the sheer amount of investment in that technology.” (p. 144)

The same situation applies in the sales field as well. Investing in SFA tools alone should not be enough to achieve competitive advantage. As Honeycutt and his colleagues (2005) argue, “such an advantage can only be gained via adoption of cutting-edge SFA tools that accomplish more than competitive SFA tools, or by providing a smoother transition for the sales force and, more importantly, for customers when implementing SFA.” (p. 319) SFA’s contribution to a sales organization will depend more on why and how it is deployed than the absolute amount of investment made.

We argue throughout our study that past research approaches relying only on the ‘extent’ of IT deployment (for example, IT expenditure or adoption), are limited in their capacity to explain how IT generates business value. To shed light on the underlying mechanism, our research proposes a task-based multidimensional perspective on SFA-usage. Our literature review yielded two generic yet meaningful usage dimensions, which are further supported by a series of qualitative interviews. As confirmed by our quantitative study, both dimensions have distinctive groups of antecedents and different effects on salesperson performance, lending support for a multidimensional perspective on SFA usage. In this section we discuss our research findings and present their implications for personal selling and sales management research.

First contribution

The first contribution of our study is the task-based measurement of SFA-use. Salespeople typically use only a fraction of the available SFA functionality (Donaldson and Wright 2004) and they differ significantly in their choice of SFA functionality to adopt. Therefore, assessing usage with reflective measures may not sufficiently capture the entire scope of SFA application. Furthermore, SFA-use appears to be an abstract construct which may mean different things to different people. A measurement approach to more precisely distinguish SFA users from each other is necessary. Speier and Venkatesh (2002) recommend studying SFA-adoption at the task-level to better capture the perceptional differences among salespeople:

> A more proactive set of measures that requires the participant to conceptualize *how the technology could be used for specific activities* might capture inconsistencies in perceptions regarding technology in use in advance of implementation. (p. 109, emphasis added)

Consistent with Speier and Venkatesh's (2002) call, we asked salespeople in our sample to rate the extent to which they use their SFA system when completing a range of sales tasks. For example, respondents could evaluate the extent to which they use SFA to plan their selling activities or to analyze sales data, each task being measured by a separate item. This approach provides a much granular view of SFA-use than simply asking the respondent if he or she is using the system or not. By means of this task based measurement we can examine *the way* SFA is used in a sales context at individual task-level.

As we argue in Chapter 3, IT must be generating business value at the intermediate process level. The main idea is that, IT produces improvements in business processes, which in return create business value visible at the bottom line (Mooney et al. 1995, Ray et al. 2004). Research models with mediating constructs corresponding to the intermediate business processes are in this sense superior to the microeconomic models, in which IT is taken as a black box and expected to generate profits by itself. Salesperson activities at individual level can be assumed to correspond to the intermediate business processes at firm level. By measuring the extent to which SFA is used to support individual sales tasks, we can better reflect the mechanism through which SFA contributes to sales performance. Our task-based approach thus makes it possible to go beyond the 'black-box' approach of reflective measurement of SFA-adoption dominant in literature.

After all, task-based measurement of SFA-use can be instrumental in proposing more effective models linking SFA-use to organizational outcomes, where SFA-use pattern has an impact on salesperson performance. It may also represent a first step towards solving the ambiguity in conceptualizing and measuring the system-usage construct which can be a reason for the conflicting results found in existing literature

(Buttle et al. 2006).

Second contribution

As a second contribution, our findings demonstrate that SFA-use construct warrants a multidimensional conceptualization. Multidimensionality of a construct is normally established when separate dimensions occupy unique positions in a nomological network as determined by unique sets of antecedent causes, consequential effects, or both (Iacobucci et al. 1995). Based on a literature review as well as a qualitative study, we first conceptualized two generic dimensions of SFA-usage, namely customer relationship and internal coordination. Then, we demonstrated with a quantitative study that both dimensions have unique antecedents and consequences.

The customer relationship dimension covers customer facing tasks such as identifying the most important customers from a list of prospects and recording and retrieving customer call information. These tasks support salesperson in establishing, developing and maintaining customer relationships. In ideal case, managing customer relationships and realizing a purchase is the main objective of a sales organization. For this reason, and recalling Chapters 3 and 4, we argued in our study that the customer relationship dimension of SFA-use appropriately reflects the operational processes of Davenport's (1993) typology.

In contrast, the internal coordination dimension stands for internal communication and administrative tasks supported by SFA technology such as coordinating activities with team members and ordering promotional material from headquarters. These activities are necessary for an efficient functioning sales department but often not visible to outside the organization and thus do not necessarily influence customer satisfaction. As the case in our first dimension, the internal coordination dimension is theoretically justified and corresponds to the management processes of Davenport (1993).

There is good conceptual and empirical support in recent sales literature for SFA serving different purposes in a sales organization. Depending on the study context and research purposes, multidimensional SFA-use constructs found in literature differ in the number of dimensions and how these dimensions are defined (Engle and Barnes 2000; Hunter and Perreault 2007; Moutot and Bascoul 2008). It is becoming clear that SFA technology serves multiple purposes and future conceptualizations of SFA-use should reflect this multi-purpose nature of SFA systems. Our findings verify these previous studies and thus make an incremental contribution to the literature at first sight.

Nevertheless, we argue that our study makes a noteworthy contribution to the literature by providing a theoretically sound and applicable distinction to the uses of SFA technology in sales settings. The difference between external oriented selling activities and internal oriented administrative tasks is significant and should not be disregarded. Former group represents relatively abstract tasks whereas latter stands for well defined, easy to automate processes. It is arguably unproblematic to document the outcomes of administrative tasks—explicit knowledge. In contrast, customer oriented tasks often result in tacit knowledge, which is very difficult to capture digitally. The well recognized technology acceptance problem seen among sales forces may be stemming particularly from this abstract nature of the customer relationship dimension. While our respondents reported a high acceptance of customer relationship functionality, we speculate that this can be an exception. In problematic cases we expect salespeople be rather hesitant to using SFA for the tedious tasks of capturing and reusing customer knowledge, whereas they warmly welcome other ‘basic’ functionality to automate repetitive tasks and save time. In Donaldson and Wright’s (2004) study this is exactly the case; salespeople prefer using only the simple functionality for reporting and contact management. Research efforts in direction of technology acceptance should distinguish these two different aspects of SFA systems.

Third contribution

Third, our findings contribute to the research stream studying the organizational consequences of SFA-use. By linking our two-dimensional SFA-use construct to salesperson performance, we shed more light on the mechanism through which SFA relates to salesperson performance. We demonstrate that the customer relationship dimension of our SFA-usage construct has a direct and significant impact on salesperson performance. In contrast, our analysis reveals that the impact of internal coordination on salesperson performance is perfectly mediated by the customer relationship dimension. This is a robust finding since research efforts to explain how SFA improves performance are escalating in the literature.

SFA increases salesperson performance when it is deployed in a certain way. On the one hand, using SFA for customer related tasks, such as customer analysis, targeting, call planning and preparation, as well as customer service, helps establish, maintain, and improve customer relationships, which in turn positively impact the bottom-line. Augmented customer insight provided by the technology and increased reliability of salesperson in the eyes of the customer should be the key drivers of positive outcomes. On the other hand, employing SFA for internal coordination increases a salesperson’s performance only to the extent that the efficiency gains are deployed for more effective customer relationship activities.

Certainly, one of the greatest promises of SFA technology has been improved salesperson efficiency, allowing increased customer face time that eventually results in more effective selling and higher salesperson performance (Buehrer et al. 2005; Widmier et al. 2002). Furthermore, there is considerable conceptual argument in literature for using technology to enable customer relationships to unleash the real potential of selling technologies (Ingram et al.2002). Hunter and Perreault (2006) maintain that customer facing applications of SFA will provide bigger benefits:

> Case studies in the popular press tend to emphasize sales automation applications, the focus of which tends to be on cutting sales force costs or making more efficient the flow of information needed by the supplier company. Further, these applications focus on existing tasks rather than on enabling tasks that previously were not performed (or performed well). On the other hand, the ability and effort required of a sales rep in applying information technology to come up with integrative, win-win solutions for both the company and the retailer are less structured and tend to require more adaptive, custom efforts. Yet it is this type of application where sales technology may have a greater impact on the revenue-generating side of category management efforts. (p. 110)

To the best of our knowledge, our study is the first to reveal a perfect mediation between SFA-usage dimensions and salesperson performance. Our study thus provides strong empirical support to the claims in literature that SFA's real potential lies in its use for managing customer relationships effectively.

Overall, SFA systems should be considered as part of a wider framework consisting of strategy, processes and organization with the aim to improve customer relationships. Indeed, "as organizations recognize the enterprise-wide nature of CRM, SFA is being overtaken by broader, relationship-wide (or enterprise-wide) technology" (Tanner et al. 2005, p. 170). We make a contribution to the literature by empirically justifying the shift from efficiency focused SFA applications to effectiveness focused CRM applications in sales forces.

Fourth contribution

Our fourth contribution to the literature is showing that salespeople have different motivations for using SFA technology in customer facing activities as opposed to the 'back-office' tasks. The customer relationship dimension is explained by factors that trigger voluntary usage such as perceived usefulness and indirectly through perceived ease-of-use and supervisor support. In other words, salespeople use SFA for customer relationship tasks only when they are convinced that it is instrumental for increased performance.

Salespeople are concerned most with the benefits offered by new technology (Gohmann et al. 2005). The salespeople who believe that SFA is instrumental for better job performance will likely adopt the technology (Avlonitis and Panagopoulos 2005). Based on our results, perceived usefulness of SFA is a major driver of the customer relationship dimension of SFA use. Salespeople who find the SFA system useful to support their customer relationships are using SFA in that way. Perceived usefulness has been tested and confirmed as a strong driver of SFA-adoption (Rangarajan et al. 2005; Schillewaert et al. 2005). However, our study is the first to show that perceived usefulness of SFA technology drives a certain SFA-use behavior among salespeople (i.e., customer relationship).

Perceived ease-of-use relates strongly to perceived usefulness. This is consistent with past research (Schepers and Wetzels 2007). Salespeople who find the SFA easy to administer will have higher chances of applying more sophisticated and probably more beneficial modules of SFA (these modules are probably the ones to support customer relationships).

Supervisor support has a significant impact on perceived usefulness of SFA. Sales manager plays an important role in convincing salespeople for the value of technology, just as in any aspect of the selling job. This is no big surprise as sales manager is often the only individual to rate a salesperson's job performance and thus have a direct influence on salesperson compensation. Considering our finding that perceived usefulness relates to the customer relationship dimension, salespeople must be under influence of their managers in terms of using SFA to manage their customer relationships.

Team use has a significant impact on perceived usefulness of SFA. Salespeople, who work in teams where SFA technology is valued and well relied on, tend to report higher levels of perceived usefulness for the system. This effect can have a number of reasons. First, these salespeople may be readily accepting the team norms regarding the value of the SFA. Second, they may be enjoying the SFA expertise established in their teams to see new and helpful uses of the system. Third, they must be benefiting from the system themselves when managing their team coordination tasks.

In contrast with the customer relationship dimension, the internal coordination dimension is mostly explained by factors imposed from outside. Supervisory SFA control, team use and perceived ease-of-use have a direct impact on internal coordination. However, salespeople's use of SFA for internal coordination does not depend on perceived usefulness of the technology. Reflecting the state-of-the-art in many companies, reporting had to be done via the IT system in our sample sales force. Consequently, our respondents must be using the system for administrative tasks to a certain extent regardless of their perception of usefulness.

As opposed to perceived usefulness, perceived ease-of-use is significantly related to the internal coordination dimension. Our study is the first to test and confirm the link between perceived ease-of-use and back-office related SFA-use behavior. Salespeople use SFA to coordinate internal activities and perform administrative tasks when they find the system easy to use. The usability of an SFA system is an important factor in ensuring that administrative activities are properly and timely accomplished.

Facilitating conditions provided by the organization such as training and user support and the confidence of a salesperson with computers in general together determine the salesperson perception of usability of the system (perceived ease-of-use). This finding is in line with previous research emphasizing that IT implementation projects must take user training and support as priority to establish adequate end-user acceptance of the implemented technology. Furthermore, team-use appears to be a strong driver of perceived ease-of-use. This finding is also not a surprise considering the fact that a salesperson is best supported by his or her colleagues in the team in case of a usability problem with the SFA system.

In addition to significantly explaining perceived usefulness and ease-of-use, team-use has a direct impact on internal coordination dimension of SFA-use. While such unmediated effects of external antecedents on IT-use have been validated in literature (Burton-Jones and Hubona 2006), our study is the first to demonstrate that an external factor (team-use) drives SFA-use in a certain way (internal coordination). It seems that no matter how useful or easy to use the system is, salespeople must be feeling obliged to use the SFA when their colleagues rely on the system. In such a case SFA becomes a platform salespeople use to coordinate team selling activities and the opportunity cost of not adopting the system will probably be very high.

Our supervisor SFA-control construct is also significantly linked to the internal coordination dimension. This means that salespeople use SFA for internal coordination when their supervisors closely monitor usage behavior and penalize its absence. Salespeople comply with their managers' expectations and use the system where usage is most visible, namely for internal coordination tasks. On the contrary, customer relationship activities remain rather opaque for the supervisor and SFA-use for those tasks become relatively personal for the salesperson. Consequently, the motivational structure for using SFA-technology differs between identified SFA-use dimensions.

To sum up, while most of the aforementioned antecedent variables are not new to the SFA adoption literature (Jones et al. 2002); our study is the first to investigate how they drive SFA-use behavior in a certain direction. Our findings illustrate that self-initiating factors primarily drive SFA-usage to enable customer relationship tasks. In contrast, external factors bring rather compliance and SFA-use for internal coordination. As a consequence, our research allows a more fine-grained view of the drivers of SFA usage. In the next section we discuss the implications of our findings for marketing and sales management practitioners.

8.3. Implications for Management

Against the background of our research findings, we suggest that neither investing in SFA technology by itself, nor using SFA only to automate repetitive tasks will bring a company any sustainable competitive advantage. Our results demonstrate that *how* salespeople apply SFA technology in their jobs is decisive for its realized outcomes. It should be of particular importance that SFA is understood as a strategic initiative requiring strong awareness in planning and implementation stages. As Leigh and Marshall (2001) point out, the focus during customer facing technology deployments[83] should be on strategic issues and not solely on technology:

> The strategic issues involved in designing a CRM system (…) include customer segmentation and profiling, clearly defined objectives and market offers, defining critical success factors and measures, developing customer-driven organization structures, specifying the role of the sales force and the Internet, and establishing the means to model consumer response (Swift 2001). From this perspective, it is apparent that CRM is a fundamental business philosophy and process, not simply an IT application (p. 88).

In our study we empirically distinguish between different dimensions of SFA technology use, each having differing impacts on salesperson performance as well as being driven by different sets of antecedents. Our

[83] As we argue in Chapter 2, SFA is such a customer facing technology application oriented towards sales organizations and can be integrated to other business applications such as e-Commerce and Enterprise Resource Planning (ERP) systems.

results reveal a number of implications for management to maximize the benefit they can obtain from their SFA deployments.

First, SFA is being applied by the salespeople in our sample for two distinct purposes. This multi-purpose nature of SFA technology has its place in literature. For instance, all three organizations that participated in a study reported different objectives for their SFA systems (Bush, et al. 2005). One was driven more by sales management and emphasized information exchange for its SFA system. Another was more logistics-driven, adopting SFA in an attempt to better manage and track its inventory. Finally, the SFA for the third organization was driven more by corporate goals as it strived for consolidation of information and efficiency. Overall, as confirmed by our findings, it becomes clear that SFA technology is a highly flexible tool and *can be applied to serve multiple needs*. A company planning to invest in SFA should therefore be aware that SFA is a multi-purpose technology.

As SFA can serve multiple purposes, *the definitions of success and failure* when evaluating an SFA initiative must be contextually defined. Indeed, Tallon and others (2000) suggest that corporations follow different goals when implementing IT and studies investigating IT payoffs must control for these goals:

> [Business] executives in corporations have very different goals for IT, which means that the context or environment in which IT operates is a key factor that should be considered by IS researchers investigating IT payoffs. In that sense, failure to control for goals for IT is tantamount to assuming that all corporations are homogeneous with respect to strategic intent for IT—clearly an erroneous

> assumption. (p. 166)

In our sample of pharmaceutical salesreps, where customer relationships are the key for sales performance, the customer relationship dimension displayed a positive impact on salesperson performance. In this situation, salesperson's success in managing relationships and customer satisfaction levels could be recommended to be good success criteria. However, this may not be the case in other contexts as the SFA-use dimensions may operate differently depending on the context. For instance, it may be well expected that the internal coordination dimension of SFA-use has a direct impact on performance in industries where organizational efficiency and cost leadership play a greater role. Efficiency related metrics such as cost-to-serve or time-to-deliver can be applied in such situations.

Consequently, *executive management should set clear objectives* for deploying SFA technology. As Bush and his colleagues (2005, p. 8) observe: "the first point in managing SFA systems is to know exactly what the technology is set out to accomplish." Explicit objectives set in advance should guide the company in fine tuning the relevant business processes and selecting the right SFA system to install. Although it may sound obvious at first, literature reports many companies which fail to have formally defined the objectives they wish to achieve through the acquisition of SFA technology (Erffmeyer and Johnson; Rivers and Dart 1999).

After identifying explicit objectives for SFA, the management should timely *communicate them to the sales organization* prior to making the investment decision. Honeycutt and others (2005) at this point recommend receiving input from the sales force–via focus groups, surveys, and interviews–during the planning stage. Such a two-way communication will enable salespeople influence the purchase decision and make them understand what SFA will mean for them in practical terms, what efforts they must undertake, and finally how they can benefit from the system. These in turn should increase SFA buy-in among salespeople and match SFA-use with company strategy (Morgan and Inks 2001). Rangarajan and others (2005) also recommend management setting clear guidelines and procedures for salespeople using SFA technology:

> The content of the guidelines should explicitly state (1) the reasons for using the SFA technology, (2) the possible change in work activities expected from salespeople due to SFA technology, (3) information regarding sharing of private customer information with the rest of the organization, (4) the scope for monitoring activities of salespeople, and (5) changing expectations on the job as a result of SFA technology. (p. 352)

A lack of such communication and missing orientation among salespeople in terms of the objectives for SFA may have negative consequences. Gohmann and his colleagues (2005b) report that sales force's perceptions of the system may differ substantially from management's expectations, which can lead to unrealistic expectations of sales productivity and unmet needs for the sales force from the standpoint of management. In Stoddard and others' (2002) study, sixty percent of non-users reported that their company did not know what SFA would do for their firm. On the other hand, those using SFA (who had an average of five years of experience using SFA) were satisfied with their tools.

Our study has further implications for organizations which seek to set objectives for their SFA investments. Our results suggest that SFA technology positively impacts sales performance when used *to maintain customer relationships*. Our results in that sense supports the argument that SFA technology helps salespeople free themselves from costly administrative activities in favor of customer relationship management tasks, which better suit the skills and abilities of the sales force (Ingram et al. 2002). Obviously, no technology can replace salespeople in establishing, maintaining and improving customer relationships. However, technology can provide salespeople with right information at the right time, target right customers with right approach, help them hold their promises against their customers and in the end enable tasks and processes that were not possible to perform before. It is SFA's capability to support customer relationships where the biggest potential for defensible competitive advantage lies. Therefore, for companies where ongoing customer relationships are essential, management should set supporting customer relationships as the major objective to be sought by the SFA deployment. We argue that other objectives for SFA such as increased speed and efficiency in performing existing tasks and processes are, in contrast, only a competitive necessity in today's markets, and therefore should stay as non-core requirements of an SFA-implementation project.

To make sure that salespeople use SFA-technology for the effective management of their customer relationships, supervisors need to rely on *voluntary usage* which can be triggered through salesperson's perception of usefulness, supervisory support and perception of ease-of-use. Therefore, sales management has a major role to play in the system acceptance process, by supporting and encouraging salespeople to use the system and providing adequate training and technical infrastructure to the sales force.

According to our findings, first and foremost determinant of appropriate use of SFA technology (customer relationship dimension) has turned out to be salesperson's perceived usefulness of SFA. Salespeople should believe that the available SFA tool is capable of supporting customer relationship processes and thus provides an extra value to the end-user. Bush and his colleagues (2005) argue in this direction:

> The key issue with SFA is to show the value to the sales organization. The company should try to achieve early sales rep buy-in to the process if you expect to be successful. (...) If salespeople do not understand the changes in organizational processes (e.g. shift from transactional to relational selling) there is bound to be resistance to the SFA initiative and possible SFA failure. (pp. 375-376)

Certainly, implementing SFA almost always brings a noteworthy change in the sales strategy and organizational processes and it alters the way salespeople work. According to the new strategy, salespeople may be provided with SFA technology to support their customer relationships. However, in the end, the salesperson will be the one who will engage in relationships with customers. It is therefore at that salesperson's discretion to buy-in to the new technology in managing their customer relationships. For this reason, management should convince the sales force that SFA technology will be *valuable for managing customer relationships*. However, according to Parasuraman and Grewal (2000), this may represent a big challenge for management:

> Does giving the employees instant access to detailed customer information through technology motivate them to deliver more personalized service and higher value to customers and thereby foster stronger loyalty? What employee and organizational characteristics are likely to determine the degree of such motivation? (p. 172)

Probably the best way of ensuring that salespeople use the SFA in expected direction is encouraging them to do so. Our results suggest that management support for SFA in terms of *encouragement* is a strong determinant of perceived usefulness of the system. When salespeople have managers who themselves believe in the value of the SFA, they will have an additional incentive to comply. Area manager buy-in for the new system is therefore crucial for success. Top management should first start at the intermediate levels of the organization (team managers) when communicating their SFA strategy.

According to our findings, team-use is another driver of perceived usefulness. Salespeople who have team-colleagues regularly using SFA tend to report higher value for their SFA systems. This situation is likely a result of the interactions between team-colleagues on the usefulness of the available system. Analogous with word-of-mouth marketing, such messages must be more convincing and effective when received from equivalent peers. Furthermore, salespeople can observe their colleagues when using SFA and discover useful features of the tool. Management can stimulate such positive interactions by appointing ‘IT-fascinated’ salespeople in sales teams as *SFA champions*. These champions can then be asked to promote the SFA system in their teams and support their ‘less-fascinated’ colleagues when using the system.

An appropriate incentive and organizational scheme to support CRM-compatible behavior is implied in literature as one of the core requirements for successful CRM implementation (Reinartz et al. 2004). Campbell (2003, p. 380) recommends "firms redesign their employee evaluation and reward structures to promote internal team-based incentives based on concrete behaviors" during CRM deployments. Correctly selected, communicated, and monitored metrics provide a clear goal for the sales force (Honeycutt et al. 2005).

However, our findings tell us that management control and monitoring behavior of SFA-use has an impact only on internal coordination dimension. Salespeople may comply but only with respect to their internally-visible tasks that have been shown not to have a direct impact on salesperson performance. This is an interesting finding as we argue above that the customer relationship dimension of SFA-use should be the core requirement for increased salesperson performance.

In fact, this finding is partly in agreement with previous studies that indicate increased control relates negatively to SFA adoption (Speier and Venkatesh 2002; Widmier et al. 2002). Moutot and Bascoul (2008) recently report that SFA reporting functionality has negative effects on the number of proposals and sales calls. Gohmann and others (2005b) also warn management for the situation where sales force perceives SFA system as a micromanagement tool. In such a case, salesperson dissatisfaction and refusal of the SFA system seem inevitable. Therefore, we advise management that SFA-monitoring must be *aligned with a relationship marketing strategy*. The organizations' financial reward and incentive policies must reflect the commitment to improving customer relationships and should be tied directly to the use of the system (Gohmann et al. 2005b).

Our findings support the view that SFA-technology is an effective tool to facilitate team-selling. What's more, salespeople working in teams where SFA is accepted as a means of coordinating team-selling tend to use the SFA to do so. In such cases salespeople feel rather obliged to use the system as not doing so would mean falling themselves behind team-selling activities. We advice management invest in SFA systems which correctly mirror company-specific within-team communication and coordination processes. A properly functioning SFA-tool should provide salespeople with a single view of the customer, help them synchronize their activities around individual customers and offer these customers consistent experiences with the company over the relationship lifecycle.

Usability of the system is an important determinant of SFA-use to assist team-selling and other administrative tasks besides major customer relationship activities. The time and effort required for learning the SFA technology is one of the most significant barriers to successful salesperson adoption of SFA (Honeycutt et al. 2005). Only those sales representatives with a high level of support show performance gains associated with technology use (Ahearne et al. 2005). For this reason, management should provide sufficient SFA-related resources to ensure that the internal organization runs smoothly and reporting and other communication channels are open. Buehrer and others (2005) precisely conclude on the issue of supporting opposed to monitoring salespeople:

> Management seems to have great importance when it comes to reducing barriers that hinder salespeople's usage of technology. Thus, it may be more profitable for managers to allocate their resources to support activities rather than to allocate them to control activities such as keeping track of

> who is using or not using the implemented technology. (p. 397)

Management is advised to demonstrate commitment to the SFA by providing salesperson sufficient training time and technical support, rather than leaving him or her with the computer alone. In this aspect, team colleagues represent a significant source of user support for the salesperson. ‘Train the trainer’ and other coaching approaches can help increase the perception of usability among salespeople. Other user-support initiatives such as practice oriented trainings, 7/24 helpdesks and online support portals are also recommended. Allocating sufficient financial resources for future maintenance of the hardware is also crucial to ensure that end-users do not experience any technical difficulties with outdated technology. Last but not least, salespeople, who feel stronger in their abilities to use computers, will find SFA-systems relatively easier to use. We recommend management to implement recruitment and personal development practices reflecting the SFA strategy of the organization. For instance, overall computer skills can be introduced as a new criterion when evaluating new job-candidates. Management can also target improving the computer skills of existing employees through regular training seminars.

8.4. Limitations and Suggestions for Future Research

As any research effort, our work has certain limitations. Firstly, our results are based on the data collected from pharmaceuticals salesreps visiting generalist physicians. Salespeople selling to generalists differ significantly from salesreps selling to specialist doctors in terms of relationship to the customer, product sophistication and the intensity of involved information.

Although we expect a similar pattern of findings in a specialist selling context—since deep customer relationships are central for both—our results should be interpreted accordingly.

Second, we have chosen the sales force of one company as population for our data collection effort. Including salespeople from various companies would contribute to the generalizability of our results. However, it would come at the cost of substantially lower response rates. Given this trade-off decision, we felt that minimizing potential non-response bias was of particular importance in our research context. For future projects, however, we encourage researchers to set different priorities thus contributing to robust insights.

Third, we have selected pharmaceutical selling as research context. Different industries have different needs and sales requirements, which directly determine the role of the sales force in that industry (Moncrief 1986). For example, in an industry with a stronger emphasis on transactional selling and operational efficiency, our SFA-usage dimensions could possibly be expected to impact performance differently. Therefore, future studies should explore how the SFA-usage dimensions perform in other sales settings.

Fourth, we relied on self-evaluation when measuring salesperson performance. While this is a widely accepted practice among researchers in the sales performance domain[84], objective performance data would be useful for validating our findings.[85] We have also applied a self-report SFA-use

[84] Refer to Anderson and Robertson 1995; Behrman and Perreault 1982, 1984; Cravens et al. 1993; Jaramillo, Mulki, and Marshall 2005; Oliver and Anderson 1994; Singh 1998; Sujan et al. 1994

[85] Objective sales data is not without perils. It often includes 'noise'—external factors—beyond the control of a salesperson such as cyclical developments, territory potential

measure due to the lack of availability of actual usage information.[86] Future studies should attempt to replicate the results obtained here with actual usage data, if possible.

Finally, other relevant constructs (e.g., customer expectations, competitor pressure, customer orientation, performance orientation, adaptive selling) could be tested as additional antecedents to our SFA-usage dimensions. For instance, customer orientation at an organizational level is proposed to play a significant role leading to effectively implementing an SFA innovation (Pullig et al. 2002). It would be interesting to see how customer orientation explains customer relationship dimension of SFA-use as opposed to internal coordination.

8.5. Conclusion

Literature claims that using SFA for better understanding customers and coming up with integrative win-win solutions has the strongest impact on sales performance (Ahearne et al. 2008; Hunter and Perreault 2006). Our findings empirically support this claim. SFA applications make a real difference when they are used as customer-oriented effectiveness tools. Using SFA as a cost-cutting efficiency tool is also instrumental, but it does not have a direct impact on the performance of the sales force. Increased efficiency improves performance only when salespeople use their time gains for relationship-building tasks.

and competitor activities. Furthermore, pure objective data do not reflect the long-term relationship-building ambitions of a company, as customer relationships take long time to establish.

86 Matching actual user data with self-reported data required personally identifying the respondents, which was not possible in our case.

In sum, SFA technology can mean different things and serve many purposes at the same time. Management should set clear objectives before investing into SFA systems. It may still seem sensible to implement SFA as an efficiency tool in some industries. To materialize the real potential of SFA in a relationship selling context, however, a focus on improving salesperson effectiveness is the key.

We hope that this study stimulates further research to deepen our understanding of the drivers and performance outcome of SFA-technology use. Shedding more light on the question of how technology investments translate into business value represents a promising and challenging research opportunity.

APPENDIX

Figure 0.1: Descriptive Statistics: Sales Experience

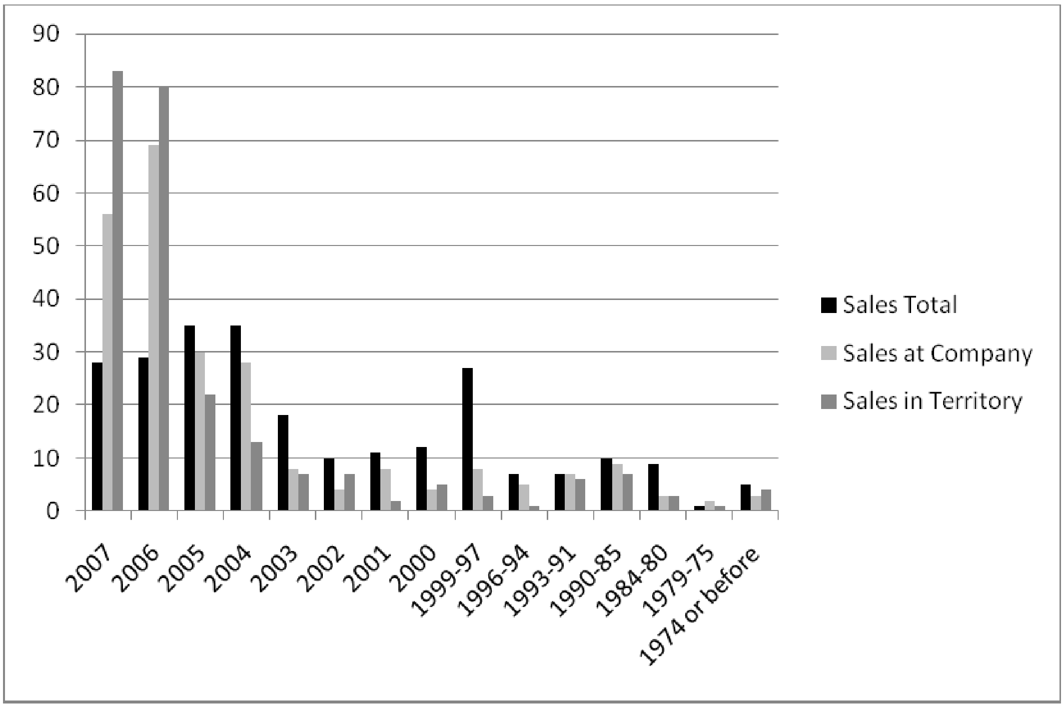


Figure 0.2: Descriptive Statistics: Age

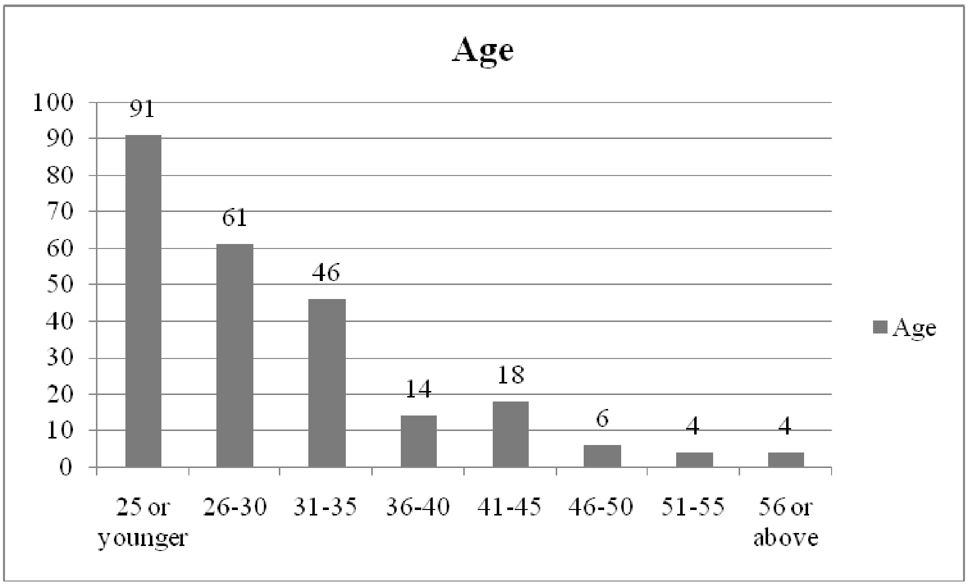


Figure 0.3: Descriptive Statistics: Gender
(Absolute Number; Percent)

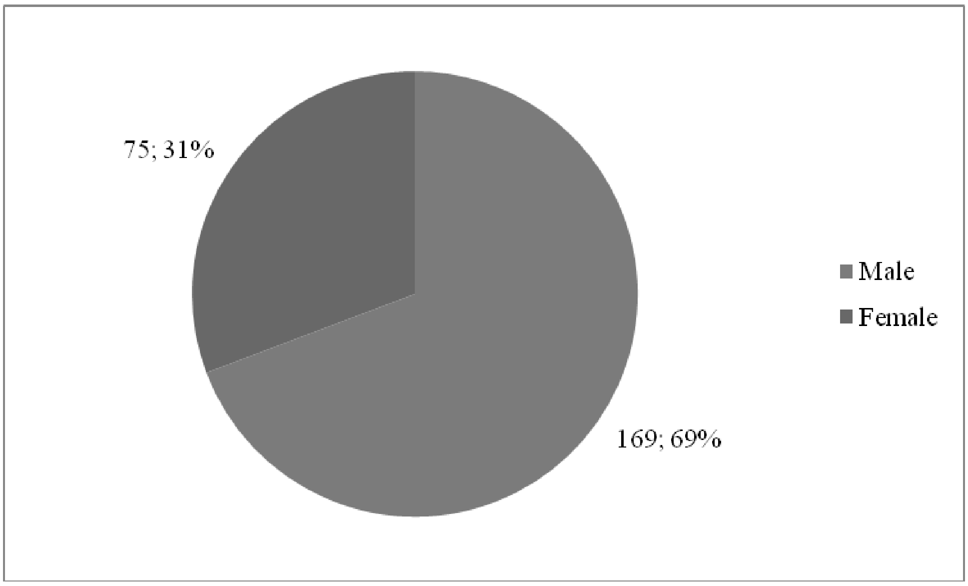


Table 6.6: Item Validity and Reliability Based on Pilot Data
(Belgium, n=39)

	Composite Reliability	Cronbach's Alpha	AVE	t-Value	Item Loading
Supervisory SFA Control	0.89	0.88	0.62		
1. My manager informs me about the way I should use our SFA system in my job.				1.98	**0.654**
2. My manager monitors my SFA usage.				1.96	**0.650**
3. My manager informs me on whether I meet his/her expectations on SFA usage.				2.23	0.821
4. If my manager feels I need to adjust my SFA usage, she tells me about it.				2.63	0.843
5. My manager evaluates my SFA usage.				2.51	0.952
Supervisor Support	0.81	0.75	0.63		
1. I am continuously encouraged by my immediate supervisor to use our SFA tool in my job.				38.26	0.926
2. My immediate supervisor explicitly supports my using of our SFA system				110.02	0.969
3. My immediate supervisor truly believes in the benefits of our SFA system.				2.62	**0.324**
Team Use	0.87	0.77	0.69		
1. The majority of my sales colleagues in my sales team use our SFA tool.				57.60	0.907
2. In my sales team, our SFA system is heavily employed by everyone.				12.26	0.777
3. A lot of my sales colleagues rely on our SFA system.				19.79	0.809
Perceived Usefulness	0.95	0.94	0.85		
1. Using our SFA system helps me increase my sales.				82.23	0.927
2. Using our SFA application enhances my effectiveness in my job.				123.43	0.945
3. Using our SFA program in my job increased my productivity.				52.98	0.903
4. I find our SFA system useful in my job.				95.80	0.927
Perceived Ease of Use	0.88	0.80	0.71		
1. My interaction with our SFA system is clear and understandable.				87.15	0.914
2. I find it easy to get the SFA system to do what I want it to do.				78.64	0.871
3. I find our SFA system easy to use.				12.20	0.750
Facilitating Conditions	**0.65**	**0.32**	0.52		
1. In our company we get good technical support for our SFA system.				72.37	0.886
2. My company supplies all technologies that I need to perform my job.				51.29	0.829
3. My company adequately trains me on the use of sales technology.				12.39	**0.640**
4. I need more help with technology than I get. (negative)				5.26	**-0.470**

	Composite Reliability	Cronbach's Alpha	AVE	t-Value	Item Loading
Computer Self-Efficacy	0.85	0.74	0.66		
1. I am very confident in my abilities to use computers.				6.63	0.799
2. I can usually deal with most difficulties I encounter when using computers.				7.29	0.851
3. Using computers is something I usually enjoy.				7.14	0.793
Salesperson Performance	0.83	0.73	0.56		
1. Generating sales volume.				13.77	0.839
2. Increasing market share.				20.90	0.848
3. New account development.				6.69	**0.640**
4. Servicing existing customers.				9.11	**0.652**

Table 6.7: List of Reflective Items

Construct	Items
Supervisor SFA Control[87]	1. My manager discusses with me about the way I should use our SFA system in my job. 2. My manager monitors my SFA-use. 3. My manager informs me on whether I meet his/her expectations on SFA-use. 4. If my manager feels I need to adjust my SFA-use, she tells me about it. 5. My manager evaluates my SFA-use.
Facilitating Conditions[87]	1. In our company we get good technical support for our SFA system. 2. My company supplies all technologies that I need to perform my job. 3. My company adequately trains me on the use of sales technology.
Supervisor Support[87]	1. I am continuously encouraged by my immediate supervisor to use our SFA tool in my job. 2. My immediate supervisor explicitly supports my using of our SFA system. 3. My immediate supervisor truly believes in the benefits of our SFA system.
Team Use[87]	4. The majority of my sales colleagues in my sales team use our SFA tool. 5. In my sales team, our SFA system is heavily employed by everyone. 6. A lot of my sales colleagues rely on our SFA system.
Perceived Usefulness[87]	1. Using our SFA system helps me increase my sales. 2. Using our SFA application enhances my effectiveness in my job. 3. Using our SFA program in my job increased my productivity. 4. I find our SFA system useful in my job.
Perceived Ease of Use[87]	1. My interaction with our SFA system is clear and understandable. 2. I find it easy to get the SFA system to do what I want it to do. 3. I find our SFA system easy to use.
Computer Self-Efficacy[87]	1.I am very confident in my abilities to use computers. 2.I can usually deal with most difficulties I encounter when using computers. 3.Using computers is something I usually enjoy.
Construct	**Items**

[87] The seven-point response cues for each item are strongly disagree (1) to strongly agree (7).

Salesperson Performance[88]	1. Generating sales volume. 2. Increasing market share. 3. New account development. 4. Servicing existing customers.

[88] The seven-point response cues from each item are below average (1) to above average (7), in response to the statement: “In comparison to my peers in my company …”

Table 7.1: Descriptive Analysis of Reflective Items

Construct	Item	Mean	Median	St. Dev.
Supervisory SFA Control	1. My manager discusses with me about the way I should use our SFA system in my job.	6.42	7	1.14
	2. My manager monitors my SFA-use.	6.64	7	0.85
	3. My manager informs me on whether I meet his/her expectations on SFA-use.	6.42	7	1.14
	4. If my manager feels I need to adjust my SFA-use, she tells me about it.	6.53	7	0.97
	5. My manager evaluates my SFA-use.	6.61	7	0.91
Supervisor Support	1. I am continuously encouraged by my immediate supervisor to use our SFA tool in my job.	6.60	7	1.00
	2. My immediate supervisor explicitly supports my using of our SFA system.	6.69	7	0.75
	3. My immediate supervisor truly believes in the benefits of our SFA system.	6.56	7	0.96
Team Use	1. The majority of my sales colleagues in my sales team use our SFA tool.	5.48	6	1.64
	2. In my sales team, our SFA system is heavily employed by everyone.	6.20	7	1.23
	3. A lot of my sales colleagues rely on our SFA system.	5.65	6	1.64
Perceived Usefulness	1. Using our SFA system helps me increase my sales.	6.36	7	1.21
	2. Using our SFA application enhances my effectiveness in my job.	6.40	7	1.08
	3. Using our SFA program in my job increased my productivity.	6.38	7	1.14
	4. I find our SFA system useful in my job.	6.71	7	0.69
Perceived Ease of Use	1. My interaction with our SFA system is clear and understandable.	6.27	7	1.19
	2. I find it easy to get the SFA system to do what I want it to do.	5.78	6	1.60
	3. I find our SFA system easy to use.	6.20	7	1.29
Facilitating Conditions	1. In our company we get good technical support for our SFA system.	5.84	6	1.54
	2. My company supplies all technologies that I need to perform my job.	6.00	7	1.55
	3. My company adequately trains me on the use of sales technology.	5.76	6	1.66
Computer Self-Efficacy	1. I am very confident in my abilities to use computers.	6.61	7	0.80
	2. I can usually deal with most difficulties I encounter when using computers.	6.13	7	1.29
	3. Using computers is something I usually enjoy.	6.62	7	0.87

Construct	Item	Mean	Median	St. Dev.
Salesperson Performance	1. Generating sales volume.	5.54	6	1.28
	2. Increasing market share.	5.76	6	1.20
	3. New account development.	6.01	6	1.11
	4. Servicing existing customers.	6.28	7	0.99

Table 7.2: Exploratory Factor Analysis

(n=244, Varimax Rotation, Σ explained variance = 68.36%)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
SE_1	**-0,733**	0,209	0,009	-0,128	0,049	0,075	0,154	-0,027
SE_2	**-0,386**	**0,579**	-0,180	0,137	0,166	-0,058	0,037	-0,018
SE_3	**-0,769**	-0,028	0,015	-0,004	0,024	-0,149	0,063	-0,009
FC_1	-0,036	**0,491**	0,273	-0,329	0,25	0,029	0,218	0,099
FC_2	0,132	**0,417**	0,223	**-0,462**	0,190	-0,097	0,195	0,134
FC_3	-0,027	**0,289**	0,336	**-0,504**	-0,079	-0,109	0,191	0,009
SS_1	0,006	-0,107	**0,700**	0,020	0,434	0,003	0,219	-0,065
SS_2	-0,066	0,096	**0,561**	-0,298	0,512	-0,191	0,026	-0,004
SS_3	0,023	0,185	**0,648**	-0,205	0,113	-0,268	0,012	-0,045
TU_1	-0,117	-0,060	-0,050	**-0,796**	0,349	-0,136	0,054	-0,038
TU_2	-0,029	0,051	0,069	**-0,513**	**0,621**	-0,239	-0,163	-0,031
TU_3	-0,043	0,090	0,188	**-0,702**	0,208	-0,262	0,170	0,006
SC_1	-0,152	0,145	0,150	-0,128	**0,772**	-0,219	-0,099	-0,022
SC_2	-0,110	0,124	0,248	-0,100	**0,819**	-0,193	-0,096	-0,016
SC_3	0,056	0,122	-0,075	-0,095	**0,747**	-0,198	0,324	-0,091
SC_4	0,109	0,086	0,102	-0,100	**0,714**	-0,136	0,455	-0,108
SC_5	-0,021	-0,065	0,251	-0,230	**0,639**	0,025	0,437	0,064
PU_1	0,084	-0,025	0,023	-0,068	0,132	**-0,700**	0,340	-0,042
PU_2	-0,066	0,071	0,091	-0,200	0,075	**-0,831**	0,121	-0,024
PU_3	-0,062	0,028	0,213	-0,158	0,290	**-0,771**	0,153	-0,084
PU_4	-0,065	0,145	0,048	-0,074	0,195	**-0,781**	-0,007	-0,067
PEU_1	-0,261	0,138	0,082	-0,253	0,131	-0,396	**0,607**	-0,092
PEU_2	-0,149	0,165	0,046	-0,395	0,111	-0,406	**0,470**	-0,147
PEU_3	-0,193	0,201	0,119	-0,071	0,082	-0,294	**0,675**	-0,007
SP_1	0,067	0,102	-0,103	0,014	0,085	-0,012	0,044	**-0,810**
SP_2	0,129	-0,018	-0,069	0,017	0,077	0,004	0,076	**-0,886**
SP_3	-0,199	-0,070	0,178	-0,105	-0,084	0,007	0,068	**-0,767**
SP_4	-0,080	-0,004	0,093	0,058	0,030	-0,209	-0,087	**-0,761**

Table 7.3: Exploratory Factor Analysis without Facilitating Conditions

(n=244, Varimax Rotation, Σ explained variance = 69.83%)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
SE_1	**0,724**	0,076	-0,167	0,003	0,110	-0,221	-0,022
SE_2	**0,654**	-0,186	0,072	0,198	-0,073	-0,068	-0,012
SE_3	**0,700**	0,077	0,007	-0,034	-0,149	-0,052	-0,024
SS_1	-0,064	**0,679**	0,102	0,475	-0,001	-0,144	-0,064
SS_2	0,074	**0,594**	-0,299	0,482	-0,189	-0,054	0,004
SS_3	-0,008	**0,688**	-0,217	0,085	-0,227	-0,133	-0,025
TU_1	0,027	0,025	**-0,817**	0,274	-0,103	-0,162	-0,022
TU_2	0,026	0,129	**-0,627**	0,534	-0,229	0,103	-0,017
TU_3	0,024	0,274	**-0,660**	0,156	-0,229	-0,300	0,017
SC_1	0,212	0,196	-0,262	**0,710**	-0,225	0,121	-0,018
SC_2	0,173	0,284	-0,210	**0,767**	-0,211	0,143	-0,014
SC_3	0,012	-0,070	-0,138	**0,776**	-0,203	-0,254	-0,087
SC_4	-0,057	0,087	-0,067	**0,781**	-0,145	-0,365	-0,105
SC_5	-0,018	0,260	-0,162	**0,673**	0,023	-0,357	0,064
PU_1	-0,077	0,000	0,009	0,176	**-0,708**	-0,329	-0,047
PU_2	0,077	0,119	-0,199	0,044	**-0,819**	-0,202	-0,026
PU_3	0,050	0,235	-0,160	0,261	**-0,772**	-0,183	-0,088
PU_4	0,121	0,053	-0,120	0,173	**-0,786**	-0,042	-0,066
PEU_1	0,227	0,115	-0,223	0,162	-0,323	**-0,700**	-0,074
PEU_2	0,134	0,103	-0,370	0,114	-0,342	**-0,590**	-0,132
PEU_3	0,197	0,111	-0,004	0,154	-0,246	**-0,723**	0,004
SP_1	0,006	-0,107	-0,004	0,100	-0,018	-0,042	**-0,810**
SP_2	-0,111	-0,087	0,020	0,108	0,002	-0,055	**-0,885**
SP_3	0,121	0,223	-0,095	-0,117	0,036	-0,114	**-0,767**
SP_4	0,067	0,085	0,031	0,011	-0,223	0,087	**-0,767**

Table 7.4: Reflective Items Validity and Reliability

(Brazil, n=244)

	Composite Reliability	Cronbach's Alpha	AVE	t-Value	Item Loading
Supervisory SFA Control	0.91	0.87	0.67		
1. My manager discusses with me about the way I should use our SFA system in my job.				11.61	0.799
2. My manager monitors my SFA-use.				15.07	0.834
3. My manager informs me on whether I meet his/her expectations on SFA-use.				16.67	0.827
4. If my manager feels I need to adjust my SFA-use, she tells me about it.				25.02	0.863
5. My manager evaluates my SFA-use.				12.02	0.767
Supervisor Support	0.84	0.72	0.63		
1. I am continuously encouraged by my immediate supervisor to use our SFA tool in my job.				6.81	0.710
2. My immediate supervisor explicitly supports my using of our SFA system.				25.77	0.884
3. My immediate supervisor truly believes in the benefits of our SFA system.				12.98	0.790
Team Use	0.87	0.78	0.69		
1. The majority of my sales colleagues in my sales team use our SFA tool.				35.00	0.866
2. In my sales team, our SFA system is heavily employed by everyone.				18.52	0.807
3. A lot of my sales colleagues rely on our SFA system.				27.24	0.823
Perceived Usefulness	0.90	0.85	0.70		
1. Using our SFA system helps me increase my sales.				14.99	0.792
2. Using our SFA application enhances my effectiveness in my job.				25.98	0.864
3. Using our SFA program in my job increased my productivity.				49.32	0.897
4. I find our SFA system useful in my job.				15.00	0.796
Perceived Ease of Use	0.88	0.80	0.72		
1. My interaction with our SFA system is clear and understandable.				46.02	0.890
2. I find it easy to get the SFA system to do what I want it to do.				26.55	0.846
3. I find our SFA system easy to use.				17.96	0.811
Facilitating Conditions	0.81	**0.66**	0.60		
1. In our company we get good technical support for our SFA system.				19.32	0.807
2. My company supplies all technologies that I need to perform my job.				14.42	0.760
3. My company adequately trains me on the use of sales technology.				13.30	0.756

	Composite Reliability	Cronbach's Alpha	AVE	t-Value	Item Loading
Computer Self-Efficacy	0.76	**0.54**	0.52		
1. I am very confident in my abilities to use computers.				10.54	0.815
2. I can usually deal with most difficulties I encounter when using computers.				6.49	**0.652**
3. Using computers is something I usually enjoy.				6. 96	**0.688**
Salesperson Performance	0.88	0.82	0.65		
1. Generating sales volume.				30.27	0.870
2. Increasing market share.				52.59	0.901
3. New account development.				8.41	**0.684**
4. Servicing existing customers.				13.36	0.752

Table 7.5: Discriminant Validity (AVE Analysis)

(Brazil, n=244)[89]

	1	2	3	4	5	6	7	8
1. Supervisory SFA Control	**0.81**							
2. Supervisor Support	0.60	**0.79**						
3. Team Use	0.59	0.53	**0.83**					
4. Perceived Usefulness	0.45	0.42	0.46	**0.83**				
5. Perceived Ease of Use	0.44	0.39	0.47	0.57	**0.84**			
6. Facilitating Conditions	0.44	0.49	0.55	0.35	0.43	**0.77**		
7. Computer Self-Efficacy	0.17	0.10	0.15	0.16	0.32	0.21	**0.72**	
8. Salesperson Performance	0.10	0.07	0.05	0.14	0.14	-0.04	0.04	**0.80**

[89] Bold numbers on the diagonal show the square rooted AVE. Numbers below the diagonal represent construct correlations.

Table 7.6: Cross Loadings

(Brazil, n=244)

Variable	CompSE	FaciliC	SuperS	TeamU	SuperC	PercU	PercEU	SalesP
SE_1	**0,815**	0,188	0,108	0,158	0,131	0,077	0,285	0,034
SE_2	**0,652**	0,180	0,059	0,073	0,151	0,103	0,205	0,043
SE_3	**0,688**	0,097	0,046	0,087	0,103	0,190	0,207	0,030
FC_1	0,225	**0,808**	0,420	0,430	0,464	0,240	0,347	-0,046
FC_2	0,130	**0,760**	0,396	0,472	0,386	0,306	0,315	-0,077
FC_3	0,148	**0,757**	0,348	0,393	0,192	0,272	0,358	0,004
SS_1	0,011	0,322	**0,710**	0,290	0,510	0,224	0,233	0,086
SS_2	0,141	0,496	**0,884**	0,571	0,610	0,404	0,368	0,049
SS_3	0,064	0,352	**0,791**	0,377	0,330	0,348	0,332	0,055
TU_1	0,144	0,447	0,360	**0,867**	0,456	0,333	0,382	0,047
TU_2	0,083	0,384	0,508	**0,807**	0,615	0,391	0,316	0,060
TU_3	0,149	0,542	0,481	**0,823**	0,434	0,443	0,486	0,025
SC_1	0,181	0,319	0,491	0,517	**0,799**	0,371	0,328	0,067
SC_2	0,175	0,348	0,571	0,528	**0,834**	0,376	0,271	0,076
SC_3	0,142	0,315	0,401	0,466	**0,827**	0,405	0,407	0,133
SC_4	0,101	0,400	0,491	0,453	**0,864**	0,401	0,438	0,155
SC_5	0,131	0,437	0,520	0,491	**0,767**	0,283	0,378	-0,006
PU_1	0,089	0,257	0,264	0,309	0,333	**0,792**	0,436	0,121
PU_2	0,155	0,306	0,337	0,413	0,312	**0,864**	0,522	0,086
PU_3	0,139	0,356	0,473	0,472	0,496	**0,897**	0,542	0,160
PU_4	0,160	0,244	0,319	0,365	0,348	**0,796**	0,421	0,132
PEU_1	0,331	0,364	0,380	0,443	0,403	0,525	**0,890**	0,131
PEU_2	0,243	0,399	0,358	0,484	0,399	0,515	**0,847**	0,165
PEU_3	0,257	0,357	0,270	0,270	0,337	0,417	**0,812**	0,048
SP_1	0,066	-0,035	0,049	0,038	0,089	0,103	0,107	**0,870**
SP_2	-0,041	-0,079	0,038	0,022	0,101	0,078	0,090	**0,901**
SP_3	0,118	-0,008	0,111	0,100	0,046	0,082	0,178	**0,685**
SP_4	0,054	-0,023	0,078	0,042	0,096	0,225	0,125	**0,752**

Table 7.7: Descriptive Analysis of Formative Items
(Brazil, n=244)

Items	Mean	Median	St. Dev.
Customer Relationship			
1. To more creatively serve customers.	6,512	7	1,032
2. To improve the quality of customer service.	6,406	7	1,008
3. To identify most important customers from the list of potential customers.	6,402	7	1,090
4. To plan selling activities.	6,217	7	1,298
5. To prepare sales calls.	6,217	7	1,250
6. To analyze call and sales data.	5,947	7	1,406
7. To record and retrieve customer call information.	6,385	7	1,050
Internal Coordination			
1. To receive information from, or provide information to, my manager.	6,020	6	0,962
2. To order promotional material from the Headquarters.	4,275	5	2,011
3. To learn about our existing and new products.	4,934	5	1,637
4. To coordinate activities with my team members.	5,115	6	1,753
5. To develop my sales skills	5,889	6	1,394

Table 7.8: Multicollinearity Analysis and Item Weights
(Brazil, n=244)

Items	R^2	VIF	Weight	t-test
Customer Relationship				
1. To more creatively serve customers.	0,519	2,079	0,116	5,950
2. To improve the quality of customer service.	0,572	2,336	0,192	14,082
3. To identify most important customers from the list of potential customers.	0,651	2,865	0,181	13,965
4. To plan selling activities.	0,591	2,445	0,215	11,280
5. To prepare sales calls.	0,506	2,024	0,170	9,134
6. To analyze call and sales data.	0,480	1,923	0,205	9,052
7. To record and retrieve customer call information.	0,594	2,463	0,172	11,472
Internal Coordination				
1. To receive information from, or provide information to, my manager.	0,158	1,188	0,178	3,711
2. To order promotional material from the Headquarters.	0,354	1,548	0,252	6,474
3. To learn about our existing and new products.	0,474	1,901	0,304	10,605
4. To coordinate activities with my team members.	0,464	1,866	0,317	10,421
5. To develop my sales skills	0,193	1,239	0,326	8,525

Table 7.9: Hypothesis Testing Results

Hypotheses	Original Model Beta (t-value)	Rival Model Beta (t-value)
H1a: Customer Relationship → Salesperson Performance	.238 (2.516)**	.185 (1.797)*
H1b: Internal Coordination → Salesperson Performance	-.006 (0.092)	-.011 (0.139)
H1c: Internal Coordination → Customer Relationship	.528 (7.843)**	.528 (6.280)**
H2a$_1$: Perceived Usefulness → Customer Relationship	.229 (1.936)*	.234 (1.919)*
H2a$_2$: Perceived Usefulness → Internal Coordination	.197 (1.532)	.216 (1.657)*
H2b$_1$: Perceived Ease of Use → Customer Relationship	.046 (0.526)	.071 (0.683)
H2b$_2$: Perceived Ease of Use → Internal Coordination	.149 (1.719)*	.171 (1.923)*
H2c: Perceived Ease of Use → Perceived Usefulness	.427 (5.228)**	.418 (4.421)**
H3a: Supervisor Support → Perceived Usefulness	.152 (1.969)*	.154 (1.968)*
H3b: Supervisor Support → Perceived Ease of Use	.086 (1.003)	.074 (0.829)
H3c: Facilitating Conditions → Perceived Usefulness	-.022 (0.221)	-.019 (0.229)
H3d: Facilitating Conditions → Perceived Ease of Use	.205 (2.336)**	.217 (2.431)**
H3e: Computer Self-Efficacy → Perceived Ease of Use	.232 (4.390)**	.203 (3.281)**
H3f: Team-Use → Perceived Ease of Use	.331 (3.635)**	.203 (1.990)*

H3g: Team-Use → Perceived Usefulness	.184 (2.028)**	.150 (1.577)
H3h: Team-Use → Internal Coordination	.145 (1.823)*	.186 (1.866)*
H3i$_1$: Supervisor SFA-Control → Customer Relationship	.012 (0.657)	.082 (0.846)
H3i$_2$: Supervisory SFA-Control → Internal Coordination	.156 (1.872)*	.182 (1.749)*

* $p < 0.05$

**$p < 0.01$

We report one-tailed significance levels.

Table 7.10: Evaluation of a Rival Model
R^2 Values of the Dependent Variables

	Original Model	*Rival Model*
Perceived Usefulness	.397	.404
Perceived Ease-of-Use	.325	.362
Customer Relationship	.409	.418
Internal Coordination	.135	.137
Salesperson Performance	.121	.143

Summary of the SFA Functionality

In this section we present a basic understanding of SFA functionality, applications and capabilities. These descriptions are intended to be generic and, certainly, the list will not be exhaustive. The modules are highly interrelated, share information and synchronize automatically.

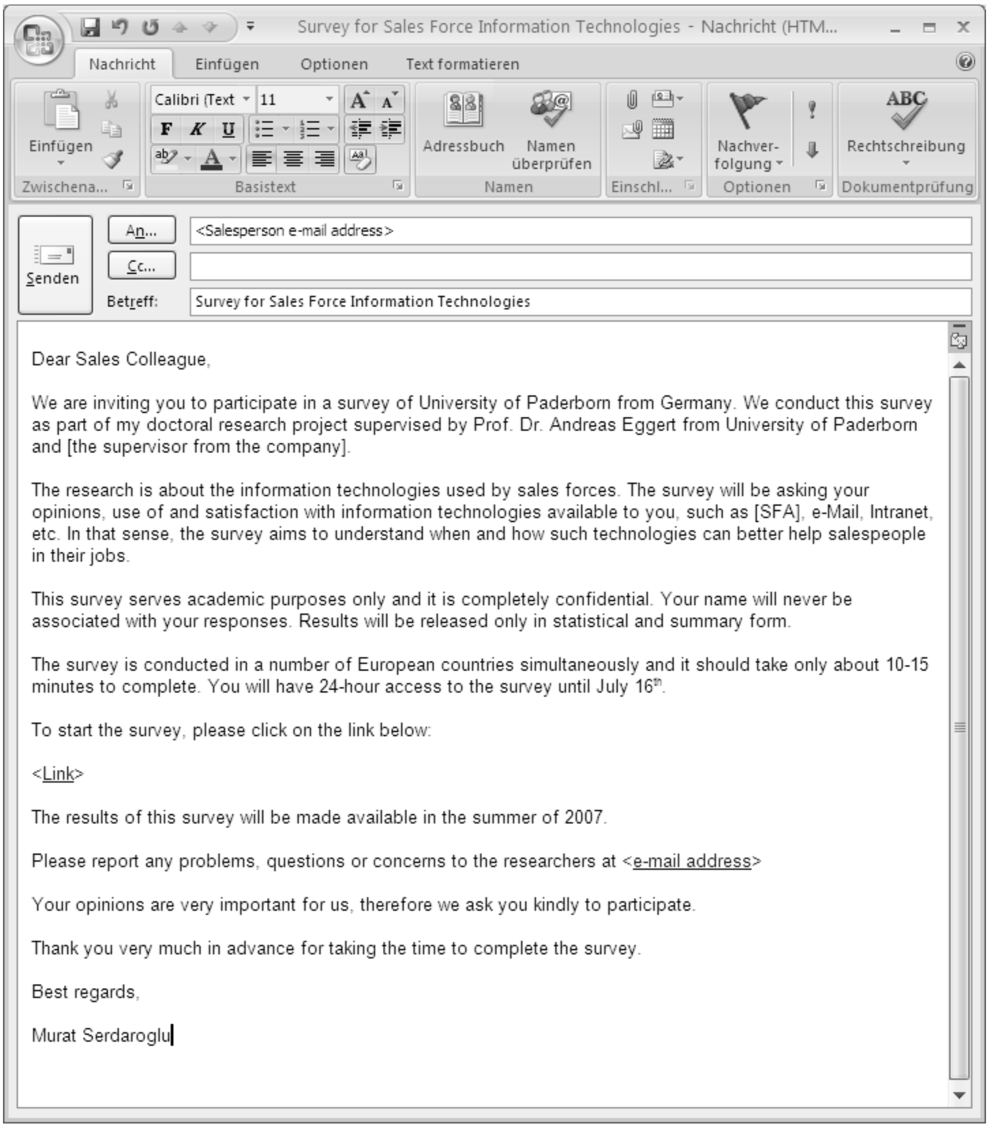
Lead Management	Track prospect inquiries and seamlessly route qualified leads to the right people, ensuring salespeople get timely access to the prospects. Once prospects are identified, information about them can be stored and organized in contact management software and used to customize many aspects of sales calls and continuing relationships (Widmier et al. 2002).
Account Management	Gives the entire company a 360-degree view of the customer, enabling to maintain deep knowledge on every customer account and facilitate cross-department collaboration. The module enables salespeople to record and retrieve detailed information about customer interactions, account history and requests. It is always possible to establish account hierarchies with defined access rights to sensitive information.
Contact Management	Represents functionality that is specifically oriented to gathering and organizing information regarding individuals who are either prospects or customers. Managing contacts can include information about current customers as well as potential customers and influential individuals in a network.
Opportunity Management	An opportunity in sales context is an event with revenue-generating potential. The focus of opportunity management is on managing sales opportunities. It coordinates customer-facing activities and events to help salespeople organize and focus around the customer. It standardizes an organization's work-flows to automate the sales process for greater operational efficiency, consistency and control (Petersen 1997). It adds decision points and conditional requirements before events are triggered. It manages priorities making sure sales processes stay on track. According to Greenberg (2004), this sales process component is the biggest

	distinction of modern SFA systems from traditional contact management software. Opportunity management can integrate team members into the sales process by specifying all the people involved in a sales deal along with their respective roles, tasks and shared calendars and thus facilitates team-selling.
Territory Management	Typically provides “sort and search” mechanisms that allow to view a sales territory from a number of perspectives. A salesperson can define, administer, analyze, and change territories to match the sales organization. It allows seamless territory alignment and assignment (Petersen 1997).
Proposal Generation and Quotation Management	Particularly in B2B settings, every customer has different requirements. SFA provides a mechanism for customizing proposals while retaining a uniform level of quality and content based on already given rules and criteria. The proposal generator can provide editing and configuration capabilities that ensure accurate quotation and pricing. Salespeople can quickly and accurately generate proposals while with customers, helping reduce cycle time between sales (Widmier et al. 2002).
Product Configuration and Visualization	By using technology, salespeople can create and customize multimedia presentations giving the product demonstration a much greater impact on customers. In many industries special product configurators give salespeople the ability to configure products based on customer specifications and check the availability and price of any configuration while with the customer.
Call Reporting	Regularly reporting sales calls and expenses to the central office is a major task of salespeople and enables sales managers to manage their sales teams effectively. SFA allows for the introduction of standardized forms that can be easily transmitted to a central office, reducing time spent on repetitive paperwork and introducing the readability and analyzability of the data by managers.
Order Processing and Contract Management	The order entry application provides salesperson with all the information and capability to successfully conclude the sales process during the sales call. The salesperson can quickly perform pricing, control the inventory, enter the order, and arrange shipping and also payment issues. SFA also offers salespeople the ability to satisfy customers by quickly obtaining the

	status of a customer's order.
Product Encyclopedias and Document Management	SFA can provide instant access to the sales documents and materials salespeople need at every step of the sales process. SFA can also help organizations manage complex product catalogs to ensure consistent product and pricing information (Shoemaker 2001).
Data Analysis	SFA systems include analytical tools to leverage the data available to understand customers and trends. Salespeople and managers can create a profile or list of attributes of their best customers, and then match that profile against a list of prospects to identify the best prospects. Profiles can also be used to cross-sell, up-sell or even offer promotions to customers who are likely to buy soon. SFA systems feature powerful yet easy-to-use sales dashboards. Managers can perform win-loss analyses and forecasting to achieve clear visibility into their sales pipelines and accurate, timely forecasts of revenue and demand. Salespeople can use standard or custom reports to gather business intelligence. Sales managers can evaluate the performance of sales team and outline strategic improvements. Last but not least, SFA can help maintain data quality and ensure that the customer database is free of duplicate contacts, accounts, and leads.
E-mail and Communication Support	Today's salespeople enjoy an array of technologies promising instant and accurate communications. Mobile phones make salespeople accessible for both customers and the home office. E-mail tools enable salespeople to send high-impact; graphically rich e-mail messages to prospects and to easily track the response. Fax machines allow for the instant transmission of information contained on standard-size sheets of paper.
Training	Technologies such as video conferencing and interactive multimedia provide a means for salespeople to be trained at home, thereby reducing travel time and time out of the field. Using this technology, a live training presentation can be presented to a number of remote sites at the same time. Recorded training sessions allow users to work themselves and the material can be reviewed as many times as necessary, at any time (Petersen 1997).
Sample Management	Sample management is a specialized application that

	applies when the organization needs to manage inventory that is controlled by the sales force. For instance, the pharmaceutical industry is compelled to track drug samples due to legal requirements in many countries. These applications track inventory at the salesperson level and facilitate documenting transactions through electronic signature capture, adjustment of sample levels, and electronic updates to corporate (Petersen 1997).
Personal Productivity Tools	Personal productivity tools consist of shrink-wrapped software products that typically include word processing, spreadsheets and presentation applications.

Introductory E-Mail



Survey for Sales Force Information Technologies - Nachricht (HTM...

An... <Salesperson e-mail address>

Cc...

Betreff: Survey for Sales Force Information Technologies

Dear Sales Colleague,

We are inviting you to participate in a survey of University of Paderborn from Germany. We conduct this survey as part of my doctoral research project supervised by Prof. Dr. Andreas Eggert from University of Paderborn and [the supervisor from the company].

The research is about the information technologies used by sales forces. The survey will be asking your opinions, use of and satisfaction with information technologies available to you, such as [SFA], e-Mail, Intranet, etc. In that sense, the survey aims to understand when and how such technologies can better help salespeople in their jobs.

This survey serves academic purposes only and it is completely confidential. Your name will never be associated with your responses. Results will be released only in statistical and summary form.

The survey is conducted in a number of European countries simultaneously and it should take only about 10-15 minutes to complete. You will have 24-hour access to the survey until July 16th.

To start the survey, please click on the link below:

<Link>

The results of this survey will be made available in the summer of 2007.

Please report any problems, questions or concerns to the researchers at <e-mail address>

Your opinions are very important for us, therefore we ask you kindly to participate.

Thank you very much in advance for taking the time to complete the survey.

Best regards,

Murat Serdaroglu

Questionnaire

SALES FORCE INFORMATION TECHNOLOGIES
SATISFACTION SURVEY

Welcome to the Sales Force Information Technologies Satisfaction Survey.

This survey should take only about 10-15 minutes to complete. This survey serves academic purposes only and it is completely confidential. Your name will never be associated with your responses. Results will be released only in statistical and summary form.

To start the survey, please click the “Start” button below.

Start

I. PERSONAL EXPERIENCE WITH INFORMATION TECHNOLOGIES IN GENERAL

The following statements refer to your disposition towards all “new IT and computer applications” you may possibly encounter in and outside your job, such as mobile phones or navigation systems. Please indicate whether you agree or disagree with the statements by clicking a number from the seven point scale on the right.

Rating: (1) strongly disagree, (4) neutral, (7) strongly agree

1. Among my peers, I am usually the first to try out new information technology.
2. I am very confident in my abilities to use computers.
3. I like to experiment with new information technologies.
4. If I heard about a new information technology, I would look for ways to experiment with it.
5. I can usually deal with most difficulties I encounter when using computers.
6. In general, I am hesitant to try out new information technologies.
7. Using computers is something I usually enjoy.

Page 1 of 8 Continue

II. COMPANY SUPPORT FOR [SFA]

In the following, you find a number of statements relating to your perception of your company's support for [SFA]. Please indicate whether you agree or disagree with the statements by clicking a number from the seven point scale on the right.

Rating: (1) strongly disagree, (4) neutral, (7) strongly agree

1. My company adequately trains me on the use of [SFA].
2. I am continuously encouraged by my immediate supervisor (1) to use [SFA] in my job.
3. In our company we get good technical support for our [SFA] system.
4. My immediate supervisor explicitly supports my using of our [SFA] system.
5. My company supplies all technologies that I need to perform my job.
6. I need more help with [SFA] than I get.
7. My immediate supervisor truly believes in the benefits of our [SFA] system.

(1) Supervisor, in this survey, refers to your regional manager you report to, but also to your coach, where applicable.

Back Page 2 of 8 Continue

III. WORK COLLEAGUES AND [SFA]

In this part, you find statements referring to your evaluations of your colleagues and superiors on the use of [SFA]. Please indicate whether you agree or disagree with the statements by clicking a number from the seven point scale on the right.

Rating: (1) strongly disagree, (4) neutral, (7) strongly agree

1. The majority of my colleagues in my sales team use our [SFA] tool to its highest potential.
2. My supervisor monitors my [SFA] usage.
3. In my sales team, our [SFA] system is heavily employed by everyone.
4. My supervisor evaluates my [SFA] usage.
5. A lot of my sales colleagues in my sales team rely on our [SFA] system.
6. My supervisor informs me on whether I meet his/her expectations on [SFA] usage.
7. My supervisor discusses with me about the way I should use our [SFA] system in my job.
8. If my supervisor feels I need to adjust my [SFA] usage, he/she tells me about it.

Back Page 3 of 8 Continue

IV. EVALUATION OF [SFA]

The following statements ask you as an end-user of the system to evaluate [SFA]. Please indicate whether you agree or disagree with the statements by clicking a number from the seven point scale on the right.

Rating: (1) strongly disagree, (4) neutral, (7) strongly agree

1. Using our [SFA] system helps me increase my sales.
2. My interaction with our [SFA] system is clear and understandable.
3. I find it easy to get the [SFA] system to do what I want it to do.
4. Using our [SFA] applications enhances my effectiveness in my job.
5. I find our [SFA] system easy to use.
6. Using our [SFA] program in my job increases my productivity.
7. I find our [SFA] system useful in my job.

Back Page 4 of 8 Continue

V. APPLICATION OF INFORMATION TECHNOLOGIES

The following is a list of tasks you may possibly achieve by using your computer. Please indicate how often you use your computer for each task by clicking a number from the seven point scale on the right.

Rating: (1) Less than once a month, (2) Once a month, (3) A few times a month, (4) Once a week, (5) A few times a week, (6) About once a day, (7) Several times a day

I use my computer…

1. To receive information from, or provide information to, my manager.
2. To develop my sales skills.
3. To record and retrieve customer call information (2).
4. To plan my selling activities.
5. To identify most important customers from the list of potential customers.
6. To more creatively serve customers.
7. To order promotional material from the Headquarters.
8. To prepare my sales calls.
9. To learn about our existing and new products.
10. To improve the quality of customer service.
11. To analyze call and sales data.
12. To coordinate activities with my team members.

(2) Customer, in this survey, is defined as any person(s) (doctor, nurse, administrator, and committee), hospital, pharmacy, clinic, or organization that can use or influence the use of your products.

Back Page 5 of 8 Continue

VI. SALES PROFESSION

In the following, you will find a number of statements relating to the way you approach the sales profession. Please indicate whether you agree or disagree with the statements by clicking a number from the seven point scale on the right.

Rating: (1) strongly disagree, (4) neutral, (7) strongly agree

1. I continually work to improve my selling skills.
2. I am always learning something about my customers.
3. I am very flexible in the selling approach I use.
4. I continually work to improve my product knowledge.
5. I try to understand how one customer differs from another.
6. Learning how to be a better salesperson is of fundamental importance to me.
7. I can easily use a wide variety of selling approaches.
8. I learn something from each selling experience.
9. When I feel that my sales approach is not working, I can easily change to another approach.

Back Page 6 of 8 Continue

VII. PERFORMANCE

This part of the survey asks you to evaluate your performance in 2006. Please rate yourself in comparison to the country average, by clicking a number from the seven point scale on the right.

Rating: (1) below average, (4) average, (7) above average

1. Generating Sales Volume
2. Increasing Market Share
3. New Account Development
4. Servicing Existing Customers

Back Page 7 of 8 Continue

VIII. DEMOGRAPHICS

1. Since when have you been working...?
As a salesperson ---- Years
At your company ---- Years
In your current territory ---- Years
(2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 | 1999-97 | 1996-94 | 1993-91 | 1990-85 | 1984-80 | 1979-75 | 1974 or before)

2. How old are you? ----- Years
(25 or younger | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | 51-55 | 56 or above)

3. What is your gender? Male/Female

Back Page 8 of 8 Submit

Thank You! The Sales Force Information Technologies Satisfaction Survey is over.

The results of this survey will be made available to the participating countries in the summer of 2007.

Should you have questions regarding your rights as a participant in this research, please contact Murat Serdaroglu at <e-mail address>

Harman's One Factor Test

Factor Analysis Results
Factors were extracted by the Principal Component method
from the correlation matrix
All factors with eigenvalues > 1 were extracted

Explained Variance (Eigenvalues)

Value	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Eigenvalue	8,495	2,764	2,199	1,692	1,427	1,168	1,055	1,026
% of Var.	29,293	9,532	7,582	5,833	4,920	4,028	3,639	3,537
Cum. %	29,293	38,825	46,407	52,240	57,160	61,188	64,828	68,365

REFERENCES

A

Abbott, J., M. Stone, and F. Buttle (2001), "Customer Relationship Management in Practice – A Qualitative Study," *Journal of Database Marketing*, 9 (1), 24-34.

Ackroyd, S. and J. Hughes (1983), *Data Collection in Context*, London: Longman.

Aghamanoukjan, A., R. Buber, and M. Meyer (2007), "Qualitative Interviews," in *Qualitative Marktforschung*, R. Buber and H.H. Holzmüller, eds. Wiesbaden: Gabler, 417-435.

Ahearne, M., N. Srinivasan, and L. Weinstein (2004), "Effect of Technology on Sales Performance: Progressing from Technology Acceptance to Technology Usage and Consequence," *Journal of Personal Selling and Sales Management*, 24 (4), 297-310.

Ahearne, M., T.W. Gruen, and C.B. Jarvis (1999), "If Looks Could Sell: Moderation and Mediation of the Attractiveness Effect on Salesperson Performance," *International Journal of Research in Marketing*, 16 (4), 269-284.

Ahearne, M., R. Jelinek and A. Rapp (2005), "Moving Beyond the Direct Effect of SFA Adoption on Salesperson Performance: Training and Support as Key Moderating Factors," *Industrial Marketing Management*, 34 (4), 379-388.

Ahearne, M., D.E. Hughes, and N. Schillewaert (2007), "Why Sales Reps Should Welcome Information Technology: Measuring the Impact of CRM-Based IT on Sales Effectiveness," *International Journal of Research in Marketing*, 24 (4), 336-349.

Ahearne, M., E. Jones, A. Rapp, and J. Mathieu (2008), "High Touch through High Tech: The Impact of Salesperson Technology Usage on Sales Performance via Mediating Mechanisms," *Management Science*, 54 (4), 671–685.

Ahituv, N. and R. Giladi (1993), “Business Success and Information Technology: Are They Really Related,” in *Proceedings of the 7th Annual Conference of Management IS*, Tel Aviv University, Israel.

Ajzen, I. (1985), “From Intention to Actions: A Theory of Planned Behavior,” in *Action Control: From Cognition to Behavior*, J. Kuhl and J. Beckman, eds. New York: Springer, 11-39.

Ajzen, I. (1991), “The Theory of Planned Behavior,” *Organizational Behavior and Human Decision Processes*, 50, 179-211,

Ajzen, I. and M. Fishbein (1980), *Understanding Attitudes and Predicting Social Behavior*, Englewood Cliffs: Prentice Hall.

Alavi, M. and D.E. Leidner (2001), “Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues,” *MIS Quarterly*, 25 (1), 107-136.

Alpar, P. and M. Kim (1990), “A Microeconomic Approach to the Measurement of Information Technology Value,” *Journal of Management Information Systems,* 7 (2), 55-69.

Alter, S. (1999), “A General, Yet Useful Theory of Information Systems,” *Communications of the AIS*, 1 (3).

Amit, R. and P.J.H. Schoemaker (1993), “Strategic Assets and Organizational Rent,” *Strategic Management Journal*, 13, 33-46.

Anderson, J.C. and D.W. Gerbing (1982), “Some Methods for Respecifying Measurement Models to Obtain Unidimensional Construct Measurement,” *Journal of Marketing Research*, 19 (4): Special Issue on Causal Modeling, 453-460.

Anderson, J.C. and D.W. Gerbing (1988), “Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach,” *Psychological Bulletin*, 103 (3), 411-423.

Anderson, J.C. and D.W. Gerbing (1993), “Proposed Template for Journal of Marketing Research Measurement Appendix,” unpublished manuscript, Northwestern University, Evanston.

Anderson, K. and C. Kerr (2002), *Customer Relationship Management*, New York: McGraw-Hill.

Anderson, E. and R.L. Oliver (1987), "Perspectives on Behavior-Based versus Outcome-Based Sales force Control Systems," *Journal of Marketing*, 51 (4), 76-88.

Anderson, E. and T.S. Robertson (1995), "Inducing Multiline Salespeople to Adopt House Brands," *Journal of Marketing*, 59 (April), 16-31.

Armstrong, J. S. and T. Overton (1977), "Estimating Non-Response Bias in Mail Surveys," *Journal of Marketing Research*, 51, 71-86.

Armstrong, C.P. and V. Sambamurthy (1999), "Information Technology Assimilation in Firms: The influence of Senior Leadership and IT Infrastructure," *Information Systems Research*, 10 (4), 304-342.

Atuahene-Gima, K. (1997), "Adoption of New Products by the Sales Force: The Construct, Research Propositions, and Managerial Implications," *Journal of Product Innovation Management*, 14 (6), 498-514.

Avlonitis, G.J. and N.G. Panagopoulos (2005), "Antecedents and Consequences of CRM Technology Acceptance in the Sales Force," *Industrial Marketing Management*, 34 (4), 355-368.

B

Backhaus, K., B. Erichson, W. Plinke, and R. Weiber (2003), "Multivariate Analysemethoden: Eine anwendungsorientierte Einführung," 10. Ed., Berlin: Springer.

Bagozzi, R.P. (1979), "The Role of Measurement in Theory Construction and Hypothesis Testing: Toward a Holistic Model," in *Conceptual and Theoretical Developments in Marketing*, O.C. Ferrell and C.W. Lamb, Jr., eds. Chicago: American Marketing Association.

Bagozzi, R.P. (1980), *Causal Models in Marketing*, New York: John Wiley.

Bagozzi, R.P. (1998), "A Prospectus for Theory Construction in Marketing: Revisited and Revised," in *Die Kausalanalyse*, L. Hildebrandt and C. Homburg, eds. Stuttgart, 45-84.

Bagozzi, R.P. and H. Baumgartner (1994), "The Evaluation of Structural Equation Models and Hypothesis Testing," in *Principles of Marketing Research*, R.P. Bagozzi, ed. Cambridge: Blackwell, 386-442.

Bagozzi, R.P. and C. Fornell, (1982), "Theoretical Concepts, Measurement, and Meaning," in *A Second Generation of Multivariate Analysis*, C. Fornell, ed. Praeger, 5-23.

Bagozzi, R.P. and L.W. Phillips (1982), "Representing and Testing Organizational Theories: A Holistic Construal," *Administrative Science Quarterly*, 27 (1), 459-489.

Bagozzi, R.P., Y. Yi, and L.W. Phillips (1991), "Assessing Construct Validity in Organizational Research," *Administrative Science Quarterly*, 36 (3), 421-458.

Baily, M.N. and A. Chakrabarti (1988), "Electronics and White-Collar Productivity" in *Innovation and the Productivity Crisis*, W.C. Brainard and G.L. Perry, eds. Washington: The Brookings Institution.

Bakos J.Y. and B.R. Nault (1997), "Ownership and Investment in Electronic Networks," *Information Systems Research*, 8 (4), 321-341.

Bandura, A. (1977), "Self-Efficacy: Toward a Unifying Theory of Behavior

Change," *Psychological Review*, 84, 191-215.

Bandura, A. (1982), "Self-Efficacy Mechanism in Human Agency," *American Psychologist*, 37, 122-147.

Barclay, D., C. Higgins, and R. Thompson (1995), "The Partial Least Squares Approach to Causal Modeling: Personal Computer Adoption and Use as an Illustration," *Tech. Stud. Special Issue on Research Methodology*, 2 (2), 285–324.

Barney, J.B. (1986), "Strategic Factor Markets: Expectations, Luck, and Business Strategy," *Management Science*, 32 (10), 1231-41.

Barney, J.B. (1991), "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, 17 (1), 99-120.

Barua, A. and T. Mukhopadhyay (2000), "Information Technology and Business Performance: Past, Present, and Future," in *Framing the Domains of Information Technology Management: Projecting the Future through the Past,* R.W. Zmud, ed. Cincinnati, Ohio: Pinnaflex Press, 65-84.

Barua, A., C.H. Kriebel, and T. Mukhopadhyay (1995), "Information Technology and Business Value: An Analytic and Empirical Investigation," *Information Systems Research*, 6 (1), 3-50.

Barua, A., R. Chellappa, and A.B. Whinston (1996), "The Design and Development of Internet and Intranet-Based Collaboratories," *International Journal of Electronic Commerce*, 1 (2), 32–58.

Baumgartner, H. and J.E.M. Steenkamp (2001), "Response Styles in Marketing Research: A Cross-National Investigation," *Journal of Marketing Research*, 38 (May), 143-156.

Beal, B. (2006), "CRM's Glory Years Are Back, Report Says," [available at http://searchcrm.techtarget.com].

Beal, B. (2008), "CRM Continues to Disappoint," [available at http://searchcrm.techtarget.com].

Behrman, D.N. and W.D. Perreault (1982), "Measuring the Performance of Industrial Salespersons," *Journal of Business Research*, 10, 355-370.

Behrman, D.N. and W.D. Perreault (1984), "A Role Stress Model of the

Performance and Satisfaction of Industrial Salespersons," *Journal of Marketing*, 48 (4), 9-21.

Belleflamme, P. (2001), "Oligopolistic Competition, IT Use for Product Differentiation and the Productivity Paradox," *International Journal of Industrial Organization*, 19, 227-248.

Benbasat, I. and R. Zmud (2003), "The Identity Crisis within the IS Discipline: Defining and Communicating the Discipline's Core Properties," *MIS Quarterly*, 27 (2), 183-194.

Benjamin, R.I. and E. Levinson (1993), "A Framework for Managing IT Enabled Change," *Sloan Management Review*, Summer, 23-33.

Berndt, E.R. (1991), *The Practice of Econometrics: Classic and Contemporary*, Reading: Addison-Wesley.

Berndt, E.R. and C.J. Morrison (1995), "High-Tech Capital Formation and Economic Performance in U. S. Manufacturing Industries: An Exploratory Analysis," *Journal of Econometrics*, 65, 9-43.

Bharadwaj, A.S. (2000), "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation," *MIS Quarterly*, 24 (1), 169-196.

Bharadwaj A.S., S.G. Bharadwaj, and B.R. Konsynski (1999), "Information Technology Effects on Firm Performance as Measured by Tobin's q," *Management Science*, 45 (7), 1008-1024.

Bhattacherjee, A. and C. Sanford (2006), "Influence Processes for Information Technology Acceptance: An Elaboration Likelihood Model," MIS Quarterly, 30 (4), 805-825.

Black, T.R. (1999), *Doing Quantitative Research in the Social Sciences: An Integrated Approach to Research Design, Measurement and Statistics,* London: Sage.

Black, J.A. and K.B. Boal (1994), "Strategic Resources: Traits, Configurations and Paths to Sustainable Competitive Advantage," *Strategic Management Journal*, 15 (Summer), 131-148.

Bohrnstedt, G.W. (1970), "Reliability and Validity Assessment in Attitude Measurement," in *Attitude Measurement*, G.F. Summers, ed. Chicago: Rand-McNally, 80-99.

Bollen K. (1989), *Structural Equations with Latent Variables*, New York: John Wiley & Sons Inc.

Bollen, K. and R. Lennox (1991), “Conventional Wisdom on Measurement: A Structural Equation Perspective,” *Psychological Bulletin*, 110 (2), 305-314.

Bollen, K. and J.S. Long (1992), “Tests for Structural Equation Models,” *Sociological Methods & Research*, 21 (2), 123-131.

Boulding, W., R. Staelin, M. Ehret, and W.J. Johnston (2005), “A Customer Relationship Management Roadmap: What Is Known, Potential Pitfalls, and Where to Go,” *Journal of Marketing*, 69 (4), 155-166.

Brady, M.K. and J.J. Cronin (2001), “Customer Orientation Effects on Customer Service Perceptions and Outcome Behaviors,” *Journal of Service Research*, 3 (3), 241-251.

Brown, S.P. and R.A. Peterson (1993), “Antecedents and Consequences of Salesperson Job Satisfaction: Meta-Analysis and Assessment of Causal Effects,” *Journal of Marketing Research*, 30 (1), 63-77.

Brown, S.A. (1999), *Strategic Customer Care: An Evolutionary Approach to Increasing Customer Value and Profitability*, Hoboken: John Wiley & Sons Publishing.

Brown, S.P. and E. Jones (2005), “Introduction to the Special Issue: Advancing the Field of Selling and Sales Management,” *Journal of Personal Selling and Sales Management*, 25 (2), 103-104.

Brynjolfsson, E. (1993), “The Productivity Paradox of Information Technology,” *Communications of the ACM*, 35 (12), 66-77.

Brynjolfsson, E. and L.M. Hitt (1993), “Computers and Economic Growth: Firm-Level Evidence,” Working Paper, MIT Sloan School, Cambridge.

Brynjolfsson, E. and L. Hitt (1995), “Information Technology as a Factor of Production: The Role of Differences among Firms,” *Economics of Innovation and New Technology*, 3 (4), 183-200.

Brynjolfsson, E. and L. Hitt (1996), “Paradox Lost? Firm-level Evidence on the Returns to Information Systems Spending,” *Management Science*, 42 (4), 541-58.

Brynjolfsson, E. and L.M. Hitt (1998), “Beyond the Productivity Paradox,” *Communications of the ACM*, 41 (8), 49-55.

Brynjolfsson, E. and L.M. Hitt (2000), “Beyond computation: Information technology, organizational transformation and business performance,” *Journal of Economical Perspectives*, 14 (4), 23-48.

Brynjolfsson, E. and L.M. Hitt (2003), “Computing Productivity: Firm-Level Evidence,” *The Review of Economics and Statistics*, 85 (4), 793-808.

Brynjolfsson, E., L.M. Hitt, and S. Yang (1998), “Intangible Assets: How the Interaction of Computers and Organizational Structure Affects Stock Market Valuations,” in *Proceedings of the International Conference on Information Systems*, Helsinki, 8-29.

Brynjolfsson, E., L.M. Hitt, and S.K. Yang (2000), “Intangible Assets: How the Interaction of Information Systems and Organizational Structure Affects Stock Market Valuations,” MIT Working Paper.

Brynjolfsson, E. and S. Yang (1996), “Information Technology and Productivity: A Review of the Literature,” in *Advances in Computers*, M. Zelkowitz, ed. 43.

Buehrer, R.E., S. Senecal, and E.B. Pullins (2005), “Sales Force Technology Usage: Reasons, Barriers, and Support,” *Industrial Marketing Management*, 34 (4), 389-398.

Burkhardt, M.E. (1994), “Social Interaction Effects Following a Technological Change: A Longitudinal Investigation,” *Academy of Management Journal*, 37: 869-898.

Burton-Jones, A. and G.S. Hubona (2006), “The Mediation of External Variables in the Technology Acceptance Model”, *Information and Management*, 43, 706-717.

Bush, A.J., Moore, J.B., and Rocco, R. (2005), “Understanding Sales Force Automation Outcomes: A Managerial Perspective,” *Industrial Marketing Management*, 34 (4), 369-377.

Buttle, F. (2004), *Customer Relationship Management: Concepts and Tools*, Oxford: Elsevier.

Buttle, F. (2006), “Hosted CRM: Literature Review and Research

Questions," Macquarie Graduate School of Management Working Paper 2006-1, Macquarie University, North Ryde.

Buttle, F., L. Ang, and R. Iriana (2006), "Sales Force Automation: Review, Critique, Research Agenda," *International Journal of Management Reviews*, 213-231.

Byrd, T.A., B.R. Lewis, and R.W. Bryan (2006), "The Leveraging Influence of Strategic Alignment on IT Investment: An Empirical Examination," *Information & Management*, 43 (3), 308-321.

C

Caldeira, M.M. and J.M. Ward (2003), “Using Resource-based Theory to Interpret the Successful Adoption and Use of Information Systems and Technology in Manufacturing Small and Medium-sized Enterprises,” *European Journal of Information Systems*, 12 (2), 125-139.

Campbell, A.J. (2003), “Creating Customer Knowledge Competence: Managing Customer Relationship Management Programs Strategically”, *Industrial Marketing Management*, 32 (5), 375-383.

Cannon, J.P. and W.D. Jr. Perreault (1999), Buyer-Seller Relationships in Business Markets, *Journal of Marketing Research*, 36 (4), 439-460.

Capron, L. and J. Hulland (1999), “Redeployment of Brands, Sales Forces, and General Marketing Management Expertise Following Horizontal Acquisitions: A Resource-Based View,” *Journal of Marketing* 63 (2), 41-54.

Carmines, E.G. and R.A. Zeller (1979), *Reliability and Validity Assessment*, Beverly Hills: Sage.

Carr, N. (2003), “IT Doesn’t Matter,” *Harvard Business Review*, May.

Challagalla, G.N. and T.A. Shervani (1996), “Dimensions and Types of Supervisory Controls: Effects on Salesperson Performance and Satisfaction,” *Journal of Marketing*, 60 (January), 89–105.

Chan, Y.E. (2000), IT Value: The Great Divide between Qualitative and Quantitative and Individual and Organizational Measures,” *Journal of Management Information Systems*, 16 (4), 225–261.

Chan, Y.E., S.L. Huff, D.G. Copeland, and D.W. Barclay (1997), “Business Strategic Orientation, Information Systems Strategic Orientation and Strategic Alignment,” *Information Systems Research*, 8 (2), 125–150.

Chin, W.W. (1997), “Overview of the PLS Method,” [available at http://disc-nt.cba.uh.edu/chin/PLSINTRO.HTM].

Chin, W.W. (1998), “Issues and Opinion on Structural Equation Modeling,” *MIS Quarterly*, 22 (1), vii-xvi.

Chin, W.W., B.L. Marcolin, and P.R. Newsted (1996), "A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and Voice Mail Emotion/Adoption Study," in *Proceedings of the 17th International Conference on Information Systems*, Cleveland, Ohio.

Chin, W.W., B.L. Marcolin, and P.R. Newsted (2003), "A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and Electronic Mail Emotion/Adoption Study," *Information Systems Research,* 14 (2), 189-217.

Chin, W.W. and Newsted, P.R. (1999), "Structural Equation Modeling Analysis with Small Samples Using Partial Least Squares," in *Statistical Strategies for Small Sample Research*, R.H. Hoyle ed. Thousand Oaks: Sage Publications, 307-341.

Christensen, C.M. and M. Overdorf (2000), "Meeting the Challenge of Disruptive Change," *Harvard Business Review*, March-April.

Churchill, G.A. Jr. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs, *Journal of Marketing Research*, 16, 64-73.

Churchill, G.A. Jr., N.M. Ford, S.W. Hartley, and O.C. Walker Jr. (1985), "The Determinants of Salesperson Performance: A Meta-Analysis," *Journal of Marketing Research*, 22 (May), 103-118.

Clemons, E.K. and S. Kimbrough (1986), "Information Systems, Telecommunications, and Their Effects on Industrial Organization," in *Proceedings of the 7th International Conference on Information Systems*, San Diego, 181-194.

Clemons, E.K. and P.R. Kleindorfer (1992), "An Economic Analysis of Interorganizational Information Technology," *Decision Support Systems*, 8 (5), 431-446.

Clemons, E.K. and M. Row (1988), "McKesson Drug Company: A Case Study of Economost-A Strategic Information System," *Journal of Management Information Systems*, 5 (1), 36-50.

Coff, R.W. (1999), "When Competitive Advantage Doesn't Lead to Performance: The Resource-Based View and Stakeholder Bargaining Power," *Organization Science*, 10 (2), 119-130.

Cohen, P., J. Cohen, J. Teresi, M. Marchi, and C.N. Velez (1990), "Problems in the Measurement of Latent Variables in Structural Equations Causal Models," *Applied Psychological Measurement*, 14 (2), 183-196.

Cole, C., R. Palmer, and D. Schwanz (1997), "Improving the Mail Return Rates of SASS Surveys: A Review of the Literature," Working Paper Series. U.S. Department of Education, [available at: http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/29/bc/66.pdf].

Collins, R.H. and J.A. Schibrowsky (1990), "Microcomputer Applications: Statistics for the Rest of Us," *Journal of Personal Selling and Sales Management*, 10 (Spring) 83-86.

Collis D.J. and C.A. Montgomery (1995), "Competing on Resources," *Harvard Business Review*, 73 (4), 118-128.

Compeau, D.R. and C.A. Higgins (1995), "Computer Self-Efficacy: Development of a Measure and Initial Test," *MIS Quarterly*, (June): 189-211.

Conner, K.R. (1991), "A Historical Comparison of Resource-Based Theory and Five Schools of Thought within Industrial Organization Economics: Do We Have a New Theory of the Firm?" *Journal of Management*, 17 (1), 121-154.

Crampton, S.M. and J.A. Wagner (1994), "Percept-Percept Inflation in Microorganizational Research: An Investigation of Prevalence and Effect," *Journal of Applied Psychology*, 79 (1), 67-76.

Crano, W.D. and M.B. Brewer (2002), *Principles and Methods of Social Research*, Routledge.

Cravens, D.W., T.N. Ingram, R.W. LaForge, and C.E. Young (1993), "Behavior-Based and Outcome-Based Sales Force Control Systems," *Journal of Marketing*, 57, 47-59.

Cronbach, L.J. (1951). "Coefficient Alpha and the Internal Structure of Tests," *Psychometrika*, 16 (3), 297-334.

D

Davenport, T. (1993), *Process Innovation: Reengineering work through Information Technology*, Cambridge: Harvard Business School Press.

Davis, F.D. (1989), "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," MIS Quarterly, 13 (3), 319-340.

Davis, F.D. (1993), "User Acceptance of Information Technology: System Characteristics, User Perceptions and Behavioral Impacts," *International Journal of Man-Machine Studies*, 38, 475-487.

Davis, F.D., R.P. Bagozzi, and P.R. Warshaw (1989), "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science*, 35 (8), 982-1003.

Day, G.S. (1994), "The Capabilities of Market-Driven Organizations," *Journal of Marketing*, 58 (4), 37-52.

Day, G.S. and C.V. Bulte (2002), "Superiority in Customer Relationship Management: Consequences for Competitive Advantage and Performance," Working Paper, Report No. 02-123, Marketing Science Institute, Cambridge.

Dedrick, J., V. Gurbaxani, and K. Kraemer (2003), "Information Technology and Economic Performance: A Critical Review of the Empirical Evidence," *ACM Computing Surveys*, 35, 1-28.

Dehning, D.Y. and B. Richardson (2002), "Returns on Investments in Information Technology: A Research Synthesis," *Journal of Information Systems,* 16 (1), 7-30.

DeLone, W.H. and E.R. McLean (1992), "Information Systems Success: The Quest for the Dependent Variable," *Information Systems Research* (3:1), March 1992, pp. 60-95.

DeLone, W.H. and E.R. McLean, (2003), "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update," *Journal of Management Information Systems*, 19 (4), 9-30.

Dennis, A.R., B.H. Wixom, and R.J. Vandenberg (2001), "Understanding Fit and Appropriation Effects in Group Support Systems via Meta

Analysis," *MIS Quarterly,* 25 (2), 167-193.

DeSarbo, W.S., A.M. Degeratu, M.J. Ahearne, and M.K. Saxton (2002), "Disaggregate Market Share Response Models," *International Journal of Research in Marketing*, 19 (3), 253-266.

Desisto, D. (2004), "Bad Sales Data is Worse than No Data at All," Research Paper, Gartner Research, Stamford.

Devaraj, S. and R. Kohli (2000), "Information Technology Payoff in the Health-Care Industry: A Longitudinal Study," *Journal of Management Information Systems*, 16 (4), Special issue: Impacts of Information Technology Investment on Organizational Performance, 41-67.

Devaraj, S. and R. Kohli (2003), "Performance Impacts of Information Technology: Is Actual Usage the Missing Link?" *Management Science*, 49 (3) 273-289.

DeVellis, R.F. (1991), *Scale Development: Theory and applications*, Newbury Park: Sage Publications.

Devitt, B. (2003), "Executive Prophesies Vision for the Future," Pharmaceutical Executive, [available at: http://pharmexec.findpharma.com/pharmexec/article/articleDetail.jsp?id=49269&pageID=1].

Dewan, S. and K.L. Kraemer (2000), "Information Technology and Productivity: Evidence from Country-Level Data," *Management Science*, 46 (4), 548-562.

Dewan, S. and C. Min (1997), "The Substitution of Information Technology for Other Factors of Production: A Firm Level Analysis," *Management Science*, 43 (12), Frontier Research on Information Systems and Economics, 1660-1675.

Diamantopoulos, A. and Winklhofer, H.M. (2001), "Index Construction with Formative Indicators: An Alternative to Scale Development," *Journal of Marketing Research*, 38 (2), 269-277.

Dickie, J. (1999), "Why CRM Projects Fail," *CRM Journal*, 1 (1).

Dierickx, I. and K. Cool (1989), "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science*, 35 (12), 1504-1511.

Dillman, D.A., R.D. Tortora, D. Bowker (1998), “Principles of Constructing Web Surveys,” Technical Report, No. 98-50, Pullman, Washington State University Social and Economic Sciences Research Centre

Dillman, D.A., C.D. Redline, C.D., and L.R. Carley-Baxter (1999), “Influence of Type of Question on Skip Pattern Compliance in Self-Administered Questionnaires” in *Proceedings of the American Statistical Association*, Survey Research Methods Section.

Dillon, W.R., T.J. Madden, and N.H. Firtle (1993), *Essentials of Marketing Research*, Boston: Irwin.

Dixon, N.M, (2000), *Common Knowledge: How Companies Thrive by Sharing What They Know*, Boston: Harvard Business School Press.

Doll, W.J., A. Hendrickson, X. Deng (1998), “Using Davis's Perceived Usefulness and Ease-of-use Instruments for Decision Making: A Confirmatory and Multigroup Invariance Analysis,” *Decision Sciences,* 29 (4), 839-869.

Doll, W.J. and G. Torkzadeh (1991), “A Congruence Construct of User Involvement,” *Decision Sciences*, 22 (2), 443-453.

Doll, W.J. and G. Torkzadeh (1998), “Developing a Multidimensional Measure of System-Use in an Organizational Context,” *Information & Management*, 33 (4), 171-185.

Donaldson, B. and G. Wright (2004), “Sales Force Automation in the UK Pharmaceutical Industry: Why is the Strategic Potential of These Systems not being realised in Practice?” *Journal of Medical Marketing*, 4, 251-263.

Doty, D.H., W.H. Glick, and G.P. Huber (1993), “Fit, Equifinality, and Organizational Effectiveness: A Test of Two Configurational Theories,” *The Academy of Management Journal*, 36 (6) 1196-1250.

Dwyer, F.R., Schurr, P.H. and S. Oh (1987), “Developing Buyer-Seller Relationships,” *Journal of Marketing*, 51 (2), 11-27.

E

Eisenhardt, K.M. and J.A. Martin (2000), "Dynamic Capabilities: What Are They?" *Strategic Management Journal*, 21 (10/11), Special Issue: The Evolution of Firm Capabilities, 1105-1121.

Engle, R.L. and M.L. Barnes (2000), "Sales Force Automation Usage, Effectiveness, and Cost-Benefit in Germany, England and the United States," *Journal of Business and Industrial Marketing,* 15 (4), 216-241.

Erffmeyer R.C. and D.A. Johnson (2001), "An Exploratory Study of Sales Force Automation Practices: Expectations and Realities," *Journal of Personal Selling & Sales Management*, 21 (2), 167–175.

F

Fassott, G.; Eggert, A. (2005), “Zur Anwendung formativer und reflektiver Indikatoren in Strukturgleichungsmodellen: Bestandsaufnahme und Anwendungsempfehlungen, in *Handbuch PLS-Pfadmodellierung: Methode, Anwendung, Praxisbeispiele*, F. Bliemel, A. Eggert, G. Fassott, J. Henseler, eds. 31-48.

Faul, F., A. Buchner, E. Erdfelder, and A.G. Lang (2008), G*Power, Version 3.0.10, Software, Germany.

Feeny, D. and L. Willcocks (1998), “Core IS Capabilities for Exploiting IT,” *Sloan Management Review*, 39 (3), 9-21.

Fishbein, M. and I. Ajzen (1975), *Belief Attitude, Intention and Behavior*, Reading: Addison-Wesley

Fornell, C. (1982), *A Second Generation of Multivariate Analysis*, New York: Praeger.

Fornell, C. (1989), “The Blending of Theoretical and Empirical Knowledge in Structural Equations with Unobservables” in *Theoretical Empiricism*, H. Wold, ed. New York: Paragon House.

Fornell, C. and Bookstein, F.L. (1982), “Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-Voice Theory,” *Journal of Marketing Research*, 19, 440-452.

Fornell, C. and D.F. Larcker (1981), “Evaluating Structural Equation Models with Unobservable Variables and Measurement Error,” *Journal of Marketing Research,* 18 (February), 39-50.

Fornell, C., P. Lorange, and J. Roos (1990), “The Cooperative Venture Formation Process: A Latent Variable Structural Modeling Approach,” *Management Science*, 36 (10), Focused Issue on the State of the Art in Theory and Method in Strategy Research, 1246-1255.

Fornell, C., Tellis, G.J., and Zinkhan, G.M. (1982), “Validity Assessment: A Structural Equations Approach Using Partial Least Squares,” in *An Assessment of Marketing Thought & Practice*, B.J. Walker, ed. Chicago 1982, S. 405-409.

Fox, R.J., M.R. Crask, and J. Kim (1988), "Mail Survey Response Rate: A Meta-Analysis of Selected Techniques for Inducing Response, *Public Opinion Quarterly*, 52, 467.

G

Gefen, D. (2003), "Assessing Unidimensionality through LISREL: An Explanation and an Example," *Communications of AIS*, 12 (2), 23-47.

Gefen, D., D.W. Straub, and M. Boudreau (2000), "Structural Equation Modeling Techniques and Regression: Guidelines for Research Practice," *Communications of AIS*, 7 (7), 1-78.

Gefen, D. and D.W. Straub (1997), "Gender Differences in the Perception and Use of E-Mail: An Extension to the Technology Acceptance Model," *MIS Quarterly*, 21 (4), 389-400.

Gefen, D., and D.W. Straub (2005), "A Practical Guide to Factorial Validity Using PLS-Graph: Tutorial and Annotated Example," *Communications of the AIS*, (16), 91-109.

Gelderman, M. (1998), "The Relation between User Satisfaction, Usage of Information Systems and Performance," *Information & Management,* 34 (1), 11-18.

Gerbing, D.W. and J.C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," *Journal of Marketing Research*, 25 (2), 186-192.

Gohmann, S.F., J. Guan, R.M. Barker, and D.J. Faulds (2005), "Perceptions of Sales Force Automation: Differences between Sales Force and Management," *Industrial Marketing Management*, 34 (4), 337-343.

Goldenberg, B. (1996), "Re-Engineering Sales & Marketing with Advanced Information Delivery Systems," *Sales and Marketing Management*, Special Supplement, 1-31.

Good, D.J. and R.J. Schultz (1997), "Technological Teaming as a Marketing Strategy," *Industrial Marketing Management* 26 (5), 413-22.

Good, D.J. and R.W. Stone (1995), "Computer Technology and the Marketing Organization: An Empirical Investigation," *Journal of Business Research*, 34, 197-209.

Good, D.J. and R.W. Stone, 2000, "The Impact of Computerization on Marketing Performance," *Journal of Business & Industrial Marketing*, 15

(1), 34-56.

Gopal, A., R.P. Bostrom, and W.W. Chin (1992), “Applying Adaptive Structuration Theory to Investigate the Process of Group Support Systems Use,” *Journal of Management Information Systems*, 9 (3), Special issue: Collaboration technology, modeling, and end-user computing for the 1990s, 45-69.

Götz, O. and Liehr-Gobbers, K. (2004), “Analyse von Strukturgleichungsmodellen mit Hilfe der Partial-Least-Squares (PLS)-Methode,“ *Die Betriebswirtschaft*, 64 (6), 714-738.

Grant R. (2001), “Knowledge and Organisation” in *Managing Industrial Knowledge creation transfer and utilization,* I. Nonaka and D. Teece, eds. London: Sage.

Greenberg, P. (2004), *CRM at the Speed of Light, Third Edition: Essential Customer Strategies for the 21st Century*, McGraw-Hill Osborne Media.

Grover, V., J. Teng, A.H. Segars, and K. Fiedler (1998), “The Influence of Information Technology Diffusion and Business Process Change on Perceived Productivity: The IS Executive's Perspective,” *Information & Management*, 34, 141-159.

Guenzi, P., C. Pardo, and L. Georges (2007), “Relational Selling Strategy and Key Account Managers’ Relational Behaviors: An Exploratory Study,” *Industrial Marketing Management*, 36 (1), 121-133.

Gulati R., D.N. Bristow, and W. Dou (2004), “The Impact of Personality Variables, Prior Experience, and Training on Sales Agents’ Internet Utilization and Performance,” *Journal of Business-to-Business Marketing,* 11 (1/2), 153-182.

Guimaraes, T. and M. Igbaria (1997), “Assessing User Computing Effectiveness: An Integrated Model,” *Journal of End User Computing*, 9 (2), 3-14.

H

Hagedoorn, J. and J. Schakenraad (1994), "The Effect of Strategic Technology Alliances on Company Performance," *Strategic Management Journal*, 15 (4), 291-309.

Hair, J., R. Anderson, R. Tatham, and W. Black (1998), *Multivariate Data Analysis*, New York: MacMillan.

Hall, P.A. (1997), "The Role of Interests, Institutions, and Ideas in the Comparative Political Economy of the Industrialized Nations," in *Comparative Politics: Rationality, Culture, and Structure*, M.I. Lichbach and A.S. Zuckerman, eds. New York: Cambridge University Press, 174-207.

Hambrick, D. (1987), "Top Management Teams: Key to Strategic Success," *California Management Review*, 30, 88-108.

Hanover, Dan (2000), "Independents Day," *Sales and Marketing Management*, April, 64-68.

Hansotia, B. (2002), "Gearing Up for CRM: Antecedents to Successful Implementation," *Journal of Database Marketing*, 10, 121–132.

Hartwick, J. and H. Barki (1994), "Explaining the Role of User Participation in Information System Use," *Management Science*, 40 (4), 440-465.

Heine, M.L., V. Grover, and M.K. Malhotra (2003), "The Relationship between Technology and Performance: A Meta-Analysis of Technology Models," *Omega*, 31 (3), 189-204.

Helm, S. (2005), "Designing a Formative Measure for Corporate Reputation," *Corporate Reputation Review*, 8 (2), 95-109.

Henderson, J., and N. Venkatraman (1993), "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal*, 32, 4-16.

Heberlein, T.A. and R. Baumgartner (1978), "Factors Affecting Response Rates to Mailed Questionnaires: A Quantitative Analysis of the Published Literature," *American Sociological Review*, 43 (4), 447-462.

Hildebrandt, L. (1984), “Kausalanalytische Validierung in der Marketingforschung,“ *Marketing ZfP*, 6 (1), 41-51.

Hitt, L. and E. Brynjolfsson (1995), “Information Technology as a Factor of Production: The Role of Differences among Firms,” *Economics of Innovation and New Technology*, 3 (4), 183-200.

Hitt, L. and E. Brynjolfsson (1996), “Productivity, Business Profitability, and Consumer Surplus: Three Different Measures of Information Technology Value,” *MIS Quarterly*, 20 (2), 121-142.

Hitt, L. and E.M. Snir, (1999), “The Role of Information Technology in Modern Production: Complement or Substitute to Other Inputs?” working paper, University of Pennsylvania.

Hitt. L., D.J. Wu, and X. Zhou (2002), “Investment in Enterprise Resource Planning: Business Impact and Productivity Measures,” *Journal of Management Information Systems*, 19 (1), 71-98.

Homburg, C. and A. Dobratz (1998), “Iterative Modellselektion in der Kausalanalyse,” in *Die Kausalanalyse: ein Instrument der betriebswirtschaftlichen Forschung*, L. Hildebrandt and C. Homburg, eds. Stuttgart.

Homburg, C. and A. Giering (1996), “Konzeptualisierung und Operationalisierung komplexer Konstrukte,” *Marketing ZfP*, 18, 5-24.

Homburg, C. and R.M. Stock (2004), “The Link between Salespeople’s Job Satisfaction and Customer Satisfaction in a Business-to-Business Context: A Dyadic Analysis,” *Journal of the Academy of Marketing Science*, 32 (2), 144-158.

Honeycutt, E.D. Jr., T. Thelen, S.T. Thelen, and S.K. Hodge, (2005), “Impediments to Sales Force Automation,” *Industrial Marketing Management,* 34 (4), 313-322.

Howard, G.S. and A.L. Mendelow (1991), “Discretionary Use of Computers: An Empirically Derived Explanatory Model,” *Decision Sciences,* 22 (2), 241-265.

Hu, Q. and J. Quan (2005), “Evaluating the Impact of IT Investments on Productivity: A Causal Analysis at Industry Level,” *International Journal of Information Management*, 25 (1), 39-53.

Huber, G.P. (1990), “A Theory of the Effects of Advanced Information Technologies on Organizational Design, Intelligence, and Decision Making,” *The Academy of Management Review*, 15 (1), 47-71.

Huber, G.P. (1991), “Organizational Learning: The Contributing Processes and the Literatures,” *Organization Science*, 2 (1), Special Issue: Organizational Learning: Papers in Honor of (and by) James G. March, 88-115.

Hulland, J. (1999), “Use of Partial Least Squares in Strategic Management Research: A Review of Four Recent Studies,” *Strategic Management Journal,* 20 (2), 194-204.

Hunter, G.K. and W.D. Jr. Perreault (2006), “Sales Technology Orientation, Information Effectiveness and Sales Performance,” *Journal of Personal Selling and Sales Management*, 26 (2), 95-113.

Hunter, G.K. and W.D. Jr. Perreault (2007), “Making Sales Technology Effective,” *Journal of Marketing*, 71 (January), 16-34.

I

Iacobucci, D., A. Ostrom, and K. Grayson (1995), "Distinguishing Service Quality and Customer Satisfaction: The Voice of the Customer," *Journal of Consumer Psychology,* 4 (3), 277-303.

Igbaria, M. (1990), "End-User Computing Effectiveness: A Structural Equation Model," *Omega International Journal of Management Science*, 18 (6), 637-652.

Igbaria, M. (1993), "User Acceptance of Microcomputer Technology: An Empirical Test," *Omega International Journal of Management Science*, 21 (1), 73-90.

Igbaria, M. and Guimaraes, T (1994), "Empirically Testing the Outcomes of User Involvement in DSS Development," *Omega*, 22 (2), 157-172.

Igbaria, M., Guimaraes, T., and Davis, G.B (1995), "Testing the Determinants of Microcomputer Usage via a Structural Equation Model," *Journal of Management Information Systems*, 11 (4), 87-114.

Igbaria, M. and Iivari, J. (1995), "The Effects of Self-Efficacy on Computer Usage," *Omega,* 23 (6), 587-605.

Igbaria, M., Parasraman, S. and Baroudi, J.J. (1996), "A Motivational Model of Microcomputer Usage," *Journal of Management Information Systems*, 13 (1), 127-143.

Igbaria, M. and Tan, M. (1997), "The Consequences of Information Technology Acceptance on Subsequent Individual Performance," *Information and Management*, 32 (3), 113-121.

Ingram, T.N. (1996), "Relationship Selling: Moving from Rhetoric to Reality," *Journal of Business Research*, 11 (Spring), 5-14.

Ingram, T.N., R.W. LaForge, and T.W. Leigh (2002), "Selling in the New Millennium: A Joint Agenda," *Industrial Marketing Management,* 31 (7), 1-9.

Itami, H. and T. Roehl (1987), *Mobilizing Intangible Assets*, Massachusetts: Cambridge Press.

Ives, B. and M.H. Olson (1984), "User Involvement and MIS Success: A Review of Research," *Management Science*, 30 (5), 586-603.

J

Jacoby, J. (1978), "Consumer Research: A State of the Art Review," Journal of Marketing, 42 (2), 87-96.

Jaramillo, F., J.P. Mulki, and G.W. Marshall (2005), "A Meta-Analysis of the Relationship between Organizational Commitment and Salesperson Job Performance: 25 Years of Research," *Journal of Business Research*, 58 (6), Special Section: The Nonprofit Marketing Landscape, 705-714.

Jarvenpaa, S.L. and B. Ives (1991), "Executive Involvement and Participation in the Management of Information Technology," *MIS Quarterly*, 15 (2), 205-227.

Jarvenpaa, S.L. and B. Ives (1994), "Organizational Fit and Flexibility: IT Design Principles for a Globally Competing Firm," R*esearch in Strategic Management and Information Technology*, 1 (39).

Jarvenpaa, S.L. and D.E. Leidner (1998), "An Information Company in Mexico: Extending the Resource-Based View of the Firm to a Developing Country Context," *Information Systems Research*, 9 (4), 342-361.

Jarvis, C.B., S.B. MacKenzie, and P.M. Podsakoff (2003), "A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research," *Journal of Consumer Research,* 30 (September), 199-218.

Jasperson, J., P.E. Carter, and R.W. Zmud (2005), "A Comprehensive Conceptualization of Post-Adoptive Behaviors Associated with Information Technology Enabled Work Systems," *MIS Quarterly,* 29 (3), 525-557.

Jaworski, B. (1988), "Toward a Theory of Marketing Control: Environmental Context, Control Types, and Consequence," *Journal of Marketing*, 52, 23-39.

Jaworski, B. and A.K. Kohli (1991), "Supervisory Feedback: Alternative Types and Their Impact on Salespeople's Performance and Satisfaction," *Journal of Marketing Research*, (May), 190-201.

Jayachandran, S., S. Sharma, P. Kaufman, and P. Raman (2005), "The Role of Relational Information Processes and Technology Use in Customer Relationship Management," *Journal of Marketing*, 69 (4), 177-192.

Jelinek, R., M. Ahearne, J. Mathieu, and N. Schillewaert, (2006), "A Longitudinal Examination of Individual, Organizational and Contextual Factors on Technology Adoption and Job Performance," *Journal of Marketing Theory and Practice,* 14 (1), 7-23.

Johnson, D.S. and S. Bharadwaj (2005), "Digitization of Selling Activity and Sales Force Performance: An Empirical Investigation," *Journal of the Academy of Marketing Science*, 33 (1), 3-18.

Johnson, J.T., H.C. Barksdale, and J.S. Boles (2001), "The Strategic Role of the Salesperson in Reducing Customer Defection in Business Relationships," *Journal of Personal Selling and Sales Management*, 21 (2), 123-134.

Jones, E., S.P. Brown, A.A. Zoltners, and B.A. Weitz, (2005), "The Changing Environment of Selling and Sales Management," *Journal of Personal Selling and Sales Management,* 25 (2), 105-111.

Jones, E., A.L. Dixon, L.B. Chonko, and J.P. Cannon (2005), "Key Accounts and Team Selling," *Journal of Personal Selling and Sales Management*, 25 (2), 181-198.

Jones, E., S. Sundaram, and W.W. Chin (2002), "Factors Leading to Sales Force Automation Use: A Longitudinal Analysis," Journal of Personal Selling and Sales Management, 22 (3), 145-156.

Jorgenson, D.W. (2001), "Information Technology and the U.S. Economy," *American Economic Review*, 91 (1), 1-32.

Jorgenson, D.W. and K.J. Stiroh (2000), "U.S. Economic Growth at the Industry Level," *American Economic Review*, 90 (2), Papers and Proceedings of the One Hundred Twelfth Annual Meeting of the American Economic Association, 161-167.

Jöreskog, K.G. and D. Sörbom (1989), *LISREL 7: A Guide to the Program and Applications,* Chicago: SPSS.

K

Kager, P., S. Dettmar, and J.J. Malek (2002), "Running a Tight Ship," Pharmaceutical Executive, [available at: http://pharmexec.findpharma.com/pharmexec/article/articleDetail.jsp?id=9177].

Kallman, E.A. and K. O'Neill (1993), "The Critical Success Factors of Distributed Computing are Organizational, not Technological," *Journal of Information Technology Management*, 4.

Kanuk, L. and C. Berensen (1975), "Mail Surveys and Response Rates: A Literature Review," *Journal of Marketing Research*, 12, 440-453.

Kaplowitz, M.D., T.D. Hadlock, and R. Levine (2004), "A Comparison of Web and Mail Survey Response Rates," *Public Opinion Quarterly*, 68 (1), 94-101.

Karahanna, E., R. Agarwal, C. Angst (2006), "Reconceptualizing Compatibility Beliefs in Technology Acceptance Research," *MIS Quarterly*, 30 (4), 781-804.

Karahanna, E. and D.W. Straub (1999), "The Psychological Origins of Perceived Usefulness and Ease of Use," *Information & Management*, 35, 237-250.

Karahanna, E., D.W. Straub, and N.L. Chervany (1999), "Information Technology Adoption across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs," *MIS Quarterly*, 23 (2), 183-213.

Keen P.G.W. (1993), "Information Technology and the Management Difference: A Fusion Map," *IBM Systems Journal*, 32 (1), 17-39.

Keillor, B.D., R.E. Bashaw, C.E. Pettijohn (1997), "Sales Force Automation Issues prior to Implementation: The Relationship between Attitudes toward Technology, Experience and Productivity," *Journal of Business & Industrial Marketing*, 12 (3/4), 209-219.

Keillor, B.D., C.E. Pettijohn, and M. d'Amico (2001), "The Relationship between Attitudes toward Technology, Adaptability, and Customer Orientation among Professional Salespeople," *Journal of Applied Business Research*, 17 (4).

Kerlinger, F.N. (1986), *Foundations of Behavioral Research*, New York: Holt, Rinehart & Winston.

Kettinger, W.J., V. Grover, S. Guha, and A.H. Segars (1994), "Strategic Information Systems Revisited: A Study in Sustainability and Performance," *MIS Quarterly*, 18 (1), 33-51.

Khandpur, N. and J. Wevers (1998), *Sales Force Automation Using Web Technologies*, New York: Wiley.

King, W.R. and J. He (2006), "A Meta-Analysis of the Technology Acceptance Model," *Information & Management*, 43 (6), 740-755.

Klein, B. and K. Lefler (1981), "The Role of Price in Guaranteeing Quality," *Journal of Political Economy,* 89, 615-641.

Kleinbaum, D.G., L.L. Kupper, and K.E. Muller (1988), *Applied Regression Analysis and Other Multivariate Methods*, 2nd ed. Boston: PWS-Kent Publishing Co.

Ko, D.G. and A.R. Dennis (2004), "Sales Force Automation and Sales Performance: Do Experience and Expertise Matter?" *Journal of Personal Selling and Sales Management,* 24 (4), 311-322.

Kohli, R. and S. Devaraj (2003), "Measuring Information Technology Payoff: A Meta–Analysis of Structural Variables in Firm–Level Empirical Research," Information Systems Research, 14 (2), 127-145.

Kohli, R. and S. Devaraj (2004), "Realizing the Business Value of Information Technology Investment: An Organizational Process," *MIS Quarterly Executive*, 3 (1), 53-68.

Kohli, R. and V. Grover (2008), "Business Value of IT: An Essay on Expanding Research Directions to Keep up with the Times," *Journal of the AIS*, 9 (1), 23-39.

Kohli, A.K. and B.J. Jaworski (1990), "Market Orientation: The Construct, Research Propositions, and Managerial Implications," *Journal of Marketing*, 54 (2), 1-18.

Kohli, A.K., T.A. Shervani, and G.N. Challagalla (1998), "Learning and Performance Orientation of Salespeople: The Role of Supervisors," *Journal of Marketing Research,* 35 (May), 263-274.

Kraemer, K.L. and J. Dedrick (2001), "Information Technology and Economic Development: Results and Policy Implications of Cross-Country Studies," in *Information Technology, Productivity, and Economic Growth*, M. Pohjola, ed. Oxford: Oxford University Press.

Krafft, M., O. Götz, K. Liehr-Gobbers (2005), "Die Validierung von Strukturgleichungsmodellen mit Hilfe des Partial-Least-Squares (PLS)-Ansatzes" in *Handbuch PLS-Pfadmodellierung: Methode, Anwendung, Praxisbeispiele,* F. Bliemel, A. Eggert, G. Fassott and J. Henseler, eds. Stuttgart: Schäffer-Poeschel, 71-86.

Kraut, R.E., R.E. Rice, C. Cool, and R.S. Fish (1998), "Varieties of Social Influence: The Role of Utility and Norms in the Success of a New Communication Medium," *Organization Science*, 9 (4), 437-453.

Kriebel, C.H. and R. Kauffman (1988), "Modeling and Measuring the Business Value of Information Technology," in *Measuring Business Value of Information Technologies*, P. Berger, J.G. Kobielus, and D.E. Sutherland, eds. Washington: ICIT Press.

Kumar, A.N. (1999), "On Changing from Written to Online Tests in Computer Science I: An Assessment," ACM SIGCSE Bulletin, 31 (3), 25-28.

Kwon, T.H. and R.W. Zmud (1987), "Unifying the Fragmented Models of Information Systems Implementation," in *Critical Issues in Information Systems Research*, R.J. Boland and R.A. Hirschheim, eds. NJ: Wiley.

L

Landry, T.D., T.J. Arnold, and A. Arndt (2005), "A Compendium of Sales-Related Literature in Customer Relationship Management: Processes and Technologies with Managerial Implications," *Journal of Personal Selling and Sales Management,* 25 (3), 231-251.

Lee, D. (2000), "Four Steps to Success with CRM," [available at www.crmguru.com].

Lee, C.S. (2001), "Modeling the Business Value of Information Technology," *Information & Management*, 39, 191-210.

Lee, B. and Barua, A. (1999), "An Integrated Assessment of Productivity and Efficiency Impacts of Information Technology Investments: Old Data, New Analysis and Evidence," *Journal of Productivity Analysis,* (12), 21-43.

Lee, Y., K.A. Kozar, and K.R.T. Larsen (2003), "The Technology Acceptance Model: Past, Present and Future," *Communications of the AIS*, 12 (50), 752-780.

Leigh, T. and G. Marshall (2001), "Research Priorities in Sales Strategy and Performance," *Journal of Personal Selling and Sales Management*, 21, 83-93.

Le Bon, J. and D. Merunka (2006), "The Impact of Individual and Managerial Factors on Salespeople's Contribution to Marketing Intelligence Activities," *International Journal of Research in Marketing*, 23, 395-408.

Legris, P., J. Ingham, and P. Collerette (2003), "Why Do People Use Information Technology: A Critical Review of the Technology Acceptance Model," *Information & Management,* 40 (3), 191-204.

Lehr, B. and F. Lichtenberg (1999), "Information Technology and Its Impact on Productivity: Firm-Level Evidence from Government and Private Data Sources, 1977-1993," Canadian Journal of Economics, 32 (2), Special Issue on Service Sector Productivity and the Productivity Paradox, 335-362.

Leonard-Barton, D. (1992), "Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development," *Strategic Management Journal*, 13, 111-125.

Leonard-Barton, D. and I. Deschamps (1988), "Managerial Influence in the Implementation of New Technology," *Management Science,* 34 (10), 1252-1265.

Leong, L., (2003), "Theoretical models in IS research and the Technology Acceptance Model (TAM)," in *Technologies & Methodologies for Evaluating Information Technology in Business*, 1-31.

Lepper, M.R. (1985), "Microcomputers in Education: Motivational and Social Issues," *American Psychologist*, 40 (1), 1-18.

Levin, N. and J. Zahavi (2001), "Predictive Modeling Using Segmentation," *Journal of Interactive Marketing*, 15 (Spring), 2-22.

Liang, H., N. Saraf, Q. Hu, and Y. Xue (2007), "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management," *MIS Quarterly,* 31 (1), 58-87.

Lichtenberg, F.R. (1993), "The Output Contributions of Computer Equipment and Personnel: A Firm-Level Analysis," National Bureau of Economic Research, Working Paper No. 4540.

Lichtenberg, F.R. (1995), "The Output Contributions of Computer Equipment and Personnel: A Firm-Level Analysis," *Economics of Innovation and New Technology*, 3, 201-217.

Lindell, M.K. and D.J. Whitney (2001), "Accounting for Common Method Variance in Cross-Sectional Research Designs," *Journal of Applied Psychology,* 86 (1), 114-121.

Lohmoller, J.B. (1989), "The PLS Program System: Latent Variables Path Analysis with Partial Least Squares Estimation," *Multivariate Behavioral Research*, 125-127.

Lopes, A.B. and D. Galletta (1997), "Resource-Based Theory and a Structural Perspective of Strategy Applied to the Provision of Internet Services" in *Proceedings of the 3rd Americas Conference on Information Systems,* Indianapolis.

Loveman, G.W. (1994), "An Assessment of the Productivity Impact on Information Technologies," in *Information Technology and the Corporation of the 1990s: Research Studies*, T.J. Allen and M.S. Scott Morton, eds. Cambridge: MIT Press, 84-110.

Lucas, H.C. (1993), "The Business Value of Information Technology: A Historical Perspective and Thoughts for Future Research." in *Strategic Information Technology Management: Perspectives on Organizational Growth and Competitive Advantage*, R.D. Banker, R.J. Kauffman and M.A. Mahmood, eds. Harrisburg, Pennsylvania: Idea Group Publishing, 359-374.

M

MacCallum, R.C. and M.W. Browne (1993), “The Use of Causal Indicators in Covariance Structure Models: Some Practical Issues,” *Psychological Bulletin*, 114, 533-541.

MacDonald, J.B. and K. Smith (2004), “The Effects of Technology-Mediated Communication on Industrial Buyer Behavior,” *Industrial Marketing Management*, 33, 107-116.

MacKenzie, S.B. (2003), “The Dangers of Poor Construct Conceptualization,” *Journal of the Academy of Marketing Science*, 31 (3), 323-326.

Makadok, R. (2001), “Toward a Synthesis of the Resource-Based and Dynamic-Capability Views of Rent Creation,” *Strategic Management Journal*, 22 (5), 387-401.

Marchand, D.A., W.J. Kettinger, and J.D. Rollins (2000), “Information Orientation: People, Technology and the Bottom Line,” *Sloan Management Review*, Summer, 69-80.

Marcolides, G.A. and C. Saunders (2006), “PLS: A Silver Bullet?” *MIS Quarterly*, 30 (2), iii-ix.

Markus L. (1990), “Toward a Critical Mass Theory of Interactive Media: Universal Access, Interdependence and Diffusion,” in *Organizations and Communication Technology,* J. Fulk, C. Steinfeld, eds. Newbury Park: Sage.

Markus, M.L. and D. Robey (1988), “Information Technology and Organizational Change: Causal Structure in Theory and Research,” *Management Science*, 34 (5), 583-598.

Markus, M.L. and C. Soh (1993), “Banking on Information Technology: Converting IT Spending into Firm Performance,” in *Strategic Information Technology Management: Perspectives on Organizational Growth and Competitive Advantage*, R.D. Banker, R.J. Kauffman, and M.A. Mahmood, eds. Harrisburg: Idea Group Publishing, 364-392.

Marshall, G.W., W.C. Moncrief, and F.G. Lassk (1999), “The Current State of Sales Force Activities,” *Industrial Marketing Management*, 28, 87-98.

Marshall, T.E., T.A. Byrd, L.R. Gardiner, and R.K. Jr. Rainer (2000), "Technology Acceptance and Performance: An Investigation into Requisite Knowledge," *Information Resources Management Journal*, 13 (3), 33-45.

Marshall, G.W. and R.E. Michaels (2001), "Research in Selling and Sales Management in the Next Millennium: An Agenda from the AMA Faculty Consortium," *Journal of Personal Selling and Sales Management*, 21 (1), 15-17.

Mata, F.J., W.L. Fuerst, and J.B. Barney (1995), "Information Technology and Sustained Competitive Advantage: A Resource-based Analysis," *MIS Quarterly*, 19 (4), 487-505.

Mathieson, K. (1991), "Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior," *Information Systems Research*, 2, 173-191.

May, T. (1993), *Social Research: Issues, Methods and Process*, New Jersey: Prentice-Hall.

McAfee, A. (2002), "The Impact of Enterprise Information Technology Adoption on Operational Performance: An Empirical Investigation," *Production and Operations Management,* 11 (1), 33-53.

McKeen, J.D. and H.A. Smith (1993), "The Relationship between Information Technology Use and Organizational Performance," in *Strategic Information Technology Management*, R. Banker, R. Kauffman, M.A. Mahmood, eds. Harrisburg: Idea Group, 405-445.

Melone, N.P. (1990), "A Theoretical Assessment of the User-Satisfaction Construct in Information Systems Research," *Management Science*, 36 (1), 76-91.

Melville, N., K. Kraemer, and V. Gurbaxani (2004), "Review: Information technology and organizational performance: An integrative model of IT business value," *MIS Quarterly*, 28 (2), 283-322.

Milgrom, P. and J. Roberts (1990), "Bargaining Costs, Influence Costs and the Organization of Economic Activity," in *Perspectives on Positive Political Economy*, J.E. Alt and K.A. Shepsle, eds. Cambridge: Cambridge University Press, 57-89.

Mithas, S., M.S. Krishnan, and C. Fornell (2005), "Why Do Customer Relationship Management Applications Affect Customer Satisfaction?" *Journal of Marketing*, 69 (October), 201-209.

Mohr, L.B. (1982), *Explaining Organizational Behavior (1st ed.),* San Francisco: Jossey-Bass.

Moncrief, W.C. (1986), "Selling Activities and Sales Position Taxonomies for the Industrial Sales Forces," *Journal of Marketing Research,* 23 (August), 261-271.

Moncrief, W.C., C. Lamb, and J. MacKay (1991), "Laptop Computers in Industrial Sales," *Industrial Marketing Management*, 20, 279-285.

Moncrief, W.C. and G.W. Marshall (2005), "The Evolution of the Seven Steps of Selling," *Industrial Marketing Management*, 34 (1), 13-22.

Mooney, J., V. Gurbaxani, and K.L. Kraemer (1995), "A Process-Oriented Framework for Assessing the Business Value of Information Technology," Working Paper, Center for Research on Information Technology and Organizations.

Morgan, R.M. and S.D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (July), 20-38.

Morgan, A. and S.A. Inks (2001), "Technology and the Sales Force: Increasing Acceptance of Sales Force Automation," *Industrial Marketing Management*, 30 (5), 463-472.

Moriarty, R.T. and G.S. Swartz (1989), "Automation to Boost Sales and Marketing," *Harvard Business Review*, January-February, 100-108.

Morris, M.G. and V. Venkatesh (2000), Age Differences in Technology Adoption Decisions: Implications for a Changing Work Force," *Personnel Psychology*, 53, 375-403.

Moutot, J.M. and G. Bascoul (2008), "Effects of Sales Force Automation Use on Sales Force Activities and Customer Relationship Management Processes," *Journal of Personal Selling and Sales Management,* 28 (2), 167-184.

Mukhopadhyay, T., S. Kekre, and S. Kalathur (1995), "Business Value of Information Technology: A Study of Electronic Data Interchange," *MIS Quarterly,* 19 (2), 137-156.

Mukhopadhyay, T., S. Rajiv, and K. Srinivasan (1997), "Information Technology Impact on Process Output and Quality," *Management Science*, 43, 1645-1660.

N

Narver, J.C. and S.F. Slater (1990), "The Effect of Market Orientation on Business Profitability," *Journal of Marketing*, 27 (October), 20-35.

Nunnally, J.C. (1967), *Psychometric Theory*, New York: McGraw-Hill Book Company.

Nunnally, J.C. (1978), *Psychometric Theory (2nd ed.)*, New York: McGraw-Hill.

O

Oliner, S.D. and D.E. Sichel (2000), "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?" *Economical Perspectives,* 14 (4), 3-22.

Oliver, R.L. and E. Anderson (1994), "An Empirical Test of the Consequences of Behavior- and Outcome-Based Sales Control Systems," *Journal of Marketing*, 58 (October), 53-67.

Ostroff, C., A.J. Kinicki, and M.A. Clark (2002), "Substantive and Operational Issues of Response Bias across Levels of Analysis: An Example of Climate-Satisfaction Relationship," *Journal of Applied Psychology*, 87 (2), 355-368.

P

Parthasarathy, M. and R.S. Sohi (1997), "Sales Force Automation and the Adoption of Technological Innovations by Salespeople: Theory and Implications," *Journal of Business and Industrial Marketing*, 12 (3), 196-201.

Pass, M.W., K.R. Evans, and J.L. Schlacter (2004), "Sales Force Involvement in CRM Information Systems: Participation, Support, and Focus," *Journal of Personal Selling and Sales Management*, 24 (3), 229-234.

Payne, A. and P. Frow (2005), "A Strategic Framework for Customer Relationship Management," *Journal of Marketing*, 69 (October), 167-176.

Payne, A., and P. Frow (2006), "Customer Relationship Management: From Strategy to Implementation," *Journal of Marketing Management*, 22, 135-168.

Penrose, E. (1959), *The Theory of the Growth of the Firm*, London: Basil Blackwell.

Peter, J.P. (1979), "Reliability: A Review of Psychometric Basics and Recent Marketing Practices," *Journal of Marketing Research*, 16 (February), 6-17.

Peter, J.P. and G.A. Churchill (1986), "Relationship among Research Design and Psychometric Properties of Rating Scales: A Meta-Analysis," *Journal of Marketing Research*, 23 (1), 1-10.

Petersen, G.S. (1997), *High Impact Sales Force Automation*, Florida: St. Lucie Press.

Plouffe, C.R., B.C. Williams, and T.W. Leigh (2004), "Who's On First? Stakeholder Differences in Customer Relationship Management and the Elusive Notion of 'Shared Understanding'," *Journal of Personal Selling and Sales Management*, 24 (4), 323-338.

Podsakoff, P.M. and D.W. Organ (1986), "Self-Reports in Organizational Research: Problems and Prospects," *Journal of Management*, 12 (4), 531-544.

Podsakoff, P.M., S.B. MacKenzie, J. Lee, and N.P. Podsakoff (2003), "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology,* 88 (5), 879-903.

Porter, M.E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, New York: Free Press.

Porter, M.E. (1991), "Towards a Dynamic Theory of Strategy," *Strategic Management Theory*, 12 (1), 95-117.

Porter, M.E. (2001), "Strategy and the Internet," *Harvard Business Review*, March, 62-79.

Porter, M.E. and Millar, V.E. (1985), "How Information Gives You a Competitive Advantage," *Harvard Business Review*, 63 (4), 149-160.

Porter, L.W. and E.E. Lawler (1968), *Managerial attitudes and performance*, Homewood: Irwin.

Powell, T.C. and A. Dent-Micallef (1997), "Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources," *Strategic Management Journal*, 18 (5), 375-405.

Powell, A., G. Piccoli, and B. Ives (2004), "Virtual Teams: A Review of Current Literature and Directions for Future Research," *The Database for Advances in Information Systems*, 35 (1), 6-36.

Prahalad, C.K. and H. Gary (1990), "The Core Competence of the Corporation," *Harvard Business Review*, May-June, 71-91.

Pullig, C., J.G. Maxham, and J.F. Hair (2002), "Sales Force Automation Systems: An Exploratory Examination of Organizational Factors Associated with Effective Implementation and Sales Force Productivity," *Journal of Business Research,* 55 (5), 401-415.

Purvis, R.L., V. Sambamurthy, and R.W. Zmud (2001), "The Assimilation of Knowledge Platforms in Organizations: An Empirical Investigation," *Organization Science,* 12 (2), March-April, 117-135.

R

Rackham, N. and J. De Vincentis (1999), *Rethinking the Sales Force: Redefining Selling to Create and Capture Customer Value*, New York: McGraw Hill.

Radhakrishnan, A., X. Zu, and V. Grover, (2008), "A Process-Oriented Perspective on Differential Business Value Creation by Information Technology: An Empirical Investigation," *Omega*, 36 (6), 1105-1125.

Rai, A., R. Patnayakuni, N. Patnayakuni (2006), "Firm Performance Impacts of Digitally Enabled Supply Chain Integration Capabilities," *MIS Quarterly*, 30 (2), 225-246.

Raman, P., M. Wittmann, and N.A. Rauseo (2006), "Leveraging CRM for Sales: The Role of Organizational Capabilities in Successful CRM Implementation," *Journal of Personal Selling and Sales Management,* 26 (1), 39-53.

Rangarajan, D., E. Jones, and W. Chin (2005), "Impact of Sales Force Automation on Technology-Related Stress, Effort, and Technology Usage among Salespeople," *Industrial Marketing Management*, 34, 345-354.´

Ray, G., J.B. Barney, and W.A. Muhanna (2004), "Capabilities, Business Processes, and Competitive Advantage: Choosing the Dependent Variable in Empirical Tests of the Resource-Based View," *Strategic Management Journal*, 25 (1), 23-37.

Ray, G., W.A. Muhanna, and J.B. Barney (2005), "Information Technology and the Performance of the Customer Service Process: A Resource-Based Analysis," *MIS Quarterly*, 29 (4), 625-652.

Real, J.C., A. Leal, J.L. Roldàn (2006), "Information Technology as a Determinant of Organizational Learning and Technological Distinctive Competencies," *Industrial Marketing Management,* 35, 505-521.

Reed, R., and R.J. DeFillipe (1990), "Causal Ambiguity, Barriers to Imitation, and Sustainable Competitive Advantage," *Academy of Management Review*, 15 (1), 88-102.

Reinartz, W., M. Krafft, and W.D. Hoyer (2004), "The Customer Relationship Management Process: Its Measurement and Impact on

Performance," *Journal of Marketing Research*, 41 (August), 293-305.

Reinartz, W. and V. Kumar (2002), "The Mismanagement of Customer Loyalty," *Harvard Business Review*, July, 4-12.

Reynolds, N.L., A.C., Simintiras, and A. Diamantopoulos (2003), "Theoretical Justification of Sampling Choices in International Marketing Research: Key Issues and Guidelines for Researchers," *Journal of International Business Studies*, 34 (1), 80-89.

Rigby, D.K. and D. Ledingham (2004), "CRM Done Right," *Harvard Business Review*, November, 118-129.

Rigby, D.K., F.F. Reichheld, and P. Schefter (2002), "Avoid the 4 Perils of CRM," *Harvard Business Review,* 80 (2), 101-109.

Rindfleisch, A., A.J. Malter, S. Ganesan, and C. Moorman (2008), "Cross-Sectional Versus Longitudinal Survey Research: Concepts, Findings, and Guidelines," *Journal of Marketing Research*, 55 (June), 261-279.

Ringle, C.M., S. Wende, and A. Will (2005), *SmartPLS 2.0 (beta)*, Software, University of Hamburg, Germany, [available at www.smartpls.de].

Rivers, M. and J. Dart (1999), "The Acquisition and Use of Sales Force Automation by Mid-Sized Manufacturers," *Journal of Personal Selling and Sales Management*, 19 (2), 59-73.

Roach, S. (1987), "America's Technology Dilemma: A Profile of the Information Economy," Special Economic Study, Morgan Stanley, New York.

Robinson, L. Jr., G.W. Marshall, and M.B. Stamps (2005a), "Sales Force Use of Technology: Antecedents to Technology Acceptance," *Journal of Business Research*, 58, 1623-1631.

Robinson, L. Jr., G.W. Marshall, and M.B. Stamps (2005b), "An Empirical Investigation of Technology Acceptance in a Field Sales Force Setting," Industrial Marketing Management, 34 (4), 407-415.

Rodgers, W. and P. Pavlou (2003), "Developing a Predictive Model: A Comparative Study of the Partial Least Squares vs. Maximum Likelihood Model," Working Paper.

Rogers, E.M. (1995), *Diffusion of Innovations*, New York: Free Press.

Ross. J.W., C.M. Beath, and D.L. Goodhue (1996), "Develop Long-Term Competitiveness through IT Assets," *Sloan Management Review*, 38 (1), 31-42.

Rossiter, J.R. (2002), "The C-OAR-SE Procedure for Scale Development in Marketing," *International Journal of Research in Marketing*, 19 (4), 305-335.

Rouzies, D., E. Anderson, A.K. Kohli, R.E. Michaels, B.A. Weitz, and A.A. Zoltners (2005), "Sales and Marketing Integration," *Journal of Personal Selling and Sales Management*, 25 (2), 113-122.

Ruekert, R.W. and G.A. Churchill (1984), "Reliability and Validity of Alternative Measures of Channel Member Satisfaction," *Journal of Marketing Research*, 21 (2), 226-233.

Rumelt, R.P. (1984), "Towards a Strategic Theory of the Firm" in *Competitive Strategic Management*, R. Lamb ed. Englewood Cliffs: Prentice-Hall, 556-570.

Ryals, L. and S. Knox (2001), "Cross-Functional Issues in the Implementation of Relationship Marketing Through Customer Relationship Management," *European Management Journal*, 19 (5), 534-542.

S

Sabherwal, R. and Y.E. Chan (2001), "Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders," *Information Systems Research*, 12 (1), 11-33.

Saga, V.L. and R.W. Zmud (1994), "The Nature and Determinants of IT Acceptance, Routinization, and Infusion," in *Diffusion, Transfer and Implementation of Information Technology*, L. Levine, ed. Software Engineering Institute, Carnegie Mellon University, Pittsburgh, 67-86.

Sambamurthy, V. and W.W. Chin (1994), "The Effects of Group Attitudes toward Alternative GDSS Designs on the Decision-Making Performance of Computer-Supported Groups," *Decision Sciences*, 25 (2), 215-241.

Sanchez, R., A. Heene, and H. Thomas (1996), *Introduction: Towards the Theory and Practice of Competence-Based Competition*, Oxford: Pergamon Press.

Santhanam, R. and E. Hartono (2003), "Issues in Linking Information Technology Capability to Firm Performance," *MIS Quarterly*, 27 (1), 125-153.

Schepers, J. and M. Metzels (2007), "A Meta-Analysis of the Technology Acceptance Model: Investigating Subjective Norm and Moderation Effects," *Information and Management*, 44 (1), 90-103.

Schillewaert, N., M. Ahearne, R.T. Frambach, and R.K. Moenaert (2005), "The Adoption of Information Technology in the Sales Force," *Industrial Marketing Management,* 34 (4), 323-336.

Schoemaker, P. and R. Amit (1994), "Investment in Strategic Assets: Industry and Firm Level Perspectives," in *Advances in Strategic Management: Resource-Based View of the Firm,* P. Srivastava, A. S. Huff, and J. E. Dutton, eds. Greenwich: JAI Press, 3-33.

Seddon, P.A. (1997), "Respecification and Extension of the DeLone and McLean Model of IS Success," *Information Systems Research*, 8 (3), 240-253.

Selnes, F. and J. Sallis (2003), "Promoting Relationship Learning," *Journal of Marketing*, 67 (July), 80-95.

Sharma, A. (2002), “Trends in Internet-Based Business-to-Business Marketing,” *Industrial Marketing Management*, 31 (February), 77-84.

Sharma, R., and P. Yetton (2003), “The Contingent Effects of Management Support and Task Interdependence on Successful Information Systems Implementation,” *MIS Quarterly*, 27 (4), 533-555.

Shirani, A.I., M.H.A. Tafti, J.F. Affisco (1999), Task and Technology Fit: A Comparison of Two Technologies for Synchronous and Asynchronous Group Communication,” *Information & Management*, 36, 139-150.

Shoemaker, M.E. (2001), “A Framework for Examining IT-Enabled Market Relationships,” *Journal of Personal Selling and Sales Management,* 21 (2), 177-185.

Siegel, D. (1997), “The Impact of Computers on Manufacturing Productivity Growth: A Multiple-Indicators, Multiple-Causes Approach,” *Review of Economics and Statistics*, 79 (1), 68-78.

Singh, J. (1993), “Boundary Role Ambiguity: Facets, Determinants, and Impacts,” *Journal of Marketing*, 57 (April), 11-31.

Singh, J. (1998), “Striking a Balance in Boundary-Spanning Positions: An Investigation of Some Unconventional Influences of Role Stressors and Job Characteristics on Job Outcomes of Salespeople,” *Journal of Marketing*, 62 (3), 69-87.

Singh, J. and G.K. Rhoads (1991), “Boundary Role Ambiguity in Marketing-Oriented Positions: A Multidimensional, Multifaceted Operationalization,” *Journal of Marketing Research*, 28 (August), 328-338.

Singh, J., W. Verbeke, and G.K. Rhoads (1996), “Do Organizational Practices Matter in Role Stress Processes? A Study of Direct and Moderating Effects for Marketing-Oriented Boundary Spanners,” *Journal of Marketing*, 60 (3), 69-86.

Sujan, H., B.A. Weitz, and N. Kumar (1994), “Learning Orientation, Working Smart, and Effective Selling,” *Journal of Marketing*, 58 (3), 39-52.

Sinkula, J.M. (1994), “Market Information Processing and Organizational Learning, *Journal of Marketing*, 58, 35-45.

Slater, S.F. and J.C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing*, 59 (July), 63-74.

Smith, J.B. and D.W. Barclay (1997), "The Effects of Organizational Differences and Trust on the Effectiveness of Selling Partner Relationships," *Journal of Marketing*, 61 (January), 3-21.

Sobel, M. (1982), "Asymptotic Confidence Intervals for Indirect Effects on Structural Equation Models," in *Sociological Methodology*, S. Leinhardt, ed. Jossy-Bass, 290-312.

Soh, C. and M.L. Markus (1995), "How IT Creates Business Value: A Process Theory Synthesis," in *Proceedings of the 16th International Conference on Information Systems*, J.I. De Gross, G. Ariav, C. Beath, R. Hoyer, and C. Kemerer, eds., Amsterdam, 29-41.

Spector, P.E. (1992), "A Consideration of the Validity and Meaning of Self-Report Measures of Job Conditions," in *International review of industrial and organizational psychology*, C.L. Cooper, I.T. Robertson, eds. New York: Wiley, 123-151.

Speier, C. and V. Venkatesh (2002), "The Hidden Minefields in the Automation of Sales Force Automation Technologies," *Journal of Marketing,* 66 (July), 98-111.

Spiro, R.L. and B.A. Weitz (1990), "Adaptive Selling: Conceptualization, Measurement, and Nomological Validity," *Journal of Marketing Research*, February, 61-69.

Srivastava, R.K., T.A. Shervani, and L. Fahey (1999), "Business Processes and Shareholder Value: An Organizationally Embedded View of Marketing Activities and the Discipline of Marketing," *Journal of Marketing*, 63 (October), 168-180.

Srivastava, R.K., T.A. Shervani, and L. Fahey (1998), "Market-Based Assets and Shareholder Value: A Framework for Analysis," *Journal of Marketing*, 62 (January), 2-18.

Stajkovic, A.D. and F. Luthans (2001), "Differential Effects of Incentive Motivators on Work Performance," *Academy of Management Journal*, 44 (3), 580-590.

Steenkamp, J.E.M. and van Trijp, H.C.M. (1991), "The Use of LISREL in

Validating Marketing Constructs," *International Journal of Research in Marketing*, 8, 283-299.

Stoddard, J., S. Clopton, and R. Avila (2002), "Sales Force Automation: An Exploratory Study on Sales Professionals' Perceptions of Performance Benefits," *Marketing Management Journal,* 12 (2), 1-9.

Stone, E.F. (1978), *Research Methods in Organizational Behavior*, Glenview: Scott, Foresman & Company.

Stone, M., M. Hobbs, and M. Khaleeli (2002), "Multichannel Customer Management: The Benefits and Challenges," *Journal of Database Management*, 10 (1), 39-53.

Strassmann, P.A. (1985), *Information Payoff: The Transformation of Work in the Electronic Age*, New York, London: Free Press, Collier Macmillan.

Stratopoulos, T. and B. Dehning (2000), "Does Successful Investment in Information Technology Solve the Productivity Paradox?" *Information and Management,* 38 (2), 103-117.

Sujan, H. (1986), "Smarter vs. Harder: An Exploratory Attributional Analysis of Salespeople's Motivation," *Journal of Marketing Research*, 23, 41-49.

Sujan, H., B. Weitz, and N. Kumar (1994), "Learning Orientation, Working Smart, and Effective Selling," *Journal of Marketing*, 58 (July), 39-52.

Sujan, H., B.A. Weitz, and M. Sujan (1988), "Increasing Sales Productivity by Getting Salespeople to Work Smarter," *Journal of Personal Selling Sales Management*, 8, 9-19.

Sundaram, S., A. Schwarz, E. Jones, and W.W. Chin (2007), "Technology Use on the Front Line: How Information Technology Enhances Individual Performance." *Journal of the Academy of Marketing Science,* 35 (1), 101-112.

Sviokla, J. J. (1996), "Knowledge Workers and Radically New Technology," *Sloan Management Review*, 37 (4), 25-40.

Swenson, M.J. and A. Parrella (1992), "Cellular Telephones and the National Sales Force," *Journal of Personal Selling and Sales Management*, 12 (4), 67-74.

Swift, R.S. (2001), *Accelerating Customer Relationships: Using CRM and Relationship Technologies*, Upper Saddle River: Prentice Hall.

Szajna, B. (1996), “Empirical Evaluation of the Revised Technology Acceptance Model,” Management Science, 42 (1), 85-92.

T

Tallon, P.P., K.L. Kraemer, V. Gurbaxani, and J.G. Mooney (1999), "A Multidimensional Assessment of the Contribution of Information Technology to Firm Performance," Working Paper, CRITO.

Tallon, P.P., K.L. Kraemer, and V. Gurbaxani (2000), "Executives' Perceptions of the Business Value of Information Technology: A Process-Oriented Approach," *Journal of Management Information Systems*, 16 (4), 145-173.

Tam, K.Y. (1998), "The Impact of Information Technology Investments on Firm Performance and Evaluation: Evidence from Newly Industrialized Economies," *Information Systems Research*, 9 (1), 85-98.

Thakur, R., J.H. Summey, S.K. Balasubramanian (2006), "CRM as Strategy: Avoiding the Pitfall of Tactics," *Marketing Management Journal*, 16 (2), 147-154.

Tanner, J.F., M. Ahearne, T.W. Leigh, C.H. Mason, and W.C. Moncrief (2005), "CRM in Sales-Intensive Organizations: A Review and Future Directions," *Journal of Personal Selling and Sales Management*, 25 (2), 170-180.

Tanner, J.F. and S. Shipp (2005), "Sales Technology within the Salesperson's Relationships: A Research Agenda," *Industrial Marketing Management*, 34 (4), 305-312.

Teece, D.J., G. Pisano, and A. Shuen (1997), "Dynamic Capabilities in Strategic Management," *Strategic Management Journal*, 18, 509-534.

Thompson, R.L., C.A. Higgins, and J.M. Howell (1991), "Personal Computing: Toward a Conceptual Model of Utilization," *MIS Quarterly*, 15 (1), 125-143.

Triandis, H.C. (1971), *Attitude and Attitude Change*, New York: Wiley.

Tripoli, A.M. (1998), "Planning and Allocating: Strategies for Managing Priorities in Complex Jobs," *European Journal of Work and Organizational Psychology*, 7 (4), 455-476.

Tyagi, P.K. (1982), "Perceived Organizational Climate and the Process of

Salesperson Motivation," *Journal of Marketing Research*, 19, 240-254.

U

Ulaga, W. and A. Eggert (2006), "Value-Based Differentiation in Business Relationships: Gaining and Sustaining Key Supplier Status," *Journal of Marketing*, 70 (January), 119-136.

V

Venkatesh, V. (1999), "Creation of Favorable User Perceptions: Exploring the Role of Intrinsic Motivation," *MIS Quarterly*, 23 (2), 239-260.

Venkatesh, V. (2000), "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model," *Information Systems Research*, 11 (4), 342-365.

Venkatesh, V. and S.A. Brown (2001), "A Longitudinal Investigation of Personal Computers in Homes: Adoption Determinants and Emerging Challenges," *MIS Quarterly*, 25 (1), 71-102.

Venkatesh, V. and F.D. Davis (1996), "A Model of the Antecedents of Perceived Ease of Use: Development and Test," *Decision Sciences*, 27 (3), 451-481.

Venkatesh, V. and F.D. Davis (2000), "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science,* 46 (2), 186-204.

Venkatesh, V. and M.G. Morris (2000), "Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior," *MIS Quarterly*, 24 (1), 115-139.

Venkatesh, V., M.G. Morris, G.B. Davis, and F.D. Davis (2003), "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly,* 27 (3), 425-478.

Vinzi, V.E., C. Lauro, M. Tenenhaus (2003), "PLS Path Modeling," Working Paper.

W

Wade, M. and J. Hulland (2004), "The Resource-Based View and Information Systems Research: Review, Extension, and Suggestions for Future Research," *MIS Quarterly*, 28 (1), 107-142.

Walton, R. (1989), *Up and Running: Integrating Information Technology and the Organization*, Boston: Harvard Business School Press.

Webb, J. (2003), "Marketing Research," in *The Marketing Book*, M. Baker ed. Oxford: Elsevier Butterworth-Heinemann, 171-196

Weeks, W.A. and L.R. Kahle (1990), "Salesperson's Time Use and Performance," Journal of *Personal Selling and Sales Management*, 10 (February), 29-37.

Wedell, A. and D. Hempeck (1987), "Sales Force Automation: Here and Now," *Journal of Personal Selling and Sales Management*, 7 (August), 11–16.

Weill, P. (1992), "The Relationship between Investment in Information Technology and Firm Performance: A Study of the Valve Manufacturing Sector," *Information Systems Research*, 3 (4), 307-333.

Weitz, B. and K.D. Bradford (1999), "Personal Selling and Sales Management," *Journal of the Academy of Marketing Science*, 27 (2), 241-254.

Weitz, B.A., H. Sujan, and M. Sujan (1986). "Knowledge, Motivation, and Adaptive Behavior: A Framework for Improving Selling Effectiveness," *Journal of Marketing*, 50, 174–191.

Wernerfelt, B. (1984), "A Resource-Based View of the Firm," *Strategic Management Journal*, 5 (2), 171-180.

Widmier, S.M., D.W. Jackson, and D.B. McCabe (2002), "Infusing Technology into Personal Selling," *Journal of Personal Selling and Sales Management,* 22 (3), 189-198.

Wilson, D.D. (1995), "IT Investment and Its Productivity Effects: An Organizational Sociologist's Perspective on Directions for Future Research," *Economics of Innovation and New Technology*, 14 (3), 235-

251.

Wilson, H., E. Daniel, and M. McDonald (2002), “Factors for Success in Customer Relationship Management (CRM) Systems,” *Journal of Marketing Management*, 18 (1), 193-219.

Wold, H. (1974), “Causal Flows with Latent Variables,” *European Economic Review*, 5, 67-86.

Wold, H. (1982), “Soft Modeling: Intermediate Between Traditional Model Building and Data Analysis,” *Mathematical Statistics*, (6), 333-346.

Wold, H. (1985), “Systems Analysis by Partial Least Squares,” in *Measuring the Unmeasurable*, P. Nijkamp, L. Leitner, and N. Wrigley, eds. Dordrecht: Marinus Nijhoff, 221-251.

Wright, G. and B. Donaldson (2002), “Sales Information Systems in the UK Financial Services Industry: An Analysis of Sophistication of Use and Perceived Barriers to Adoption,” *International Journal of Information Management*, 22, 405-419.

Y

Yates, J., W.J. Orlikowski, and K. Okamura (1999), "Explicit and Implicit Structuring of Genres in Electronic Communication: Reinforcement and Change of Social Interaction," *Organization Science,* 10 (1), 83-103.

Yi, M.Y., K.D. Fiedler, and J.S. Park (2006), "Understanding the Role of Individual Innovativeness in the Acceptance of IT-Based Innovations: Comparative Analyses of Models and Measures," *Decision Sciences*, 37 (3), 393-426.

Yim, F.H., R.E. Anderson, and S. Swaminathan (2004), "Customer Relationship Management: Its Dimensions and Effect on Customer Outcomes," *Journal of Personal Selling and Sales Management*, 24 (4), 263-278.

Young, D. and J. Benamati (2000), "Differences in Public Web Sites: The Current State of Large US Firms," Journal of Electronic Commerce Research, 1(3), 94-105.

Z

Zablah, A.R., D.N. Bellenger, and W.J. Johnston (2004a), "Customer Relationship Management Implementation Gaps," *Journal of Personal Selling and Sales Management*, 24, 279-295.

Zablah, A.R., D.N. Bellenger, and W.J. Johnston (2004b), "An Evaluation of Divergent Perspectives on Customer Relationship Management: Towards a Common Understanding of an Emerging Phenomenon," *Industrial Marketing Management*, 33 (6), 475-489.

Zeithaml, V.A., R.T. Rust, and K.N. Lemon (2001), "The Customer Pyramid: Creating and Serving Profitable Customers," *California Management Review*, 3 (4), 118-142.

Zinkhan, G.M., E.A. Joachimsthaler, and T. Kinnear (1987), "Individual Differences and Marketing Decision Support System Usage and Satisfaction," *Journal of Marketing Research*, 24 (May), 208-214.

Zmud, R.W. and L.E. Apple (1992), "Measuring Technology Incorporation/Infusion," *Journal of Product Innovation Management,* 9 148-155.

Zoltners, A.A., S. Prabhakant, and G.A. Zoltners (2001), *The Complete Guide to Accelerating Sales Force Performance*, New York: AMACOM.

Zukerberg, A., E. Nichols and H. Tedesco (2000), "Designing Surveys for the Next Millennium: Internet Questionnaire Design Issues, Working Paper, National Center for Education Statistics, No. 2000-04, 79-86.