



University of Augsburg
Prof. Dr. Hans Ulrich Buhl
Research Center
Finance & Information Management
Department of Information Systems
Engineering & Financial Management

UNIA
Universität
Augsburg
University

Discussion Paper WI-275

Operational and Work System-related Success Factors for Customer Relationship Management in "Product Sales" and "Solution Sales" - a descriptive Case Study

by

Nora Kamprath, Maximilian Röglinger

in: Proceedings of the 18th European Conference on Information Systems,
Pretoria, South Africa, June 2010



The international Journal of
WIRTSCHAFTSINFORMATIK

OPERATIONAL AND WORK SYSTEM-RELATED SUCCESS FACTORS FOR CUSTOMER RELATIONSHIP MANAGEMENT IN “PRODUCT SALES” AND “SOLUTION SALES” – A DESCRIPTIVE CASE STUDY

Kamprath, Nora, FIM Research Center Finance & Information Management, Department of Information Systems Engineering & Financial Management, University of Augsburg, Universitätsstraße 12, 86159 Augsburg, Germany, nora.kamprath@wiwi.uni-augsburg.de

Dr. Röglinger, Maximilian, FIM Research Center Finance & Information Management, Department of Information Systems Engineering & Financial Management, University of Augsburg, Universitätsstraße 12, 86159 Augsburg, Germany, maximilian.roeglinger@wiwi.uni-augsburg.de

Abstract

Despite much IS research on customer relationship management (CRM) and respective (critical) success factors (SFs), CRM initiatives are still subject to high failure rates. One reason may be that many studies rather exclusively deal with a technological and project perspective and thus focus on CRM-related IT systems and their introduction. As a consequence, no holistic perspective on CRM in the sense of an integrated and IT-reliant work system is taken on. In addition, existing SFs are rather abstract and barely useful for practitioners. Thus, there is a research need for SFs that are concrete – which will be referred to as operational – and beyond IT. In order to attain preliminary knowledge, we conducted a descriptive single-case study within the German sales department of a global company from the electronics and electrical engineering industry. In the course of a two-stage data collection and analysis process, 56 sales managers of the two sales types “product sales” and “solution sales” were interviewed as regards organizational setting, sales process, and information requirements. As contribution, we propose rankings of operational and work system-related SFs, additional qualitative information, and differences between “product sales” and “solution sales”.

Keywords: Customer Relationship Management, Sales Departments, Success Factors, Case Study.

1 INTRODUCTION

After many years of enthusiasm, customer relationship management (CRM) faces an ambivalent discussion. CRM may be defined as a strategic initiative with the objective of creating improved shareholder value via profitable and long-term customer relationships by aligning the activities of sales, marketing, and service departments as well as by employing modern IT systems (e. g. Goodhue et al. 2002, Hippner et al. 2006, Payne et al. 2005). The ambivalent discussion is for example rooted in the fact that CRM-related IT initiatives can achieve high return on investment, but also suffer from high failure rates. An indication of the former may be the fact that the worldwide market of CRM-related IT systems was – at least before the worldwide financial crisis – expected to grow by an average annual rate of 10 % up to \$13.3 billion in 2012 (Mertz 2008). This contrasts sharply with reported failure rates of up to 75 % (Langerak et al. 2003, Reinartz et al. 2004) – which of course should be subject to critical analysis (for an overview see e. g. Zablah et al. 2004). Certainly, this high return / high risk constellation has a strong impact on the associated work systems and CRM as a whole. In order to reduce the failure rates mentioned above, much IS research has been conducted with respect to CRM-related (critical) success factors (SFs). Critical success factors are the fields of action where satisfactory results drive competitive performance (Rockart 1979). As the meaning of criticality is loosely defined and the interpretation depends on the individual (cf. Williams et al. 1996, p. 250), we use the term SF only.

Most studies focus on CRM-related IT systems and their introduction, i. e. a technological or project perspective, while neglecting a holistic investigation of CRM in the sense of an integrated and IT-reliant work system. Thereby, a work system is a system in which human participants and/or machines perform business processes using information, technology, and other resources to produce products and/or services for internal or external customers (Alter 1999). Studies that reduce CRM to technological issues ignore that this is known to be a key reason of failure (Kale 2004, Richard et al. 2007). Moreover, many existing SFs are rather abstract. Examples are “management support” or “design for flexibility” (see next section). Such SFs, however, hardly provide concrete help for practitioners. In a nutshell, there is a research need for concrete – so-called *operational* – and work system-related SFs beyond IT.

In this paper, we analyze operational SFs of sales work systems, i. e. sales departments, which play a key role in CRM in addition to marketing and service departments (Alt et al. 2004). The resulting SFs are not intended to replace the existing ones, but rather to complement and substantiate them. We sharpen the focus in four ways: First, we refer to sales departments that serve business customers by area-covering direct sales. This is worth studying because such departments usually combine high workforce, complex interaction among sales representatives, back office, and other departments, a differentiated portfolio of products and services, a multi-level management hierarchy, and high demands regarding IT systems. Second, there is a focus on a sales representative’s point of view. The reason is that in sales departments such as just mentioned the sales representatives have the highest fraction of customer contact. Third, we investigate the sales types “product sales” and “solution sales”. While the former refers to the sale of standard products and includes delivery, installation, or configuration services on rare occasions only, the latter refers to the combination of standard or individually manufactured products into complex facilities, which implies considerable solution-specific consulting, engineering, assembly, and installation services as well as project management. Both sales types are taken into account because they are typical and there are supposed to be differences regarding the “importance” of SFs. Fourth, we take on three perspectives: organizational setting, sales process, and information requirements. While the first two are work system-related and beyond IT, the latter help to not neglect the relationship to IT systems.

The resulting research questions are: *What are the operational and work system-related SFs for sales representatives working in sales departments with area-covering business-to-business direct sales with respect to organizational setting, sales process, and information requirements? Based on the results, what are the differences between the sales types “product sales” and “solution sales”?*

To approach these questions, a descriptive single-case study was conducted. This seemed appropriate because a contemporary and so far relatively unstructured phenomenon was investigated within its real-life context where actual behavior could not be controlled and the knowledge base is poor (Yin 2009). The research questions qualify sales departments as unit of analysis. We therefore selected the German sales department of a globally acting company from the electronics and electrical engineering industry. This was estimated to be a typical case and there was access to data in the context of a public-private cooperation project. Due to confidentiality, the company’s identity must not be disclosed. Consistent with its descriptive nature, the case study does not intend to test or extend existing theory. Its contribution to theory development consists in providing preliminary knowledge as stimulus for future inductive theory-building, which is not part of this case study.

The paper is structured as follows: In order to substantiate the research need, the state of the art of CRM-related SFs is compiled in section 2. After that, we report the case study context according to Dubé and Paré 2003 as well as the data collection and analysis process in sections 3 and 4. In section 5, we present the identified SFs and rankings for each perspective and sales type. In the last section, we briefly summarize the findings, discuss limitations, and point out managerial as well as theoretical implications.

2 STATE OF THE ART

Many researchers have already investigated CRM-related SFs. We structure the findings of multiple papers by means of the four perspectives proposed by Kim et al. 2002. We selected the papers because they deal with factors influencing the success / performance of CRM as a whole, are supposed to represent mainstream research, and were mainly published recently in international journals and conference proceedings. As with any attempt to organize past research, a certain degree of arbitrariness occurs. In some cases, it was difficult to unambiguously assign the existing SFs to one perspective. Moreover, similar SFs have been given different names so that a careful consolidation and grouping was necessary. Although it may be questioned whether the perspectives are sound and complete, we assume that the assignment of existing CRM-related SFs to perspectives provides basic assistance with substantiating the research need (see Table 1).

Organizational SFs	Process SFs	Technological SFs	Project SFs
<ul style="list-style-type: none"> • CRM ownership at corporate level (Bohling et al. 2006, Xu et al. 2002) • Knowledge management capabilities (Croteau et al. 2003) • Customer-centric organization / Focus on customer needs (Bose 2002, Langerak et al. 2003, Payne et al. 2006, Rigby et al. 2002, Wilson et al. 2002, Xu et al. 2002) 	<ul style="list-style-type: none"> • Approval procedures allowing for uncertainty (Wilson et al. 2002) • Identification of customer/decision interaction points (Bose 2002) • Delivery of customized service over all channels (Xu et al. 2002) 	<ul style="list-style-type: none"> • User involvement during system design (Kim et al. 2002, Wilson et al. 2002, Xu et al. 2002) • Design for flexibility / scalability (Wilson et al. 2002, Xu et al. 2002) • Provision of all necessary customer information / Customer data redesign (Bose 2002, Xu et al. 2002) 	<ul style="list-style-type: none"> • Top management support (Bohling et al. 2006, Bose 2002, Bull 2003, Croteau et al. 2003, Langerak et al. 2003, Wilson et al. 2002) • Adequate financial commitment (Ryals et al. 2001) • Effective targeting strategy / Quick delivery of business benefits (Bull 2003, Davids 1999, Xu et al. 2002)

<ul style="list-style-type: none"> • Solid training program (Bose 2002) 		<ul style="list-style-type: none"> • Continuous evaluation (Bose 2002, Bull 2003, Payne et al. 2006) • Board awareness of strategic potential of IT (Wilson et al. 2002) • Effective sourcing strategy (Bull 2003, Kim et al. 2002) • Implementation of central data warehouse and analytic functionality (Xu et al. 2002) • Integration of front-end and back-end systems / Cross-functional integration (Wilson et al. 2002, Xu et al. 2002) 	<ul style="list-style-type: none"> • Alignment of CRM and business strategy / with IT strategy / with key stakeholders (Bohling et al. 2006, Langerak et al. 2003, Rigby et al. 2002, Xu et al. 2002) • Long-term perspective / Staging project / Holistic approach (Bose 2002, Langerak et al. 2003, Rigby et al. 2002, Wilson et al. 2002) • Realistic expectations / Feasibility study (Bose 2002, Langerak et al. 2003, Payne et al. 2006) • Integration of external expertise / Project team skills (Bose 2002, Kim et al. 2002, Payne et al. 2006)
----------------------------------------------------------------------------------------	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 1. Overview of CRM-related SFs

Based on Table 1, two features – that were already mentioned above – become manifest: First, there is a predominance of technological and project-oriented SFs. Second, most SFs are rather abstract – a fact that even holds for the few existing organizational and process-oriented SFs. For instance, it is neither clear what “knowledge management capabilities”, “customer-centric organization”, “approval procedures allowing for uncertainty” or “design for flexibility / scalability” mean nor how these SFs can be implemented in business practice. Both gaps motivated the case study presented here. Its contribution are preliminary insights into operational (CRM) work system-related SFs. As the relationship to IT must not be neglected within the context of IT-reliant work systems, an information requirements perspective was integrated as extension of the framework from above.

3 THE CASE STUDY CONTEXT

The case study was conducted in 2007 within a globally acting company of the electronics and electrical engineering industry. The company mainly addresses business customers via direct sales. Roughly speaking, the company consists of a global headquarters and multiple sales departments. The former splits into eight divisions each of which has a different portfolio of products and services and is responsible for corporate tasks such as research & development, production, project execution, accounting, and marketing. Sales departments address local markets – mainly countries – by area-covering sales. They have a matrix organization where the first dimension comprises sales regions as geographical partitions and the second dimensions refers to the headquarters’ divisions.

Our research group was part of a project in the sales department responsible for the German market. The focus was to redesign the sales work system, which included the organizational setting and the sales processes. Moreover, the IT landscape had to be consolidated into a single IT system customized to the sales representatives’ information requirements. Our task was to identify operational and work

system-related SFs to facilitate the redesign. In order to preserve some distance in the sense of outside observers (Walsham 1995), we had only little interaction with the other project groups.

The period under investigation was limited to the preceding and the current year, i. e. 2006 and 2007. Data was collected once by indirect observation, that is semi-structured and questionnaire-based interviews. We stayed approximately 10 months (2–3 days a week) at the project site, which was necessary to prepare, organize, and conduct all interviews and review rounds. During this period, we obtained help from experienced contact persons and informants such as the project manager and the CRM process board. The latter consisted of senior sales managers from each division and sales region. Thus, we were able to develop an intimate understanding of the setting and phenomenon of interest. We had access to complementary sources of evidence such as organization diagrams and process documentations.

4 DATA COLLECTION AND ANALYSIS

We conducted a two-stage data collection and analysis process. Stage 1 aimed at identifying operational and work system-related SFs for each perspective under investigation. Stage 2 aimed at assessing the SFs’ degree of implementation and at compiling sales type-specific rankings. The rankings serve as indications on how “important” an SF is for a sales type. Please note that stage 2 is not an evaluation and is thus compatible with the case study’s descriptive nature. In the entire process, we used multiple quantitative and qualitative sources of evidence, which were compiled into a case study database. The key facts are summarized in Table 2.

	Stage 1: Identifying SFs	Stage 2: Compiling SF rankings
Sources	Semi-structured interviews (each 2–3 hours, attended by 2 researchers) Process documentations, Organization diagrams, CRM- and sales-related textbooks and scientific papers	Questionnaire-based interviews (each 2–3 hours, attended by 1 researcher)
Sample	19 sales managers (across both sales types)	37 sales managers (16 for “product sales”, 21 for “solution sales”)
Results	Operational and work system-related SFs: 8 for “organizational setting”, 6 for “sales process”, 10 for “information requirements” Additional qualitative information	Rankings for each sales type and cross-sales type analysis Additional qualitative information

Table 2. Key facts of the data collection and analysis process

4.1 Stage 1: Identifying operational and work system-related SFs

In this stage, semi-structured interviews were conducted. This is because they are the foundation of Rockart’s Critical Success Factors method (Bullen et al. 1981). Intending to identify operational SFs of sales work systems from a sales representative’s point of view, sales managers – the lowest sales management level – were interviewed. This seemed appropriate because sales managers had usually gained experience as sales representatives for many years. They were supposed to be able to take on an individual sales representative’s point of view and to integrate the needs of the several sales representatives of their group. On the project manager’s recommendation, 19 sales managers were interviewed, in order to cover each division and sales type at least once. All of them came from the sales region where the project’s headquarters were.

Concerning interview preparation, current sales processes, CRM- and sales-related textbooks as well as scientific papers were analyzed. On this foundation, a comprehensive interview guide was prepared. As asking directly for SFs is known to lead to unsatisfactory results easily (Davis 1982), we asked sales managers about challenges, achievements, potentials for improvement in the sense of surrogate concepts. As sales managers were able to make reasonable explications, the surrogate concepts were assumed to fit the setting at hand. Each interview was attended by (always the same) two researchers. One led through the conversation, the other took notes. Each interview was recorded digitally in the case of prior permission.

Afterwards, the audio recordings were consolidated with the written notes. Intentional analysis was employed to analyze the resulting minutes (Lacity et al. 1994). This led to lists of SFs and additional qualitative information. These lists were sent to the sales managers for approval in order to offset unintentional bias (Patton 1990). Feedback and corrections were integrated. After all interviews had been conducted, a single joint list of operational and work system-related SFs was compiled for both sales types where each SF was assigned to one perspective. Although it was sometimes difficult to separate the organizational from the process perspective, we tried to find a clear assignment. SFs that mainly involve sales representatives were assigned to the process perspective. SFs that mainly concern overarching issues or the interaction of different organizational units were assigned to the organizational perspective. Finally, the list was reviewed and approved by the project manager and the CRM process board.

4.2 Stage 2: Compiling SF rankings for each sales type

In this stage, questionnaire-based interviews were conducted. Each SF was operationalized by several items, which were mainly derived from the information gathered in stage 1. In some existing studies, SFs were directly compiled into questionnaires (e. g. Somers et al. 2001, Teo et al. 1999). Our motivation for operationalizing them was to improve results by confronting the interviewees with concrete statements. The questionnaire contained closed-ended and open-ended items. The former were statements based on a 5-point Likert scale ranging from “I absolutely disagree” to “I absolutely agree” with either a positive or negative polarity. Open-ended items were used to gain additional qualitative insights.

A draft version of the questionnaire was reviewed by the CRM process board and the project manager. Moreover, a pretest was conducted with the CRM process board. Based on the feedback, some items were replaced or their wording changed. Items of the same SF were spread throughout the questionnaire. To enhance inter-interview consistency, instructions and FAQs were prepared.

Consistent with stage 1, sales managers were interviewed. At least one sales manager from each division and sales region was interviewed. The selection policy was “learn from the successful”. The underpinning assumption was that there is a strong positive correlation between the degree to which a SF is implemented by the sales representatives of a successful sales manager’s group – measured by the respective closed-ended items’ mean score – and the SF’s contribution to sales performance. This assumption has also been made by other studies, but only seldom explicitly (e. g. Sarker et al. 2002). In order to identify successful sales managers for all divisions and sales regions – except for that where stage 1 had been conducted –, we had to ask the sales region managers as the highest sales management hierarchy level for recommendations. For several reasons, this seemed to be the most reliable indicator available: First, the company had no consistent set of cross-sales type or cross-division performance indicators – particularly not on sales group level. Second, the self-estimation was supposed to be biased. Third, there were said to be additional non-monetary criteria characterizing a successful sales manager. All in all, 37 sales managers were interviewed (16 for “product sales” and 21 for “solution sales”). Each interview was attended by one researcher. This researcher answered the interviewees’ questions according to the FAQs and discussed open-ended items, which caused most of the interviews’ duration.

After all interviews had been conducted, the mean score and standard deviation (S. D.) were calculated for each SF and sales type according to the closed-ended items and their polarity. The lowest score was 1, the highest score was 5. Analogous to other studies (e. g. Somers et al. 2001), the rankings were compiled for each sales type and perspective in a first step on the foundation of descending mean scores and in a second step on the foundation of increasing S. D. We relied on the mean score because it is intuitive and has already been applied in multiple other studies (some are cited above). In order to analyze sales type-specific differences between SF rankings, absolute rank differences – in the following just rank differences – were calculated. Please note that it would certainly be inadequate to dogmatically stick to the rankings and mean scores. We would recommend interpreting the ranks as indications. A coarser classification – e. g. according to quartiles – may also facilitate prioritization.

5 FINDINGS AND DISCUSSION

As a result of stage 1, operational and work system-related SFs were identified for each perspective. As a result of stage 2, SF rankings were compiled for each perspective. All rankings are shown in Tables 3, 4, and 5. Due to space restrictions, we provide additional qualitative information on the top three SFs for each perspective and sales type according to descending rank difference only.

5.1 Operational SFs from the organizational perspective

Sales type “product sales”			Sales type “solution sales”		
SF	Mean	S. D.	SF	Mean	S. D.
Long-term customer care by the same sales representative	4.31	0.92	Long-term customer care by the same sales representative	4.26	0.90
Continuous training of sales representatives	3.94	0.56	Direct headquarters contact persons for sales representatives	3.76	1.29
Back office assistance during proposal preparation	3.50	1.51	Project manager assistance during proposal preparation	3.52	1.43
Direct headquarters contact persons for sales representatives	3.38	1.73	Cross-divisional cooperation	3.38	1.25
Back office as customer contact point	3.34	1.31	Continuous training of sales representatives	3.26	0.98
Cross-divisional cooperation	3.22	1.35	Back office assistance during proposal preparation	3.16	1.41
Sales manager attendance at external customer calls	2.66	1.21	Sales manager attendance at external customer calls	3.14	1.17
Project manager assistance during proposal preparation	1.94	1.52	Back office as customer contact point	2.98	1.44

Table 3. SFs from the organizational perspective

- *Project manager assistance during proposal preparation (Rank difference 5)*: The role of a project manager was said to depend on the sales type. As for “solution sales”, project managers usually worked for the headquarters and accounted for coordinating all activities from project hand-over to project close-out. As for “product sales”, this SF is ranked on position 3. Several reasons were given that justify involving the future project manager during proposal preparation: First, the project manager helps to mitigate technical and financial problems as well as to anticipate risks. Second, the proposed price is more realistic. Third, a trustful relationship between the project manager and the customer is established earlier. Fourth, less information is lost during project hand-over. As for “product sales”, project managers usually were sales managers who accounted for handling large product orders and tenders. For this sales type, the SF is ranked on the last position.

- *Continuous training of sales representatives (Rank difference 3):* “Product sales” managers stated that they send their sales representatives to 3.9 technical trainings and 1.7 sales trainings on average per year. “Solution sales” managers stated that they send their sales representatives to 3.1 technical trainings and 1.7 sales trainings on average per year. As for “product sales”, this SF is ranked on position 2. As for “solution sales”, it is ranked on position 5.
- *Back office assistance during proposal preparation (Rank difference 3):* Assistance of the back office during proposal preparation was said to improve proposal quality, especially with respect to technical details. Moreover, sales representatives have more time for customer care. Sometimes, proposals are even compiled by the back office on its own. As for “product sales”, this SF is ranked on position 3. As for “solution sales”, it is ranked on position 6.
- *Direct headquarters contact persons for sales representatives (Rank difference 2):* The main reason given for a direct contact to the headquarters was the opportunity for sales representatives to get better technical support. As for “product sales”, this SF is ranked on position 4. As for “solution sales”, it is ranked on position 2.
- *Long-term customer care by the same sales representative (Rank difference 0):* The fact that a sales representative cares for a customer for many years is the highest ranked SF for both sales types. “Product sales” managers stated that their sales representatives care for their customers for 7 years on average and that new sales representatives need 12 months on average to get acquainted with customers, competitors, and the overall regional market. “Solution sales” managers stated that their sales representatives care for their customers for 6 years on average and that they need 10 months on average to get acquainted with customers, competitors, and the overall regional market.

5.2 Operational SFs from the CRM process perspective

Sales type “product sales”			Sales type “solution sales”		
SF	Mean	S. D.	SF	Mean	S. D.
Early technical involvement in calls for tenders	4.19	1.38	Topicality of order/project list	4.33	1.21
Active customer win-back	3.31	1.16	Consideration of win/loss analyses	4.24	0.90
Consideration of win/loss analyses	3.21	1.32	Early technical involvement in calls for tenders	4.10	1.17
Topicality of order/project list	2.69	1.65	Acquisition of new customers	3.14	1.42
Acquisition of new customers	2.31	1.16	Active customer win-back	3.00	1.07
Reports of external customer calls	2.22	1.24	Reports of external customer calls	2.12	1.05

Table 4. SFs from the CRM process perspective

- *Active customer win-back (Rank difference 3):* In the case company, the most frequently taken measures for winning back customers were increase of visitation frequency and intensive conversations about the reasons for migration. Only in a few cases, sales representatives cut prices or adapted selling conditions (such as liability). As for “product sales”, this SF is ranked on position 2. As for “solution sales”, it is ranked on position 5.
- *Topicality of order/project list (Rank difference 3):* As for “solution sales”, this SF is the highest ranked one. On average 78 % of the “solution sales” planned order volume were documented in order/project lists. As for “product sales”, the SF is ranked on position 4. On average only 47 % of the “product sales” planned order volume were documented in order/project lists. The main reason given was that the demand for solutions is less predictable and thus requires more sophisticated planning. Therefore, the “solutions sales” representatives required the lists to contain not only topical orders/projects, but the entire sales funnel with orders/projects of different maturity levels.
- *Early technical involvement in calls for tenders (Rank difference 2):* Sales representatives who technically counsel their customers prior to a call for tenders were said to be able to shift their customers’ needs towards the company’s portfolio. As for “product sales”, this SF is the highest ranked one. Though sounding counter-intuitive at the first glance, the main reasons given were that

huge product orders are almost exclusively assigned by tender and that tenders are a suitable opportunity to identify new customers. As for “solution sales”, this SF is ranked on position 3.

- *Consideration of win/loss analyses (Rank difference 1):* Considering the results of previous win/loss analyses was supposed to help constantly improving sales processes and customer intelligence. As for “solution sales”, this SF is ranked on position 2. As for “product sales”, it is ranked on position 3. In the case company, win/loss analyses were mostly conducted on a single proposal basis. Lost proposals were analyzed more frequently than successful ones. Feedback interviews with both the involved proposal team and single sales representatives were held for analyzing purposes.

5.3 Operational SFs from the information requirements perspective

Sales type “product sales“			Sales type “solution sales“		
SF	Mean	S. D.	SF	Mean	S. D.
Knowledge of the portfolio elements that customers obtained from competitors	4.25	0.79	Knowledge of the customers’ business and production processes	4.38	0.79
Knowledge of customer satisfaction	4.16	0.83	Knowledge of the customers' placing strategy and criteria	4.17	0.65
Knowledge of the customers' placing strategy and criteria	4.09	0.91	Knowledge of customer satisfaction	4.17	1.02
Knowledge of the customers’ business and production processes	4.09	1.23	Knowledge of the customers' business strategy	3.92	0.93
Knowledge of the customers'	3.78	1.11	Knowledge of the customers’ corporate structure	3.90	1.15
Knowledge of the customers' customers	3.75	1.09	Knowledge of the portfolio elements that customers obtained from competitors	3.81	0.88
Knowledge of the customers' business strategy	3.75	1.16	Knowledge of other divisions' portfolio elements	3.57	1.09
Profound technical knowledge of own portfolio elements	3.75	1.30	Knowledge of the customers' competitors	3.64	1.21
Knowledge of the customers’ corporate structure	3.69	1.04	Profound technical knowledge of own portfolio elements	3.29	1.25
Knowledge of other divisions' portfolio elements	2.69	1.33	Knowledge of the customers' customers	3.29	1.55

Table 5. SFs from the information requirements perspective

- *Knowledge of the portfolio elements that customers obtained from competitors (Rank difference 5):* Sales representatives knowing which portfolio elements customers obtained from competitors were said to be able to advise customers on how to complement / replace these portfolio elements with own ones. As for “product sales”, this SF is the highest ranked one. As for “solution sales”, it is ranked on position 6. In addition, sales representatives wanted to know which own portfolio elements are installed and what is the economic potential of own portfolio elements not installed so far. “Product sales” representatives additionally needed product reselling cycles, i. e. the number of years after which products usually need to be replaced.
- *Knowledge of the customers’ business and production processes (Rank difference 3):* As for “product sales”, this SF is ranked on position 4, whereas for “solution sales” it is the highest ranked SF.
- *Knowledge of the customers' business strategy (Rank difference 3):* Knowing in which projects customers want to invest in the next years as well as knowing the portfolio customers want to offer in the next years was said to help sales representatives to better understand their customers’ needs.

As for “product sales”, this SF is ranked on position 7. As for “solution sales”, it is ranked on position 4.

- *Knowledge of customer satisfaction (Rank difference 1):* This SF is ranked on the second position for “product sales” and on position 3 for “solution sales”. In the case company, customer satisfaction was mainly determined by standardized surveys, informal conversations during regular external calls, and conversations after project close-out. External service providers were used only seldom. It was said that sales representatives address the topic of customer satisfaction on average in a quarterly or yearly interval.
- *Knowledge of the customers' placing strategy and criteria (Rank difference 1):* As for “product sales”, this SF is ranked on position 3. As for “solution sales”, it is ranked on position 2. The customers' most relevant criteria for vendor selection were said to be the personal relation between customer and sales representative, technical functionality, and price.

6 SUMMARY, LIMITATIONS, AND IMPLICATIONS

With this paper, we intended to provide preliminary knowledge about operational SFs of sales work systems with respect to organizational setting, sales process, and information requirements from a sales representative's point of view. We reported the results of a descriptive single-case study conducted at the German sales department of a globally acting company from the electronics and electrical engineering industry. For each perspective, we identified several SFs and compiled rankings to investigate the differences between the sales types “product sales” and “solution sales”. Though leading to valuable results, this case study has some limitations:

- *Restricted generalizability:* Single-case studies provide restricted grounding for generalization. Despite the descriptive nature of this case study, the findings are conferrable to sales departments with a similar organizational macrostructure. The reasons for accepting the restricted generalizability are that the case study should be concrete, which only seemed feasible by sticking to a restricted scope.
- *Methodological drawbacks:* Due to the complex social setting and the fact that the behavior of involved people could not be controlled as in experimental settings, some drawbacks were inevitable. Insights into a so far relatively unstructured phenomenon may serve as compensation. The most important drawback is that selecting suitable interviewees was complicated by the fact that sales success / performance could not be operationalized and the company had no consistently implemented performance indicators. Thus, we had to trust the sales region managers' judgment.

Practitioners may ask for managerial implications. Due to the descriptive nature of this case study, no direct recommendations must be given. We report what measures the case company took or intended to take for implementing the SFs, instead. With all due care, this may provide hints for further action:

- *Implementation of a role-based IT system:* In order to implement SFs from the information requirements and sales process perspectives, the company intended to design a role-based IT system with one role per sales type.
- *Specification of a sales process handbook:* The company planned to specify a normative process handbook that should integrate existing sales processes and sales type-specific process SFs to make sales representatives familiar with sales type-specific particularities and to ensure that relevant process actions are considered more intensively in daily sales business.
- *Evolution of the sales training program:* As another measure, the company intended to evolve its sales training program with training modules for each sales type and regular assessments for the sales representatives in the sense of a knowledge gap analysis.

Apart from managerial implications, there are theoretical implications that stimulate further research. The presented SFs are associated with success and help with examining the underpinning causal mechanisms unexplored so far (1996). Thus, they are an initial step and stimulus for further research. One possibility of deepening knowledge is conducting more (multiple-) case studies until a sufficient foundation for generalization and inductive theory-building has been compiled (Carroll et al. 2000,

Eisenhardt 1989). Such case studies may be conducted in companies both similar and different to the case company and could also incorporate additional aspects such as moderating variables (e. g. company size, country, or industry), different perspectives, and departments. Finally, resultant theories may undergo empirical validation in order to further raise the theoretical level of knowledge about operational and work system-related SFs.

References

- Alt, R. and Puschmann T. (2004). Successful Practices in Customer Relationship Management. In Proceedings of the 37th Annual Hawaii International Conference on System Sciences.
- Alter, S. (1999). A general, yet useful theory of information systems. *Communications of the AIS*, 1 (3).
- Bohling, T., Bowman, D., LaValle, S., Mittal, V., Narayandas, D., Ramani, G. and Varadarajan, R. (2006). CRM Implementation: Effectiveness Issues and Insights. *Journal of Service Research*, 9 (2), 184-194.
- Bose, R. (2002). Customer relationship management: key components for IT success. *Industrial Management & Data Systems*, 102 (1), 89-97.
- Bull, C. (2003). Strategic Issues in Customer Relationship Management (CRM) implementation. *Business Process Management Journal*, 9 (5), 592-602.
- Bullen, C. and Rockart J. (1981). A primer on critical success factors.
- Carroll, J. and Swatman, P.A. (2000). Structured-case: A methodological framework for building theory in information systems research. *European Journal of Information Systems*, 9 (4), 235-242.
- Croteau, A. and Li, P. (2003). Critical Success Factors of CRM Technological Initiatives. *Canadian Journal of Administrative Sciences*, 20 (1), 21-24.
- Davids, M. (1999). How to Avoid the 10 Biggest Mistakes in CRM. *Journal of Business Strategy*, 20 (6), 22-26.
- Davis, G. (1982). Strategies for information requirements determination. *IBM Systems Journal*, 21 (1), 4-30.
- Dubé, L. and Paré, G. (2003). Rigor in Information Systems Positivist Case Research: Current Practices, Trends, and Recommendations. *MIS Quarterly*, 27 (4), 597-635.
- Eisenhardt, K. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14 (4), 532-550.
- Goodhue, D.L., Wixom, B.H. and Watson, H.J. (2002). Realizing Business Benefits through CRM: Hitting the Right Target the Right Way. *MIS Quarterly Executive*, 1 (2), 79-94.
- Hippner, H. and Wilde K.D. (2006). *Grundlagen des CRM: Konzepte und Gestaltung*. Gabler, Wiesbaden.
- Kale, S.H. (2004). CRM Failure and the Seven Deadly Sins. *Marketing Management*, 13 (5), 42-46.
- Kim, H., Lee G. and Pan S. (2002). Exploring the Critical Success Factors for Customer Relationship Management and Electronic Customer Relationship Management Systems. In Proceedings of the 23rd International Conference on Information Systems (Applegate, L., Galliers, R. and DeGross, J., Eds).
- Lacity, M.C. and Janson, M.A. (1994). Understanding Qualitative Data: A Framework of Text Analysis Methods. *Journal of Management Information Systems*, 11 (2), 137-155.
- Langerak, F. and Verhoef, P.C. (2003). Strategically embedding CRM. *Business Strategy Review*, 14 (4), 73-80.
- Mertz, S. (2008). Market Trends: Customer Relationship Management Software, Worldwide 2007-2012. Accessed: 2009-04-28/April 28, <http://www.gartner.com/DisplayDocument?id=635809>.
- Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods*. 2nd Edition. Sage, London.
- Payne, A. and Frow, P. (2005). A Strategic Framework for Customer Relationship Management. *Journal of Marketing*, 69 (4), 167-176.
- Payne, A. and Frow, P. (2006). Customer Relationship Management: from Strategy to Implementation. *Journal of Marketing Management*, 22 (1), 135-168.

- Reinartz, W.J., Krafft, M. and Hoyer, W.D. (2004). The Customer Relationship Management Process: Its Measurement and Impact on Performance. *Journal of Marketing Research*, 41 (3), 293-305.
- Richard, J.E., Thirkell, P.C. and Huff, S.L. (2007). The strategic value of CRM: a technology adoption perspective. *Journal of Strategic Marketing*, 15 (5), 421-439.
- Rigby, D., Reichheld, F. and Scheffer, P. (2002). Avoid the Four Perils of CRM. *Harvard Business Review*, 80 (2), 101-109.
- Rockart, J. (1979). Chief executives define their own data needs. *Harvard Business Review*, 57 (2), 81-93.
- Ryals, L. and Payne, A. (2001). Customer relationship management in financial services: towards information-enabled relationship marketing. *Journal of Strategic Marketing*, 9 (1), 3-27.
- Sarker, S. and Lee, A.S. (2002). Using a Positivist Case Research Methodology to Test Three Competing Theories-in-Use of Business Process Redesign. *Journal of the Association for Information Systems*, 2 (1).
- Somers, T.M. and Nelson K. (2001). The Impact of Critical Success Factors across the Stages of Enterprise Resource Planning Implementations. In *Proceedings of the 34th Annual Hawaii International Conference on System Sciences*.
- Teo, T.H. and Ang, J.K. (1999). Critical success factors in the alignment of IS plans with business plans. *International Journal of Information Management*, 19 (2), 173-185.
- Walsham, G. (1995). Interpretive case studies in IS research. Nature and method. *European Journal of Information Systems*, 4 (2), 74-81.
- Williams, J. and Ramaprasad, A. (1996). A taxonomy of critical success factors. *European Journal of Information Systems*, 5 (4), 250-260.
- Wilson, H., Daniel, E. and McDonald, M. (2002). Factors for Success in Customer Relationship Management (CRM) Systems. *Journal of Marketing Management*, 18 (1/2), 193-219.
- Xu, Y., Yen, D., Lin, B. and Chou, D. (2002). Adopting Customer Relationship Management Technology. *Industrial Management & Data Systems*, 102 (8), 442-452.
- Yin, R. (2009). *Case Study Research. Design and Methods*. 4th Edition. Sage, Thousand Oaks.
- Zablah, A.R., Bellenger, D.N. and Johnston, W.J. (2004). Customer Relationship Management Implementation Gaps. *Journal of Personal Selling & Sales Management*, 24 (4), 279-295.

APPENDIX: CLOSED-ENDED ITEMS FROM THE QUESTIONNAIRE

The following three tables present the closed-ended items from the questionnaire grouped by perspective and success factor (SF). For some SFs, only a few items were/could be derived. In some cases, there were only two including open-ended items. There were two reasons: First, the amount of time needed for filling in the questionnaire should be kept justifiable, but all SFs should be included. Second, for some SFs it was difficult to derive realistic items – even with the aid of the CRM process board. We admit that some SFs should ideally have been operationalized by more closed-ended items. However, in the cases where only one closed-ended item was found we still provide a higher degree of concreteness than studies that directly compile SFs into questionnaires. In addition, there is current research that advocates operationalizing constructs by single-item measures particularly for settings like the one at hand where constructs are rather concrete, the sample size is limited, and actual behaviour can be monitored only hardly (Fuchs et al. 2009).

ID	Item	Polarity
O1	Back office as customer contact point	
O1.1	The back office answers customer inquiries on behalf of my sales representatives.	+
O1.2	My sales representatives are the exclusive contact persons for their customers.	-
O2	Long-term customer care by the same sales representatives	
O2.1	My sales representatives care for their customers for many years.	+
O2.2	My sales representatives have a good personal relationship with their customers.	+
O3	Back office assistance during proposal preparation	
O3.1	The back office relieves my sales representatives of proposal preparation.	+
O3.2	My sales representatives prepare proposals almost exclusively on their own.	-
O3.3	The back office prepares proposals on its own.	+
O4	Direct headquarters contact persons for sales representatives	
O4.1	The headquarters helps my sales representatives directly by answering technical questions.	+
O4.2	My sales representatives don't have direct contact persons in the headquarters.	-
O5	Cross-divisional cooperation	
O5.1	My sales representatives forward sales leads to other divisions regularly.	+
O5.2	My sales representatives systematically process sales leads received from other divisions.	+
O5.3	My sales representatives don't receive sales leads from other divisions.	-
O5.4	Sales leads are almost exclusively exchanged before reporting deadlines.	-
O6	Sales manager attendance at external customer calls	
O6.1	I regularly accompany my sales representatives to external customer calls.	+
O6.2	I plan in detail and in advance which customer calls I will attend.	+

O7	Project manager assistance during proposal preparation	
O7.1	My sales representatives involve the future project manager during proposal preparation.	+
O8	Continuous training of sales representatives	
O8.1	My sales representatives regularly attend trainings regarding their sales skills.	+
O8.2	My sales representatives regularly attend trainings regarding their technical knowledge.	+

Table 1. Closed-ended items for SFs from the organizational perspective

ID	Item	Polarity
P1	Acquisition of new customers	
P1.1	My sales representatives currently maintain relations with all relevant customers.	-
P2	Early technical involvement in calls for tenders	
P2.1	My sales representatives consult customers technically before calls for tenders are published.	+
P2.2	My sales representatives react on calls for tenders without having been technically involved beforehand.	-
P3	Active customer win-back	
P3.1	My sales representatives systematically try to win lost customers back.	+
P4	Consideration of win/loss analyses	
P4.1	My sales representatives regularly start order preparation processes from scratch.	-
P4.2	My sales representatives don't conduct win/loss analyses of previous order preparation processes.	-
P4.3	My sales representatives consider previous win/loss analyses in daily sales business.	+
P5	Topicality of order/project list	
P5.1	Our planning process is substantiated by topical order/project lists.	+
P6	Reports of external customer calls	
P6.1	My sales representatives systematically create reports of external customer calls.	+
P6.2	I prepare for external customer calls with existing reports.	+

Table 2. Closed-ended items for SFs from the sales process perspective

ID	Description	Polarity
I1	Knowledge of the portfolio elements that customers have obtained from competitors	
I1.1	My sales representatives know what portfolio elements customers obtain from competitors.	+
I1.2	My sales representatives talk with their customers about how their installed base can be replaced or complemented with our portfolio elements.	+
I2	Knowledge of customer satisfaction	
I2.1	Customer satisfaction is an abstract expression and not relevant for our business.	-
I2.2	My sales representatives talk regularly with their customers about customer satisfaction.	+

I3	Knowledge of the customers' business and production processes	
I3.1	My sales representatives know our customers' business and production processes.	+
I3.2	My sales representatives have profound industry knowledge.	+
I4	Knowledge of the customers' placing strategy and criteria	
I4.1	My sales representatives know how customers place orders at our company or at competitors.	+
I4.2	My sales representatives know our customers' contact persons and decision makers.	+
I5	Knowledge of the customers' competitors	
I5.1	My sales representatives know their customers' top competitors.	+
I5.2	My sales representatives talk with their customers about how they can excel their competitors with our portfolio elements.	+
I6	Knowledge of the customers' business strategy	
I6.1	My sales representatives know in which products / projects our customers plan to invest.	+
I6.2	My sales representatives know what products and services our customers plan to offer.	+
I6.3	My sales representatives know how our customers develop their business strategy.	+
I6.4	My sales representatives don't know our customers' business strategy.	-
I7	Knowledge of the customers' customers	
I7.1	My sales representatives know the demand of their customers' top customers.	+
I8	Knowledge of the customers' corporate structure	
I8.1	We document our customers' corporate structure in a central file.	+
I9	Profound technical knowledge of own portfolio elements	
I9.1	Our customers expect profound technical knowledge.	+
I9.2	My sales representatives have profound technical knowledge of our portfolio elements.	+
I9.3	My sales representatives usually ask headquarters contact persons in case of technical questions.	-
I10	Knowledge of other divisions' portfolio elements	
I10.1	My sales representatives know what their customers bought from other divisions.	+
I10.2	New sales representatives are trained with respect to other divisions' portfolio elements.	+

Table 3. Closed-ended items for SFs from the information requirements perspective

References

Fuchs, C. and Diamantopoulos, A. (2009). Using single-item measures for construct measurement in management research. *Die Betriebswirtschaft*, 69 (2), 195-210.